Federal Open Market Committee meetings and stock market performance[☆]

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Abstract

This paper examines an interesting calendar effect—a relationship between contemporaneous stock market returns and Federal Open Market Committee (FOMC) meeting dates. Examining S&P 500 stock market returns between 1960 and 2000, the study finds that there is a positive and significant calendar effect associated with FOMC meeting dates. The data reveal that while FOMC meeting dates only accounted for 4.42% of the trading days, FOMC meeting date returns accounted for over 13% of the cumulative returns over the time period. Using a dummy variable for FOMC meeting dates, regression results find that the FOMC meeting dates have a significantly positive effect on overall market returns. © 2001 Elsevier Science Inc. All rights reserved.

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1. Introduction

The monetary policy arm of the Federal Reserve System, the Federal Open Market Committee (FOMC), meets approximately every 6 weeks. At these meetings, the FOMC members discuss the current and forecasted economic conditions in the various regions of the United States, and the current and forecasted international economic conditions as they relate to the United States economy. Based upon this information, the voting members of the FOMC determine a current monetary policy action and formulate the FOMC directive. The FOMC directive notifies the Federal Reserve System open market desk and the public of

the current monetary policy action and provides an indication about possible future monetary policy actions. These policy actions affect short-term interest rates and expected inflation rates, and ultimately influence economic output, firm profits and stock values.

This paper examines the calendar anomaly associated with the FOMC meeting dates and contemporaneous stock market returns. The remainder of the paper is divided in four sections. Section 2 provides a literature review. Section 3 describes the data and methodology. Section 4 discusses the results and Section 5 provides the conclusions of the paper.

2. Literature review

In recent years, the effects of calendar anomalies on stock market returns have become a frequent topic in finance and economic literatures. One type of calendar anomaly that has received a great deal of attention is the ''weekend effect''. Using S&P 500 data, French (1980) was one of the first to document the weekend effect or that the mean Monday return is significantly negative and significantly lower than the returns of the other days of the week. He concluded that the negative mean Monday return was evidence of market inefficiencies. While selling stocks on every Friday and repurchasing stocks on every Monday will generate large transaction costs, French (1980) suggested delaying *planned* Thursday or Friday purchases to Monday and moving *planned* Monday sales to Friday as a way to exploit the calendar anomaly and eliminate market inefficiencies without generating additional transaction costs. Keim and Stambaugh (1984), Smirlock and Starks (1986), Dyl and Maberly (1988) and Fortune (1999) confirm the weekend effect results.

Jaffe and Westerfield (1985), and Coutts and Hayes (1999) find that the weekend effect is not unique to the United States stock markets. Jaffe and Westerfield (1985) find a weekend effect for stock markets in the United Kingdom, Japan, Canada, Australia and the United States, all of which accounted for 87% of the world stock market value at the time of the study. They also found that the weekend effect in non-U.S. markets is independent of the weekend effect in the United States. Coutts and Hayes (1999) document a weekend effect for major United Kingdom indices, but do not necessarily believe the effect disputes the idea of market efficiency as French (1980) suggested.

The weekend effect research has also focused on explaining why the weekend effect exists. A widely documented explanation for the weekend effect is the positive correlation between the previous trading day return and the Monday return. Abraham and Ikenberry (1994) find that when Friday's market return is negative, Monday's market return is negative nearly 80% of the time. Using various stock market indices for the 1962–1993 time-period, Wang, Yuming and Erickson (1997) report that the weekend effect primarily occurs during the last 2 weeks of the month and that the negative Monday returns are at least partially explained by previous trade day returns. Using S&P 500 data, Chow, Hsiao and Solt (1997) reveal that the correlation between Friday and Monday returns primarily reflects the correlation between Friday afternoon and Monday morning returns. Jaffe and Westerfield (1989) find that the positive correlation between Friday and Monday returns are not limited to United States stock markets, but extend to foreign stock markets as well.

An additional explanation for the weekend effect is that the trading behavior of individual and institutional investors is consistent with the information-processing hypothesis. The information-processing hypothesis states that investors tend to make portfolio-rebalancing decisions over the weekend and that these decisions are dependent upon prevailing market conditions. Using the NYSE index data from 1963 to 1992, Abraham and Ikenberry (1994) find that individual investors are most active on Monday trading days, especially on Mondays following negative market information. Supporting earlier findings by Miller (1988), they conclude that the negative Monday returns are at least partially explained by the trading behavior of individual investors. Brockman and Michayluk (1998) suggest the information-processing hypothesis is more consistent with institutional trading. Using S&P 500 data from 1963 to 1993, they find a positive correlation between Friday returns and Monday returns. They argue that while individual investors are more likely to condition their investment decisions on individual stocks, institutional investors tend to trade baskets of stocks and are therefore more likely to condition their trades on previous returns of stock portfolios or indices. Supporting earlier finds by Sias and Starks (1995), Brockman and Michayluk (1998) conclude institutional investors or high institutional ownership more closely relates negative stock returns and the weekend effect.

