

Can a Non-Event Be an Event? The Case of Bank Stock Returns Surrounding Unexpected Interest Rate Inaction by the Federal Reserve

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In September 2015, the Federal Open Markets Committee (FOMC) opted not to act when an increase in interest rates was largely expected. Further, President Yellen's comments were atypical. We investigate the effect of this announcement on the stock returns of US financial firms; more than a third of which experienced negative abnormal returns. The reaction; however, was not identical across firms indicating differential treatment based on individual firm characteristics. Our results suggest that institution size and classification as a commercial bank are the primary drivers. The outcomes of this study are important as they support the theory of rational pricing and market efficiency.

Keywords: interest rates, monetary policy, federal reserve, banks

INTRODUCTION

Rozeff (1975, p.18) states, "While few propositions about the stock market are universally accepted, most members of the financial community probably agree that changes in Federal Reserve Board monetary policy strongly influence changes in stock prices." Empirical research strongly supports this assertion. Chan and Gray (2018) further connect macroeconomic news and volatility, noting that bad news yields larger changes than good news.

The September 2015 meeting of the Federal Open Markets Committee (FOMC) of the Federal Reserve Bank (Fed) of the United States (U.S.) resulted in an unexpected interest rate announcement: the Fed elected to *not* raise interest rates. By all accounts, markets were expecting a slight increase in the federal funds rate in the September meeting. This would have been the first rise in interest rates in nearly a decade,¹ and markets were primed and ready for the change—a signal that the Fed believed the economy had improved and was strong enough to support the interest rate increase. The announcement, at 2 pm on September 17, that the Fed had determined it best to leave interest rates as-is was certainly unexpected and impacted the financial markets.

The press release by Janet Yellen, Fed President, suggests that weakness overseas and lower than expected inflation were contributing factors to the Fed's inaction. The Fed left room for increases to occur later in the year if improvement was observed.² The statements by Yellen are part of what makes this

analysis unique. In a University of Pennsylvania, Wharton Business Ratio Podcast, Peter Conti-Brown (2015) described

Yellen’s citing turmoil in the international markets and “currency elements” such as the recent devaluation of the Chinese yuan as “relatively rare” considerations. In the normal course, Yellen would have attributed a decision on interest rates purely to price stability, or stable inflation, and maximum employment. “This time it was different and surprising.” (para. 4).

Driebusch and Cox (2015) of *The Wall Street Journal* suggest that the Fed’s decision is a reminder of U.S. reliance on, and vulnerability to, global issues, such as less than expected growth in China and weakness in other markets. They also note comments by QS Portfolio Manager Wayne Lin, who keyed in on the rarity of the Fed’s announcement and stated, “What struck me about [the Fed’s statement] was the reference to what was going on globally.”

Bernanke and Kuttner (2005, p. 1225) state, “The market may, of course, also react to the lack of a change in the funds rate target, if a change has been anticipated.” The purpose of this study is to explore the market reaction for financial institution equities to the Fed’s decision not to increase interest rates. King (1966, p. 140) notes, “There is some news of a monetary nature, for example, which is bound to have a market-wide impact on security price. The magnitude of impact need not, however, be the same for all stocks.” Banks largely stand to benefit from interest rate increases. For one, given that the savings rate is close to zero percent, banks were likely to increase lending rates while holding savings rates relatively constant. This would increase their spreads, improving net interest margins as well as profitability. This idea is consistent with findings of Hardouvelis (1987) who suggests that changes in monetary policy (altering the Federal Funds rate) affect financial firms to a greater extent since there is a direct impact to the cash flows of financial institutions.

Industry performance, measured with various Dow Jones Indices, on the day of the announcement and surrounding days suggest just such results (Table 1). More than half of the indices reported negative results on September 17, three of which were financially oriented. In fact, the U.S. Bank Index (DJUSBK) fared the worst, reporting a daily return more than 2 percent lower than the Dow Jones Industrial Average (DJIA). The Financial Services Index (DJUSFV) reported the second worst index return of about 1.35 percent lower than the DJIA.

TABLE 1
DOW JONES INDEX PERFORMANCE — BY SECTOR

Date	DJIA	DJTA	DJUSUT	DJUSFN	DJUSBK	DJUSFV	DJUSNC	DJUSEN	DJUSHC
9/16/2015	0.84%	0.24%	1.15%	0.66%	0.50%	0.60%	1.51%	2.89%	0.25%
9/17/2015	-0.39%	0.39%	1.36%	-1.00%	-2.41%	-1.73%	0.08%	-0.05%	0.94%
9/18/2015	-1.74%	-2.18%	-0.48%	-1.76%	-2.33%	-2.23%	-1.26%	-2.72%	-1.46%

This table presents daily returns for the day of (September 17, 2015) as well as the days prior to and following the Federal Reserve announcement. We obtain the data from S&P Dow Jones Indices. The tickers and indices are as follows: DJIA (Dow Jones Industrial Average); DJTA (Dow Jones Transportation Average); DJUSUT (Dow Jones Utilities Index); DJUSFN (Dow Jones US Financials Index); DJUSBK (Dow Jones US Banks Index); DJUSFV (Dow Jones US Financial Services Index); DJUSNC (Dow Jones US Consumer Goods Index); DJUSEN (Dow Jones US Oil & Gas Index); and DJUSHC (Dow Jones US Health Care Index).

Only a few studies (see, for example, Poole, Rasche, and Thornton 2002; and Bernanke and Kuttner 2005) explore the stock market reaction to a no change decision by the Fed. Opportunities to explore the relationship between interest rate changes, especially increases, and equity returns have been limited recently due to the fragility of the U.S. and global economies as a result of the Financial Crisis. Additionally, Kontonikas, MacDonald, and Saggi (2013, p. 4025) note “an important structural shift occurred during the crisis, changing the stocks’ response to FFR [Federal Funds Rate] shocks.” Given the uniqueness of Fed President Yellen’s comments and the structural shift identified, this seems an

opportune event to explore such associations and, in particular, for financial institutions. The results of this study should be of interest to policy makers, academics, and, certainly, the banking and investment communities.

In our analysis of the stock market reaction to the announcement of no change in the Fed Funds rate, we find that a significant number of firms experienced negative abnormal returns. Further, our results suggest that all firms were not universally affected by the Fed's announcement, which is to say that the reaction within the industry was not the same from firm-to-firm. Cross-sectional analysis reveals that individual firm size is the primary factor driving differential market reactions. We find that industry subsector classification matters as well.

This paper proceeds as follows: We provide a review of existing literature regarding interest rate announcements and the impact on equity prices and returns in the next section. Following that, we include a discussion of the data and empirical methodology utilized in this study. Finally, we report our empirical results and provide concluding remarks in the final two sections.

LITERATURE REGARDING INTEREST RATES, EQUITY PRICES, AND RETURNS

Much research exists examining the relationship between interest rates (monetary policy) and equity prices and how equities respond to changes in the rate. Smirlock and Yawitz (1985) document a statistical relationship between interest rate changes and the return on the New York Stock Exchange (NYSE) Index. Specifically, they note that, in the post-1979 era, exogenous increases in the discount rate result in negative returns on the NYSE Index. The relationship also holds for decreases in the discount rate that generate positive returns.

Hashemzadeh and Taylor (1988) examine the causality link between equity prices and interest rates. They document that the causality is only one-directional: from interest rates to stock prices. Alaganar and Bhar (2003), however, conclude just the opposite: that the causality is bi-directional.

Thorbecke and Alami (1994) document that when the Fed increases the Federal Funds target rate stock prices decline and vice versa. They imply that their results clearly identify a connection between monetary policy actions and stock prices. Jensen and Johnson (1995) also document a similar result but that the results are not symmetrical about a change. In fact, they note that returns are greater but less volatile when the Fed decreases rates compared to rate increases by the Fed. Similarly, Lobo (2002) finds that surprise decreases in the target rate result in substantial improvements in stock prices. He notes that the effect on stock price is not symmetrical with respect to surprise increases and decreases in rates and added "A test of these asymmetric effects across disclosure regimes revealed that [while] the type of interest rate surprise influenced mean changes in stock prices..." (p. 89).

Bae (1990) notes a strong negative association between unexpected interest rate changes and stock returns. Changes in the Federal Funds rate that are unanticipated result in larger changes in stock prices (Guo 2004; Basistha and Kurov 2008). Bernanke and Kuttner (2005) note a "...relatively strong and consistent response of the stock market to unexpected monetary policy actions..." (p. 1253) Their results suggest an increase in equity prices of about one percent given a 25 basis point reduction.

Tsai (2011) studies two types of surprise rate increases: those in which an increase occurs when the expectation is that the rate will be unchanged and also situations in which a rate decrease is expected but does not materialize. He finds that equities respond more to surprise increases in the target rate than they do to anticipated rate reductions that do not transpire. Likewise, Poole et al. (2002) find large revisions in investor expectations when an increase in the target rate was expected but the Fed failed to act.

Similarly, Huang, Mollick, and Nguyen (2016) examine stock market reaction to changes in the real interest rate. They include additional data (exchange rates and oil price) to proxy for global financial market conditions. In general, they find a negative correlation between stock prices and interest rates.

Existing literature attempts to document reasons for the differential responses. Guo (2004), Tsai (2011), and Kontonikas and Kostakis (2013) find size effects to be one of the contributing factors. Kontonikas and Kostakis (2013) additionally link asymmetrical responses to firm value and past performance. Further, monetary and economic conditions influence returns (Jensen, Mercer, and Johnson

1996; Laopodis 2010) and the effect of other factors as well. For example, results of Guo (2004) suggest the size effect is prevalent during poor economic conditions but disappears when economic conditions improve.

Jensen, Mercer, and Johnson (1996) contend that the relationship is asymmetrical based on the monetary policy stance adopted by the Fed. When the Fed takes an expansionary attitude then stock returns are affected in a significant manner by monetary policy actions. Additionally, Basistha and Kurov (2008) acknowledge differences in equity price reactions to unexpected rate changes are due not only to recessionary market conditions and tight credit markets but also to the level of financial constraint of individual firms.

Connections exist between the business environment, monetary policy and returns on equity securities (Jensen and Mercer 2002). Specifically, they focus on investor expectations of the future and how the risk premiums change with expectations of future policy adjustments. According to conclusions made by Atanasov (2016), the asymmetric response of stock prices to monetary policy announcements results from conditional upside interest rate risk premiums which exceed conditional downside interest rate risk premiums.

As noted by King (1966), the reaction of equity prices to changes in interest rates does not have to be identical among industries or individual firms. Banks stand to gain the most from rate increases due to the positive influence on firm cash flows in most cases. Flannery and James (1984) identify a positive correlation between interest rates and bank stock prices. Hafer (1986) notes that the stock prices of utility companies as well as financial firms are impacted to a greater extent than other stocks to surprise changes in the interest rate. Similarly, Hardouvelis (1987) finds that "...among all stock price indexes, the NYSE Financial Index shows the strongest reactions to monetary news..." (p. 139)

The differential response of stock prices to interest rate changes among firms noted above, for equities in general, carries over to firms in the financial sector as well. Yin and Yang (2013) document that size, sources of income, and capital ratios impact individual firm responses to changes in the Federal Funds target rate. It is important to note that the data in the study terminate in 2007.

