THE EFFECT OF DODD-FRANK ON EQUITY PRICES: AN EVENT STUDY

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By

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ABSTRACT

This paper examines the reaction of equity investors in large financial institutions on and around the date the final version of the Dodd-Frank Act passed the House of Representatives. To do this, I first measure price movements of the selected stocks over a control period to model expected returns. I then compare actual returns around the date of passage to the returns predicted by the model. I find that the stocks for the largest 42 financial institutions experienced significant positive abnormal returns over time windows including the date of passage. These results indicate that investors may have perceived the effects of Dodd-Frank as more favorable for large financial institutions than previously expected.
The research and writing of this thesis
is dedicated to everyone who helped along the way.

Many thanks,
Devan R. Musser
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INTRODUCTION

During the financial crisis of 2007-2009, some of the world’s largest financial firms filed for bankruptcy. Stock markets lost value on a massive scale as investors sought safer investments. The crisis rippled from Wall Street across the United States, evidenced by persistently high unemployment rates. Angry Americans blamed excesses in the financial industry and demanded a government response. The controversial result, The Dodd-Frank Wall Street Reform And Consumer Protection Act of 2010, claims to resolve systemic failures in the financial industry that led to the crisis.

President Obama described Dodd-Frank as a “sweeping overhaul of the United States financial regulatory system.”\(^1\) Dodd-Frank intends to regulate the financial system so comprehensively that future crises are prevented and large institutions never again require a government bail-out. As such, the law addresses the alleged main cause of the crisis: excessive speculation and risk-taking by financial firms so large that they are systemically important to the economy. The purpose of this paper is to investigate the reaction of equity investors in the largest 42 financial institutions in the days surrounding the passage of the final version of Dodd-Frank.

I collected the daily returns for each of the 42 stocks for a period beginning 255 days before the final version of Dodd-Frank passed the House of Representatives and ending 15 days after. I broke these returns into a control period – 255 days before passage until 15 days before passage - and an event period – 15 days before passage until 15 days after. I used the control

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\(^1\) Pres. Barack Obama, Remarks by the President on 21st Century Financial Regulatory Reform (June 17, 2009).
period stock returns to estimate predicted returns during the event period. Then, I compared actual returns over the event period with expected returns. I found that the actual returns were significantly better than expected.

First, I calculated cumulative abnormal returns. I subtracted actual returns for each stock from the expected return, which I calculated using the parameters estimated over the control period. These differences are averaged across the 42 firms in common event time. This process is repeated for each day in the event window. The averages for each day are summed to generate cumulative abnormal returns.

Then, I tested the cumulative abnormal returns under two different tests. The first test simply tests whether the cumulative abnormal returns are significantly non-zero, using the standard deviation of abnormal returns in the control period. The second tests first standardizes each stock’s abnormal return by the standard deviation of the stock’s abnormal return over the control period. These standardized returns are cumulated over an event window and tested using the standard deviation of standardized returns over the same event window.

Under both tests, I found significant positive abnormal returns in event windows around the passage of the final version of Dodd-Frank. Also, the results are weakly supported by a regression analysis. These results partially confirm results of the only other event study that has focused on the effect Dodd-Frank. The two studies use very different methodologies; however, to the extent the results agree, their conclusions are perhaps more convincing. The limitations of this study are detailed at the end, which will hopefully inspire further studies that focus on the continuing effects of Dodd-Frank. The implementation of Dodd-Frank is still in its early stages, so a full understanding of its effects will require more examination.
A statistical analysis of the investor reaction to the passage of Dodd-Frank may reveal perceptions of the costs and benefits in the final version of the law. Assuming that stock prices reflect investor sentiment about the prospects of companies, changes in stock prices may provide a measure of investor perception of Dodd-Frank’s effect on companies. A positive reaction in the stock market may demonstrate that investors believe the long-term effects of Dodd-Frank are value-enhancing. On the other hand, a positive investor reaction could merely indicate that the final version of Dodd-Frank was perceived as less costly than originally expected. Similarly, a negative reaction may indicate long-term costs, fewer benefits than previously expected, or some combination of the two.