Researchers have also found evidence of political calendar anomalies influencing stock market returns. These political calendar anomalies include the effects of a Presidential administration term and the Congressional calendar on stock market returns. Hirsch (1992) compares market returns during the first 2 years of a Presidential administration with the market returns of the last 2 years of an administration for 41 administrations beginning in 1832 through the Reagan administration. He finds that the majority of stock market returns occur during the last 2 years of an administration (election year and pre-election year). Examining 12 administrations up to the 1988 Bush administration, Martuni (1993) finds similar results with the greatest returns occurring during the last 2 years of an administration. Examining the Congressional calendar anomaly, Michelson (1993), and Lamb, Ma, Pace, and Kennedy (1997) find that over the last century stock returns are significantly greater when the United States Congress is in recess (closed) than when it is in session. Lamb et al. (1997) find that both average daily returns and cumulative returns are greater when Congress is in recess. This is notable given that Congress is in session two-thirds of the year and in recess one-third of the year. Michelson (1993) also finds that stock returns are higher when a Democratic Congress and Democratic President are in power.

Monetary policy research has focused on the influence monetary policy changes have on stock market returns, not on the influence the event of the FOMC meeting has on stock market returns. Monetary policy research finds a positive relationship between monetary policy changes and stock market returns (most recently, Thorbecke and Alami, 1992; Patelis, 1997; Thorbeck, 1997; Roley and Sellon, 1998). Easy or expansionary monetary policy tends to increase contemporaneous stock returns and tight or contractionary monetary policy tends to decrease contemporaneous stock returns. Thorbeck and Coppock (1996) find that contractionary monetary policy changes lead to a large and statistically significant decline in stock returns for large and small firms, and that expansionary monetary policy changes increase stock returns of large but not necessarily small firms. Jensen, Johnson and Bauman (1997) reveal that the magnitude of the change in stock returns differs across industries in

the short-run and long-run. Not surprising, they find that firms in industries that are interest-rate sensitive experience the greatest stock return changes when monetary policy changes. Additional research finds that monetary policy variables are significant predictors of future stock returns and that monetary policy changes have unique forecasting power for both small and large firms (Fama and French, 1988; Jensen, Mercer, and Johnson, 1996; Booth and Booth, 1997).

While the research has examined the influence monetary policy changes have on stock market returns, no studies have examined the calendar anomaly associated with FOMC meeting dates. Since the FOMC does not change monetary policy at each meeting, the existing monetary policy literature does not address the impact the event of an FOMC meeting has on stock returns. This study expands the calendar anomaly literature by examining the influence FOMC meeting dates have on stock market returns. This study examines whether the stock market returns on FOMC meeting dates are significantly different from non-FOMC meeting date returns. The study also examines the effect FOMC meeting dates have on stock market returns.

3. Data and methodology

The Standard and Poor's 500 (S&P) open and closing point values are collected from January 4, 1960 to July 31, 2000. The number of trading days ranges from 226 to 254 days per year. The daily point value and daily returns are calculated for each trading day. The S&P point value and daily returns are calculated using the close-to-close point values. This is necessary because the opening point value most often differs from the closing point value on the day immediately preceding the beginning of the next day's session.

The FOMC meeting dates as reported by the Federal Reserve System (FED) are recorded for the 40-year period. Over the period, the FOMC held 8–12 meeting days per year with the majority of the meeting dates occurring on Tuesdays. The data are recorded as dummy variables: 0 for the non-FOMC meeting days and 1 for the FOMC meeting days. There were 452 FOMC meeting dates over the period examined.

The S&P point values and daily returns are calculated, and the corresponding FOMC meeting dates are compiled. *F*-tests are performed to expose significant differences in contemporaneous stock market returns between FOMC meeting dates and non-FOMC meeting dates and to examine the influence FOMC meeting dates have on overall market returns.

