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Systematically Important Banks and Increased Capital Requirements in the Dodd-Frank Era

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Abstract

This paper analyzes the effects of new capital requirements for systematically important financial institutions proposed by the Federal Reserve on September 8, 2014. Results from an event study indicate this announcement led to lower abnormal initial stock returns for systemically important financial firms that then reverse and dissipate after three days. Further, findings suggest that the announcement of the proposed rule change had no impact on key interest series. Overall, the results are consistent with an initial overreaction and subsequent market correction to the announcement of the proposed regulation by equity market investors.

After the market close on September 8, 2014, the Federal Reserve proposed increased capital requirements for systematically important financial institutions using powers established by the 2010 Dodd-Frank Act.[1] This paper analyzes the effects of this surprise announcement on the equity returns of systematically important financial institutions and key interest rate series.[2] Our findings imply that abnormal returns for the systematically important financial institutions initially fell after the announcement of the proposed rule changes. These effects then dissipated after three days; consistent with an initial overreaction and subsequent correction in equity markets. Further, the results indicate that the policy intervention had no effect on Treasury yields or corporate bond rates; suggesting that the announcement of the newly proposed capital requirements had no impact on key financial market interest rates.

1 Data

We consider the stock prices for all members of the S&P500 Financials Index using data from Yahoo Finance.[3] Systematically important financial institutions are from the Financial Stability Board.[4] We download equity market cap information from Bloomberg. Lastly, the 2-, 5-, 10-, 20-, and 30-year zero-coupon Treasury yields and the Moody's Aaa and Baa seasoned corporate bond yields are also from Bloomberg.

2 Event Study and Main Results

To assess the effects of the announcement of the proposed increase in capital requirements, we employ an event study framework. The surprise announcement and hence the exogenous shock is the proposed capital requirements disclosed in Congressional Testimony by Fed Governor Daniel Tarullo. While the Fed Governor Tarullo did not explicitly state the precise capital levels that would be implemented, he did signal that he Fed would pursue

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[1]See "The Fed Wants Capital, Not Punishment." *Bloomberg News*. September 9, 2014. Available at http://www.bloombergview.com/articles/2014-09-09/the-fed-wants-capital-not-punishment; and "Fed to Hit Biggest U.S. Banks With Tougher Capital Surcharge." *The Wall Street Journal*. September 9, 2014. Available at http://online.wsj.com/articles/feds-tarullo-says-fed-board-will-unveil-systemically-important-financial-institution-surcharge-rule-soon-1410211114. For an overview of the Dodd-Frank Act see Acharya et al. (2010).

[2]The list of systematically important financial institutions is constructed by the Financial Stability Board. See http://www.financialstabilityboard.org/publications/r_131111.htm.

[3]The S&P500 Financials Index contains 83 firms in total.

[4]We include systematically important financial institutions that are traded on US exchanges. The firms include JP Morgan (JPM) ,Citigroup (C), Goldman Sachs (GS) ,Morgan Stanley (MS), The Bank of New York Mellon Corp (BK), State Street (STT), and Wells Fargo (WFC).

more stringent capital requirements.[5] The methodology and results are discussed for the equity returns on the systematically important financial firms and for the key interest rate series in turn.

2.1 Systematically Important Financial Institutions and Stock Returns

Our event study methodology follows Acemoglu et al. (2013) and Campbell, Lo, and MacKinlay (1997).[6] The proposed rule changes were announced after the market closed on September 8, 2014. Thus, the timing of our event study is as follows: We let Period 0 be the time from the market close on September 8, 2014 to the market opening on September 9, 2014; then Period 1 is the time from the market opening on September 9 to the market close on September 9; and Period 2 is defined as the time from the market close on September 9 to the market close on September 10. From there, we follow Acemoglu et al. (2013) and calculate abnormal returns and cumulative abnormal for all stocks that make up the S&P500 Financials Index.[7] With the abnormal and cumulative abnormal returns in hand, we examine the mean returns for the systematically important and non-important financial firms and the corresponding difference in the mean returns between these two groups. A two-sided t-test is used to evaluate the null hypothesis that the difference in mean returns between these two groups is equal to zero. Also, we assess the effects of the announcement on equity returns for the systematically important

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[5]As noted by a referee, the effects of the proposed capital regulations may be related to the increases in bank capital requirements or to an increase in uncertainty associated with the policy change as the exact level of capital increases was not explicitly stated. To examine the effects of the policy on uncertainty, we download from Datastream the Chicago Board Options Exchange (CBOE) implied volatility indices for the S&P500, the NASDAQ 100, the Dow Jones Industrial Average, the Russell 2000, Amazon, Apple, Goldman Sachs, Google, and IBM (all equity implied volatility indices that are available). Following Bloom (2009) and Lutz (2014), the implied volatility indices can be interpreted as measures of uncertainty. We find that the average percentage increase from the close on September 8 to the close on September 9, 2014 was 3.54 percent with a standard deviation of 5.55 percentage points across all of the considered VIX indices. The increase in the VIX for Goldman Sachs, the only systematically important financial institution for which an implied volatility measure is calculated, was 3.94 percent. In a statistical test, we fail to reject the null hypothesis that the increase in uncertainty for Goldman Sachs was different from the mean. If uncertainty increased due to this change in regulatory policy, we would expect there to be a related increase in uncertainty for Goldman Sachs returns. Yet we do not find any such increase in the Goldman Sachs VIX. Hence, our results are consistent with investors reacting to increased capital standards, not an increase in uncertainty regarding future direction of policy.

