The Association between Fed Policy and Sector Returns

Robert R. Johnson PhD
*The American College of Financial Services*

Gerald R. Jensen

Luis Garcia-Feijoo

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The Association between Federal Reserve Policy and Sector Returns

by Robert R. Johnson, PhD, CFA, CAIA
Gerald R. Jensen, PhD, CFA
Luis Garcia-Feijoo, PhD, CFA, CIPM

ABSTRACT
The Federal Reserve’s influence on the economy and financial markets is substantial and well-recognized by market participants. Over the past few years, both the financial and popular media have been obsessed with Fed actions and speculation on potential Fed actions. While advisors and clients closely monitor monetary policy actions, there is confusion about the implications these actions have for stock market returns. This analysis documents the association between both general stock market returns and equity sector returns during expansive, indeterminate, and restrictive monetary policy conditions. Advisors can use the results to both condition clients’ expectations and make portfolio adjustments to take advantage of historical patterns in equity sector returns.

Introduction
One cannot pick up a newspaper, log on to a financial Web site, or watch the financial news without hearing about likely future Federal Reserve monetary policy actions (or inactions) and speculation about what they will mean for the broad economy, financial markets, asset classes, and sectors within asset classes. Fed actions have been blamed for the financial crisis of 2007-2008, growing income inequality, asset bubbles, and even the devastation of the black community. There have been calls by candidates from both major political parties to dramatically reform or even abolish the Fed.

While market participants and the general public seem obsessed with Fed policy, there is actually a great deal of disagreement on what expansive or restrictive monetary policy implies for asset returns. Some market commentators contend that interest rate hikes are good news for the stock market as it shows that the Fed believes that the underlying economy is robust and can withstand interest rate increases. In contrast, many believe that tighter monetary policy and rising interest rates are bad news for the stock market for the simple reason that rising interest rates increase companies’ borrowing costs and make bonds relatively more attractive investment options for investors.

A recent focus of the media has been on market volatility and Fed actions. Most market watchers assume that volatility is higher in restrictive monetary environments than in expansive environments. For instance, headlines such as “Volatility Returns to Stocks as Fed Raises Rates” and “Volatility the Surest Bet in
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Other researchers have utilized changes in the federal funds rate to define monetary policy periods [see Thorstebcke (1997)]. The fed funds rate is the rate on loans that banks extend to each other. Changes in the fed funds rate are an indication of the short-term stringency or rigor of Fed policy. While the Federal Reserve does not set the fed funds rate—it is a market-determined rate—the Fed does set a target level for that rate. In fact, speculation regarding changes in the target fed funds rate seems to be the recent obsession of the financial media. This article posits that if the last change in the effective fed funds rate was a decrease, an expansive monetary policy period is indicated. Likewise, if the last change was an increase, it signals a restrictive monetary policy.

As in Johnson, Jensen, and Garcia-Feijoo (2015), the authors utilize both policy rates—the discount rate and the fed funds rate—to determine the measure of monetary policy. An expansive monetary policy period is defined as one in which both interest rates—the discount rate and fed funds rate—are trending downward. That is, when the last change in each rate was a decrease. A restrictive period is defined as one in which both interest rates are trending upward—that is, when the last change in each rate was an increase. Finally, an indeterminate period is defined as one in which the two interest rates are moving in opposite directions—that is, the last changes in the rates were in opposite directions. Table 1 provides a summary of the authors’ classification of monetary policy.

Because monthly data are utilized, monetary environments are defined as beginning on the first of the month following any directional change in a policy rate. Specifically, assume the Fed changes the direction of the discount rate by announcing a rate increase on the 10th of the month, which initiates an upward trend in the Fed’s broad monetary policy. If the fed funds rate also increased during the month (an upward trend in the rigor of Fed actions), a restrictive monetary period would initiate with the next month. This article takes the position that defining a new monetary policy period with a lag allows investors to both monitor monetary policy and mirror the performance presented in this research.

Data

The data utilized are value-weighted industry portfolios from Dr. Kenneth French’s Web site. The

<table>
<thead>
<tr>
<th>Rigor of Fed Actions (Federal Funds Rate)</th>
<th>Broad Fed Policy (Discount Rate)</th>
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</thead>
<tbody>
<tr>
<td>Downward Trend</td>
<td>Expansive</td>
</tr>
<tr>
<td>Downward Trend</td>
<td>Indeterminate</td>
</tr>
<tr>
<td>Upward Trend</td>
<td>Indeterminate</td>
</tr>
<tr>
<td>Restrictive</td>
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TABLE 1
Alternative Monetary Policy Classifications

