

STOCK PRICE RESPONSE TO N/DPAs
(DRAFT – OCTOBER 2015)

STOCK PRICE RESPONSE TO NON- AND DEFERRED PROSECUTION AGREEMENTS

BY

WULF A. KAAL^{*}

&

TIMOTHY A. LACINE^{*}

^{*} Associate Professor, University of St. Thomas School of Law (Minnesota). The authors would like to thank Brandon Garrett, John Morley, Alan Palmiter, Gregory Gilchrist, Victor Fleischer, Miriam Baer, [____]. The authors are particularly grateful for outstanding support from research librarian Nick Farris.

^{*} J.D. 2014, University of St. Thomas School of Law; M.B.A. 2008, University of Minnesota.

STOCK PRICE RESPONSE TO N/DPAs
(DRAFT – OCTOBER 2015)

ABSTRACT

In response to perceived corporate governance shortcomings in major U.S. corporations, the U.S. Department of Justice, starting in 2002, substantially increased the execution of non- and deferred prosecution agreements (N/DPAs). This study examines investor responses to three events that define N/DPAs and N/DPA mandated governance improvements, specifically, the official DOJ press release announcing the execution of an N/DPA, the date of the start of the term of the N/DPA, and the date of the end of the term of the N/DPA. Our hand-selected dataset comprises all institutions that executed N/DPAs from 1993 to 2015 (N=330) and are publicly traded (N=94). We document a significant and predictable positive stock price response to the DOJ press release and the start of the N/DPA term. Our tests indicate that the market interprets the three events not in isolation but as sequential and conditional events. We also find that investor's response differs depending on the industry and severity of financial fines and N/DPA mandated governance improvements. We observe no systematic price momentum beyond the three core dates identified in our study, implying that the market is reasonably efficient with respect to information about N/DPAs. Our results are robust to alternative procedures and definitions.

Keywords: *Non-Prosecution Agreement, Deferred Prosecution Agreement, Economic Impact, Governance Improvements, Stock Market, Panel Data, Event Study.*

JEL Classification: G3, K14, K22

I. Introduction

The execution of a Non- and Deferred Prosecution Agreement (N/DPA) is a common, controversial, and complex event. As contractual arrangements between a corporation and the Department of Justice (DOJ), intended to remedy identified governance shortcomings, the DOJ – not Congress or the Courts - is changing governance practices in the United States (Garrett 2014, Kaal and Lacine 2014). Between 1993 and 2015 (N=330) N/DPAs were executed in the United States. In 2002, the DOJ started to intensify the investigation of many industries, leading to a substantial increase in the execution of N/DPAs (Kaal and Lacine 2014). High profile N/DPAs and plea agreements executed in 2012 and 2014 suggest that the DOJ, through its targeting of certain industries, is effectuating large-scale corporate governance changes. (Kaal and Lacine 2014, HSBC DPA 2012, JPMorgan DPA 2014, BNP Paribas Plea Agreement 2014, Credit Suisse Plea Agreement 2014). The companies subject to NDPA are among the largest domestically and worldwide, including Johnson & Johnson, KPMG, HSBC, JPMorgan Chase, Deutsche Bank, ABN Amro Bank, Barclays Bank, Credit Suisse, Fannie Mae, Freddie Mac, General Reinsurance, Lloyds TSB, Metropolitan Life Insurance, UBS, and Wells Fargo. The collective market capitalization of U.S. financial corporations that are subject to NDPA exceeds \$690 billion and exceeds over \$20 trillion in assets under management (Copland 2012).

The controversy surrounding N/DPAs is bitter and well defined (Garrett 2014, Rakoff 2014, Warin and Schwartz 1997, Uhlman 2013, SEC v. Citigroup Global Mkts 2011). Because historically corporate governance fell under state law, some scholars question the DOJ's authority to expand and police corporate governance without a proper mandate (Baker 2004, Arlen and Kahan 2011). Judge Rakoff (2014) critiqued the use of N/DPAs and the DOJ's focus on corporate prosecutions as morally and technically suspect. Others decry N/DPAs as overly burdensome, the result of significantly unequal bargaining power between the prosecutor and the corporation, subject to prosecutorial abuse, and unsuitable because of the lack of prosecutors' governance expertise (Epstein 2006, Garrett 2014, Arlen and Kahan 2011). Despite the broad critique of N/DPAs, consensus exists among scholars that N/DPAs influence corporate governance (Cunningham 2014b, Kaal and Lacine 2014, Coffee 2005, Thompson 2003).

The literature has only marginally recognized the implications of N/DPAs for financial markets. Some evaluate the under- and over-enforcement tendencies of U.S. DPAs, particularly in the LIBOR scandal context (O'Brien & Dixon 2014, Golumbic and Lichy 2014), acknowledging changes in the DOJ's approach to DPAs in the context of large financial institutions. Considering the HSBC DPA of 2012, others suggest that non-prosecution of large financial institutions is justified by a lack of evidence, arguing that regulatory authorities are better suited for dealing with financial institutions than criminal law (Gilchrist 2014). Taking an in-depth look at AIG's N/DPA, Cunningham (2014a) critiques the lack of a specifically tailored approach taken by the DOJ in mandating governance reforms for AIG through an N/DPA.

To date, very few studies have empirically assessed the role of N/DPAs in financial markets. In the largest study to date, Kaal and Lacine (2014), using a hand-selected dataset comprising all publicly available N/DPAs from 1993-2013 (N=271) in over 230 governance categories, show a substantial effect of N/DPAs on corporate governance. Assessing 120

DPAs available through 2008, O'Reilly et. al (2009) find increasing use of N/DPAs and a particular high usage of N/DPAs in health care and financial industries. Garrett (2007) studied the terms in N/DPAs from 2003-2007, showing an increasing trend of compliance features. Orland (2006) assessed the corporate governance implications of N/DPAs through 2006, before the proliferation of N/DPAs, finding profound changes in the administration of corporate criminal law. Markoff (2013) shows that federal conviction rarely result in significant repercussions for the respective corporation. Others assess the variation in the utilization of N/DPAs (Uhlmann 2013) and find an increased usage of monitors and expansion of the monitors' powers (Boozang and Hangler-Hutchison 2009).

This is the first study that examines stock price reactions to N/DPAs. Our hand-selected dataset contains all publicly available N/DPAs in several industries from 1993 to 2015 (N=330). Because stock price data is only available for 94 of the N/DPA firms in our sample, we limit our sample to those 94 institutions (N=94). While our dataset includes the celebrated N/DPAs in Johnson & Johnson, KPMG, HSBC and AIG, and other substantial governance shortcomings (Gilchrist 2014, Cunningham 2014a), most N/DPAs in our sample received no or very little media and scholarly attention. N/DPAs in our sample are predominantly the result of DOJ investigations after corporate criminal wrongdoing including kickback schemes, violations of the FCPA, among others, were identified. N/DPA governance data used in this study was hand-selected and coded by Kaal and Lacine (2014) and expanded for purposes of this study.

Our results suggest that while investors consistently react negatively to impending N/DPA changes prior to N/DPA execution, post N/DPA execution, investors generally do perceive N/DPAs as a positive event for the respective entity. Inversely, our results suggest that investors see the expiry of applicable N/DPA terms as a negative event. We interpret the positive market reaction at the beginning of the N/DPA term and investors' negative reaction at the end of the N/DPA term as evidence that governance changes mandated by N/DPAs matter.

II. Hypotheses

This section develops four general hypotheses about investors' response to N/DPAs. We test our hypotheses using an event-study approach based on daily excess stock return. The event study approach is widely applied in the analysis of financial events. Event study methodology is particularly suited to our sample of firms that executed N/DPAs because: (1) the event of corporate wrongdoing is identifiable through N/DPAs execution and N/DPA executions are reasonably similar in format, (2) the information pertaining to N/DPA firm wrongdoing has the potential to change the distribution of stock returns, (3) the relevant N/DPA events are evenly distributed over the study period and are not clustered around a small number of dates, (4) the tested N/DPA events are cross-sectionally independent,¹ (5) the tested N/DPA events are driven by independent, company-specific information, and (6) the firms in our sample are predominantly seasoned issuer and mostly trade on the S&P 500 Index. We measure the stock price response for the NDPA firm to three particular N/DPA events that define N/DPAs: (i) the DOJ's official announcement of the N/DPA execution (ANDPAE), (ii) the date of the beginning of the N/DPA term (BNDPAT), and (iii) the date of the end of the N/DPA term (ENDPAT). We measure the stock price response to each of

¹ Table [] shows the distribution of N/DPA Firm wrongdoing across the study period 2002-2013. We observe only a very limited amount of clustering.

the dates as the three-day stock return over days -1, 0, to 1. Day zero is the event date.