[6]For other recent event studies see Krishnamurthy and Vissing-Jorgensen (2011) and Glick and Leduc (2013)

[7]As in Acemoglu et al. (2013), abnormal returns (AR) are calculated as $AR_{it} = R_{it} - [\hat{\alpha}_i + \hat{\beta}_i R_{mt}]$; where R_{it} is the return for firm i at time t, R_{mt} is the market return measured by the S&P500, and $\hat{\alpha}_i$ and $\hat{\beta}_i$ are estimated from the equation $R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$ over a 250-day window 30 days prior to Period 0. Then cumulative abnormal returns are computed using the following formula: $CAR[0, n]_i = \sum_{t=0}^{n} AR_{in}$. Note that an assumption with this approach is that the CAPM model holds with when calculating abnormal returns.

financial firms using a regression model; this approach allows us to control firm-level characteristics including firm size.[8] The results are reported in table 1.[9] First, the results are qualitatively similar across the OLS and the difference-in-means analysis; indicating that controlling for firm size does not have a meaningful impact on our results. Next, the findings indicate that in response to the announcement of the proposed capital increases, the returns on systematically important firms fell by approximately 0.51 percent during Period 0 and by 0.74 percent after both Periods 0 and 1 relative to systematically non-important financial firms.[10] Then the effect of the announcement dissipates after Period 2 as the OLS estimate when the cumulative abnormal returns serve as the dependent variable becomes insignificant. Overall, these results are consistent with an initial overreaction and subsequent market correction in the relative response of returns on systematically important financial firms to the announcement of the newly proposed capital requirements on September 8, 2014.

2.2 Increased Capital Requirements and Key Financial Market Interest Rates

Next, we examine the impact of the increased capital requirements on key financial market interest rates including zero-coupon Treasury yields and Moody's corporate bond yields.[11] Here, we aim to assess the hypothesis considered by the Bank of International Settlements that increased capital requirements would induce banks to reduce lending and thus widen interest rate spreads.[12] Changes and cumulative changes in the interest rate series are calculated for Periods 0, 1, and 2 and statistical significance is assessed via a bootstrapping algorithm.[13] Overall, this approach mirrors that used above for equity returns. The results, which are presented in table 2, indicate that the announcement of

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[8]Specifically, we estimate the following regression model: $Z_i = \beta_0 + \beta_1 Important_i + \beta_2 log(size_i) + \varepsilon_i$, where Z_i is the abnormal or cumulative abnormal return for firm i for the relevant period, $Important_i$ is a dummy variable for systematically important financial firms, and $size_i$ is the market cap for firm i. p-values are then calculated using a bootstrapping algorithm.

[9]In the table, p-values are in parentheses.

[10]We obtain these point estimates using the OLS estimates.

[11]As the Treasury rates and corporate bond yields are only available at the end of the trading day, our timing for the event study in this section is as follows: Periods 0, 1, and 2 represent the market close on September 9, September 10, and September 11 for the year 2014, respectively.

[12]"How have banks adjusted to higher capital requirements?" *BIS Quarterly Review.* September 2013.

[13]We calculate the daily first difference in yields (Diff) as follows: $Diff_{it} = Y_{it} - Y_{i,t-1}$, where Y_{it} is the yield for interest rate series i at time t. Cumulative differences (CumDiff), the total change in the interest rate series, is calculated as $CumDiff[0,n]_i = \sum_{t=0}^{n} Diff_{in}$. 95-percent bootstrapped confidence intervals are computed using one year of data 30 days prior to Period 0 using the relevant window for Diff and CumDiff, respectively.

the proposed capital increases for systematically important financial institutions did not have an economically meaningful impact on key financial market and economic interest rates.[14]

3 Conclusion

Using an event-study approach, we assess the impact of recently proposed capital increases for systematically important financial institutions on the stock returns for these institutions as well as for important financial market and economic interest rates. Our results indicate that the announcement of the proposed regulation led to an initial decrease and subsequent reversal in the relative returns of systematically important financial firms. These results are consistent with an initial overreaction and eventual correction in the equity returns of major financial firms. Further, findings suggest that the proposal of the increased capital standards for large financial institutions had no impact on economic and financial market interest rates.

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[14]All of the Differences and Cumulative Differences in the interest rate series lie inside their respective 95-percent bootstrapped confidence intervals; suggesting that the proposed regulation had little impact on key interest rates.