Stocks after Fed Meets” began appearing around the recent interest rate hike in December of 2015.8 With such divergent views being advanced, it is increasingly difficult for advisors to both counsel investors and make appropriate portfolio adjustments in response to, and in advance of, Fed monetary policy moves. This article, based upon research presented in the book Invest With the Fed,9 examines how both the broad stock market and stock market sectors perform with respect to monetary policy regimes and builds on the work that Christopher Hughen presented in a previous issue of this journal.10

Defining Monetary Policy

There is no single measure that academicians and practitioners agree upon with respect to defining and measuring monetary policy. Previous researchers [notably Hughen (2015), Jensen and Johnson (1995), Jensen, Mercer, and Johnson (1996), and Prather and Bertin (1997)] utilized directional changes in the benchmark Federal Reserve discount rate to effectively delineate expansive and restrictive monetary policy regimes. The discount rate is the rate the Fed charges on loans to member banks. While discount window borrowing is rarely utilized, market participants view the discount rate as an indication of the Fed’s long-term or broad policy objectives. Specifically, if the last change in the discount rate was an increase, the monetary policy regime is characterized as restrictive. Likewise, if the last change in the discount rate was a decrease, the monetary policy regime is said to be expansive.

Other researchers have utilized changes in the federal funds rate to define monetary policy periods [see Thorstebcke (1997)]. The fed funds rate is the rate on loans that banks extend to each other. Changes in the fed funds rate are an indication of the short-term stringency or rigor of Fed policy. While the Federal Reserve does not set the fed funds rate—it is a market-determined rate—the Fed does set a target level for that rate. In fact, speculation regarding changes in the target fed funds rate seems to be the recent obsession of the financial media. This article posits that if the last change in the effective fed funds rate was a decrease, an expansive monetary policy period is indicated. Likewise, if the last change was an increase, it signals a restrictive monetary policy.

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Methodology is that each NYSE, AMEX, and NASDAQ stock is assigned to an industry portfolio at the end of June of year $t$ based on its four-digit standard industrial classification (SIC) code at that time.

The authors’ measure of monetary policy indicates that the Federal Reserve has pursued expansive, indeterminate, and restrictive monetary policies approximately an equal number of months during the sample period. Over the 49-year period from 1966 through 2014, Fed policy was expansive, indeterminate, and restrictive a total of 172, 215, and 201 months, respectively. Therefore, the results presented throughout this paper are not driven by small sample sizes for a particular environment.

Market Returns and Monetary Policy

These findings suggest there is a strong association between Fed monetary policy and broad stock market returns. Table 2 shows that returns to the S&P 500 index were highest in expansive monetary conditions, lower in indeterminate conditions, and lowest during restrictive monetary conditions. Statistical tests confirm that the expansive conditions return was significantly different from the restrictive conditions return at the 5 percent level of significance.

Relative to the nominal return differences, the real return differences between monetary policy periods were even greater. During expansive and indeterminate conditions, the real returns on the S&P 500 were 12.32 percent and 7.29 percent, respectively. In restrictive monetary conditions the real return on the S&P 500 was a scant 0.66 percent. Based on t-tests, the nominal return and the real return are both shown to be significantly higher (at the 5 percent level) during expansive conditions relative to restrictive conditions. On the other hand, the inflation rate is significantly lower (at the 5 percent level) during expansive conditions relative to restrictive conditions.

One very interesting and counterintuitive finding is that the standard deviation of returns was greatest during expansive monetary conditions and lowest in restrictive conditions. This is not consistent with the rhetoric that rate hikes portend greater market volatility.

<table>
<thead>
<tr>
<th>TABLE 2 S&amp;P 500 Stock Performance: January 1966-December 2014</th>
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<tr>
<td>All returns, standard deviations, and the inflation rates are annualized</td>
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<table>
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<tr>
<th>All Monetary Conditions (588 months)</th>
<th>Expansive Monetary Conditions (172 months)</th>
<th>Indeterminate Monetary Conditions (215 months)</th>
<th>Restrictive Monetary Conditions (201 months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P 500 return (standard deviation)</td>
<td>10.60% (15.14%)</td>
<td>15.18%* (16.34%)</td>
<td>11.46% (14.90%)</td>
</tr>
<tr>
<td>S&amp;P 500 real return</td>
<td>6.51%</td>
<td>12.32%*</td>
<td>7.29%</td>
</tr>
<tr>
<td>Inflation rate</td>
<td>4.09%</td>
<td>2.86%*</td>
<td>4.17%</td>
</tr>
</tbody>
</table>

Note: The standard approach of annualizing mean monthly returns is followed by multiplying the monthly value by 12. The common approach of annualizing standard deviations of monthly observations is followed by multiplying the value by the square root of 12.