The difference between pre- and post N/DPA governance practices of N/DPA Firms and governance practices of non-N/DPA competitor firms (direct competitors of N/DPA Firms in the same industry) leaves room for inter-firm variation. Some investors will shy away from N/DPA firms because of costs and associated reduction in market value, other investors may be attracted to N/DPA firms because of presumably higher governance standards during the term of N/DPAs; yet others may behave somewhere between these extremes. We test the following hypotheses:

Hypothesis 1: The market reacts negatively at ANDPAE (E1a) and BNDPAT (E1b) and positively at ENDPAT (E1c). N/DPA execution is anticipated before and known at ANDPAE and corresponding governance changes are implemented before or at BNDPAT. We assume that ANDPAE and BNDPAT anticipate and impose costs on corporations that reduce its market value. Costs include N/DPA fines, mandated governance changes, mandated personnel changes, increased governmental oversight of business and disclosures, opportunity costs of diverted management resources, administrative cost, potential loss of goodwill and reputation, and cost of expected future litigation by private parties or the government, among others. An expected positive market reaction at ENDPAT derives from the view that the market will assume that lifting governance and compliance obligations on firms at ENDPAT will remove the abovementioned costs and increase market value.

Hypothesis 2: The market reacts positively at ANDPAE (E1a) and BNDPAT (E1b) and negatively at ENDPAT (E1c). A positive market reaction at ANDPAE and BNDPAT is associated with the view that investors' see the execution and effectiveness of an N/DPA as an opportunity for the entity to be better managed, more compliant, with fewer possibilities to incur penalties and overall less litigation, lowering costs and resulting in benefit for profitability and corresponding increases in market value. An expected negative market reaction at ENDPAT derives from the view that investors assume suboptimal governance practices will continue post N/DPA term expiration and are associated with higher costs and lower market value.

Hypothesis 3: The market reacts positively at BNDPAT (E1b) and negatively at ENDPAT (E1c). A positive market reaction at BNDPAT and a negative market reaction at ENDPAT derives from the view that governance changes mandated by N/DPAs matter. At BNDPAT, N/DPA governance changes become effective / mandatory. Inversely, at ENDPAT, N/DPA governance changes become ineffective and are no longer mandatory. A positive market reaction at BNDPAT and a negative market reaction at ENDPAT could suggest that the market assesses the governance changes during the term of the N/DPA as beneficial for market value because it effectively addresses corporate wrongdoing and the associated negative effects on goodwill and reputation [while lowering the likelihood of continuing fines and litigation.]

Hypothesis 4: The market reacts industry specific in accordance with Hypotheses 1, 2, and 3. Because not all industries in our sample are equally affected by the costs associated with N/DPAs, the Hypotheses herein can be subject to industry effects. The view that the market will react industry specific derives from the assumption that investors in some industries are more sensitive to the effects of N/DPAs than in other industries. For instance, the threat of corporate criminal indictment associated with an N/DPA may be more burdensome in the healthcare sector than in other industries, creating the potential for industry specific effects.

III. Sample and Data Characteristics

The initial sample of 330 N/DPAs includes all publicly available N/DPAs for the period of January 1993 to 2015 from a database maintained by the University of Virginia Law Library.² The database covers essentially the entire population of N/DPA executions and filings, as well as a substantial number of state filings since 1993. N/DPA governance data used in this study is based on Kaal and Lacine (2014). We expand the Kaal and Lacine (2014) dataset for the time period 2013 to 2015, using over 215 governance categories and governance sub-clusters.

Figure 1 shows the growth of N/DPA execution from 1993 to 2015 with a particular increase in N/DPA usage since 2002. The trends observed suggest that N/DPAs will continue to play a role in major U.S. corporations in a variety of industries.

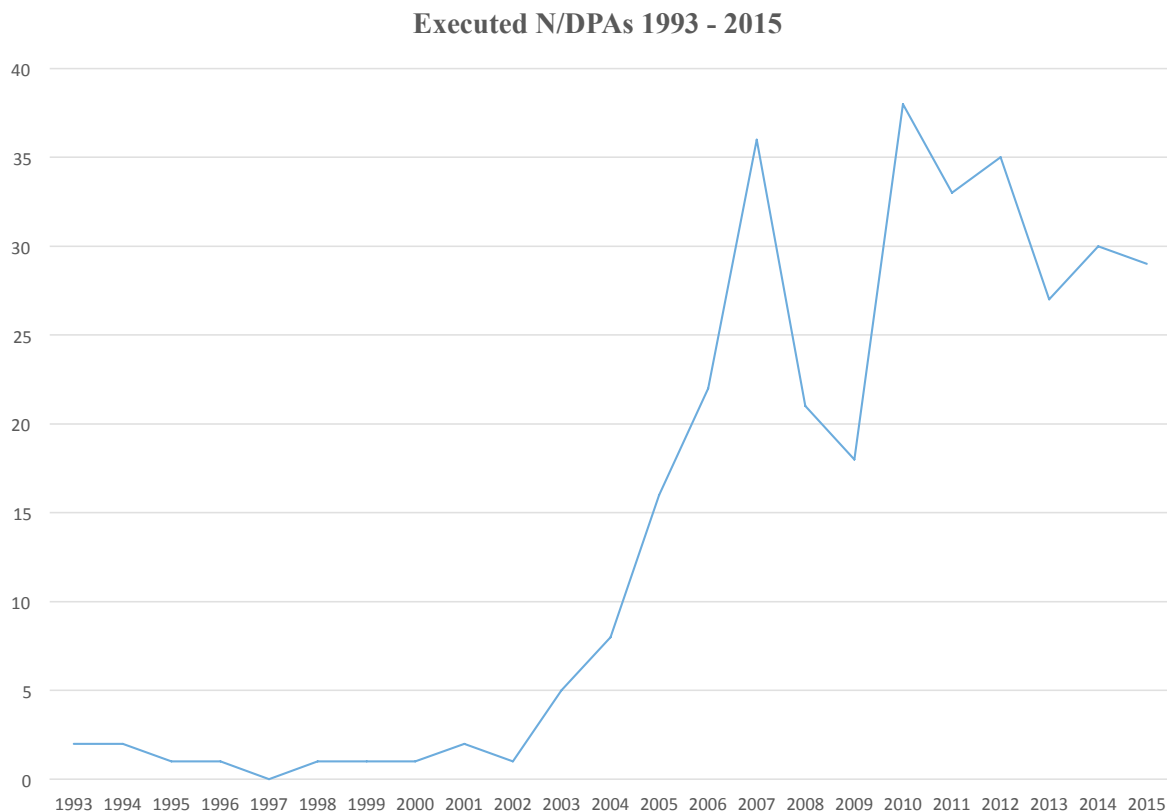


Figure 1: Time Series publicly available N/DPAs executed from 1993-2015 (N=330).

Table 1 provides additional details pertaining to possible cost of N/DPAs in our sample. Panel A reports the mean and median length of the N/DPA term (based on 330 observations), calculated as ENDPAT date minus BNDPAT date. The overall mean (median) length is [____] ([____]) days. Panel B shows that the average N/DPA term (days between BNDPAT and ENDPAT) has [declined/increased] since [DATE] ($t=-/+$ [____]).

² The database is the only comprehensive database that entails all publicly available N/DPAs. It's core premise is to keep track of N/DPA execution in all affected industries, track fines, and summarize white collar crime statistics. The database is publicly available at: [____].

STOCK PRICE RESPONSE TO N/DPAs
(DRAFT – OCTOBER 2015)

Panel C shows that the number of days between ANDPAE and BNDPAT and ANDAPE and ENDPAT has declined / increased ($t=-/+[\]$ and $-/+[\]$ respectively). Panel D reports the mean and median fines imposed by N/DPAs and shows that fines have increased/decreased since [YEAR] ($t=-/+[\]$). Panel E shows the mean and median quantity and quality of governance characteristics mandated by N/DPAs, as measured by total governance terms included in N/DPAs. Panel E shows that the amount of governance changes mandated has increased since $[\]$ ($t=+[\]$).