4. Results: the FOMC effect

Table 1 presents a summary of the data examined. The first results in Table 1 examine the entire data set that includes 10,217 trading days of which FOMC meeting dates total 452 days or 4.42% of the trading days. While the average daily returns for non-FOMC meeting dates was 0.03%, the average daily return for FOMC meeting dates was 0.1085 or 3.5% higher than non-FOMC date returns. Although FOMC meeting dates only account for 4.42%

Table 1
Descriptive statistics of FOMC meeting dates and stock market performance

	FOMC	Non-FOMC	Total
1960–2000 time-period			
Total trading days	452	9,765	10,217
Minimum trading days	8	214	226
Maximum trading days	12	246	254
Average daily return	0.1085%	0.0317%	0.0351%
Cumulative average daily return	49.02%	309.55%	358.62%
% of Cumulative average daily returns	13.67%	86.33%	100%
FOMC vs. non-FOMC returns			
Difference of means F-test	$F = 40.734^*$		
Bartlett's homogeneity of variance test	$\chi^2 = 27.502^*$		
1960–1979 vs. 1980–2000 returns			
Difference of means F-test	$F = 6.086^{**}$		
1960–1979 time-period			
Total trading days	285	4,728	5,013
Minimum trading days	8	214	226
Maximum trading days	12	240	252
Average daily return	0.0119%	0.0148%	0.0146%
Cumulative average daily return	3.39%	69.97%	73.36%
% of Cumulative average daily returns	4.6%	95.4%	100%
FOMC vs. non-FOMC returns			
Difference of means F-test	$F = 0.0268$		
Bartlett's homogeneity of variance test	$\chi^2 = 0.3033$		
1980–2000 time-period			
Total trading days	167	5,036	5,203
Minimum trading days	8	240	248
Maximum trading days	8	246	254
Average daily returns	0.2734%	0.0477%	0.0550%
Cumulative average daily return	45.66%	240.22%	285.88%
% of Cumulative average daily returns	15.97%	84.03%	100%
FOMC vs. non-FOMC returns			
Difference of means F-test	$F = 245.54^*$		
Bartlett's homogeneity of variance test	$\chi^2 = 1.1044^*$		
1980–2000 time-period (no Black Monday)			
Total trading days	167	5,035	5,202
Minimum trading days	8	240	248
Maximum trading days	8	246	254
Average daily return	0.2734%	0.0517%	0.0588%
Cumulative average daily return	0.45.66%	260.31%	305.97%
% of Cumulative average daily returns	14.92%	85.08%	100%
FOMC vs. non-FOMC returns			
Difference of means F-test	$F = 257.24^*$		
Bartlett's homogeneity of variance test	$\chi^2 = 1.0635^*$		

* Significant at $p < 0.01$.
** Significant at $p < 0.05$.

of the trading days examined, FOMC cumulative average daily returns account for a remarkable 13.67% of the overall cumulative average daily returns. An ANOVA analysis was used to test the significance of the differences of the mean returns. The analysis reports an F-test statistic that exceeds the 1% critical value indicating that the mean FOMC meeting date returns are significantly greater than the mean non-FOMC meeting date returns. The analysis also reports that the Bartlett's homogeneity of variance test finds that the variance of FOMC meeting date returns is significantly lower than the variance of non-FOMC meeting date returns at a 1% level of significance.

Since it is widely recognized that the 1960–1979 period is different from the 1980–2000 period, the data is divided into two data sets and an analysis of the two data sets are calculated. Supporting this break in the data, the analysis of the two periods reveals that at a 5% level of significance, 1960–1979 mean market returns are significantly lower than the 1980–2000 mean market returns, and at a 1% level of significance, the 1960–1979 variance of returns is different from the 1980–2000 variance of returns. In response to this evidence, the tests are re-calculated for the two data subsets.

The second section in Table 1 reports the results for the period 1960–1979. This data set includes 5,013 trading days of which FOMC meeting dates total 285 days or 5.7% of the trading days. The average daily return for non-FOMC meeting dates was 0.0148% and the average daily return for FOMC meeting dates was 0.0119%. An analysis of the data reveals that the non-FOMC meeting dates mean return and variance of returns are not significantly different from the FOMC meeting dates mean return and variance. These results are quite different from the 1980–2000 period results.

The third section in Table 1 reports the results for the period 1980–2000. This data set includes 5,203 trading days of which FOMC meeting dates total 167 trading days or 3.21% of the trading days. The average daily return for non-FOMC meeting dates was 0.0477% while the average daily return for FOMC meeting dates was 0.2734% or more than 5.7% times greater than non-FOMC meeting date average daily returns. While FOMC meeting dates account for only 3.21% of the trading days, FOMC meeting date returns account for nearly 16% of the cumulative market return for the period. An analysis of the data reveals that at a 1% level of significance the mean FOMC meeting date returns are significantly greater than the mean non-FOMC meeting date returns. The analysis further finds that the variance of FOMC meeting date returns are significantly lower than the variance of non-FOMC meeting dates returns. A concern for the period may be that ''Black Monday'' 18 October, 1987, a non-FOMC meeting date, might bias the results. Dropping Black Monday from the data set and re-estimating the tests, the results show that at a 1% level of significance, the conclusions do not change.