DATA AND METHODOLOGY

Data and Sample

We comprise our sample of daily stock prices for a selected set of publicly-traded financial institutions based in the U.S. to study the market reaction to the Fed's announcement. We obtain stock prices from CRSP for the period of June 30, 2014, through March 31, 2016, to calculate daily returns and collect accounting data from the FR Y-9C Holding Company Reports available from the Federal Reserve Bank of Chicago for December 2014. After eliminating firms with missing returns that are publicly traded, our final sample is 327 financial institutions. In Appendix Table 1A, we present descriptive information about each firm including measures of size, leverage, profitability, and interest rate risk.

Industry subsector classifications were determined according to the NAICS codes retrieved from CRSP for each firm and the 2012 NAICS definitions file available from the U.S. Census. We create industry subsector portfolios based on the individual firm NAICS Code. Most firms belong to one of three different subsectors: commercial banks, savings banks or bank holding companies; however, about 10 percent of the sample belongs to a variety of other subsectors, none of which are represented sufficiently to be stand-alone portfolios. As a result, we group these remaining firms into two broadly defined groups: (1) investment banks, security brokers/dealers and advisory services; and (2) other.

We calculate the GAP 12 Ratio as in Cyree, Huang, and Lindley (2012), which is the 12-month re-pricing gap, scaled by total assets. Also similar to Cyree et al. (2012), net interest margin (NIM) is defined as interest income less interest expense, scaled by earning assets. Leverage (D/E Ratio) is total liabilities divided by total shareholders' equity. Return-on-assets (ROA) is net income divided by total assets (TA). Size is defined as the natural logarithm of total assets and market capitalization (MKT Cap) is share price times the number of common shares outstanding. The market-to-book ratio (MB Ratio) is

the market capitalization of the firm divided by the total book value of equity of the firm. We collect all market-based data from CRSP.

The firms that comprise our sample are large institutions with average total assets (market capitalization) of \$45,385 million (\$5,697 million) with a range of \$367 million to \$2,572,405 million for total assets (\$7 million to \$284,386 million for market capitalization). Net interest margin averages 0.020 (range: -1.034 to 0.098) and ROA ranges from -0.100 to 0.068 (mean: 0.008). For banks in particular, their inherent structure necessitates the use of leverage and oftentimes a significant degree of leverage. Our sample firms have leverage levels (debt-to-equity ratio) that range from 1.976 to 29.420 with an average debt-to-equity ratio of 8.260. Firms exhibit varying levels of interest rate risk exposure with an average GAP 12 ratio of 0.116 (range: -0.468 to 0.888.)

Empirical Methodology and Hypotheses

We use multivariate regression model methodology as prescribed by Gibbons (1980) and Shipper and Thompson (1983). This methodology is often utilized when an event will affect all firms in an industry simultaneously and is an application of Zellner's (1962) SUR (seemingly unrelated regression) technique. This technique is appropriate due to the fact that the returns are likely correlated and the requirement that the residuals be identically and independently distributed is not met. Smirlock and Kaufold (1987) utilize this method to evaluate stock price reaction to the Mexican Debt Crisis, and Carter and Simkins (2004) apply this technique to study the effects of the September 11 Attacks on stock returns of airlines. For these reasons, this method is preferable to traditional event-study methodology prescribed by Brown and Warner (1985) and others. Accordingly, we estimate a system of linear equations for each firm in our sample for the sample period as follows:

$$R_{i,t} = \alpha_i + \beta_i R_{M,t} + \gamma_i D_t + e_{i,t}, \quad (1)$$

where $R_{i,t}$ is the return of the stock on the i^{th} day, $R_{M,t}$ is the return on the Equally-Weighted CRSP Index on day t , and D_t is a dummy variable taking the value of 1 on the event day (September 17, 2015) and 0 otherwise. In Equation (1), we include the traditional market model, $\alpha_i + \beta_i R_{M,t}$, plus $\gamma_i D_t$ that captures the excess return for each firm associated with the Fed's decision to not increase interest rates. We expect this term (γ_i) to be negative, a priori.

We gauge the magnitude and significance of the market response to the Fed's decision using Equation (1) and test the following two hypotheses.

Hypothesis 1 (H1): $\gamma_i = 0$ for all i .

If we reject Hypothesis 1, then we surmise that the market views the Fed's decision not to increase interest rates as important to the value of individual firms (or portfolio) and consequently share price is affected. Existing literature finds a strong connection between Fed actions and equity prices as noted by numerous studies.

Hypothesis 2 (H2): $\gamma_1 = \gamma_2 = \dots = \gamma_n$.

A rejection of Hypothesis 2 suggests that market reaction to the Fed's announcement was different for each firm (portfolio) and not identical across all firms (portfolios) in the industry and implies that the market believes the announcement will have varying effects on the different financial institutions. Monetary information can impact firms systematically; however, the extent of the effect does not have to be uniform across all stocks (King 1966).

RESULTS

We present our results in Tables 2A, 2, and 3. Table 2A reports the individual estimated abnormal returns for each firm. In Table 2 we present portfolio results. Finally, we utilize the abnormal returns

estimated from Equation (1) as the dependent variables in cross-sectional regressions and report those results in Table 3.

Tests of Hypotheses 1 and 2 (H1 and H2)

An analysis of the results in Table 2A reveals that more than a third of firms (115 of 327) experienced negative abnormal returns on the day of the Fed’s announcement. Of those firms that realized significant returns, the most negative abnormal return was -1.784 and the least negative abnormal return was -0.017. Our analysis reveals no significant, positive abnormal returns. Accordingly, we perform a joint test of all firm’s experiencing no abnormal return (abnormal return equal to zero), which we reject.

These results suggest a rejection of H1 implying that the market believed the Fed’s decision to not increase interest rates will affect these firms. Additionally, we also report the results from the joint test that all firms experienced the same abnormal return (H2) attributable to the Fed’s announcement. The result of that joint test supports a rejection of H2 and indicates that the returns are not uniform across all firms. As noted by Humphrey, Carter, and Simkins (2016), rejection of the hypothesis of equal market reaction among firms to an event supports the theory of rational pricing in the market and the absence of contagion. If contagion exists the market reaction would be uniform across all firms, regardless of the potential impact of the Fed’s announcement on individual firms.

Bae (1990) notes differences in stock returns from unexpected interest rate changes based on industry subsectors and links the difference to asset-liability maturity imbalances as well as industry sensitivity to rate changes. Consequently, we examine industry-subsector portfolios and repeat the analysis as before. Our results, in Table 2, indicate significant abnormal returns for only one subsector: investment banks, security dealers/brokers, and advisory services. We reject H1 which is a joint test of all coefficients being equal to zero; however, we are unable to reject H2, which is a joint test of all coefficients being equal to one another.

At the individual firm level, our analysis suggests that the market differentiates between firms based on one or more firm-specific characteristics. The results for the industry subsector portfolios is less clear. Given the overwhelming support for rejection of H1 and H2 at the firm-level, that the market did not treat firms in a uniform manner, we analyze firm-specific characteristics in cross-sectional regressions to determine which factors contribute to the differential market reactions.

TABLE 2
SHARE PRICE RESPONSE TO THE FED’S
UNCHANGED INTEREST RATE ANNOUNCEMENT BY PORTFOLIO

Portfolio	α_i		β_i		γ_i	
<i>Commercial Banks</i>	-0.066	***	1.085	***	0.003	
<i>Savings Banks</i>	-0.112		0.706		0.032	
<i>Bank Holding Companies</i>	-0.114	***	0.548		0.014	
<i>Investment Banks, Security Dealers/Brokers, Advisory Services</i>	0.000		1.195	***	-0.022	***
<i>Other Finance</i>	-0.110	***	0.963	*	0.101	
Joint test for all industry subsector portfolios						
H1: $\gamma_1 = \gamma_2 = \dots = \gamma_5 = 0$					10.30	*
Joint test for all industry subsector portfolios						
H2: $\gamma_1 = \gamma_2 = \dots = \gamma_5$					2.53	

In this table, we present the abnormal returns to industry subsector classification portfolios to the Fed’s announcement that they were not increasing interest rates on September 17, 2015 estimated using Equation (1) as follows: $R_{i,t} = \alpha_i + \beta_i R_{M,t} + \gamma_i D_t + e_{i,t}$. where $R_{i,t}$ is the return of the stock on the i^{th} day, $R_{M,t}$ is the return on the Equally-Weighted CRSP Index on day t , and D_t is a dummy variable taking the value of 1 on the event day (September 17, 2015) and 0 otherwise. We calculate daily returns using security prices obtained from CRSP for the period of June 30, 2014 through March 31, 2016. We construct portfolio returns by averaging the daily returns of the firms in each respective portfolio. We determine industry subsector classifications according to reported NAICS codes obtained from CRSP. Significance is denoted by ***, **, and * at the 1%, 5%, and 10% levels, respectively.

Cross-Sectional Results

We utilize the abnormal returns obtained from estimating Equation (1) as our dependent variable and firm characteristics existing literature documents as important in the explanation of financial institution returns such as institution size, interest rate risk, and leverage as our independent variables (see definitions and data sources in the Data and Sample section) in cross-sectional regressions presented in Table 3. Industry subsectors, as defined in the Data and Sample Section, are dummy variables taking the value of 1 if the firm belongs to the referenced subsector and 0 otherwise. GSIB is a dummy variable taking the value of 1 for institutions designated as a Global Systemically Important Bank according to the Financial Stability Board (as of 2014) and 0 otherwise. This variable is included because institutions receiving the GSIB designation are required to maintain higher capital levels and are subject to additional regulatory and policy requirements (BIS, 2018).

We obtain cumulative abnormal returns (CARs) for various periods around the event day (Day 0: September 17, 2015) by summing the appropriate abnormal return estimates. We then substitute these into the cross-sectional regression equation as the dependent variable. In total, we include four additional sets of dependent variables including a two-day CAR (0, +1), three-day CARs of (0, +2) and (-1, +1) and a five-day CAR (-2, +2).

Our results resoundingly indicate size as the dominate factor the markets used to differentiate among firms in response to the Fed's announcement. Industry subsector classification matters as well with firms classified as commercial banks faring the worst, a result consistent with industry performance trends suggested in Table 1. Interestingly, our regression results do not suggest other factors including leverage, net interest margin, market-to-book ratio, profitability, and interest rate risk affect returns. These results suggest that large firms suffered more from the Fed's unexpected (in)action and respective commentary. It appears that the market believed these firms were likely to be impacted the most from the missed opportunity to increase interest rate spreads, and consequently profits.