INSERT Table 1

Table 1: This table summarizes the N/DPA sample by cost characteristics. Panel A: mean and median length of the N/DPA term, calculated as ENDPAT date minus BNDPAT date. Panel B: number of days between ANDPAE and BNDPAT and ANDAPE. Panel C: mean and median N/DPA fines. Panel D: mean and median quantity of governance characteristics mandated by N/DPAs, as measured by total governance terms included in N/DPAs. Panel E: mean and median amount and quality of governance changes mandated in N/DPAs. The t-test significance levels are for a two-sided test. *** $p<.001$, ** $p<.01$, * $p<.05$, n.s.=not significant.

Table 2 shows the breakdown of firms in our sample by industry. Panel A summarizes the distribution of market capitalization by industries. Panel B reports the mean and median length of the N/DPA term by industry (based on a total of 330 observations), calculated as ENDPAT date minus BNDPAT date. The overall mean (median) length is $[\]$ ($[\]$) days. Panel C shows that the average N/DPA term by industry (days between BNDPAT and ENDPAT) has [declined/increased] since [DATE] ($t=-/+[\]$). Panel D reports the industry specific mean and median fines imposed by N/DPAs. Fines have increased/decreased since [YEAR] ($t=-/+[\]$) in $[\]$ and $[\]$ industries. Panel D shows the mean and median amount and intensity of governance characteristics mandated by N/DPAs, as measured by total governance terms included in N/DPAs by industry. Panel E shows that the amount of governance changes mandated has increased in $[\]$ and $[\]$ industries since $[\]$ ($t=+[\]$). Panel F also shows the median and mean of quality of governance changes, as measured by quality of governance changes mandated by N/DPAs. Quality of governance changes has increased/decreased in sample period ($t=-/+[\]$)

INSERT TABLE 2

Table 2: This table summarizes the N/DPA sample by ten industries represented in the sample: 1. CODI – Consumer Discretionary Company, 2. COST – Consumer Staples Company, 3. NRGY – Energy Company, 4. Fin – Financial company, 5. HLCR – Healthcare company, 6. IND – Industrials company, 7. IT – Information Technology company, 8. MTRL – Materials company, 9. TELCO – Telecommunications company, 10. Utilities – Utilities company. Panel A: ANDPAE (E1a) Industry 1. – 10., Panel B: BNDPAT (E1b) Industry 1. – 10., and Panel C: ENDPAT (E1c) Industry 1. – 10.; percent of industry represented in sample; mean and median market capitalization by industry; mean and median length of the N/DPA term by industry, calculated as ENDPAT date minus BNDPAT date; mean and median N/DPA term by industry; mean and median N/DPA fines by industry; mean and median quantity of governance characteristics mandated by N/DPAs, as measured by total governance terms included in N/DPAs by industry; mean and median quality of governance changes. The t-test significance levels are for a two-sided test. *** $p<.001$, ** $p<.01$, * $p<.05$, n.s.=not significant.

IV. Univariate Analyses

We examining the direction and magnitude of stock price response to three core

STOCK PRICE RESPONSE TO N/DPAs
(DRAFT – OCTOBER 2015)

events that define N/DPAs: ANDPAE (E1a), BNDPAT (E1b), and ENDPAT (E1c). Successful event studies depend on the researchers' ability to identify the exact date for the events.³ BNDPAT and ENDPAT define the term and with it the duration, defined by beginning and end, of N/DPA mandated governance and compliance changes. The only reliable N/DPA announcement date is the date of the DOJ press release pertaining to the execution of the respective NDPA - ANDPAE. The DOJ (or a specific USAO) issues the press release - ANDPAE, generally if not always on the day the agreement is signed (NPAs) or filed with the court (DPAs). The ANDPAE is the first public announcement that is not subject to informational discounting. While judicial approval of an NDPA may take additional time, the ANDPAE typically accompanies the release of the NDPA document itself, memorializing the agreement. Hence, the ANDPAE is the only ascertainable way for the market to assess the impact of the governance changes mandated in the NDPA. The fact that the respective entity is in negotiations with the DOJ is often known way in advance of the ANDPAE. Specific details, such as the amount of the fine or even the form of the agreement, may be leaked, including by prosecutors, some weeks or months before the ANDPAE. We assume that such leaks will not precipitate significant market movements as there is no certainty or finality as to the final terms of the NDPA and the amount of a fine. It is reasonable to assume that the market will largely discount any leaked information and will assess the impact of the NDPA upon the issuance of the official ANDPAE. Unlike congressional mandates, prior to the ANDPAE there is no public debate or other publicity pertaining to the anticipated governance changes in the NDPA or possible fines. Accordingly, the effect of NDPA governance changes on firm value is not gradual and therefore testable.⁴

We measure the direction and magnitude of stock price response for the NDPA firms in our sample for each of the independent event dates ANDPAE (E1a), BNDPAT (E1b), and ENDPAT (E1c), as the fifty-day stock return over $t=-25$ to $t=0$ to $t=25$. Day zero is the event date. Excess return in this analysis is defined as (1) excess return over return of the market portfolio (based on the value weighted CRSP index), and (2) as an industry-adjusted daily excess return (based on the value weighted Russell 1000 industry specific index in ten industries). To control for potential statistical dependence in the event of clustered observations and systematic industry effects we calculated the industry-adjusted daily excess return by subtracting from the NDPA firm's daily return the average return of all sample firms in ten industry sub-clusters, thus, removing common market and industry effects from raw returns. While the tests employed in this study use both excess return definitions, the tables that follow in this section are based on market-adjusted return. The industry-adjusted return metric is used as a robustness check.

Tables 3 presents summary statistics describing the stock price response to ANDPAE (E1a), BNDPAT (E1b), and ENDPAT (E1c) on event days $t=-1$ to $t=1$.

³ For instance, an event study that depends on coding event dates from financial publications such as the New York Times Business Section or the Wall Street Journal runs the risk of missing the exact date of the event because it is often unclear if the public was informed on the day of the publication or the previous day.

⁴ MacKinlay (1997) notes that event study methodology is rarely able to identify the effect of regulatory changes on firm value. Until enactment of a regulatory change, possible effects are often gradually incorporated into firm value (MacKinlay 1997). Public debate of anticipated regulatory changes and the associated increasing probabilities of regulatory changes can be a major factor in the gradual effect on firm value.

STOCK PRICE RESPONSE TO N/DPAs
(DRAFT – OCTOBER 2015)

	Mean	SD	Median	t stat.	Sig.	Count
Panel A: ANDPAE						
All	0	0	0	0		0
Smaller	0	0	0	0		0
Larger	0	0	0	0		0
High Fine	0	0	0	0		0
Low Fine	0	0	0	0		0
High Int. Gov.	0	0	0	0		0
Low Int. Gov.	0	0	0	0		0
Panel B: BNDPAT						
All	0	0	0	0		0
Smaller	0	0	0	0		0
Larger	0	0	0	0		0
High Fine	0	0	0	0		0
Low Fine	0	0	0	0		0
High Int. Gov.	0	0	0	0		0
Low Int. Gov.	0	0	0	0		0
Panel C: ENDPAT						
All	0	0	0	0		0
Smaller	0	0	0	0		0
Larger	0	0	0	0		0
High Fine	0	0	0	0		0
Low Fine	0	0	0	0		0
High Int. Gov.	0	0	0	0		0
Low Int. Gov.	0	0	0	0		0

Table 3: Stock price reaction measured as market-adjusted excess returns over days $t=-1$ to $t=1$ partitioned for each event date: Panel A: ANDPAE (E1a), Panel B: BNDPAT (E1b), and Panel C: ENDPAT (E1c) industry adjusted excess return and further partitioned as follows: All = All [94] firms in sample; Smaller = relative to median low market capitalization in sample; Larger = relative to median high market capitalization in sample; High Fines = relative to median high fines; Low Fines = relative to median low fines; High Gov. Int.= relative to median high governance intensity; Low Gov. Int.= relative to low median governance intensity [if high Gov. Int. NDPACGI CAR scores versus All – interpretation is that NDPA governance matters], The t-test

significance levels are for a two-sided test. *** $p<.001$, ** $p<.01$, * $p<.05$, n.s.=not significant.