The prolonged sell-off of financial stocks throughout the crisis may have reflected an insecurity with excessive risk-taking in the financial sector. If so, a bolstered regulatory system may increase the attractiveness of financial stocks that investors before perceived as too unsafe. But, regulations come with high compliance costs that decrease the profits of affected firms. If investors believe such costs outweighed the benefits of a strengthened system, the stock values of affected firms should suffer. This paper tests whether investor reactions around the passage of Dodd-Frank were significantly positive or negative.
I. Key Provisions of Dodd-Frank

Dodd-Frank attempts to prevent future financial crises by enhancing regulation of the financial industry. The requirements of Dodd-Frank could be viewed positively or negatively. New regulatory burdens - like capital reserves, reporting requirements, and trading restrictions – both levy substantial compliance costs and strive to instill confidence in the financial industry. Similarly, the creation of a new regulatory bodies, like the Financial Stability Oversight Council, may both complicate compliance requirements and create a stronger regulatory system, with respective costs and benefits.

Capital requirements are a clear example of compliance costs that may benefit the system overall by preventing crises and the need for government support. Also, bans on proprietary trading and participation in hedge funds affect some of the most profitable but most risky activities of financial firms. Therefore, the net effect may be costly or beneficial, and investor perceptions may differ. The regulation of new financial products previously excluded from oversight, including swaps and other products that were blamed for causing the financial crisis, is another example of costly but potentially beneficial regulation. Finally, Dodd-Frank requires an overhaul the mortgage industry, aimed at preventing another housing bubble, with new requirements on real estate sales and brokers. All of these new requirements add costs to affected firms. However, the net long-term effect may be positive. A look at the stock market reaction to Dodd-Frank should give some insight into how investors viewed the likely long-term effects.
II. The Goals of Dodd-Frank

The Great Recession, due to its profound and long-lasting impact, drove investors away from the stock market. Investors were presumably frightened by the excessive risk-taking that collapsed the centerpieces of the financial system in rapid succession. Dodd-Frank aims to restore investor confidence by comprehensively overhauling financial regulation. The stated goals of the bill include: protecting American consumers, investors and businesses; ending taxpayer bailouts of financial institutions; providing for an advanced warning system on the stability of the economy; creating rules on executive compensation and corporate governance; and, eliminating some loopholes that led to the crisis.

Critics of the bill argue that the recent examples of excessive risk-taking did not justify a new set of regulations. Despite the problems that may exist in the financial system, federal regulation may not provide the best answer; instead, perhaps the mechanisms of the market that reward long-term profitability should be left to self-correct. Additional regulations may simply add layers of bureaucracy and increase compliance costs, which shareholders have to bear. Furthermore, Dodd-Frank may restrain the beneficial type of risk-taking practiced by honest entrepreneurs, which is important for the growth and success of a company and the economy.

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3 Senator Chris Dodd, Senate Committee on Banking, Housing, and Urban Affairs, Report: THE RESTORING AMERICAN FINANCIAL STABILITY ACT (March 22, 2010).
The debate will certainly continue, and this paper does not seek to settle any questions about the worthiness or success of Dodd-Frank. Instead, I hope to inform the debate by providing evidence of the investor reaction to the passage of the law. This evidence will help others draw conclusions about how and why investor perceptions about the largest financial firms changed when Dodd-Frank became law.

**Literature Review**

Though only one event study so far has focused on the effects of Dodd-Frank, the event study methodology has been widely used to analyze the effect of financial regulation. Since FFJR (1986), the approach has been applied to every significant financial reform. Multiple event studies were conducted around the passage of Sarbanes-Oxley, the most recent significant reform prior to Dodd-Frank. Though Sarbanes-Oxley and Dodd-Frank differ in important ways, both were mainly directed at resolving problems with the financial system, so both are relevant to the present analysis. I should note, however, that Sarbanes-Oxley has a far greater impact on non-financial firms than Dodd-Frank, which is almost completely focused on financial institutions. Nonetheless, a discussion of the event studies used to analyze Sarbanes-Oxley provide important background to the following analysis.

Exploiting a “natural quasi-experiment” to analyze the effects of Sarbanes-Oxley, Illiev (2010) found a negative investor reaction to the passage of the bill.\(^5\) Due to provisions in Sarbanes-Oxley, U.S. firms with less than $75 million of public equity could delay compliance

with Section 404 of the law and foreign firms with less than $700 million public equity could delay the auditor’s attestation requirement. Using these excluded firms as a control group, the author analyzed the effects of the bill on covered financial firms and found a negative impact on market value.