TABLE 3
CROSS-SECTIONAL REGRESSIONS

Dependent Variable =	AR (0)	CAR (0, +1)	CAR (0, +2)	CAR (-1, +1)	CAR (-2, +2)
<i>Leverage</i>	-0.001	0.006	0.001	0.011	0.016
<i>MB Ratio</i>	-0.029	-0.097	-0.126	-0.115	-0.128
<i>Size</i>	-0.025 *	-0.077 ***	-0.107 ***	-0.093 **	-0.120 **
<i>NIM</i>	0.141	0.244	0.424	0.349	0.669
<i>GAP 12 Ratio</i>	-0.035	0.076	0.089	0.006	-0.003
<i>ROA</i>	0.293	1.565	2.103	3.547	5.474
<i>GSIB</i>	0.120	0.315	0.454 *	0.410	0.567
<i>BHC</i>	-0.122	-0.153	-0.190	-0.239	-0.389
<i>CML_BK</i>	-0.114	-0.200 *	-0.299 **	-0.337 **	-0.609
<i>SAV_BK</i>	-0.111	-0.185	-0.271 *	-0.259	-0.393
<i>IB_ADV</i>	-0.096	-0.161	-0.243	-0.269	-0.485
<i>Constant</i>	0.727 **	1.995 ***	2.862 ***	2.444 ***	3.259 ***
R ²	0.032	0.078	0.108	0.078	0.075
N	327	327	327	327	327

In this table, we present the cross-sectional regression estimates of various firm characteristics regressed on the abnormal return associated with the Fed's announcement estimated from Equation (1) as follows: $R_{i,t} = \alpha_i + \beta_i R_{M,t} + \gamma_i D_t + e_{i,t}$. where $R_{i,t}$ is the return of the stock on the i^{th} day, $R_{M,t}$ is the return on the Equally-Weighted CRSP Index on day t , and D_t is a dummy variable taking the value of 1 on the event day (September 17, 2015) and 0 otherwise. We calculate daily returns using security prices obtained from CRSP for the period of June 30, 2014 through March 31, 2016. Further, we include four additional sets of dependent variables including a two-day CAR (0, +1), three-day CARs of (0, +2) and (-1, +1) and a five-day CAR (-2, +2). Variable definitions are available in the Data and Sample Section. Significance is denoted by ***, **, and * at the 1%, 5%, and 10% levels, respectively.

Robustness Measures

Our analysis relies on the use of the Equally-Weighted CRSP Index (with dividends) as a measure of overall market reaction. We repeat the same analysis using the Value-Weighted CRSP Index (with dividends) as well as the S&P 500 Index. In general, we find the results to be qualitatively similar and robust to these alternate model specifications. We omit the results for brevity, but they are available upon request.

CONCLUSION

It is widely accepted that changes in interest rates affect securities prices. Some research suggests, however, that the impacts are not necessarily the same for all stocks or all industries. To be certain, bank stocks were poised to be affected the most from a rate increase because the higher rate would directly impact their cash flows, in a positive fashion. In its September 2015 meeting, the FOMC opted not to act when an increase in rates was largely anticipated. Further, comments by the Fed President were atypical. The result: we observe declines in many major U.S. indices around the Fed's announcement on September 17. In fact, the NYSE Index (New York Stock Exchange) experienced a -0.207 percent drop in index level from the 16th to 17th of September and -1.801 percent from the 17th to the 18th of September with an overall decline of 2.004 percent from the 16th to the 18th of September. Comparatively, the NYSE Financial Index suffered more significant changes in index value of -0.770 percent, -2.011 percent, and -2.765 percent, respectively, and the S&P Financial Index fared even worse (-1.735 percent, -2.245 percent, and -3.941 percent, respectively), results consistent with findings of Hardouvelis (1987) and performance results of Dow Jones Indices in Table 1.

Obviously, overall markets responded quite negatively; however, we explore the impacts to the equity securities of financial industry firms compared to the market as a whole. In general, we find that a significant number of firms experienced negative abnormal returns that were not identical across the industry, which is to say that some firms were affected more than others. Cross-sectional analysis reveals that institution size as well as industry subsector classification as a commercial bank are the dominate factors driving the differential market reactions. With the first increase in interest rates in nearly a decade, firms were looking forward to increasing spreads. When the Fed's announcement dashed those hopes, the markets penalized firms they believed the news would most likely harm. The outcomes of this study are important as they support the theory of rational pricing and market efficiency as a result of news. Federal Reserve stances on interest rates largely reflect expectations about the future, so market participants will also find the outcomes of interest.

END NOTES

1. The last increase in the interest rate by the Federal Reserve was in June of 2006.
2. The Fed did raise interest rates by 0.25% in December 2015.

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APPENDIX A

TABLE 1A
SELECTED FINANCIAL DATA FOR SAMPLE BANK AND FINANCIAL HOLDING FIRMS

Firm	Ticker	ROA	GAP 12	D/E	MB	NIM	MKT Cap	TA
<i>Commercial Banks</i>								
Atlantic Coast Financial Corp	ACFC	0.002	0.028	8.793	0.851	0.034	62	708
ACNB Corp	ACNB	0.009	0.131	8.905	1.189	0.026	131	1090
Bank of America Corp	BAC	0.002	0.365	7.653	0.773	0.004	188139	2106796
Banc of California Inc	BANC	0.005	-0.459	10.858	0.757	0.008	381	5972
BancFirst Corp	BANF	0.010	0.403	9.791	1.613	0.016	983	6575
BBCN Bancorp Inc	BBCN	0.012	0.159	7.089	1.296	0.038	1144	7140
BB & T Corp	BBT	0.012	0.222	6.648	1.147	0.014	28012	186814
BCB Bancorp Inc	BCBP	0.006	-0.123	11.732	0.963	0.049	98	1302
Bridge Bancorp Inc	BDGE	0.006	0.140	12.060	1.778	0.031	312	2289
Bank of NY Mellon Corp	BK	0.007	0.176	8.955	1.180	-0.028	45670	385303
Bank South Carolina Corp	BKSC	0.012	0.338	8.993	1.794	0.037	66	367
BSB Bancorp Inc MD	BLMT	0.003	0.196	9.405	1.233	0.026	169	1426
Bank of Marin Bancorp	BMRC	0.011	0.114	7.934	1.561	0.038	312	1787
Bank of Commerce Holdings	BOCH	0.006	0.115	8.625	0.765	0.035	79	997
Bank of Hawaii Corp	BOH	0.011	0.082	13.084	2.466	0.019	2602	14859
Popular Inc	BPOP	-0.009	0.253	6.757	0.826	0.042	3523	33097
Sierra Bancorp	BSRR	0.009	-0.382	7.751	1.285	0.026	240	1637
BancorpSouth Inc	BXS	0.009	0.319	7.298	1.347	0.016	2163	13327
Citigroup Inc	C	0.004	0.333	7.702	0.774	0.020	163926	1842181
Camden National Corp	CAC	0.009	0.018	10.382	1.207	0.025	296	2790
Cathay General Bancorp	CATY	0.012	0.057	6.185	1.274	0.036	2042	11517
Capital Bank Financial Corp	CBF	0.007	0.158	5.427	0.760	0.039	808	6836
Commerce Bancshares Inc	CBSH	0.011	0.330	9.288	1.795	0.008	4189	24015
Capital City Bank Group	CCBG	0.004	0.422	8.593	0.995	0.013	271	2614
CNB Financial Corp PA	CCNE	0.011	0.218	10.611	1.413	0.036	266	2189
C & F Financial Corp	CFFI	0.009	0.058	9.856	1.101	0.054	136	1339
Chemical Financial Corp	CHFC	0.008	0.228	8.186	1.260	0.023	1004	7322
Chemung Financial Corp	CHMG	0.005	-0.001	10.409	0.958	0.024	128	1525
CIT Group Inc	CIT	0.024	0.327	4.283	0.966	-0.041	8752	47880
Comerica Inc	CMA	0.009	0.644	8.382	1.137	0.014	8417	69452
Century Bancorp Inc	CNBKA	0.006	0.229	17.826	0.749	0.020	144	3624
CommunityOne Bancorp	COB	0.068	-0.414	7.300	1.038	0.030	277	2216
Capital One Financial Corp	COF	0.014	0.358	5.860	1.019	0.054	45895	309083
Columbia Banking System Inc	COLB	0.010	0.203	5.986	1.291	0.030	1586	8580
Central Pacific Financial Corp	CPF	0.008	-0.005	7.543	1.359	0.025	772	4853
CenterState Banks Inc	CSFL	0.003	0.166	7.347	1.193	0.036	540	3777
Customers Bancorp Inc	CUBI	0.006	0.199	14.402	1.125	0.026	498	6825
CVB Financial Corp	CVBF	0.014	0.040	7.402	1.932	0.031	1696	7378
Discover Financial Services	DFS	0.028	0.505	6.466	2.667	0.076	29698	83126
Eagle Bancorp Montana Inc	EBMT	0.005	-0.042	9.279	0.781	0.020	43	560
Enterprise Financial Services Corp	EFSC	0.008	0.415	9.361	1.237	0.037	391	3277
Eagle Bancorp Inc	EGBN	0.010	0.133	7.451	1.724	0.035	1071	5249
Community Bankers Trust Corp	ESXB	0.007	-0.074	9.736	0.895	0.042	96	1156
Evans Bancorp Inc	EVBN	0.010	-0.429	7.719	1.049	0.031	102	847
Eastern VA Bankshares Inc	EVBS	0.005	0.106	7.807	0.625	0.033	84	1183
EverBank Financial Corp	EVER	0.007	0.062	11.370	1.342	0.020	2345	21618
East West Bancorp Inc	EWBC	0.012	0.211	9.082	1.950	0.044	5558	28738
First Bancshares Inc MS	FBMS	0.006	-0.002	10.368	0.773	0.030	74	1094
First Bancorp NC	FBNC	0.008	-0.003	7.304	0.939	0.043	364	3220
First Connecticut Bancorp Inc MD	FBNK	0.004	0.167	9.597	1.115	0.027	262	2486
First Bancorp P R	FBP	0.031	-0.073	6.614	0.748	0.047	1250	12728
Fauquier Bankshares Inc	FBSS	0.008	0.208	9.992	1.248	0.026	69	606