Figure 2 shows the cumulative abnormal return from $t=-25$ to $t=25$ after ANDPAE for N/DPA firms (in blue) and direct competitors (in red). Unlike the competitor firms' CARs, the CARs for N/DPA firms show a significant positive trend before $t=-5$, followed by a significant drop at $t=-5$ before the event date $t=0$ ANDPAE and negative CARs in comparison with the competitors from $t=-4$ to $t=-1$. At $t=0$ to $t=1$, however, N/DPA firms reverse a trend and again show positive CARs in comparison with competitors' CARs. Figure 2a demonstrates that while the competitor CARs show a negative trend from $t=0$ to $t=25$, the neutral/positive trend in N/DPA firms' CARs continues from $t=0$ to $t=25$. This data suggests that the market assesses the impact of the N/DPA and the often associated fines negatively immediately before the announcement of the N/DPA execution, which could be a function of market uncertainty before the N/DPA announcement. At ANDPAE $t=0$ and immediately following ANDPAE, the data in Figures 2 and 2a suggest that the market interprets N/DPA

STOCK PRICE RESPONSE TO N/DPAs
(DRAFT – OCTOBER 2015)

execution as a positive event, especially in comparison to the competitor firms. We interpret the positive market reaction from $t=0$ to $t=25$ as a positive reaction to the end of the costly DOJ investigation and the anticipated governance terms imposed by the N/DPA.

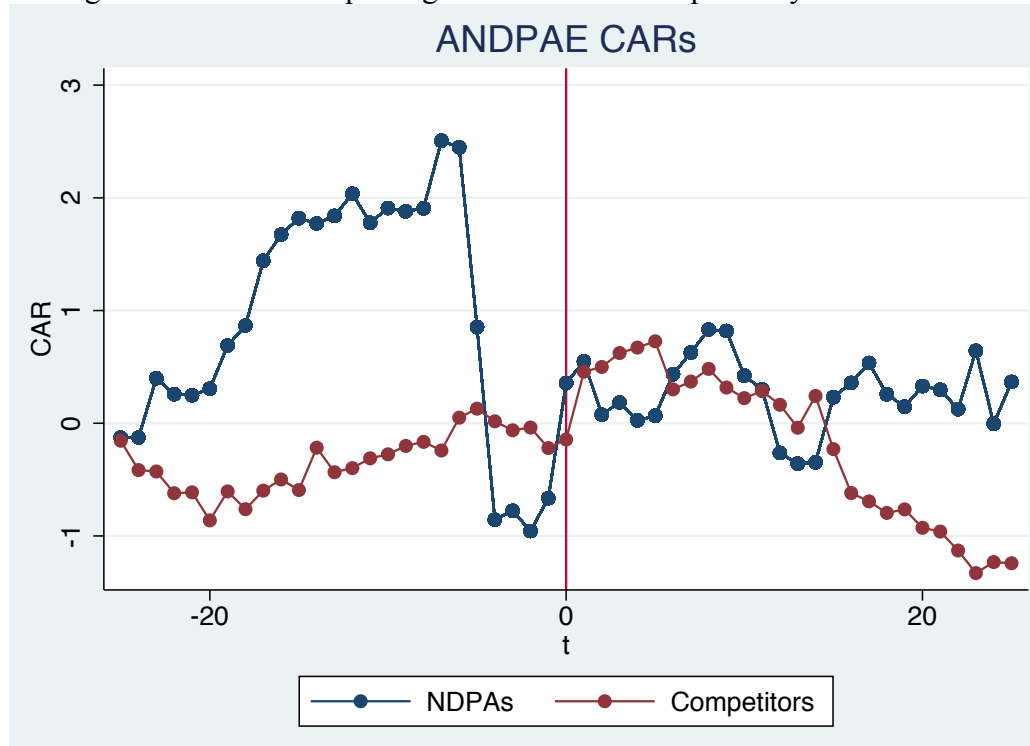


Figure 2: Cumulative abnormal return from $t=-25$ to $t=25$ after ANDPAE for N/DPA firms and direct competitors. The daily abnormal returns are averaged across firms and then cumulated. The sample comprises 94 N/DPA firms over the period 1993-2015. 94 direct competitors are hand-selected and matched by market capitalization. For []% of N/DPA firms in our sample ANDPAE equals BNDPAT.

STOCK PRICE RESPONSE TO N/DPAs
(DRAFT – OCTOBER 2015)

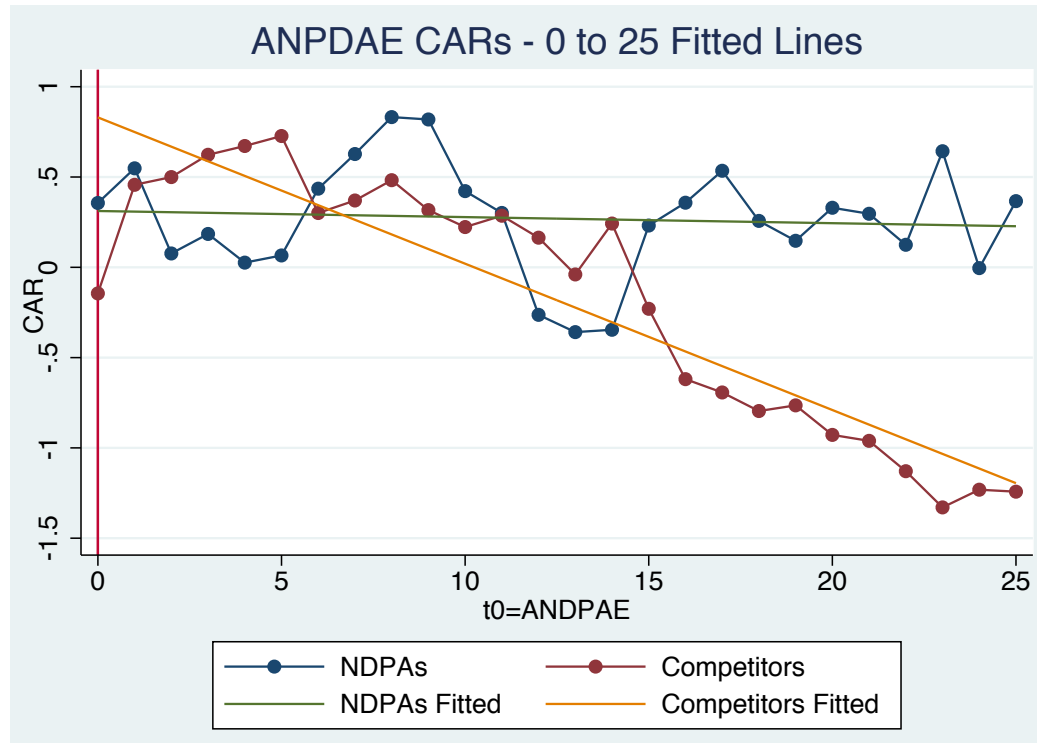


Figure 2a: Cumulative abnormal return from $t=0$ to $t=25$ after ANDPAE for N/DPA firms and direct competitors including fitted lines showing trends and differences between N/DPA firms and their direct competitors. N/DPA CARs consistently exceed competitor CARs. The daily abnormal returns are averaged across firms and then cumulated. The sample comprises 94 N/DPA firms over the period 1993-2015. 94 direct competitors are hand-selected and matched by market capitalization. For []% of N/DPA firms in our sample ANDPAE equals BNDPAT.

Figure 3 shows the cumulative abnormal return from $t=-25$ to $t=25$ after BNDPAT for N/DPA firms (in blue) and direct competitors (in red). While the overall trends are comparable to Figures 2 and 2a for ANDPAE, the CARs for N/DPA firms show a less significant negative reaction at $t=-4$ before the event date BNDPAT at $t=0$. Figure 3 suggests that the market assesses the impact of the beginning of the N/DPA term as a negative event immediately before the N/DPAs become effective from $t=-3$ to $t=-1$. At BNDPAT $t=0$ and from $t=0$ to $t=25$, when N/DPA governance improvements are in effect, Figures 3 and 3a show that the market assesses such N/DPAs as a positive event for the respective entity. We interpret the positive market reaction from $t=0$ to $t=25$ as a positive reaction to the governance terms imposed by the N/DPA.