To gain more insight into the relationship between market returns and the FOMC meeting dates a regression estimates the influence FOMC meeting dates have on contemporaneous stock market returns. Table 2 reports the results of the regressions for the three time periods. The first section reports the estimation using the 1960–2000 data set. The second section in Table 2 reports the estimation using the 1960–1979 data set. The results find that FOMC meeting dates have an insignificant effect on daily market returns. This result is not surprising. Prior to 1975, FED monetary policy actions were somewhat secretive. Since meeting decisions and minutes were not released for several years following the meeting

Table 2
Regression results of the relationship between stock market returns and FOMC meetings

Time period	Intercept	FOMC	F statistic
1960–2000	0.0317	0.0768	3.197[***]
Standard error (t-statistic)	0.0090 (3.513)[*]	0.0429 (1.788)[***]	
FOMC range of returns	Min: −2.6747	Max: 2.8853	
Non-FOMC range of returns	Min: −20.467	Max: 9.0993	
1960–1979	0.0148	−0.0029	0.004
Standard error (t-statistic)	0.0110 (1.342)	0.0461 (−0.0624)	
FOMC range of returns	Min: −2.6747	Max: 4.6486	
Non-FOMC range of returns	Min: −6.6756	Max: 5.0224	
1980–2000	0.0477	0.2258	8.142[*]
Standard error (t-statistic)	0.0142 (3.363)[*]	0.0791 (2.853)[*]	
FOMC range of returns	Min: −2.4525	Max: 3.6373	
Non-FOMC range of returns	Min: −20.467	Max: 9.0993	
1980–2000 (no Black Monday)	0.0517	0.2217	8.532[*]
Standard error (t-statistic)	0.0136 (3.805)[*]	0.0759 (2.921)[*]	
FOMC range of returns	Min: −2.4525	Max: 3.6373	
Non-FOMC range of returns	Min: −8.2890	Max: 9.0993	

$Ret_m = \alpha + \beta FOMC + \varepsilon$, where FOMC = 0, if FOMC is not meeting. FOMC = 1, if FOMC is meeting.
[*] Significant at $p < 0.01$.
[***] Significant at $p < 0.001$.

dates, investors knew little about FED objectives and how the objectives related to the economy. This began to change in 1975 when Congress passed House Concurrent Resolution 133 (1975) that requires the FED to announce its objectives for the growth rates of the money supply. By 1978, the Full Employment and Balanced Growth Act (1978) (also known as the Humphrey–Hawkins Act) was passed. This act requires the Federal Reserve System Chair to appear before Congress and explain how monetary policy objectives are consistent with the economic growth and a stable economy. So, for most of the 1960–1979 time-period, FOMC objectives and evaluations of the economy were not known by the general public. With the FED providing little to no additional information to investors, FOMC meeting dates had no significant calendar effect on daily market returns.

The third section in Table 2 reports the estimation using the 1980–2000 data set. The results reveal that for this time period, there is a calendar effect associated with FOMC meeting dates. At a 1% level of significance, FOMC meeting dates have a positive and significant effect on daily market returns. Possible reasons for this calendar effect include the FED increasing the amount and timeliness of information to the public, and the increased availability of low-cost information. To ensure the results were not biased by ''Black Monday'', the 19 October, 1987 market return was dropped from the data set and the regressions run again. The results support the evidence that FOMC meeting dates have a positive and significant effect on daily market returns at a 1% level of significance. The evidence suggests that there is a calendar anomaly associated with FOMC meeting dates.

5. Conclusion

This paper examines the calendar anomaly associated with FOMC meeting dates and contemporaneous stock market returns. The regression results suggest that there is a positive calendar effect associated with FOMC meeting dates. When comparing mean market returns between FOMC meeting dates and non-FOMC meeting dates, the results find that the mean return of trading days on which the FOMC met was significantly greater than the mean return of other trading days over the time-period January 1960 to July 2000. A further examination of the data finds that the results are driven by the mean returns between 1980 and 2000. The mean market return on the trading days the FOMC met was 5.7 times greater than the mean market return on non-FOMC trading days during the time period 1980–2000. The data also reveal that if an investor were out of the market on FOMC meeting dates, the investor would have missed out on nearly 16% of the cumulative returns over the 1980–2000 time-period.

Using regression analysis, the results also find that FOMC meeting dates have a significantly positive effect on overall market returns. While past performance does not guarantee future performance, investors can use the knowledge of this calendar anomaly when deciding when to buy or sell stocks. The evidence suggests that investors should be in the market on days the FOMC meets or risk losing a disproportionate amount of market returns.

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