Firm	Ticker	ROA	GAP 12	D/E	MB	NIM	MKT Cap	TA
First Community Bancshares Inc	FCBC	0.010	0.052	6.422	0.863	0.031	303	2608
First Commonwealth Financial Corp	FCF	0.007	-0.033	7.881	1.181	0.025	846	6360
First Citizens Bancshares Inc NC	FCNCA	0.005	0.353	10.190	1.035	0.017	2782	30075
First Financial Bancorp Ohio	FFBC	0.009	0.209	8.204	1.457	0.028	1142	7218
First Financial Bankshares Inc	FFIN	0.015	0.058	7.581	2.810	0.024	1915	5848
Farmers Capital Bank Corp	FFKT	0.009	0.300	9.308	1.009	0.027	174	1783
First Horizon National Corp	FHN	0.009	0.546	8.909	1.233	0.007	3195	25674
Financial Institutions Inc	FISI	0.010	0.008	10.052	1.270	0.028	355	3090
Fifth Third Bancorp	FITB	0.011	0.450	7.855	1.072	0.015	16790	138706
First Long Island Corp	FLIC	0.008	0.044	10.659	1.688	0.028	394	2721
First Midwest Bancorp DE	FMBI	0.007	0.386	7.580	1.208	0.022	1329	9445
FirstMerit Corp	FMER	0.010	0.211	7.789	1.102	0.028	3124	24910
Farmers National Banc Corp	FMNB	0.008	0.174	8.202	1.244	0.024	154	1137
FNB Corp PA	FNB	0.009	0.365	6.978	1.144	0.025	2312	16127
First Bancorp Inc ME	FNLC	0.010	0.053	8.141	1.201	0.030	194	1477
Republic First Bancorp Inc	FRBK	0.002	-0.468	9.767	1.258	0.029	142	1215
First Merchants Corp	FRME	0.010	0.283	7.014	1.179	0.029	857	5825
First South Bancorp Inc	FSBK	0.004	0.088	10.018	0.950	0.026	76	886
Fulton Financial Corp PA	FULT	0.009	0.289	7.556	1.107	0.027	2211	17083
First United Corp	FUNC	0.004	0.119	11.223	0.489	0.028	53	1332
German American Bancorp Inc	GABC	0.013	0.153	8.777	1.763	0.028	403	2237
Glacier Bancorp Inc	GBCI	0.014	0.028	7.080	2.027	0.029	2083	8307
Guaranty Bancorp	GBNK	0.006	0.165	9.268	1.446	0.030	299	2125
Guaranty Federal Bancshares Inc	GFED	0.009	-0.185	9.228	0.928	0.037	57	629
Great Southern Bancorp Inc	GSBC	0.011	0.040	8.425	1.300	0.049	546	3956
Hanmi Financial Corp	HAFC	0.012	0.053	8.340	1.535	0.025	696	4235
Huntington Bancshares Inc	HBAN	0.010	0.343	9.477	1.349	0.018	8537	66298
Hancock Holding Co	HBHC	0.008	0.241	7.394	0.999	0.026	2469	20752
Horizon Bancorp IN	HBNC	0.009	0.356	9.683	1.239	0.027	241	2077
Heritage Oaks Bancorp	HEOP	0.005	0.091	7.640	1.437	0.035	284	1710
HF Financial Corp	HFFC	0.003	0.115	11.399	0.966	0.025	98	1263
HMN Financial Inc	HMNF	0.013	-0.388	6.593	0.729	0.024	55	577
Hampton Roads Bankshares Inc	HMPR	0.005	0.034	9.069	1.451	0.026	287	1989
Home Bancshares Inc	HOMB	0.015	0.038	6.292	2.140	0.045	2173	7403
Heritage Commerce Corp	HTBK	0.008	0.313	7.772	1.269	0.035	234	1617
Heartland Financial USA Inc	HTLF	0.007	-0.200	11.195	1.011	0.028	502	6052
Independent Bank Corp MI	IBCP	0.008	0.270	7.982	1.197	0.022	300	2249
IberiaBank Corp	IBKC	0.007	0.321	7.505	1.171	0.023	2169	15759
International Bancshares Corp	IBOC	0.013	0.011	6.708	1.115	0.020	1764	12197
Independent Bank Group Inc	IBTX	0.007	0.060	6.641	1.230	0.035	665	4133
First Internet Bancorp	INBK	0.004	0.006	9.028	0.768	0.026	74	971
Independent Bank Corp MA	INDB	0.009	0.332	8.937	1.604	0.026	1027	6365
IF Bancorp Inc	IROQ	0.006	-0.168	5.567	0.876	0.031	73	550
JP Morgan Chase & Co	JPM	0.008	0.366	10.079	1.007	0.000	233936	2572773
KeyCorp	KEY	0.010	0.425	7.905	1.142	0.009	12042	93882
Lakeland Bancorp Inc	LBAI	0.009	0.117	8.325	1.169	0.032	444	3538
LCNB Corp	LCNB	0.009	0.002	7.816	1.116	0.030	140	1108
Fidelity Southern Corp	LION	0.010	0.047	10.647	1.299	0.002	344	3086
Lakeland Financial Corp	LKFN	0.013	-0.080	8.529	1.981	0.027	716	3444
Middleburg Financial Corp	MBRG	0.006	0.086	9.021	1.053	0.025	128	1223
MBT Financial Corp	MBTF	0.006	0.116	8.504	0.843	0.021	113	1279
Merchants Bancshares Inc	MBVT	0.007	0.328	12.696	1.540	0.023	194	1723
Mercantile Bank Corp	MBWM	0.006	-0.218	7.818	1.088	0.030	357	2893
Macatawa Bank Corp	MCBC	0.007	-0.243	10.113	1.293	0.021	184	1584
MutualFirst Financial Inc	MFSF	0.008	0.035	10.167	1.241	0.029	158	1424
Monarch Financial Holdings Inc	MNRK	0.011	0.412	8.920	1.362	-0.024	146	1067
MidWestOne Financial Group Inc	MOFG	0.010	-0.349	8.341	1.249	0.030	241	1800
MainSource Financial Group Inc	MSFG	0.009	0.032	7.709	1.258	0.021	454	3141

Firm	Ticker	ROA	GAP 12	D/E	MB	NIM	MKT Cap	TA
MidSouth Bancorp Inc	MSL	0.010	0.116	8.266	0.941	0.034	197	1937
M & T Bank Corp	MTB	0.011	0.466	6.838	1.345	0.014	16596	96687
National Bank Holdings Corp	NBHC	0.002	0.032	5.066	0.951	0.039	755	4820
Northeast Bancorp	NBN	0.005	0.186	6.303	0.779	0.047	86	810
NBT Bancorp Inc	NBTB	0.010	0.059	8.023	1.334	0.021	1153	7798
National Bankshares Inc	NKSH	0.015	0.067	5.944	1.270	0.031	211	1155
National Penn Bancshares Inc	NPBC	0.010	0.188	7.203	1.303	0.022	1549	9751
Northern Trust Corp	NTRS	0.007	0.416	12.013	1.862	-0.021	15731	109946
Norwood Financial Corp	NWFL	0.011	-0.034	6.189	1.079	0.037	107	712
OFG Bancorp	OFG	0.011	0.198	6.906	0.790	0.063	744	7449
Southwest Bancorp Inc OK	OKSB	0.011	0.278	6.172	1.230	0.029	333	1942
Old Line Bancshares	OLBK	0.006	-0.008	8.034	1.264	0.036	171	1222
Old National Bancorp	ONB	0.009	0.215	6.947	1.186	0.019	1739	11648
Old Point Financial Corp	OPOF	0.005	-0.383	8.902	0.841	0.024	74	876
Oritani Financial Corp	ORIT	0.013	-0.107	5.401	1.348	0.041	685	3250
Orrstown Financial Services Inc	ORRF	0.024	0.122	8.354	1.104	0.019	140	1190
Old Second Bancorp Inc	OSBC	0.005	0.166	9.619	0.814	0.024	158	2062
Ohio Valley Banc Corp	OVBC	0.010	0.054	8.032	1.172	0.037	101	779
Bank of The Ozarks Inc	OZRK	0.018	0.306	6.421	3.324	0.035	3031	6766
PacWest Bancorp DE	PACW	0.010	-0.090	3.631	1.336	0.049	4683	16237
Prosperity Bancshares Inc	PB	0.014	0.019	5.632	1.190	0.032	3862	21519
Porter Bancorp Inc	PBIB	-0.011	-0.179	29.420	0.214	0.042	7	1018
Pacific Continental Corp	PCBK	0.011	0.089	7.169	1.364	0.041	251	1504
Peoples Bancorp NC Inc	PEBK	0.009	0.033	9.546	1.023	0.028	101	1040
Peoples Bancorp Inc	PEBO	0.006	0.170	6.550	1.131	0.017	385	2568
Premier Financial Bancorp Inc	PFBI	0.010	-0.039	7.594	0.870	0.039	127	1253
Peoples Financial Corp MS	PFBX	-0.015	0.020	6.045	0.672	0.025	64	669
Peapack Gladstone Financial Corp	PGC	0.006	0.107	10.155	1.161	0.021	281	2702
Parke Bancorp Inc	PKBK	0.013	-0.103	6.974	0.672	0.039	69	822
Pacific Mercantile Bancorp	PMBC	0.000	0.179	8.219	1.149	0.032	137	1100
PNC Financial Services Group Inc	PNC	0.012	0.486	6.493	1.042	0.009	48006	345243
Pinnacle Financial Partners Inc	PNFP	0.012	-0.087	6.497	1.760	0.028	1413	6018
Park Sterling Bank	PSTB	0.005	-0.004	7.609	1.199	0.034	330	2368
Privatebancorp Inc	PVTB	0.010	0.670	9.531	1.762	0.027	2611	15603
Penns Woods Bancorp Inc	PWOD	0.012	0.078	8.157	1.741	0.030	237	1245
Republic Bancorp Inc KY	RBCAA	0.008	-0.237	5.706	0.823	0.025	460	3747
Royal Bancshares PA Inc	RBPAA	0.007	-0.059	10.701	0.715	0.038	45	733
Regions Financial Corp	RF	0.010	0.401	6.057	0.856	0.016	14536	119889
Sandy Spring Bancorp Inc	SASR	0.009	0.139	7.428	1.252	0.025	653	4397
Seacoast Banking Corp FL	SBCF	0.002	0.182	8.894	1.457	0.020	456	3093
SB Financial Group Inc	SBFG	0.008	0.142	8.041	0.605	0.019	46	684
Southside Bancshares Inc	SBSI	0.004	-0.011	10.305	1.639	0.024	697	4807
Southern First Bancshares Inc	SFST	0.006	0.055	11.410	1.275	0.036	106	1030
Southwest Georgia Financial Corp	SGB	0.008	-0.088	9.901	1.067	0.029	37	374
Shore Bancshares Inc	SHBI	0.005	-0.406	6.834	0.839	0.022	118	1100
SVB Financial Group	SIVB	0.007	0.260	8.701	1.457	0.008	5911	39352
Sun Bancorp Inc NJ	SNBC	-0.011	0.483	10.079	1.472	0.029	361	2718
Synovus Financial Corp	SNV	0.007	0.409	7.895	1.217	0.028	3700	27051
Southern National Bancorp VA Inc	SONA	0.008	0.065	7.042	1.215	0.042	139	917
1st Source Corp	SRCE	0.012	-0.244	6.861	1.332	0.022	819	4830
South State Corp	SSB	0.010	0.074	6.953	1.645	0.037	1620	7833
Stewardship Financial Corp	SSFN	0.004	0.043	10.762	0.498	0.034	29	694
S & T Bancorp Inc	STBA	0.012	0.327	7.160	1.460	0.025	888	4965
State Bank Financial Corp	STBZ	0.011	0.503	5.210	1.389	0.057	645	2882
SunTrust Banks Inc	STI	0.009	0.422	7.279	0.950	0.011	21849	190447
State Street Corp	STT	0.007	0.204	11.764	1.526	-0.023	32773	274119
Severn Bancorp Inc MD	SVBI	0.004	-0.016	8.266	0.545	0.038	46	777
Stock Yards Bancorp Inc	SYBT	0.014	0.253	8.866	1.892	0.020	492	2564