STOCK PRICE RESPONSE TO N/DPAs
(DRAFT – OCTOBER 2015)

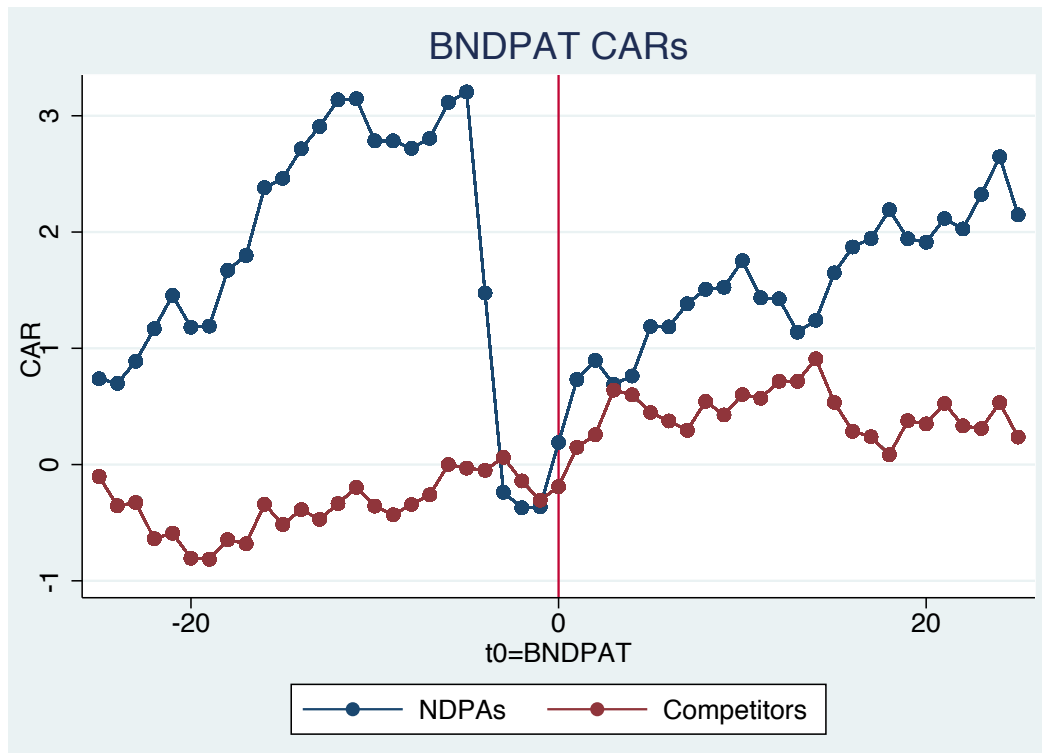


Figure 3: Cumulative abnormal return from day -25 to day 25 after BNDPAT for N/DPA firms and direct competitors. The daily abnormal returns are averaged across firms and then cumulated. The sample comprises for 94 N/DPA firms over the period 1993-2015. 94 direct competitors are hand-selected and matched by market capitalization. For []% of N/DPA firms in our sample ANDPAE equals BNDPAT.

STOCK PRICE RESPONSE TO N/DPAs
(DRAFT – OCTOBER 2015)

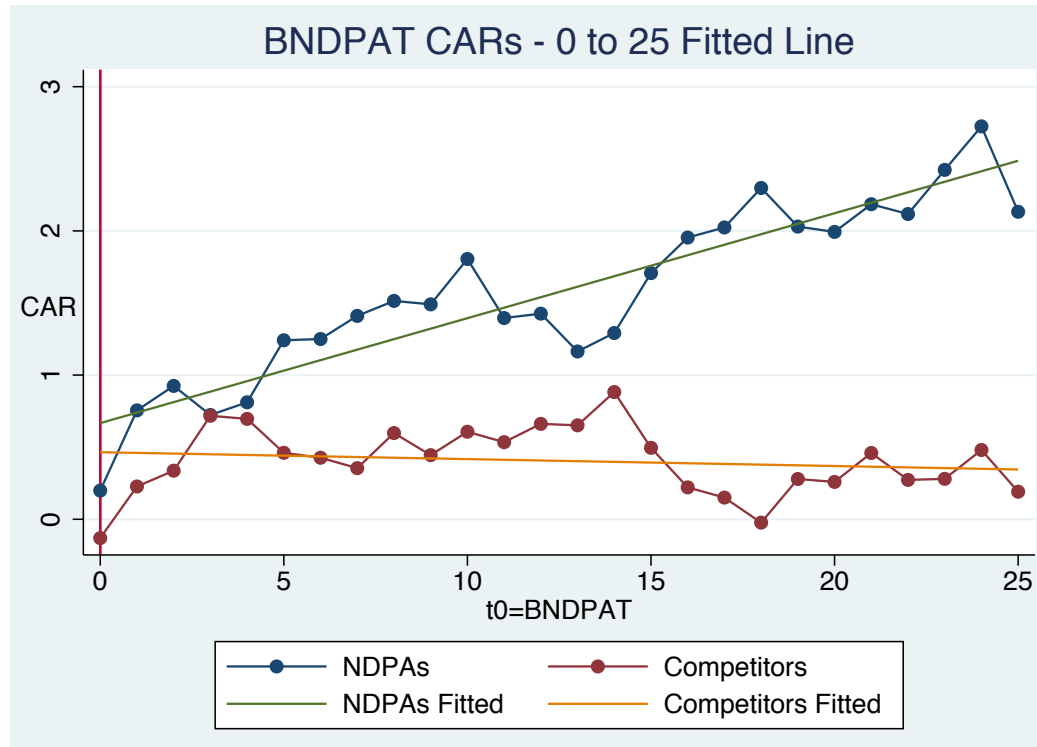


Figure 3a: Cumulative abnormal return from $t=0$ to $t=25$ after BNDPAT for N/DPA firms and direct competitors including fitted lines showing trends and differences between N/DPA firms and their direct competitors. N/DPA CARs consistently exceed competitor CARs. The daily abnormal returns are averaged across firms and then cumulated. The sample comprises 94 N/DPA firms over the period 1993-2015. 94 direct competitors are hand-selected and matched by market capitalization. In our sample for []% of N/DPA firms ANDPAE equals BNDPAT. For []% of N/DPA firms in our sample ANDPAE equals BNDPAT.

Figure 4 shows the market reaction at ENDPAT $t=0$. Unlike ANDPAE and BNDPAT that show positive CARs for N/DPA firms, at ENDPAT N/DPA firms show negative CARs at $t=0$ and from $t=1$ to $t=15$. We interpret the negative N/DPA firms' CARs from $t=1$ to $t=15$ in Figures 4 and 4a as evidence that investors see the expiration of the N/DPA term and the expiration and following unenforceability of associated governance improvements as a negative event for the respective entity.

STOCK PRICE RESPONSE TO N/DPAs
(DRAFT – OCTOBER 2015)