Assuming the $75 million and $700 million exemption cutoffs in the bill were somewhat arbitrary and that firms falling just above and just below the cutoff did not differ fundamentally, the author uses a regression discontinuity design to compare the effect of the bill on these two types of firms. Over the 2-year period after the passage of Sarbanes-Oxley, firms falling just below the $75 million cutoff exhibited 17% lower returns than firms above the cutoff. Similar results were found around the $700 million cutoff. The author attributes the lower returns to the increased costs of the new regulation that investors believed outweighed its benefits.

In contrast, Akhibe (2006) estimated the effects of Sarbanes-Oxley on financial firms and found, with the exception of securities firms, that the benefits of the bill outweighed its costs. By separating financial firms into business segments, the authors examine the stock market reaction around six major events leading to the passage of the bill and compare its effect upon banks, savings institutions, securities firms and insurance companies. Employing a similar method to my study, the authors measure equity abnormal returns on days surrounding each of the event dates and find positive returns for four out of the five segments and the financial sector examined as a whole. The authors suggest that the positive effects may be due to investor expectations of improved transparency of financial services firms. Testing this hypothesis cross-sectionally, the authors find that the positive effects on stock values can be partly explained by

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disclosure and governance characteristics of the underlying firms. The positive effects found in
the four segments may reflect investor belief that these segments would benefit from
strengthened regulation. The negative effects found for securities firms, however, may
demonstrate that the market expected the increased costs for these firms to outweigh the benefits.

Wintoki (2007) compared the effects of Sarbanes-Oxley on small and large firms on
particular dates leading to the passage of the bill. The author believed that pieces of the
legislation would have significantly different impacts depending on the size of the firm affected.
Using daily stock return data and controlling for size and other firm characteristics, the author
found that effects of the bill were positively related to firm size and age and negatively related to
growth opportunities and the uncertainty of the firm’s operating environment. The author
suggests that such variation suggests that a “one size fits all” approach to financial regulation
may be detrimental to certain firms, particularly small firms operating in uncertain business
environments.

The author uses a portfolio approach and a long event window of several months to
overcome the inherent difficulty of selecting key dates associated with the development and
adoption of legislation. The author choose an event window between January 15, 2002 and
August 15, 2002 to incorporate all the possible dates during which the regulations were proposed
and eventually enacted and all the dates on which the market incorporated all the relevant
information. Similar to my analysis, however, the author also used a cumulative abnormal return
methodology to measure the effects of the bill by selecting short windows around key bill-related

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7 M. Babajide Wintoki, Corporate boards and regulation: The effect of the Sarbanes-Oxley Act and the exchange
listing requirements on firm value, J. Corporate Finance 13, 229 (2007).
announcements. Results from the portfolio approach strongly supported the hypothesis that small firms were more adversely affected by Sarbanes-Oxley. Results from the cumulative abnormal return approach provided similar though weaker evidence that small firms with limited scope of operations appear to benefit less from Sarbanes-Oxley.

Ferrell (2003) examined abnormal returns of stocks traded over-the-counter to assess the impact of disclosure requirements mandated in 1964. The author compared the volatility of stock returns in the pre-disclosure period with the post-disclosure period. The study tests the hypothesis that mandatory disclosure requirements result in increased transparency and efficiency in the market and reduces the volatility of stock returns. The results of the study indicate that mandatory disclosure is negatively associated with volatility in over-the-counter stock returns and, at the same time, positively associated with stock performance. Though not specifically analyzing stock prices, the study demonstrates that imposing new regulatory burdens may have positive impacts on affected securities and underlying firms.

The author examined abnormal returns on over-the-counter stocks after the imposition of the new regulation, while controlling for other factors that influence returns. The results demonstrate a clear difference between pre- and post-mandated disclosure periods for both the over-the-counter and exchange-traded markets in terms of volatility. Both monthly and yearly average volatility fell substantially following the imposition of mandated disclosure. This decreased volatility demonstrates that the imposition of new regulation may have positively affected price-discovery and efficiency in the market.

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Thapa (2007) analyzed the effect of Sarbanes-Oxley on stock price by controlling for market return and the covariance of stock returns with market return. Similar to my study, the authors constructed a 255-day control period prior to the passage of Sarbanes-Oxley, calculated expected returns based on the control period, and compared to actual stock returns over a 30-day event period surrounding the passage of the bill. The authors first calculated cumulative average return for each time interval and then performed a z-test to determine if they were significantly non-zero. The authors found a positive stock price reaction to the passage of Sarbanes-Oxley, which indicates investors believed the new regulation would provide benefits to the affected firms in the long-term.