Firm	Ticker	ROA	GAP 12	D/E	MB	NIM	MKT Cap	TA
Bancorp Inc	TBBK	0.011	0.565	14.630	1.287	-0.002	411	4986
TCF Financial Corp	TCB	0.009	0.226	8.098	1.244	0.026	2657	19427
Texas Capital Bancshares Inc	TCBI	0.009	0.888	9.707	1.673	0.031	2485	15900
Trico Bancshares	TCBK	0.007	0.145	8.366	1.342	0.024	561	3916
Community Financial Corp MD	TCFC	0.006	-0.013	8.290	0.810	0.038	94	1083
First Financial Corp IN	THFF	0.011	0.077	6.607	1.169	0.026	461	2999
Talmer Bancorp Inc	TLMR	0.015	-0.162	6.704	1.300	0.016	990	5868
Two River Bancorp	TRCB	0.008	0.139	7.317	0.713	0.038	67	781
Trustmark Corp	TRMK	0.010	0.112	7.628	1.166	0.024	1656	12251
TrustCo Bank Corp NY	TRST	0.010	-0.121	10.805	1.750	0.029	689	4645
United Security Bankshares	UBFO	0.009	0.343	7.007	1.007	0.035	83	663
United Financial Bancorp Inc	UBNK	0.001	0.010	8.101	1.181	0.027	711	5483
United Bancshares Inc	UBOH	0.007	0.052	8.594	0.718	0.026	49	650
Union Bankshares Corp	UBSH	0.007	0.152	6.529	1.112	0.033	1088	7364
United Bankshares Inc	UBSI	0.011	-0.248	6.444	1.567	0.031	2595	12329
United Community Banks Inc GA	UCBI	0.009	0.157	9.234	1.543	0.027	1141	7569
UMB Financial Corp	UMBF	0.007	0.059	9.647	1.576	-0.008	2590	17501
Umpqua Holdings Corp	UMPQ	0.007	-0.156	4.983	0.990	0.034	3745	22622
Union Bankshares Inc	UNB	0.012	0.184	11.133	2.059	0.028	106	624
Unity Bancorp Inc	UNTY	0.006	0.132	13.386	1.128	0.034	79	1009
US Bancorp DE	USB	0.015	0.322	8.114	1.821	0.009	80433	402529
Univest Corp of Pennsylvania	UVSP	0.010	0.229	6.856	1.154	0.014	328	2235
Village Bank & Trust Financial Corp	VBFC	-0.002	0.014	21.684	0.405	0.023	8	432
Western Alliance Bancorporation	WAL	0.014	0.043	9.591	2.446	0.039	2449	10600
Washington Trust Bancorp Inc	WASH	0.011	0.196	9.361	1.943	0.019	673	3588
Webster Financial Corp	WBS	0.009	0.263	8.707	1.264	0.025	2936	22545
Washington First Bancshares Inc	WFBI	0.007	0.192	8.936	0.871	0.039	117	1337
Wells Fargo & Co	WFC	0.014	0.328	8.100	1.534	0.005	284386	1687155
Wilshire Bancorp Inc	WIBC	0.014	0.097	7.491	1.621	0.032	793	4155
WSFS Financial Corp	WSFS	0.011	0.429	8.924	1.478	0.020	723	4853
WinTrust Financial Corporation	WTFC	0.008	0.384	8.678	1.057	0.025	2189	20032
Yadkin Financial Corp	YDKN	0.005	0.262	6.648	1.113	0.029	621	4266
Zions Bancorporation	ZION	0.007	0.517	6.763	0.785	0.026	5788	57209
Savings Banks								
Anchor Bancorp WA	ANCB	0.025	0.045	5.025	0.806	0.044	51	378
Access National Corp	ANCX	0.013	0.141	9.645	1.791	0.019	177	1053
A S B Bancorp Inc	ASBB	0.003	0.208	7.052	0.997	0.025	94	760
Bank Financial Corp	BFIN	0.028	0.212	5.781	1.158	0.032	250	1465
Bancorp of New Jersey Inc	BKJ	0.006	0.031	11.294	1.014	0.038	61	745
BankUnited Inc	BKU	0.011	-0.216	8.359	1.435	0.041	2945	19211
B of I Holding Inc	BOFI	0.013	-0.346	10.533	2.595	0.038	1169	5195
Carver Bancorp Inc	CARV	-0.002	0.079	10.891	0.426	0.026	23	644
Meta Financial Group Inc	CASH	0.007	0.071	10.477	1.185	0.000	218	2108
Cape Bancorp Inc	CBNJ	0.006	-0.074	6.665	0.766	0.039	108	1080
Chicopee Bancorp Inc	CBNK	-0.001	0.026	6.253	1.002	0.034	88	639
Capitol Federal Financial Inc	CFFN	0.009	-0.019	5.187	1.226	0.031	1798	9069
Clifton Bancorp Inc	CSBK	0.006	-0.145	2.294	1.014	0.030	369	1198
Citizens Community Bancorp Inc MD	CZWI	0.004	-0.048	8.745	0.811	0.036	48	571
ESSA Bancorp Inc	ESSA	0.006	-0.402	8.250	0.810	0.031	137	1568
Flagstar Bancorp Inc	FBC	-0.007	0.237	6.168	0.645	-0.007	885	9840
1st Constitution Bancorp	FCCY	0.005	0.126	9.984	0.892	0.035	78	957
First Clover Leaf Financial Corp	FCLF	0.006	0.108	6.878	0.796	0.032	61	608
First Defiance Financial Corp	FDEF	0.011	-0.281	6.796	1.125	0.023	315	2179
Flushing Financial Corp	FFIC	0.009	0.046	10.128	1.306	0.041	596	5077
First Financial Northwest Inc	FFNW	0.011	0.047	4.165	1.007	0.043	183	937
First Niagara Financial Group Inc	FNFG	-0.019	0.349	8.420	0.728	0.026	2979	38558
First Savings Financial Group Inc	FSFG	0.008	-0.086	7.027	0.642	0.036	57	718
Fox Chase Bancorp Inc	FXCB	0.007	0.188	5.242	1.118	0.036	197	1098

Firm	Ticker	ROA	GAP 12	D/E	MB	NIM	MKT Cap	TA
Home Bancorp Inc	HBCP	0.008	0.130	6.924	1.060	0.041	163	1221
Hopfed Bancorp Inc	HFBC	0.002	0.157	8.510	0.927	0.035	91	936
Heritage Financial Corp WA	HFWA	0.006	0.064	6.608	1.168	0.033	531	3458
HomeTrust Bancshares Inc	HTBI	0.003	0.111	5.931	0.894	0.026	341	2640
Investors Bancorp Inc	ISBC	0.007	0.003	4.233	1.123	0.035	4019	18722
MB Financial Inc	MBFI	0.006	0.277	6.199	1.211	0.009	2457	14602
Mackinac Financial Corp	MFNC	0.002	-0.075	9.052	1.004	0.036	74	744
Malvern Bancorp Inc	MLVF	0.001	-0.054	6.744	1.018	0.031	79	603
Northfield Bancorp Inc DE	NFBK	0.007	0.022	4.086	1.206	0.030	716	3021
Northrim Bancorp Inc	NRIM	0.012	0.254	7.814	1.094	0.029	180	1449
Northwest Bancshares Inc	NWBI	0.008	0.142	6.357	1.117	0.035	1187	7818
NY Community Bancorp Inc	NYCB	0.010	-0.017	7.399	1.225	0.035	7082	48559
OceanFirst Financial Corp	OCFC	0.008	0.195	9.817	1.327	0.029	290	2361
Ocean Shore Holding Co	OSHC	0.006	0.028	8.685	0.865	0.033	92	1025
Peoples United Financial Inc	PBCT	0.007	0.229	6.767	1.008	0.021	4672	35986
Prudential Bancorp Inc	PBIP	0.004	-0.013	3.114	0.914	0.031	117	527
Provident Financial Services Inc	PFS	0.009	0.074	6.449	1.031	0.031	1179	8523
Pacific Premier Bancorp Inc	PPBI	0.008	0.152	9.215	1.468	0.036	293	2039
Provident Financial Holdings Inc	PROV	0.007	0.272	6.706	0.943	0.003	136	1112
Pulaski Financial Corp	PULB	0.008	0.195	11.457	1.260	0.026	144	1426
Riverview Bancorp Inc	RVSB	0.024	0.023	7.088	0.983	0.029	101	828
SI Financial Group Inc MD	SIFI	0.003	0.090	7.551	0.918	0.030	145	1349
Southern Missouri Bancorp Inc	SMBC	0.009	0.015	8.976	1.079	0.035	140	1296
Sterling Bancorp DE	STL	0.008	0.224	6.619	1.237	0.032	1206	7430
Territorial Bancorp Inc	TBNK	0.008	-0.059	6.819	0.988	0.035	214	1692
Timberland Bancorp Inc	TSBK	0.008	0.248	7.899	0.887	0.032	75	750
United Community Bancorp	UCBA	0.004	-0.035	6.190	0.761	0.025	54	509
United Community Financial Corp Ohio	UCFC	0.027	0.137	6.645	1.101	0.029	264	1836
Washington Federal Inc	WAFD	0.011	-0.053	6.316	1.091	0.039	2161	14495
Westbury Bancorp Inc	WBB	-0.002	0.220	5.872	0.951	0.024	82	595
Bank Holding Companies								
Ameris Bancorp	ABCB	0.010	0.197	10.046	0.170	0.029	686	4043
Astoria Financial Corp	AF	0.006	0.084	8.898	0.085	0.031	1333	15640
American River Bankshares	AMRB	0.007	-0.049	5.891	0.123	0.031	76	618
Arrow Financial Corp	AROW	0.011	0.062	10.033	0.157	0.018	349	2217
AmeriServ Financial Inc	ASRV	0.003	0.071	8.521	0.054	0.027	59	1089
Ames National Corp	ATLO	0.012	0.105	7.411	0.186	0.028	242	1301
Auburn National Bancorp	AUBN	0.009	0.080	9.412	0.109	0.029	86	789
Bar Harbor Bankshares	BHB	0.010	-0.218	8.976	0.130	0.034	190	1459
Berkshire Hills Bancorp Inc	BHLB	0.005	0.127	8.173	0.103	0.027	671	6506
Bryn Mawr Bank Corp	BMTC	0.012	0.174	8.152	0.192	0.018	431	2247
BNC Bancorp	BNCN	0.007	-0.401	9.432	0.138	0.037	561	4073
Boston Private Financial Holdings Inc	BPFH	0.010	0.164	8.379	0.164	0.010	1117	6798
Brookline Bancorp Inc	BRKL	0.007	0.119	7.985	0.121	0.037	702	5800
First Busey Corp	BUSE	0.009	0.219	7.453	0.154	0.015	565	3666
Baylake Corp	BYLK	0.009	-0.183	8.688	0.111	0.029	113	1022
Cascade Bancorp	CACB	0.002	0.110	6.421	0.161	0.025	376	2341
California First National Bancor	CFNB	0.014	0.192	2.452	0.232	0.023	148	639
Cardinal Financial Corp	CFNL	0.010	0.063	8.009	0.187	0.028	636	3399
City Holding Co	CHCO	0.015	0.184	7.855	0.204	0.023	705	3461
Charter Financial Corp	CHFN	0.006	0.115	3.604	0.198	0.026	194	981
Citizens Holding Co	CIZN	0.008	0.288	10.252	0.103	0.029	95	921
Carolina Bank Holdings Inc	CLBH	0.005	0.140	11.919	0.049	0.027	33	680
CoBiz Financial Inc	COBZ	0.009	0.262	8.917	0.175	0.029	535	3062
Community Trust Bancorp Inc	CTBI	0.012	0.244	7.314	0.172	0.029	639	3724
Central Valley Community Bancorp	CVCY	0.004	0.085	8.098	0.102	0.032	122	1192
Codorus Valley Bancorp Inc	CVLY	0.010	0.036	9.249	0.095	0.037	115	1214
Community West Bancshares	CWBC	0.013	0.181	7.317	0.097	0.047	54	557