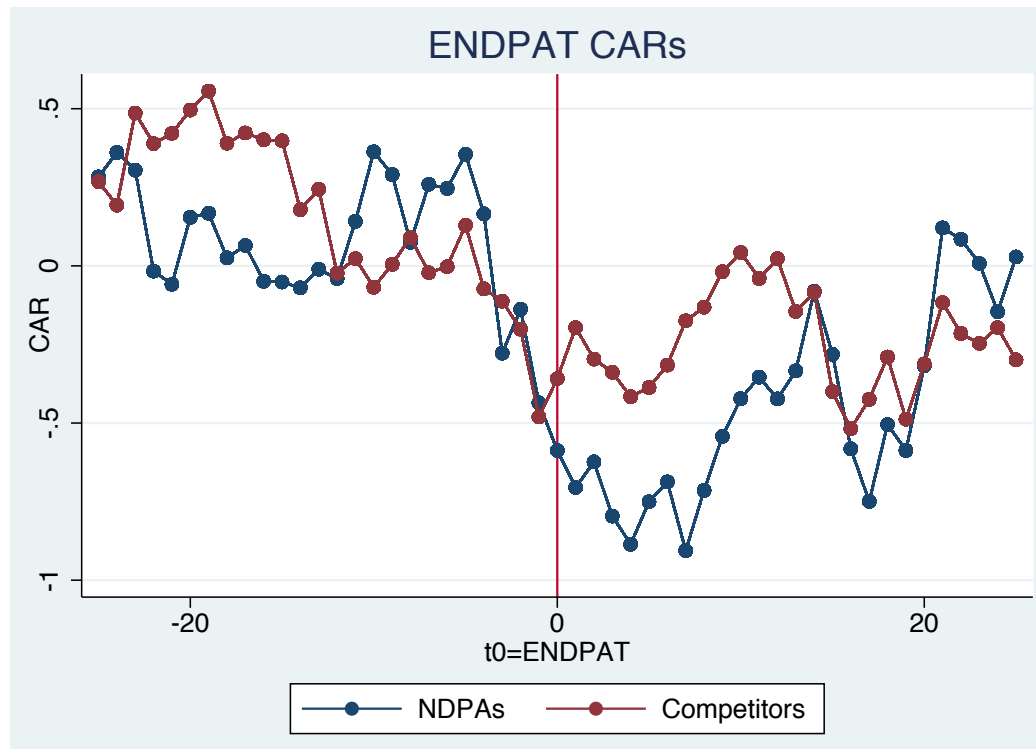


Figure 4: Cumulative abnormal return from $t=-25$ to $t=25$ after ENDPAT for N/DPA firms and direct competitors. The daily abnormal returns are averaged across firms and then cumulated. The sample comprises 59 N/DPA firms over the period 1993-2015. The authors removed N/DPA firms from the original sample of 94 N/DPA firms if the day of ENDPAT was a weekend day without trading data (for results pertaining to original sample of $N=94$ see appendix). [59] direct competitors are hand-selected and matched by market capitalization.

STOCK PRICE RESPONSE TO N/DPAs
(DRAFT – OCTOBER 2015)

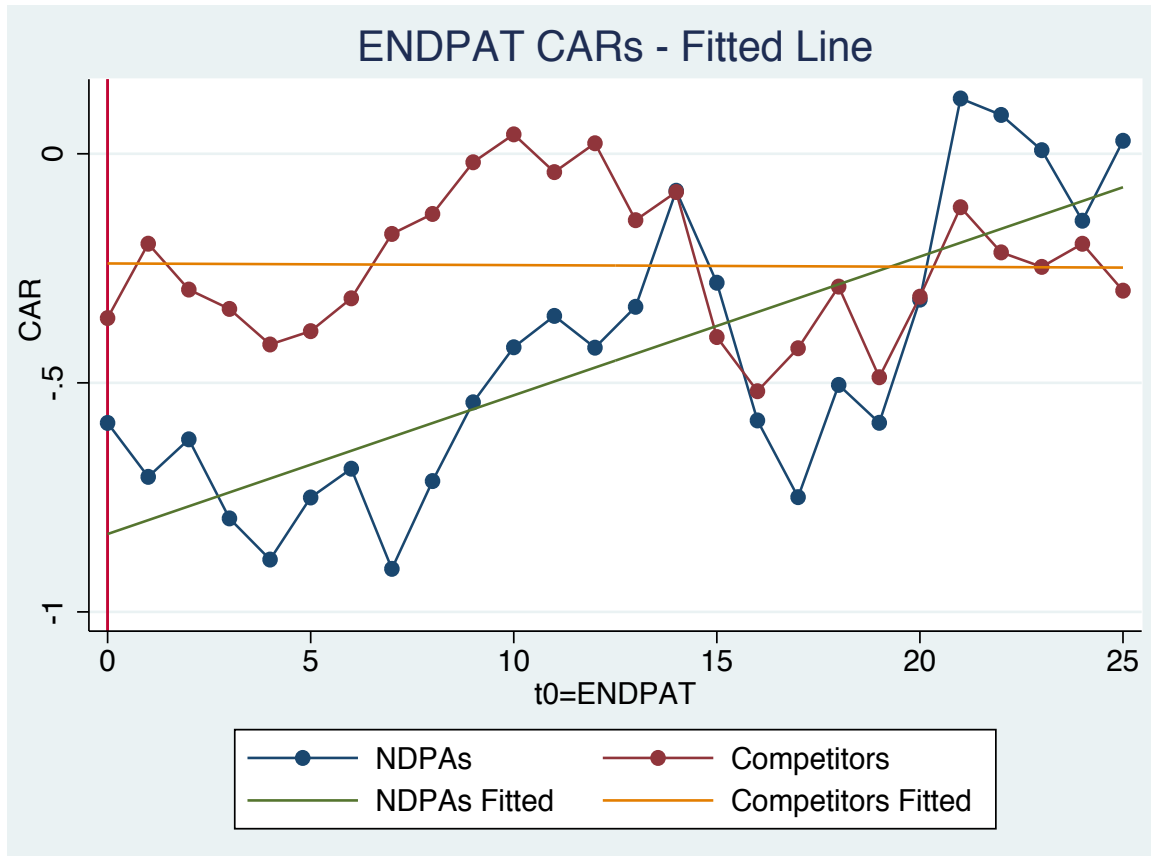


Figure 4a: Cumulative abnormal return from $t=0$ to $t=25$ after ENDPAT for N/DPA firms and direct competitors including fitted lines showing trends. The daily abnormal returns are averaged across firms and then cumulated. The sample comprises 59 N/DPA firms over the period 1993-2015. The authors removed N/DPA firms from the original sample of 94 N/DPA firms if the day of ENDPAT was a weekend day without trading data. [59] direct competitors are hand-selected and matched by market capitalization.

Table 4 presents ten industry specific summary statistics describing the industry-adjusted excess stock price response to ANDPAE (E1a), BNDPAT (E1b), and ENDPAT (E1c) on event days -25 to 25. Represented industries include: 1. CODI – Consumer Discretionary Company, 2. COST – Consumer Staples Company, 3. NRGY – Energy Company, 4. Fin – Financial company, 5. HLCR – Healthcare company, 6. IND – Industrials company, 7. IT – Information Technology company, 8. MTRL – Materials company, 9. TELCO – Telecommunications company, 10. Utilities – Utilities company. Panel A: ANDPAE (E1a) Industry 1. – 10., Panel B: BNDPAT (E1b) Industry 1. – 10., and Panel C: ENDPAT (E1c) Industry 1. – 10.

INSERT TABLE 4

Table 4: Stock price reaction measured as industry-adjusted excess returns over $t=-25$ to $t=25$ relative to event dates E1a, E1b, and E1c in eight industries as identified via Morningstar categories: 1. CODI – Consumer Discretionary Company, 2. COST – Consumer Staples Company, 3. NRGY – Energy Company, 4. Fin – Financial company, 5. HLCR – Healthcare company, 6. IND – Industrials company, 7. IT – Information Technology company, 8. MTRL – Materials company, 9. TELCO – Telecommunications company, 10. Utilities – Utilities company. Panel A: ANDPAE (E1a) Industry 1. – 10., Panel B: BNDPAT (E1b) Industry 1. – 10., and Panel C: ENDPAT (E1c) Industry 1. – 10.; Fines = relative to median fines; PRM = relative to preemptive remedial measures instituted by N/DPA prior to execution; Gov. Int. = relative to median

STOCK PRICE RESPONSE TO N/DPAs

(DRAFT – OCTOBER 2015)

governance intensity; Gov. Qual. = relative to median governance quality. The t-test significance levels are for a two-sided test. ***p<.001, **p<.01, *p<.05, n.s.=not significant.

V. Regression Analysis

The univariate analysis presented in the preceding section demonstrates a statistical relationship for individual factors. However, it does not control for coinciding factors with similar statistical relationships (e.g., preemptive remedial measures instituted before N/DPA execution, amount of fines, corporate governance quality and quantity). To estimate the incremental effect of one factor we use ordinary least squares regression and control for the explanatory power of the other factors.

Regression Variables and Models

The dependent variable for our multiple regression is excess stock return at ENDPAT date for t=-25 to t=25. We examine how this measure of price response varies with excess stock return on ANDPAE date and BNDPAT date, among other factors such as fines, preemptive remedial measures, corporate governance quantity and quality, and industries. The variables for our multiple regression are:

EENDPAT	=	Market-adjusted excess return for t=-25 to t=25 at the end of the N/DPA term (ENDPAT).
EANDPAE	=	Market-adjusted excess return for t=-25 to t=25 at the official DOJ announcement of N/DPA Execution (ANDPAE).
EBNDPAT	=	Market-adjusted excess return for t=-25 to t=25 at the beginning of the N/DPA term (BNDPAT).
FINES	=	Log of Monetary dollar fines imposed by N/DPA.
PRM	=	Total number of preemptive remedial measures imposed by N/DPA.
GOVQT	=	Governance Quantity as measured by NDPACGI index score.
GOVQL	=	Governance Quality as measured by NDPACGI quality-weighted index score.
NDPAT	=	Length of N/DPA Term, calculated as ENDPAT date minus BNDPAT date.
CODI	=	Consumer Discretionary company as identified via Morningstar sector category (Consumer Cyclical) and Russell 1000 Consumer Discretionary Index = 1, otherwise 0.
COST	=	Consumer Staples company as identified via Morningstar category (Consumer Defensive) and Russell 1000 Consumer Staples Index = 1, otherwise 0.
NRGY	=	Energy company as identified via Morningstar category (Energy) and Russell 1000 Energy Index = 1, otherwise 0.
FIN	=	Financial company as identified via Morningstar category (Financial Services) and Russell 1000 Financial Services Index = 1, otherwise 0.
HLCR	=	Healthcare company as identified via Morningstar category (Healthcare) and Russell 1000 Health Care Index = 1, otherwise 0.