In the most recent use of the event study methodology in this context, Gao (2011) studied the market reaction to Dodd-Frank by analyzing stock and bond returns around key dates leading to the passage of the bill. The authors hypothesized that the law’s attempt to constrain risk-taking in the financial sector would lead to decreased equity values, because equity investors would expect reduced profits. Similar to my study, the authors selected a small sample of 41 financial firms and an even smaller sample of the largest six banks. The study then compared equity returns for the selected stocks against a control group of all other financial stocks. The authors suggest that the largest firms receive most of the new regulation under Dodd-Frank and therefore the smaller firms serve as a suitable control group.

Overall, the results indicate that stocks of the largest financial firms experienced significantly larger negative abnormal returns around the key Dodd-Frank dates when compared

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against other financial firms. The results also indicate that the returns turned positive around key
dates close to the passage of the final version of the bill. The authors suggest these positive
returns may be due to changes made to the final version of Dodd-Frank that resulted in lower
costs to the largest firms than previously expected. For example, the authors note that certain
provisions aimed at large financial firms to prevent them from becoming too big to fail were cut
back in the final version.

METHODODOLOGY

I use event study methodology to analyze stock price reactions around the passage of the
final version of Dodd-Frank. First, I estimate parameters in a control period that I use to predict
returns over the event period. I estimate predictor parameters by separately regressing the daily
return of the stocks of the 42 largest financial firms against the daily return of the Standard and
Poor’s 500 Index\textsuperscript{11} for a period of 170 business days prior to the two weeks before the final
passage. From the regressions I extract a beta value for each financial stock that I use to
calculate expected returns during the event periods.\textsuperscript{12} I then subtract expected returns from
actual returns observed during event periods to calculate abnormal returns. These abnormal
returns are then aggregated across firms to infer the average effect of Dodd-Frank on the largest
financial stocks.

\textsuperscript{11} The S&P 500 is a free-float capitalization-weighted index published since 1957 of the prices of 500 large-cap
common stocks actively traded in the United States. \url{http://en.wikipedia.org/wiki/S%26P_500}.

\textsuperscript{12} The beta value is the coefficient on market return in the regression.
I first calculate expected return ($R_t$) in the control period separately for each financial firm.\textsuperscript{13}

\[ R_{it} = a + x_iB + e_{it} \]

Where:

- $a$ = constant term
- $R_{it}$ = expected return for the $i^{th}$ firm
- $X_i$ = Return of S&P 500 Index
- $B$ = security’s beta
- $e_{it}$ = residual

To calculate expected return in the event period around the passage of Dodd-Frank, I use the beta calculated during the control period and the return of the S&P 500 during the event period:

\[ R_{it} = a + x_iB \]

Where:

- $a$ = constant term calculated over control period
- $R_t$ = expected return of the $i^{th}$ firm
- $x_t$ = return of the market portfolio
- $B$ = security’s beta calculated over the control period

I then subtract the calculated expected return from actual observed return for each stock over each day of the event period to generate abnormal returns (AR). These residuals are then averaged across firms in common event time to obtain the average abnormal return (AR$_0$):

\[ \overline{AR}_0 = \left( \frac{1}{N} \right) \sum_{i=1}^{N} AR_{i0} \]

\textsuperscript{13} My methodology is derived from similar past event studies and Ana Paula Serra, Event Studies: A Brief Survey, Working Papers 117 (2002) which describes multiple methodologies used in event studies.
I then sum the periodic average residuals over particular time intervals (L days around the event date) to obtain the cumulative average residuals (CAR) for the time interval:

\[ CAR = \sum_{i=1}^{L} AR_i \]

I. The Traditional Test

Assuming that individual firm abnormal returns are normally distributed, the standard test statistic is calculated by dividing the cumulative abnormal return by the standard deviation of the abnormal returns, estimated over the control period.

II. Standardized Residual Test

Many studies used standardized residuals is to ensure that each abnormal return will have the same variance. The standardized residuals are calculated by dividing each abnormal return by the standard deviation of the firm’s abnormal returns over the control period.