Firm	Ticker	ROA	GAP 12	D/E	MB	NIM	MKT Cap	TA
Citizens & Northern Corp	CZNC	0.014	-0.024	5.593	0.204	0.026	254	1242
Dime Community Bancshares	DCOM	0.010	-0.190	8.782	0.133	0.039	600	4497
D N B Financial Corp	DNBF	0.007	0.061	10.324	0.083	0.028	60	724
Enterprise Bancorp Inc	EBTC	0.007	0.189	11.113	0.127	0.034	258	2022
First Business Financial Services Inc	FBIZ	0.009	0.233	10.829	0.127	0.030	208	1629
First Community Corp SS	FCCO	0.006	0.073	9.903	0.093	0.026	75	813
First Interstate BancSystem Inc	FIBK	0.010	0.203	8.467	0.071	0.020	610	8605
Park National Corp	PRK	0.012	-0.155	9.025	0.195	0.030	1363	7003
Renasant Corp	RNST	0.010	0.218	7.157	0.157	0.029	913	5805
Salisbury Bancorp Inc	SAL	0.003	0.100	7.401	0.087	0.021	74	855
Sussex Bancorp	SBBX	0.004	-0.245	10.632	0.080	0.028	48	596
Simmons 1st National Corp	SFNC	0.008	0.104	8.393	0.158	0.024	734	4643
Tompkins Financial Corp	TMP	0.010	0.140	9.763	0.155	0.023	816	5270
United Security Bancshares Inc	USBI	0.006	-0.003	6.618	0.093	0.052	53	573
Westamerica Bancorporation	WABC	0.012	-0.190	8.564	0.251	0.019	1262	5036
West Bancorporation Inc	WTBA	0.012	0.108	10.527	0.169	0.031	273	1616
Investment Banks, Security Dealers/Brokers, Advisory Services								
American National Bankshares Inc	AMNB	0.009	0.165	6.748	1.124	0.030	195	1346
Goldman Sachs Group Inc	GS	0.010	0.487	9.292	1.015	-0.027	84422	856301
HomeStreet Inc	HMST	0.006	-0.128	10.695	0.856	-0.023	259	3535
Morgan Stanley Dean Witter & Co	MS	0.004	0.419	10.116	1.053	-0.035	75947	801510
Raymond James Financial Inc	RJF	0.020	0.607	4.321	1.779	-0.216	8110	24253
Schwab Charles Corp New	SCHW	0.009	-0.074	12.102	3.340	-0.009	39421	154642
Stifel Financial Corp	SF	0.018	0.485	3.099	1.450	-0.286	3368	9518
WesBanco Inc	WSBC	0.011	-0.202	6.992	1.294	0.027	1020	6300
Other Finance								
American Express Co	AXP	0.037	0.439	6.693	4.655	-0.154	96266	159103
Banner Corp	BANR	0.011	0.169	7.094	1.443	0.030	842	4724
Bank Mutual Corp	BKMU	0.006	0.108	7.185	1.123	0.027	319	2328
B O K Financial Corp	BOKF	0.010	0.243	7.737	1.244	0.005	4150	29148
Cass Information Systems Inc	CASS	0.016	-0.017	6.487	3.056	-0.031	613	1501
Colony Bancorp Inc	CBAN	0.007	0.068	10.582	0.672	0.035	66	1147
Community Bank System Inc	CBU	0.012	0.051	6.581	1.567	0.020	1548	7489
Cullen Frost Bankers Inc	CFR	0.010	0.440	8.942	1.562	0.015	4454	28348
Cheviot Financial Corp	CHEV	0.005	0.128	4.941	0.993	0.032	95	571
CU Bancorp	CUNB	0.004	0.398	7.113	1.300	0.023	363	2265
Emclair Financial Corp	EMCF	0.007	0.084	11.126	0.928	0.031	45	582
E Trade Financial Corp	ETFC	0.006	0.136	7.471	1.305	0.015	7016	45530
First American Financial Corp	FAF	0.030	0.501	1.976	1.412	-1.034	3636	7666
First Marblehead Corp	FMD	-0.100	0.239	2.632	0.561	-0.232	69	444
Hilltop Holdings Inc	HTH	0.012	0.257	5.325	1.231	-0.052	1799	9242
Marlin Business Services Corp	MRLN	0.025	-0.113	3.418	1.515	0.098	264	769
Oak Valley Bancorp	OVLV	0.010	0.257	8.994	1.094	0.034	82	749
Plumas Bancorp	PLBC	0.009	0.180	13.765	1.050	0.029	38	539
QCR Holdings Inc	QCRH	0.006	-0.206	16.525	0.986	0.028	142	2525
Tristate Capital Holdings Inc	TSC	0.006	0.501	8.322	0.941	0.018	287	2847
Valley National Bancorp	VLY	0.006	0.095	9.088	1.207	0.034	2248	18794

In this table, we present selected financial data for our sample. We obtain data for market capitalization from CRSP and balance sheet and income statement information from each firm's FR Y-9C, available from the Federal Reserve Bank of Chicago, as of December 31, 2014. We classify firms into industry subsectors according to their NAICS code, obtained from CRSP. Total Assets and Market Capitalization are in millions of US dollars. Variable definitions are provided in the Data and Sample Section.

TABLE 2A
SHARE PRICE RESPONSE TO THE FED'S INTEREST RATE ANNOUNCEMENT

Firm	Ticker	α_i		β_i		γ_i	
<i>Commercial Banks</i>							
Atlantic Coast Financial Corp	ACFC	-0.045	***	-0.255		0.068	
ACNB Corp	ACNB	-0.136	***	0.550		0.142	
Bank of America Corp	BAC	0.000		1.379	***	-0.034	***
Banc of California Inc	BANC	0.001	*	0.825	***	-0.013	
BancFirst Corp	BANF	0.000		0.909	***	-0.014	
BBCN Bancorp Inc	BBCN	0.000		1.132	***	-0.032	**
BB & T Corp	BBT	0.000		1.043	***	-0.029	***
BCB Bancorp Inc	BCBP	-0.137	***	-0.629		0.153	
Bridge Bancorp Inc	BDGE	0.001		0.805	***	-0.018	
Bank of NY Mellon Corp	BK	0.000		1.139	***	-0.015	
Bank South Carolina Corp	BKSC	-0.221	***	5.650		0.236	
BSB Bancorp Inc MD	BLMT	-0.008		-0.004		0.003	
Bank of Marin Bancorp	BMRC	0.000		0.522	***	0.010	
Bank of Commerce Holdings	BOCH	-0.018	**	0.069		0.018	
Bank of Hawaii Corp	BOH	0.001		0.977	***	-0.027	***
Popular Inc	BPOP	0.000		1.184	***	-0.027	**
Sierra Bancorp	BSRR	0.001		0.986	***	-0.009	
BancorpSouth Inc	BXS	0.000		1.319	***	-0.022	*
Citigroup Inc	C	0.000		1.467	***	-0.024	**
Camden National Corp	CAC	0.000		0.769	***	-0.004	
Cathay General Bancorp	CATY	0.001		1.251	***	-0.029	**
Capital Bank Financial Corp	CBF	0.001		0.867	***	-0.045	***
Commerce Bancshares Inc	CBSH	0.000		0.949	***	-0.023	**
Capital City Bank Group	CCBG	0.000		0.788	***	-0.007	
CNB Financial Corp PA	CCNE	0.000		0.815	***	-0.006	
C & F Financial Corp	CFFI	-0.091	***	2.083		0.072	
Chemical Financial Corp	CHFC	0.001		0.933	***	-0.019	*
Chemung Financial Corp	CHMG	-0.213	***	2.015		-1.784	***
CIT Group Inc	CIT	-0.001		1.160	***	-0.022	
Comerica Inc	CMA	0.000		1.390	***	-0.042	***
Century Bancorp Inc	CNBKA	0.000		0.693	***	0.000	
CommunityOne Bancorp	COB	0.001		1.178	***	0.019	
Capital One Financial Corp	COF	0.000		1.157	***	-0.022	*
Columbia Banking System Inc	COLB	0.001		1.207	***	-0.031	*
Central Pacific Financial Corp	CPF	0.001		0.999	***	-0.036	**
CenterState Banks Inc	CSFL	0.001		0.885	***	-0.022	*
Customers Bancorp Inc	CUBI	0.001		1.027	***	-0.030	*
CVB Financial Corp	CVBF	0.001		1.244	***	-0.031	***
Discover Financial Services	DFS	0.000		1.046	***	-0.008	
Eagle Bancorp Montana Inc	EBMT	-0.362	***	9.374	**	0.328	
Enterprise Financial Services Corp	EFSC	0.001	**	0.817	***	-0.003	
Eagle Bancorp Inc	EGBN	0.001	*	1.007	***	-0.009	
Community Bankers Trust Corp	ESXB	-0.036	***	-0.468		0.040	
Evans Bancorp Inc	EVBN	-0.568	***	-1.228		-1.429	
Eastern VA Bankshares Inc	EVBS	-0.109	***	-2.049		0.136	
EverBank Financial Corp	EVER	0.000		0.822	***	-0.016	
East West Bancorp Inc	EWBC	0.000		1.345	***	-0.036	***
First Bancshares Inc MS	FBMS	-0.412	***	3.657		-1.605	**
First Bancorp NC	FBNC	0.000		0.869	***	-0.007	
First Connecticut Bancorp Inc MD	FBNK	0.000		0.787	***	-0.018	
First Bancorp P R	FBP	0.000		2.056	***	-0.059	**
Fauquier Bankshares Inc	FBSS	-0.753	***	5.450		-1.211	
First Community Bancshares Inc	FCBC	0.001		0.948	***	-0.004	
First Commonwealth Financial Corp	FCF	0.000		1.162	***	-0.030	**
First Citizens Bancshares Inc NC	FCNCA	0.000		1.106	***	-0.028	**
First Financial Bancorp Ohio	FFBC	0.000		1.042	***	-0.029	**
First Financial Bankshares Inc	FFIN	0.000		1.192	***	-0.036	***