STOCK PRICE RESPONSE TO N/DPAS
(DRAFT – OCTOBER 2015)

IND	=	Industrials company as identified via Morningstar category (Industrials) and Russell 1000 Producer Durables Index = 1, otherwise 0.
IT	=	Information technology company as identified via Morningstar category (Technology) and Russell 1000 Technology Index = 1, otherwise 0.
MTRL	=	Materials company as identified via Morningstar category (Basic Materials) and Russell 1000 Materials & Processing Index = 1, otherwise 0.
TELCO	=	Telecommunications company as identified via Morningstar category (Communication Services) and S&P index [] = 1, otherwise 0.
UTLT	=	Utilities company as identified via Morningstar category (Utilities) and Russell 1000 Utilities Index = 1, otherwise 0.

The model is specified as follows:

$$\begin{aligned}
 EENDPAT_{it} = & \alpha + \beta EANDPAE_i + \delta EBNDPAT_i + \eta FINES_i \\
 & + \gamma PRM_i + \lambda GOVQT_i + \mu GOVQL_i + \\
 & \pi NDPAT_i + \rho CODI_i + \varphi COST_i + \kappa NRGY_i \\
 & + \nu FIN_i + \theta HLCR_i + \omicron IND_i + \tau IT_i + \upsilon MTRL_i \\
 & + \wp TELCO_i + \psi UTLT_i + \varepsilon_{it}
 \end{aligned} \tag{1}$$

We test whether the regression coefficients in (1) are positive, zero, or negative depending on the sign predicted by the hypotheses. Given our prior discussion we expect [].

STOCK PRICE RESPONSE TO N/DPAs (DRAFT – OCTOBER 2015)

TABLE 5
CORRELATION AMONG EXCESS RETURN AT END OF N/DPA TERM (ENDPAT) AND OTHER EXPLANATORY VARIABLES

	EENDPAT	EANDPAE	EBNDPAT	FINES	PRM	GOVQT	GOVQL	NDPAT	CODI	NRGY	FIN	HLCR	IND	IT
EENDPAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EANDPAE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EBNDPAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PRM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GOVQT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GOVQL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NDPAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CODI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COST	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HLCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IND	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MTRL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TELCO	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UTLT	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 5. This table reports the Pearson correlation coefficients (below the diagonal) and significant levels (above the diagonal) among EENDPAT (the dependent variable) and the independent variable in the regression analyses. The variables are defined as follows: EANDPAE = Market-adjusted excess return for t=-25 to t=25 at the official DOJ announcement of N/DPA Execution (ANDPAE); EBNDPAT = Market-adjusted excess return for t=-25 to t=25 at the beginning of the N/DPA term (BNDPAT); FINES = Monetary dollar fines imposed by N/DPA; PRM = Total number of preemptive remedial measures imposed by N/DPA; GOVQT = Governance Quantity as measured by NDPACGI index score; GOVQL = Governance Quality as measured by NDPACGI quality-weighted index score; NDPAT = Length of N/DPA Term, calculated as EENDPAT date minus BNDPAT date; CODI = Consumer Discretionary company as identified via S&P index and Morningstar category = 1, otherwise 0; COST = Consumer Staples company as identified via S&P index and Morningstar category = 1, otherwise 0; NRGY = Energy company as identified via S&P index and Morningstar category = 1, otherwise 0; FIN = Financial company as identified via S&P index and Morningstar category = 1, otherwise 0; HLCR = Healthcare company as identified via S&P index and Morningstar category = 1, otherwise 0; IND = Industrials company as identified via S&P index and Morningstar category = 1, otherwise 0; IT = Information technology company as identified via S&P index and Morningstar category = 1, otherwise 0; MTRL = Materials company as identified via S&P index and Morningstar category = 1, otherwise 0; TELCO = Telecommunications company as identified via S&P index and Morningstar category = 1, otherwise 0; UTLT = Utilities company as identified via S&P index and Morningstar category = 1, otherwise 0. Number of observations = 134. The t-test significance levels are: ***p<.001, **p<.01, *p<.05, n.s.=not significant.

Correlations Among the Variables

Table 5 reports the product moment correlations among the variables. This checks for collinearity, which if highly significant could affect the estimation and interpretation of the regression coefficients. First, we note the [direct] correlation between [_____].

Regression Results

VI. Discussion

1. Key Findings and Interpretation

There is no evidence to support *Hypothesis 1*: The market does not react negatively at ANDPAE (E1a) and BNDPAT (E1b) and positively at ENDPAT (E1c). Figures 2 to 4a support *Hypothesis 2*: The market reacts positively at ANDPAE (E1a) and BNDPAT (E1b) and negatively at ENDPAT (E1c). Consistent with *Hypothesis 2*, we interpret the positive market reaction at ANDPA and BNDPAT as the market's acknowledgement that the execution and effectiveness of an N/DPA is an opportunity for the entity to be better managed, more compliant, with fewer possibilities to incur penalties and overall less litigation, lowering costs and resulting in higher profitability and corresponding increases in market value. In turn, we interpret the negative market reaction at ENDPAT in Figures 4 and 4a as the market's acknowledgment that post N/DPA term expiration suboptimal governance practices are likely to continue and are associated with higher costs and lower market value for the respective entity. [The tentative analysis of a shorter event window ($t=-1$ to $t=1$) affirms the conclusions herein (see appendix)].

Figures 3, 3a, 4, and 4a support *Hypothesis 3*: The market reacts positively at BNDPAT (E1b) and negatively at ENDPAT (E1c). At BNDPAT, N/DPA governance changes become effective / mandatory. Inversely, at ENDPAT, N/DPA governance changes become ineffective and are no longer mandatory. We interpret the positive market reaction at BNDPAT and its negative reaction at ENDPAT as evidence that governance changes mandated by N/DPAs matter. The market assesses the governance changes during the term of the N/DPA as beneficial for market value because it effectively addresses corporate wrongdoing and the associated negative effects on goodwill and reputation while lowering the likelihood of continuing fines and litigation. We interpret the negative N/DPA firms' CARs at $t=0$ and from $t=0$ to $t=15$ in Figures 4 and 4a as evidence that investors see the expiration of the N/DPA term and the expiration and following unenforceability of associated governance improvements as a negative event for the respective entity. [The tentative analysis of a shorter event window ($t=-1$ to $t=1$) affirms the conclusions herein (see appendix)].

We find industry-specific effects that support *Hypothesis 4*. [____].

2. Policy Implications

The positive market reaction to announcements of N/DPAs and to N/DPA governance improvements at the beginning of the N/DPA term suggest that the DOJ's increase in N/DPA executions, starting in 2002, could be justified. [____]

3. Limitations and Future Research

Several limitations in this study seem to suggest that additional research may be required to fully investigate the impact of N/DPAs and the associated governance improvements. It is possible that our results are skewed towards N/DPAs that had a relatively low impact on the respective entity. Because of lacking public trading data, we had to remove those firms subject to N/DPAs that were acquired, merged or went bankrupt as a result of the N/DPA execution. N/DPAs that caused mergers etc. that have the highest impact on the respective entities. We did not find evidence in our sample that would suggest

STOCK PRICE RESPONSE TO N/DPAs
(DRAFT – OCTOBER 2015)

the timing of N/DPA execution resulted in mitigating the effect of N/DPAs, e.g. by announcing it with other news at the end of the quarter. While we show industry effects of N/DPAs, we cannot rule out that N/DPAs could have additional disparate effects on different parts of the industry. The findings of this study are based on a small sample size and limited data. As more publicly traded companies are subjected to N/DPAs, we may expand this study with a larger dataset.