References

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A Tables

Table 1: Event Study – Financial Firms

	Panel A: Abnormal Returns				Panel B: Cumulative Abnormal Returns			
Period	Important	Non-Important	Diff	OLS	Important	Non-Important	Diff	OLS
0	-0.609	-0.119	-0.490*	-0.509*	-0.609	-0.119	-0.490*	-0.509*
			(0.007)	(0.001)			(0.007)	(0.001)
1	-0.129	0.033	-0.163	-0.226	-0.738	-0.086	-0.652*	-0.735*
			(0.340)	(0.229)			(0.016)	(0.001)
2	0.518	-0.306	0.824*	0.871*	-0.219	-0.391	0.172	0.136
			(0.000)	(0.005)			(0.521)	(0.702)

Notes: This table presents stock returns of systematically important and non-important financial firms around the announcement of proposed increased capital standards for systematically important financial institutions. Period 0 is the time from the market close on September 8, 2014 to the market opening on September 9, 2014; Period 1 is the time from market opening on September 9, 2014 to the market close on September 9, 2014; and period 2 is defined as the time from the market close on September 9, 2014 to the market close on September 10, 2014. Panel A presents abnormal returns (AR) calculated as $AR_{it} = R_{it} - [\hat{\alpha}_i + \hat{\beta}_i R_{mt}]$; where R_{it} is the return for firm i at time t, R_{mt} is the market return measured by the S&P500, and $\hat{\alpha}_i$ and $\hat{\beta}_i$ are estimated from the equation $R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$ over a 250-day window 30 days prior to period 0. Panel B presents cumulative abnormal returns, the cumulative sum of the abnormal returns, calculated as $CAR[0, n]_i = \sum_{t=0}^{n} AR_{in}$. In each panel, the first two columns show the mean returns for the systematically important financial firms and the systematically non-important financial firms. The difference in the means and the corresponding p-value from a two-sided t-test is parentheses is in column three. The far right column in each panel shows the results from the following regression: $Z_i = \beta_0 + \beta_1 Important_i + \beta_2 log(size_i) + \varepsilon_i$, where Z_i is the abnormal or cumulative abnormal return for firm i for the relevant period, $Important_i$ is a dummy variable for systematically important financial firms, and $size_i$ is the market cap for firm i. The estimate for β_1 is reported in the table and bootstrapped p-values are in parentheses. An asterisk represents significance at the 5 percent level.

Table 2: Event Study–Treasury and Corporate Interest Rates

Period	2-Year	5-Year	10-Year	20-Year	30-Year	Aaa	Baa
				Panel A: Difference			
0	0.018	0.021	0.012	-0.002	-0.022	0.010	0.010
	(-0.030,0.027)	(-0.077,0.064)	(-0.083,0.068)	(-0.077,0.066)	(-0.073,0.074)	(-0.060,0.060)	(-0.060,0.070)
1	0.009	0.026	0.035	0.04	0.048	0.040	0.050
	(-0.030,0.027)	(-0.077,0.064)	(-0.083,0.068)	(-0.077,0.066)	(-0.073,0.074)	(-0.060,0.060)	(-0.060,0.070)
2	0.002	0.019	0.026	0.018	0.009	-0.010	-0.010
	(-0.030,0.027)	(-0.077,0.064)	(-0.083,0.068)	(-0.077,0.066)	(-0.073,0.074)	(-0.060,0.060)	(-0.060,0.070)
				Panel B: Cumulative Difference			
0	0.018	0.021	0.012	-0.002	-0.022	0.010	0.010
	(-0.030,0.027)	(-0.077,0.064)	(-0.083,0.068)	(-0.077,0.066)	(-0.073,0.074)	(-0.060,0.060)	(-0.060,0.070)
1	0.027	0.047	0.047	0.038	0.026	0.050	0.060
	(-0.039,0.036)	(-0.100,0.095)	(-0.107,0.097)	(-0.107,0.092)	(-0.123,0.093)	(-0.090,-0.100)	(-0.100,0.100)
2	0.029	0.066	0.073	0.056	0.035	0.040	0.050
	(-0.052,0.045)	(-0.115,0.115)	(-0.116,0.1231)	(-0.120,0.118)	(-0.133,0.128)	(-0.110,0.120)	(-0.120,0.110)

Notes: This table presents the differences and cumulative differences for the 2-, 5-, 10-, 20-, and 30-year zero-coupon Treasury yields, and Moody's Aaa and Baa seasoned corporate bond yields. Periods 0, 1, and 2 represent the market close on September 9, September 10, and September 11 for the year 2014. Panel A presents the daily difference in the yields (Diff) for interest rate series i and is calculated as $Diff_{it} = Y_{it} - Y_{i,t-1}$, where Y_{it} is the yield for interest rate series i at time t. Panel B presents cumulative differences (CumDiff), the total change in the interest rate series, calculated as $CumDiff[0,n]_i = \sum_{t=0}^{n} Diff_{in}$. 95-percent bootstrapped confidence intervals are calculated using one year of data 30 days prior to Period 0 using the relevant window for Diff and CumDiff, respectively. An asterisk represents significance at the 5 percent level.