Firm	Ticker	α_i		β_i		γ_i	
Farmers Capital Bank Corp	FFKT	0.001		0.315	***	-0.018	
First Horizon National Corp	FHN	0.001		1.214	***	-0.024	**
Financial Institutions Inc	FISI	0.001		0.812	***	-0.007	
Fifth Third Bancorp	FITB	0.000		1.262	***	-0.040	***
First Long Island Corp	FLIC	0.000		0.915	***	0.000	
First Midwest Bancorp DE	FMBI	0.000		1.160	***	-0.034	***
FirstMerit Corp	FMER	0.001		1.215	***	-0.027	*
Farmers National Banc Corp	FMNB	-0.018	***	-0.344		-0.001	
FNB Corp PA	FNB	0.000		1.126	***	-0.030	***
First Bancorp Inc ME	FNLC	0.000		0.756	***	-0.006	
Republic First Bancorp Inc	FRBK	0.000		0.823	***	-0.031	
First Merchants Corp	FRME	0.001		0.977	***	-0.024	**
First South Bancorp Inc	FSBK	-0.172	***	-2.209		0.190	
Fulton Financial Corp PA	FULT	0.000		1.012	***	-0.030	***
First United Corp	FUNC	-0.090	***	1.375		0.085	
German American Bancorp Inc	GABC	0.001		0.855	***	-0.009	
Glacier Bancorp Inc	GBCI	0.000		1.379	***	-0.034	***
Guaranty Bancorp	GBNK	0.000		0.879	***	-0.004	
Guaranty Federal Bancshares Inc	GFED	-0.499	***	4.107		0.497	
Great Southern Bancorp Inc	GSBC	0.001		1.124	***	-0.029	*
Hanmi Financial Corp	HAFC	0.000		1.181	***	-0.036	***
Huntington Bancshares Inc	HBAN	0.000		1.118	***	-0.036	***
Hancock Holding Co	HBHC	-0.001		1.511	***	-0.028	***
Horizon Bancorp IN	HBNC	0.000		0.673	***	0.007	
Heritage Oaks Bancorp	HEOP	0.000		0.998	***	-0.015	
HF Financial Corp	HFFC	-0.208	***	1.702		0.205	
HMN Financial Inc	HMNF	-0.308	***	0.731		0.306	
Hampton Roads Bankshares Inc	HMPR	0.000		1.208	***	0.015	
Home BancShares Inc	HOMB	0.001		1.173	***	-0.019	
Heritage Commerce Corp	HTBK	0.001		0.736	***	-0.003	
Heartland Financial USA Inc	HTLF	0.001		1.041	***	-0.018	
Independent Bank Corp MI	IBCP	0.000		0.615	***	-0.018	
IberiaBank Corp	IBKC	0.000		1.245	***	-0.029	**
International Bancshares Corp	IBOC	0.000		1.430	***	-0.034	**
Independent Bank Group Inc	IBTX	-0.001		1.418	***	-0.037	*
First Internet Bancorp	INBK	0.001		0.595	***	0.003	
Independent Bank Corp MA	INDB	0.001		1.052	***	-0.007	
IF Bancorp Inc	IROQ	-0.536	***	-0.243		0.538	
JP Morgan Chase & Co	JPM	0.000		1.227	***	-0.028	***
KeyCorp	KEY	0.000		1.275	***	-0.036	***
Lakeland Bancorp Inc	LBAI	0.000		1.103	***	-0.007	
LCNB Corp	LCNB	-0.027	**	0.559		0.020	
Fidelity Southern Corp	LION	0.001		0.864	***	-0.019	
Lakeland Financial Corp	LKFN	0.001		0.761	***	-0.007	
Middleburg Financial Corp	MBRG	-0.081		1.702		0.086	
MBT Financial Corp	MBTF	-0.008		0.196		0.060	
Merchants Bancshares Inc	MBVT	0.000		0.742	***	0.008	
Mercantile Bank Corp	MBWM	0.000		0.877	***	-0.006	
Macatawa Bank Corp	MCBC	0.001		0.621	***	-0.015	
MutualFirst Financial Inc	MFSF	-0.136	***	-1.648		0.150	
Monarch Financial Holdings Inc	MNRK	-0.017	*	1.214		0.002	
MidWestOne Financial Group Inc	MOFG	0.001		0.801	***	-0.001	
MainSource Financial Group Inc	MSFG	0.001		0.952	***	-0.005	
MidSouth Bancorp Inc	MSL	-0.002	**	1.081	***	-0.023	
M & T Bank Corp	MTB	0.000		1.039	***	-0.018	*
National Bank Holdings Corp	NBHC	0.000		0.766	***	-0.033	***
Northeast Bancorp	NBN	-0.245	***	2.208		0.247	
NBT Bancorp Inc	NBTB	0.001		0.987	***	-0.020	*
National Bankshares Inc	NKSH	0.000		0.875	***	0.000	
National Penn Bancshares Inc	NPBC	0.000		0.913	***	-0.020	
Northern Trust Corp	NTRS	0.000		1.199	***	-0.024	**

Firm	Ticker	α_i		β_i		γ_i	
Norwood Financial Corp	NWFL	-0.435	***	2.624		0.437	
OFG Bancorp	OFG	-0.001		1.806	***	-0.036	
Southwest Bancorp Inc OK	OKSB	0.000		0.870	***	0.005	
Old Line Bancshares	OLBK	-0.009		0.265		0.017	
Old National Bancorp	ONB	0.000		1.129	***	-0.030	***
Old Point Financial Corp	OPOF	-0.273	***	-3.728		0.296	
Oritani Financial Corp	ORIT	0.000		0.738	***	-0.020	*
Orrstown Financial Services Inc	ORRF	-0.046	***	-1.832		0.083	
Old Second Bancorp Inc	OSBC	0.001		0.656	***	-0.007	
Ohio Valley Banc Corp	OVBC	-0.546	***	-3.449		0.568	
Bank of The Ozarks Inc	OZRK	0.001		1.346	***	-0.025	*
PacWest Bancorp DE	PACW	0.000		1.330	***	-0.030	***
Prosperity Bancshares Inc	PB	0.000		1.421	***	-0.036	***
Porter Bancorp Inc	PBIB	-0.126	***	1.859		0.145	
Pacific Continental Corp	PCBK	0.001		0.903	***	-0.009	
Peoples Bancorp NC Inc	PEBK	-0.336	***	4.829		0.297	
Peoples Bancorp Inc	PEBO	0.000		0.913	***	-0.028	*
Premier Financial Bancorp Inc	PFBI	0.000		0.375	***	-0.017	
Peoples Financial Corp MS	PFBX	-0.487	***	7.742		0.453	
Peapack Gladstone Financial Corp	PGC	0.000		0.820	***	-0.016	
Parke Bancorp Inc	PKBK	-0.162	***	6.865	**	0.129	
Pacific Mercantile Bancorp	PMBC	-0.036	***	2.768	*	0.095	
PNC Financial Services Group Inc	PNC	0.000		1.062	***	-0.026	***
Pinnacle Financial Partners Inc	PNFP	0.001		1.317	***	-0.025	**
Park Sterling Bank	PSTB	0.000		0.870	***	-0.012	
Privatebancorp Inc	PVTB	0.001	*	1.400	***	-0.030	**
Penns Woods Bancorp Inc	PWOD	0.000		0.733	***	0.012	
Republic Bancorp Inc KY	RBCAA	0.000		0.978	***	-0.020	
Royal Bancshares PA Inc	RBPAA	-0.008		0.898		0.033	
Regions Financial Corp	RF	0.000		1.348	***	-0.034	***
Sandy Spring Bancorp Inc	SASR	0.001		1.029	***	-0.015	
Seacoast Banking Corp FL	SBCF	0.001	*	0.913	***	-0.010	
S B Financial Group Inc	SBFG	-0.190	***	5.197		0.204	
Southside Bancshares Inc	SBSI	0.000		1.081	***	-0.026	*
Southern First Bancshares Inc	SFST	-0.271	***	0.634		0.263	
Southwest Georgia Financial Corp	SGB	-0.671	***	-0.702		0.708	
Shore Bancshares Inc	SHBI	-0.100	***	-0.860		0.109	
SVB Financial Group	SIVB	0.000		1.770	***	-0.037	**
Sun Bancorp Inc NJ	SNBC	0.009		1.716	*	-0.017	
Synovus Financial Corp	SNV	0.001		1.212	***	-0.031	***
Southern National Bancorp VA Inc	SONA	-0.109	***	1.082		0.110	
1st Source Corp	SRCE	0.000		0.997	***	-0.014	
South State Corp	SSB	0.000		0.995	***	-0.017	
Stewardship Financial Corp	SSFN	-0.526	***	10.382	**	0.463	
S & T Bancorp Inc	STBA	0.000		1.018	***	-0.024	*
State Bank Financial Corp	STBZ	0.001		0.935	***	-0.029	**
SunTrust Banks Inc	STI	0.000		1.233	***	-0.030	***
State Street Corp	STT	0.000		1.318	***	-0.014	
Severn Bancorp Inc MD	SVBI	-0.307	***	8.329	**	0.268	
Stock Yards Bancorp Inc	SYBT	0.001		1.009	***	0.003	
Bancorp Inc	TBBK	-0.001		1.365	***	-0.026	
TCF Financial Corp	TCB	0.000		1.306	***	-0.034	***
Texas Capital Bancshares Inc	TCBI	0.000		1.494	***	-0.049	***
Trico Bancshares	TCBK	0.000		0.849	***	-0.020	*
Community Financial Corp MD	TCFC	-0.811	***	5.301		0.777	
First Financial Corp IN	THFF	0.000		0.848	***	-0.002	
Talmer Bancorp Inc	TLMR	0.001		0.679	***	-0.026	**
Two River Bancorp	TRCB	-0.282	***	1.279		0.271	
Trustmark Corp	TRMK	0.000		1.070	***	-0.029	***
TrustCo Bank Corp NY	TRST	0.000		1.046	***	-0.016	
United Security Bankshares	UBFO	-0.145	***	-0.285		0.146	