*Statistically significantly different from restrictive return at 5% level of significance.
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only exceptions were energy, utilities, and steel products. Energy and utilities had the highest returns in indeterminate periods. Only one sector, steel products, had a higher return in restrictive periods than in indeterminate periods, and that difference was less than 1 percent. For six sectors, expansive period returns were significantly different from both the indeterminate and restrictive returns at the 5 percent level of significance. An additional four sectors had expansive returns that were significantly different than restrictive returns at the 5 percent level of significance.13

Approximately half of the sectors experienced the combination of the highest standard deviations of returns in expansive periods and the lowest standard deviations of returns in restrictive periods. Only two sectors, transportation and energy, experienced the highest volatility in restrictive periods.14 This runs counter to the belief that restrictive monetary policy results in greater volatility of stock returns. Advisors may want to arm themselves with that information when dealing with clients who become convinced by the financial media that when rates are rising, volatility also rises.

The best performing sectors in expansive monetary conditions are those selling discretionary products, e.g., apparel, retail, and autos. The worst performing sectors in those same conditions are those offering necessities, e.g., utilities and energy. Thus, the findings are consistent with expectations as sectors that are highly reliant on consumer spending perform best when money is more readily available. In contrast, firms that sell necessity goods and services underperform in these conditions.

The best performing sectors during restrictive monetary conditions are those that are generally considered “defensive,” e.g., energy, consumer goods, and utilities. The worst performing sectors in those same conditions are those that are commonly referenced as “cyclical” sectors, e.g., autos, durable goods, and retail. It seems that when the Fed is tightening the money supply and spending is dearer, investors favor defensive stocks and shun sectors that rely on discretionary consumer spending. Intuitively, the findings support the view that people need to put gas in their cars, brush their teeth, and heat and cool their homes in all monetary conditions. However, purchasing a new automobile, washing machine, or wardrobe can be deferred when money becomes less readily available.

Indeterminate conditions favor consumer goods,
financials, food, energy, and utilities—many of the same sectors that performed best in restrictive environments. Curiously, these sectors were also among the least volatile sectors during that period. On the other hand, steel products, durable goods, fabricated products, and transportation were the laggards in indeterminate monetary policy periods.

Conclusions and Recommendations

Advisors would be well served to monitor Federal Reserve monetary policy for three major reasons. First, there are substantial return differences across Federal Reserve monetary policy regimes. The broad equities market performs best when the Fed pursues an expansive monetary policy and worst when Fed policy is restrictive. Advisors may want to consider adjusting broad asset exposures dependent upon Fed monetary policy. For instance, lower equity allocations during restrictive monetary policy periods may be warranted, as the risk/return tradeoff is not as attractive during monetary tightening.

Second, allocation changes within the equity asset class may be considered dependent upon Fed monetary policy. Substantial return differences across different stock market sectors in alternative monetary policy periods are documented. Most notably, sectors highly dependent upon consumer spending appear to warrant overweighting during expansive monetary conditions. Likewise, defensive stocks are prime candidates to overweight during restrictive monetary conditions.

Finally, and perhaps most importantly, advisors may want to use this research to help clients set expectations for returns during different Federal Reserve monetary environments. If clients are conditioned to expect lower absolute equity returns during restrictive monetary environments, they may be more patient and ultimately more satisfied with the performance of their financial advisors.
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Robert R. Johnson, PhD, CFA, CAIA, is President and CEO of The American College of Financial Services. He has had over 80 articles published in academic and practitioner journals. He is a coauthor of Strategic Value Investing, Investment Banking for Dummies, Invest With the Fed, and The Tools and Techniques of Investment Planning. He can be reached at bob.johnson@theamericancollege.edu.

Gerald R. Jensen, PhD, CFA, is Professor of Finance in the Heider College of Business at Creighton University. He is coauthor of Investments: Analysis and Management and Invest With the Fed. He is a prolific author and has had articles published in leading academic and practitioner journals. He can be reached at GeraldJensen@Creighton.edu.

Luis Garcia-Feijoo, PhD, CFA, CIPM, is an Associate Professor of Finance at Florida Atlantic University. He is coauthor of Invest With the Fed. His articles have been published in prestigious academic journals, such as Journal of Finance and he is an Associate Editor of The Financial Analysts Journal. He can be reached at lgarciaf@fau.edu.

References


(11) See http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html. French lists 17 industry portfolios. The authors chose to eliminate the “other” category.

(12) The results of F-tests indicate that none of the volatility differences across the three funding environments are statistically significant at the 5 percent level; however, the difference between expansive and restrictive volatility is significant at the 10 percent level.

(13) The authors also analyzed real returns to industry sectors (not shown here). Seven sectors had expansive period returns that were significantly different from both determinate and restrictive period returns at the 5 percent level of significance. An additional five sectors had expansive period returns that were significantly different from restrictive period returns at the 5 percent level of significance.

(14) Based on the results of F-tests, four sectors (autos, business equipment, durable goods, and steel products) reported evidence supporting a higher volatility in expansive relative to restrictive monetary periods (at a 5 percent significance level), whereas the opposite relation was supported only for the energy sector.

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