Finally, in a particular event period (e.g. a 5 day window including the event date, the two days before, and the two days after), the test statistic is computed by dividing the cumulative average standardized residual by its standard deviation over the particular event period (e.g. the standard deviation of the standardized residuals over the 5-day window).
III. Simple Regression Analysis

I also quickly calculate separate regressions for each of the 42 firms including all dates in the control period and event period, using a dummy variable to indicate whether the day was within the event period:

\[ R = a + x_{it}B + event_{it}C + e_{it} \]

I then calculate mean values for the dummy coefficient to test for significance.

DATA AND KEY VARIABLES

My two datasets are comprised of the 42 largest financial firms in CSRP that trade on the New York Stock Exchange. The control period dataset begins 170 days before the final passage of Dodd-Frank in the House of Representatives on June 28, 2010 and ends 16 days before the event. The event window data set begins 15 business days before June 28, 2010 and ends 15 business days after. The key variables used in my study are single-day stock return and the single-day return of the Standard and Poor’s 500 index, as well as the abnormal returns and cumulative abnormal returns that are derived from these two variables.\(^{14}\)

RESULTS

I first use the traditional testing approach to analyze the abnormal returns of the 42 financial institutions in my sample. Daily estimated returns for each stock are calculated using

\(^{14}\) See Table 6, infra page 24.
the firm-specific betas estimated over the control period and the daily return of the S&P over the event period. Estimated returns are subtracted from actual daily returns to calculate abnormal returns. I take the abnormal returns for each firm and average them in common event time over six windows around the event date. The first window includes only the event date, June 28, 2010. The remaining windows include the 2, 4, 6, 10 and 20 days surrounding the event date, respectively, in addition to the event date.

I test whether the cumulative abnormal return over each window is significantly non-zero by dividing it by the time-series estimate of its standard deviation, estimated over the control period. To do so, a single standard deviation is derived over the control period using abnormal returns for each firm for each day. The results from the traditional approach are summarized in Table 3. I find that the cumulative abnormal returns are positive and significantly non-zero for all of the windows selected around the event date.

On the event date the cumulative abnormal return for the 42 firms sampled was 1.61%, significant at the .001 level. For the window including the day before, day after, and the event date, the CAR was 1.23%, significant at the .001 level. All windows displayed positive cumulative abnormal returns significant at the .001 level with the exception of the 5-day window (-2,2), which was positive and significant at the .01 level.

I next use the standardized cross-sectional approach introduced by Boehmer, Musumeci, and Poulsen (1991), which accommodates for increases in variance during the event period that can cause misspecifications of the traditional test statistic. The abnormal returns calculated above are standardized by dividing them by the standard deviation of their respective firm’s abnormal returns over the control period. The standardized abnormal returns are then averaged
across firms in common event time over each of the chosen event windows to generate cumulative standardized abnormal returns. These are each divided by the cross-sectional standard deviation of the event-period abnormal returns to calculate the test statistics.

The results from the standardized residual method are summarized in Table 4. On the event date the cumulative abnormal return was significantly non-zero at the .001 level. The 7-day (-3,3) window CAR was significantly non-zero at the .001 as well. The 5-day (-2,2) window CAR was significantly non-zero at the .01 level. The 11-day (-5,5) window was significantly non-zero at the .05 level. The three-day (-1,1) and 21-day (-10,10) windows were significantly non-zero at the .20 and .40 levels, respectively.

The standardized residual approach generated test statistics that were not as significant as those calculated under the traditional approach but both approaches nonetheless suggest that the 42 largest financial firms experienced significantly non-zero abnormal returns around the passage of Dodd-Frank. To support the results, I calculated separate regressions for each of the 42 stocks, using a dummy variable to isolate the event period. Although not significant, the dummy variable was positive over all event windows except the window that only included the event date. This lends some support to the results found in the above tests.

I. Policy Implications

The results under the traditional test demonstrate a positive investor reaction to the passage of Dodd-Frank for the 42 largest financial firms. The results under the standardized approach are less significant, but nonetheless support the same inference. Both approaches
demonstrate that the 42 largest financial stocks performed better relative to the S&P 500 index over the event windows than predicted by their historical relationship with the index. If the relationship with the index contains most information that is not event-specific, then the results should be attributed to the investor reaction to the passage of Dodd-Frank. If so, the results indicate that investors in the 42 largest financial firms reacted positively to the passage of Dodd-Frank.