Firm	Ticker	α_i		β_i		γ_i	
United Financial Bancorp Inc	UBNK	0.000		0.818	***	-0.006	
United Bancshares Inc	UBOH	-0.336	***	-5.296		0.355	
Union Bankshares Corp	UBSH	0.000		0.970	***	-0.026	**
United Bankshares Inc	UBSI	0.001		1.045	***	-0.029	**
United Community Banks Inc GA	UCBI	0.001		1.142	***	-0.030	**
UMB Financial Corp	UMBF	0.000		1.175	***	-0.030	**
Umpqua Holdings Corp	UMPQ	0.000		1.168	***	-0.027	**
Union Bankshares Inc	UNB	-0.281	***	1.118		0.278	
Unity Bancorp Inc	UNTY	-0.181	***	-1.050		0.181	
US Bancorp DE	USB	0.000		1.032	***	-0.021	**
Univest Corp of Pennsylvania	UVSP	0.000		0.782	***	0.008	
Village Bank And Trust Financial Corp	VBFC	-0.813	***	-14.277	*	-1.165	
Western Alliance Bancorporation	WAL	0.001	*	1.367	***	-0.032	**
Washington Trust Bancorp Inc	WASH	0.000		0.906	***	-0.003	
Webster Financial Corp	WBS	0.001		1.262	***	-0.029	**
Washington First Bancshares Inc	WFBI	-0.427	***	-0.556		0.429	
Wells Fargo & Co	WFC	0.000		1.052	***	-0.032	***
Wilshire Bancorp Inc	WIBC	0.000		1.165	***	-0.026	*
WSFS Financial Corp	WSFS	-0.001		1.035	***	-0.028	
WinTrust Financial Corporation	WTFC	0.000		1.081	***	-0.028	***
Yadkin Financial Corp	YDKN	0.001		1.005	***	-0.028	**
Zions Bancorporation	ZION	0.000		1.424	***	-0.040	***
Savings Banks							
Anchor Bancorp WA	ANCB	-0.336	***	3.162		0.329	
Access National Corp	ANCX	0.001		0.584	***	-0.006	
ASB Bancorp Inc	ASBB	-0.549	***	4.295		-1.464	
Bank Financial Corp	BFIN	0.000		0.724	***	-0.015	
Bancorp of New Jersey Inc	BKJ	-0.328	***	-5.274		0.338	
BankUnited Inc	BKU	0.000		1.128	***	-0.029	***
B of I Holding Inc	BOFI	-0.001		1.158	***	-0.011	
Carver Bancorp Inc	CARV	-0.464	***	-6.301		0.520	
Meta Financial Group Inc	CASH	0.001		0.768	***	-0.023	
Cape Bancorp Inc	CBNJ	0.001		0.181	***	-0.007	
Chicopee Bancorp Inc	CBNK	-0.354	***	-0.843		0.390	
Capitol Federal Financial Inc	CFFN	0.000		0.688	***	-0.009	
Clifton Bancorp Inc	CSBK	0.001		0.438	***	-0.004	
Citizens Community Bancorp Inc MD	CZWI	-0.363	***	5.321		0.350	
ESSA Bancorp Inc	ESSA	0.000		0.119	***	0.001	
Flagstar Bancorp Inc	FBC	0.001		0.948	***	-0.009	
1st Constitution Bancorp	FCCY	-0.254	***	-2.440		0.278	
First Clover Leaf Financial Corp	FCLF	-0.669	***	2.204		-1.323	
First Defiance Financial Corp	FDEF	0.001		0.790	***	-0.015	
Flushing Financial Corp	FFIC	0.000		0.989	***	-0.011	
First Financial Northwest Inc	FFNW	0.001		0.385	***	-0.005	
First Niagara Financial Group Inc	FNFG	0.001		1.009	***	-0.032	**
First Savings Financial Group Inc	FSFG	-0.632	***	0.472		0.656	
Fox Chase Bancorp Inc	Fxcb	0.000		0.394	***	-0.003	
Home Bancorp Inc	HBCP	-0.027	**	-1.338		0.032	
Hopfed Bancorp Inc	HFBC	-0.009		-0.202		0.017	
Heritage Financial Corp WA	HFWA	0.000		0.776	***	-0.009	
HomeTrust Bancshares Inc	HTBI	0.000		0.470	***	-0.005	
Investors Bancorp Inc	ISBC	0.000		0.824	***	-0.017	**
MB Financial Inc	MBFI	0.001		1.204	***	-0.030	**
Mackinac Financial Corp	MFNC	-0.426	***	-3.868		0.446	
Malvern Bancorp Inc	MLVF	-0.226	***	3.528		0.213	
Northfield Bancorp Inc DE	NFBK	0.001		0.568	***	-0.008	
Northrim Bancorp Inc	NRIM	0.000		0.657	***	-0.002	
Northwest Bancshares Inc	NWBI	0.000		0.730	***	-0.025	***
NY Community Bancorp Inc	NYCB	0.000		0.870	***	-0.021	**
OceanFirst Financial Corp	OCFC	0.000		0.710	***	-0.021	*
Ocean Shore Holding Co	OSHC	-0.045	***	2.180		0.026	

Firm	Ticker	α_i		β_i		γ_i	
Peoples United Financial Inc	PBCT	0.000		0.847	***	-0.024	***
Prudential Bancorp Inc	PBIP	-0.054	***	-1.823		0.075	
Provident Financial Services Inc	PFS	0.001		0.882	***	-0.017	*
Pacific Premier Bancorp Inc	PPBI	0.001	*	0.765	***	-0.013	
Provident Financial Holdings Inc	PROV	0.000		0.269	***	0.005	
Pulaski Financial Corp	PULB	0.001		0.348	***	-0.012	
Riverview Bancorp Inc	RVSB	-0.018	*	1.169		0.057	
SI Financial Group Inc MD	SIFI	-0.027	**	-0.476		0.024	
Southern Missouri Bancorp Inc	SMBC	-0.437	***	1.466		0.445	
Sterling Bancorp DE	STL	0.001	*	1.025	***	-0.018	
Territorial Bancorp Inc	TBNK	0.001		0.415	***	-0.008	
Timberland Bancorp Inc	TSBK	-0.181	***	3.224		0.168	
United Community Bancorp	UCBA	-0.444	***	6.588		0.390	
United Community Financial Corp Ohio	UCFC	0.001		0.920	***	-0.011	
Washington Federal Inc	WAFD	0.000		1.091	***	-0.024	***
Westbury Bancorp Inc	WBB	-0.208		3.405		0.179	
Bank Holding Companies							
Ameris Bancorp	ABCB	0.001		0.832	***	-0.014	
Astoria Financial Corp	AF	0.001		0.969	***	-0.019	*
American River Bankshares	AMRB	-0.137	***	-5.257	*	0.144	
Arrow Financial Corp	AROW	0.000		0.666	***	-0.027	***
AmeriServ Financial Inc	ASRV	-0.027	**	1.259		0.035	
Ames National Corp	ATLO	0.000		1.125	***	0.001	
Auburn National Bancorp	AUBN	-0.472	***	4.641		0.446	
Bar Harbor Bankshares	BHB	0.001		0.713	***	0.007	
Berkshire Hills Bancorp Inc	BHLB	0.001		0.852	***	-0.017	*
Bryn Mawr Bank Corp	BMTC	0.000		0.727	***	-0.025	**
B N C Bancorp	BNCN	0.001		0.940	***	-0.011	
Boston Private Financial Holdings Inc	BPFH	0.000		1.142	***	-0.029	**
Brookline Bancorp Inc	BRKL	0.001		0.813	***	-0.020	*
First Busey Corp	BUSE	0.005		1.959	***	0.003	
Baylake Corp	BYLK	-0.100	***	-0.018		0.091	
Cascade Bancorp	CACB	0.000		0.864	***	0.011	
California First National Bancor	CFNB	-0.568	***	3.669		-1.445	
Cardinal Financial Corp	CFNL	0.001		1.025	***	-0.026	**
City Holding Co	CHCO	0.000		0.928	***	-0.022	*
Charter Financial Corp	CHFN	0.001		0.458	***	-0.002	
Citizens Holding Co	CIZN	-0.494	***	-1.597		-1.497	*
Carolina Bank Holdings Inc	CLBH	-0.262	***	0.174		0.234	
CoBiz Financial Inc	COBZ	0.001		0.958	***	-0.021	
Community Trust Bancorp Inc	CTBI	0.000		0.735	***	-0.012	
Central Valley Community Bancorp	CVCY	-0.100	***	4.673	*	0.102	
Codorus Valley Bancorp Inc	CVLY	-0.318	***	-1.248		0.322	
Community West Bancshares	CWBC	-0.436	***	-1.033		0.447	
Citizens & Northern Corp	CZNC	0.000		0.607	***	-0.008	
Dime Community Bancshares	DCOM	0.000		0.789	***	-0.019	*
DNB Financial Corp	DNBF	-0.562	***	-1.863		0.575	
Enterprise Bancorp Inc	EBTC	0.001		1.226	***	-0.009	
First Business Financial Services Inc	FBIZ	-0.001		0.665	***	-0.008	
First Community Corp Sc	FCCO	-0.372	***	-3.778		0.423	
First Interstate BancSystem Inc	FIBK	0.000		0.943	***	-0.026	**
Park National Corp	PRK	0.001		1.081	***	-0.016	
Renasant Corp	RNST	0.001		1.012	***	-0.014	
Salisbury Bancorp Inc	SAL	-0.482	***	-2.847		0.499	
Sussex Bancorp	SBBX	-0.382	***	-2.881		0.395	
Simmons 1st National Corp	SFNC	0.001		0.973	***	-0.028	**
Tompkins Financial Corp	TMP	0.001		1.006	***	-0.015	
United Security Bancshares Inc	USBI	-0.226	***	3.619		0.226	
Westamerica Bancorporation	WABC	0.000		1.051	***	-0.021	*
West Bancorporation Inc	WTBA	0.001		1.007	***	-0.015	

Firm	Ticker	α_i		β_i		γ_i	
Investment Banks, Security Dealers/Brokers, Advisory Services							
American National Bankshares Inc	AMNB	0.001		0.930	***	-0.003	
Goldman Sachs Group Inc	GS	0.000		1.232	***	-0.017	*
HomeStreet Inc	HMST	0.001		0.668	***	-0.027	*
Morgan Stanley Dean Witter & Co	MS	0.000		1.505	***	-0.022	**
Raymond James Financial Inc	RJF	0.000		1.258	***	-0.031	***
Schwab Charles Corp	SCHW	0.001		1.537	***	-0.049	***
Stifel Financial Corp	SF	-0.001		1.489	***	-0.019	
WesBanco Inc	WSBC	0.000		0.944	***	-0.012	
Other Finance							
American Express Co	AXP	-0.001		0.739	***	-0.005	
Banner Corp	BANR	0.000		1.101	***	-0.030	**
Bank Mutual Corp	BKMU	0.001		0.946	***	-0.007	
B O K Financial Corp	BOKF	0.000		1.286	***	-0.025	**
Cass Information Systems Inc	CASS	0.001		1.147	***	-0.015	
Colony Bankcorp Inc	CBAN	-0.399	***	0.911		0.395	
Community Bank System Inc	CBU	0.000		1.021	***	-0.017	
Cullen Frost Bankers Inc	CFR	0.000		1.362	***	-0.026	*
Cheviot Financial Corp	CHEV	-0.108	***	1.335		0.105	
CU Bancorp	CUNB	0.000		0.687	***	0.003	
Emclaire Financial Corp	EMCF	-0.735	***	4.381		0.718	
E Trade Financial Corp	ETFC	0.001		1.590	***	-0.035	**
First American Financial Corp	FAF	0.001		0.894	***	0.009	
First Marblehead Corp	FMD	0.001		1.519	***	0.038	
Hilltop Holdings Inc	HTH	0.000		1.378	***	-0.024	*
Marlin Business Services Corp	MRLN	0.000		1.167	***	0.006	
Oak Valley Bancorp	OVLY	-0.564	***	6.630		0.517	
Plumas Bancorp	PLBC	-0.491	***	-9.821	**	0.554	
QCR Holdings Inc	QCRH	-0.008		0.010		-0.001	
Tristate Capital Holdings Inc	TSC	0.000		0.944	***	-0.021	
Valley National Bancorp	VLY	0.000		0.988	***	-0.018	**
Joint test for all firms							
H1: $\gamma_1 = \gamma_2 = \dots = \gamma_n = 0$						837.83	***
Joint test for all firms							
H2: $\gamma_1 = \gamma_2 = \dots = \gamma_n$						837.70	***

In this table, we present the abnormal returns to each firm to the Fed's announcement that they were not increasing interest rates on September 17, 2015 estimated using Equation (1) as follows: $R_{i,t} = \alpha_i + \beta_i R_{M,t} + \gamma_i D_t + e_{i,t}$, where $R_{i,t}$ is the return of the stock on the i^{th} day, $R_{M,t}$ is the return on the Equally-Weighted CRSP Index on day t , and D_t is a dummy variable taking the value of 1 on the event day (September 17, 2015) and 0 otherwise. We calculate daily returns using security prices obtained from CRSP for the period of June 30, 2014 through March 31, 2016. We classify firms into industry subsectors according to their NAICS code, obtained from CRSP. Significance is denoted by ***, **, and * at the 1%, 5%, and 10% levels, respectively.