VII. References

- Arlen, Jennifer, and Marcel Kahan. 2011. "Corporate Governance Regulation through Non-Prosecution." Unpublished manuscript, New York University. <http://goo.gl/W8I0GX>.
- Baker, John S., Jr. 2004. "Reforming Corporations through Threats of Federal Prosecution." *Cornell Law Review* 89 (2):310-355.
- Boozang, Kathleen M., and Simone Handler-Hutchinson. 2009. "'Monitoring' Corporate Corruption: DOJ's Use of Deferred Prosecution Agreements in Health Care." *American Journal of Law and Medicine* 35 (1):89-124.
- Coffee, John C. Jr. 2005. "Deferred Prosecution: Has It Gone Too Far?" *National Law Journal*, July 25.
- Copland, James R. 2012. "The Shadow Regulatory State: The Rise of Deferred Prosecution Agreements." *Civil Justice Report* 14 (May):1. <http://goo.gl/sfBfnM>
- Cunningham, Lawrence A. 2014a. "Deferred Prosecutions and Corporate Governance: An Integrated Approach to Investigation and Reform." *Florida Law Review* 66 (1):1-86.
- . 2014b. "Prosecutors in the Governance Business: Improving the Quality of Deferred Prosecution Agreements." *Banking and Financial Services Policy Report* 33 (8):1-12.
- Deferred Prosecution Agreement, United States v. JPMorgan Chase Bank, N.A., No. 1:14-cr-00007 (S.D.N.Y. Jan. 6, 2014), <http://goo.gl/xjKIig>.
- Deferred Prosecution Agreement, United States v. HSBC Bank, USA N.A. and HSBC Holdings plc, No. 1:12-cr-00763 (E.D.N.Y. Dec. 11, 2012), <http://goo.gl/52Ygh3>.
- Epstein, Richard A. 2006. "The Deferred Prosecution Racket." *Wall Street Journal*, November 28.
- Garrett, Brandon L. 2007. "Structural Reform Prosecution." *Virginia Law Review* 93 (4) : 853-957.
- . 2014. *Too Big to Jail: How Prosecutors Compromise with Corporations*. Cambridge: Harvard University Press.
- Gilchrist, Gregory M. 2014. "The Special Problem of Banks and Crime." *University of Colorado Law Review* 85 (1):1-52.
- Golumbic, Court E., and Albert D. Lichy. 2014. "The 'Too Big to Jail' Effect and the

STOCK PRICE RESPONSE TO N/DPAS
(DRAFT – OCTOBER 2015)

- Impact on the Justice Department's Corporate Charging Policy." *Hastings Law Journal* 65 (5):1293-1344.
- Kaal, Wulf A., and Timothy A. Lacine. 2014. "The Effect of Deferred and Non-Prosecution Agreements on Corporate Governance: Evidence from 1993-2013." *Business Lawyer* 70 (1):61-120.
- MacKinlay, A. Craig. 1997. "Event Studies in Economics and Finance." *Journal of Economic Literature* 35 (1):13-39.
- Markoff, Gabriel. 2013. "Arthur Andersen and the Myth of the Corporate Death Penalty: Corporate Criminal Convictions in the Twenty-First Century." *University of Pennsylvania Journal of Business Law* 15 (3):797-842.
- O'Brien, Justin, and Olivia Dixon. 2014. "Deferred Prosecutions in the Corporate Sector: Lessons From Libor." *Seattle University Law Review* 37 (2):475-510.
- O'Reilly, James T., James Patrick Hanlon, Ralph F. Hall, Steven L. Jackson, and Erin Lewis. 2009. *Punishing Corporate Crime: Legal Penalties for Criminal and Regulatory Violations*. Oxford: Oxford University Press.
- Orland, Leonard. 2006. "The Transformation of Corporate Criminal Law." *Brooklyn Journal of Corporate, Financial, and Commercial Law* 1 (1):45-88.
- Plea Agreement, United States v. BNP Paribas S.A., No. 1:14-cr-00460 (S.D.N.Y. July 9, 2014).
- Plea Agreement, United States v. Credit Suisse AG, No. 1:14-cr-00188 (E.D. Va. May 19, 2014), <http://goo.gl/4VV8HT>.
- Rakoff, Jed S. 2014. "The Financial Crisis: Why Have No High-Level Executives Been Prosecuted?" *New York Review of Books*, January 9. <http://goo.gl/P4SepA>.
- SEC v. Citigroup Global Mkts. Inc., 827 F. Supp. 2d 328 (S.D.N.Y. 2011), rev'd, 752 F.3d 285 (2d Cir. 2014).
- Thompson, Larry D. 2003. "Principles of Federal Prosecution of Business Organizations." U.S. Department of Justice Memorandum, Washington D.C. <http://goo.gl/pmpj2L>.
- Warin, F. Joseph, and Jason C. Schwartz. 1997. "Deferred Prosecution: The Need for Specialized Guidelines for Corporate Defendants." *Journal of Corporation Law* 23 (1):121-134.
- Uhlmann, David M. 2013. "Deferred Prosecution and Non-Prosecution Agreements and the Erosion of Corporate Criminal Liability." *Maryland Law Review* 72 (4):1295-1344.

VIII. Appendices

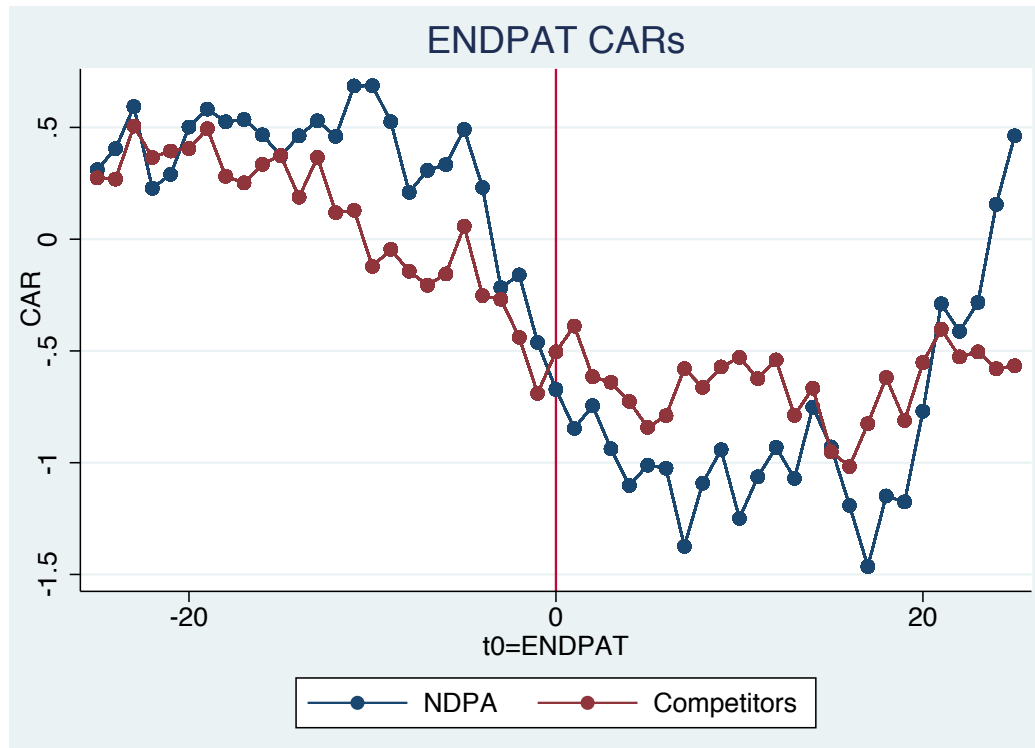


Figure [X]: Cumulative abnormal return from $t=-25$ to $t=25$ after ENDPAT for N/DPA firms and direct competitors. The daily abnormal returns are averaged across firms and then cumulated. The sample comprises 94 N/DPA firms over the period 1993-2015. For N/DPA terms that ended on a weekend, the authors used the following Monday as the first trading day post ENDPAT. 94 direct competitors are hand-selected and matched by market capitalization.

STOCK PRICE RESPONSE TO N/DPAs (DRAFT – OCTOBER 2015)

Event Window $t=-1$ to $t=1$