A positive investor reaction suggests that investors believed the final version of Dodd-Frank would impose fewer costs or greater benefits on the largest financial firms than previously expected. The final law may not constrain profit-making activities as much as investors initially feared it would. Or, perhaps some concessions were won by the financial services industry in the period surrounding the passage of the final version that benefitted the largest financial firms. As Gao (2011) suggests, perhaps investors believed the final version of Dodd-Frank did not limit the possibility of future government bailouts as much as they were expecting.

Generally, the results demonstrate that investors believed the impact of Dodd-Frank in its final version would be more positive than previously expected. Whether this indicates that the legislation is a success depends in large part upon subjective beliefs about the purpose of Dodd-Frank. This study does not take a position on whether Dodd-Frank is successful; instead, I merely measure the reaction of the investors in the largest financial firms so that others may draw conclusions on the success of Dodd-Frank as measured against their personal beliefs and hopes for the legislation.

II. Limitations of the study
Using the event study methodology to measure the impact of a regulatory change has several important limitations. Brown and Warner (1980) find that the event study methodology is most powerful when the exact date that expectations change is known, but as Binder (1985) argues, regulatory events do not usually involve a single, well-defined announcement that changes expectations. Instead, regulatory changes like Dodd-Frank evolve over many months, and important events along the way, including presidential announcements, committee reports, floor votes in the House and Senate, and the enactment of the law, contribute to changing expectations. I chose to focus only on the date that the House passed the final version of Dodd-Frank, because at that point all the final language was incorporated into the bill and enactment was nearly certain. Until that point, however, language in the proposed bill was not final and expectations about the impact of the bill were not fully formed. Nonetheless, investors may have already formed some expectations based on the likelihood of certain language remaining in the final bill and may have acted upon those expectations by purchasing or selling stock.

If that occurred, my study only reflects the incremental change in expectations generated by the changes in the final bill that investors were not previously expecting. As such, my results may merely show that, prior to the final passage, investors expected Dodd-Frank to be more harmful to banks than the final language indicated. Indeed, perhaps in the final days leading up to passage, large banks were able to secure some favorable language. Gao (2011) finds that investor reactions to early Dodd-Frank pronouncements were more negative and turned positive as the bill neared passage. That study suggests that the positive reactions may have resulted
from the law not doing enough to foreclose the possibility of future government bailouts of large financial firms. To the extent this is true, my study supports those findings.

Binder also suggests that the effects of regulation are not distributed evenly across firms in the same industry. Instead, some firms may benefit from regulation while other are harmed. Moreover, Stigler (1974) finds that the interests of large firms may diverge significantly from small firms in the same industry. Because my study only looks at the 42 largest financial firms, as measured by market capitalization in 2009, the divergence of interests should not be great enough to muddle the results. I assume that the largest 42 financial firms are all positioned similarly to either benefit or not benefit from the passage of Dodd-Frank.

Finally, Binder notes that regulatory changes typically affect firms in the same industry at the same time and therefore it is unclear whether excess returns are due to the regulatory change or another industry-specific shock. I do not believe there was any industry-specific shock during the same time periods used in my analysis and market-wide shocks should be somewhat controlled for in the calculation of abnormal return. Nonetheless, the possibility of a financial-industry-specific shock is an important caveat to the results of my study.

**Conclusion**

The results from my study indicate that investors in the largest financial firms reacted favorably to the passage of the final version of Dodd-Frank. Using two testing methods, I find significant positive abnormal returns for these firms in the days surrounding the passage on June 28, 2010. The significance and size of the abnormal returns varies depending on how many days
I include in the event window, but all are positive. By offering a measurement of investor perceptions, these results should help further the debate about the initial consequences of Dodd-Frank.
### Table 1
Summary Statistics: Control Period

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observations</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>( ret )</td>
<td>727868</td>
<td>0.00087</td>
<td>0.03296</td>
<td>-0.78599</td>
<td>3.67198</td>
</tr>
<tr>
<td>( sprtn )</td>
<td>728985</td>
<td>0.00062</td>
<td>0.01193</td>
<td>-0.03898</td>
<td>0.04397</td>
</tr>
</tbody>
</table>

### Table 2
Summary Statistics: Event Period

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observations</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>( ret )</td>
<td>76956</td>
<td>0.00109</td>
<td>0.02722</td>
<td>-0.55513</td>
<td>1.21805</td>
</tr>
<tr>
<td>( sprtn )</td>
<td>77034</td>
<td>0.00159</td>
<td>0.01264</td>
<td>-0.02882</td>
<td>0.03133</td>
</tr>
</tbody>
</table>
**Table 3**  
*Traditional Test Results*

<table>
<thead>
<tr>
<th>Event Period¹</th>
<th>Cumulative Average Returns</th>
<th>Cumulative Estimated Returns</th>
<th>Cumulative Abnormal Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (Event Date)</td>
<td>0.0196</td>
<td>0.0035</td>
<td>0.0161*</td>
</tr>
<tr>
<td>(-1,1)</td>
<td>-0.0070</td>
<td>-0.0193</td>
<td>0.0123*</td>
</tr>
<tr>
<td>(-2,2)</td>
<td>-0.0541</td>
<td>-0.0605</td>
<td>0.0064**</td>
</tr>
<tr>
<td>(-3,3)</td>
<td>-0.0764</td>
<td>-0.0922</td>
<td>0.0158*</td>
</tr>
<tr>
<td>(-5,5)</td>
<td>-0.0826</td>
<td>-0.1049</td>
<td>0.0222*</td>
</tr>
<tr>
<td>(-10,10)</td>
<td>0.0125</td>
<td>-0.0069</td>
<td>0.0194*</td>
</tr>
</tbody>
</table>

¹ Event date: June 28, 2010  
* indicates significant at .001  
** indicates significant at .01  

---

**Table 4**  
*Standardized Residual Test Results*

<table>
<thead>
<tr>
<th>Event Period</th>
<th>Standardized Residuals</th>
<th>Standard Deviation</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (Event Date)</td>
<td>0.9537*</td>
<td>0.2268</td>
<td>4.2051</td>
</tr>
<tr>
<td>(-1,1)</td>
<td>0.4468</td>
<td>0.3118</td>
<td>1.4327</td>
</tr>
<tr>
<td>(-2,2)</td>
<td>1.2095**</td>
<td>0.3501</td>
<td>3.4550</td>
</tr>
<tr>
<td>(-3,3)</td>
<td>1.6961*</td>
<td>0.4191</td>
<td>4.0470</td>
</tr>
<tr>
<td>(-5,5)</td>
<td>1.4968***</td>
<td>0.6350</td>
<td>2.3572</td>
</tr>
<tr>
<td>(-10,10)</td>
<td>0.6798</td>
<td>0.7303</td>
<td>0.9309</td>
</tr>
</tbody>
</table>

* indicates significant at .001  
** indicates significant at .01  
*** indicates significant at .05
### Table 5
Regression Results

<table>
<thead>
<tr>
<th>Event Period</th>
<th>Mean Coefficient</th>
<th>Mean Standard Error</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (Event Date)</td>
<td>-0.0067</td>
<td>0.0147</td>
<td>-0.4581</td>
</tr>
<tr>
<td>(-1,1)</td>
<td>0.0028</td>
<td>0.0085</td>
<td>0.3338</td>
</tr>
<tr>
<td>(-2,2)</td>
<td>0.0032</td>
<td>0.0067</td>
<td>0.4845</td>
</tr>
<tr>
<td>(-3,3)</td>
<td>0.0019</td>
<td>0.0057</td>
<td>0.3287</td>
</tr>
<tr>
<td>(-5,5)</td>
<td>0.0023</td>
<td>0.0045</td>
<td>0.5076</td>
</tr>
<tr>
<td>(-10,10)</td>
<td>0.0010</td>
<td>0.0033</td>
<td>0.2893</td>
</tr>
</tbody>
</table>

### Table 6
Key Variables

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Type of Data</th>
<th>Type Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>return</td>
<td>Holding Period Return</td>
<td>Continuous: 0 – Infinite</td>
<td>Dependent</td>
</tr>
<tr>
<td>spreturn</td>
<td>Return on S&amp;P 500</td>
<td>Continuous: 0 – Infinite</td>
<td>Independent</td>
</tr>
</tbody>
</table>


Peter Iliev, *The Effect of SOX Section 404: Costs, Earnings Quality and Stock Prices*, 55 J. FINANCE, 1163 (June 2010).
