Master Thesis:

Blowing the whistle: What is the effect on Earnings Management?

An empirical thesis that deep dives into the effect of the implementation of the Dodd-Frank Whistleblower program on earnings management within US firms.

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Abstract

This thesis investigates whether the whistleblower program implementation, as part of the Dodd-Frank Act in 2011, influences the level of earnings management in firms. With the application of a difference-in-difference design, I test the impact of the program for lobbying (treatment group) and non-lobbying (control group) companies against the implemented whistleblower program over time.

I utilize two different models to study the possible impact of the whistleblower program on earnings management. The two models make use of discretionary accrual-based earnings management and real earnings management. Moreover, general determinants of lobbying, reporting quality and external board quality will be used as control variables. This thesis does not find evidence that the Dodd-Frank whistleblower program implementation significantly affects earnings management.

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I. Introduction

The financial crisis of 2008 - generally observed as the worst crisis since the Great Depression in the early 1930s - has impacted companies and national economies enormously (Crotty, 2009). The Great Recession started with the subprime mortgages market in the United States and escalated into a financial banking crisis with the collapse of investment bank Lehmann Brothers in September 2008. The risk-taking behavior in respect of selling bonds as bundled mortgages by banks was the foundation for the financial crisis (Crotty, 2009). Governmental institutions and central banks had to support banks with bailouts to continue their existence and new fiscal policies were applied. The institutional measures had affected the worldwide economy rapidly, because recessions in the Asian and European markets followed soon after (Wade, 2009).

Consequently, the reformation of the regulatory system became an urgent topic after the crisis (Crafts & Fearon, 2010). Barack Obama proposed a "sweeping overhaul of the United States financial regulatory system, a transformation on a scale not seen since the reforms that followed the Great Depression" (Turk & Swicegood, 2012). As a result, Senator Chris Dodd and Congressman Barney Frank introduced the Dodd-Frank Wall Street Reform and Consumer Protection Act. Its purpose was to increase the financial stability of the United States by setting up stricter rules for financial institutions. First, Dodd and Frank focused on making the financial system more transparent. Second, they attempted to improve taxpayer's protection against state aid given to companies that are "too big to fail". Third, Dodd and Frank concentrated on avoiding future financial fraud cases for investors and consumers (Turk & Swicegood, 2012).

The Dodd-Frank Act addressed several solutions for the financial problems in the American economy. The act established the prohibition of speculative investments by banks, tougher monitoring of the financial industry, insurance industry and credit rating agencies, new regulations for high-risk financial products and the foundation of the Consumer Financial Protection Bureau. Moreover, an updated whistleblower program on top of the existing Sarbanes-Oxley Act of 2002 was introduced (Turk & Swicegood, 2012).[1] The Sarbanes-Oxley Act was formed to establish better protection for whistleblowers within companies. It states that companies should not retaliate against employees that provide truthful information relating to any regulation offense to law enforcement officers. Whoever retaliates against whistleblowers

[1] Whistleblowing is the practice of disclosing questionable practices involving an organization or its members, internally or externally (Chiasson, Johnson, & Byington, 1995)

with any harmful action, risks to be fined under his title, imprisoned for up to 10 years, or both (SEC, 2011).

The Dodd-Frank Act develops whistleblowing procedures in multiple ways. First, it requires the SEC to grant a provision fee to eligible whistleblowers (SEC, 2011). A whistleblower is qualified for the provision if he/she voluntarily provides original information content about a violation. Moreover, reporting a violation of federal securities laws have to lead to a successful enforcement of a reported action. Awards range from 10 to 30 percent of the determined monetary sanctions, subject to a minimum threshold of $1,000,000 (SEC, 2011). Second, the new program provides better protection to whistleblowers, mainly regarding anti-retaliation and coverage of court expenses for whistleblowers. Third, whistleblowers are able to report information about violations directly to the SEC, without informing the company itself through its internal compliance systems (Rose, 2013).

With the implementation of the Whistleblower program, I expect that company behavior will improve. One of the relevant company behavior themes in business is earnings management. Earnings management is the choice by a manager of accounting policies or real actions, affecting earnings in such a way that specific reported earnings objectives can be achieved (Cohen, Dey & Lys, 2008). While the practice of earnings management is not illegal per se, its occurrence is potentially a prescription for corporate fraud and unethical behavior (Capalbo et al. 2018). Moreover, there is often no obvious limit beyond which a certain accounting decision is clearly illegal. An expense estimation for instance, may be illegal if the estimated amount is extreme, but perfectly legal if it is reasonable.

I suppose that the likelihood of applying earning management will decrease due to the severe consequences of the whistleblower program. I expect that the program will cause more threat of sanctions imposed on managers after the passage of Dodd-Frank. Moreover, I foresee that it influences the potential adverse publicity and legal costs imposed on executives and firms due to improper reporting practices. As a result, investors will have access to more realistic financial information, which improves the market transparency. The aim of this research is to find a possible relation between whistleblowing and earnings management. The research question is posed as follows:

RQ: ***Does higher protection and (financial) stimulation for whistleblowers regarding fraud cases affect the level of earnings management within companies?***

The most challenging part of studying the whistleblower provision program is to measure the effect of the event itself. The Dodd-Frank Act introduced seven regulation changes

in a short period of time.[2] First, I attempt to tackle this issue by taking the implementation date of the whistleblower program, May 2011, as event. Second, I assume that firms that lobbied against the strict implementation of the proposed whistleblower regulation changes by submitting comment letters to the SEC are more impacted than regular companies (Baloria et al. 2017).[3] The SEC proposed rules for the implementation of whistleblower awards on the 3rd of November 2010. The commission encouraged public commenting until the 17th of December 2010 to give stakeholders the opportunity to give feedback (SEC, 2011).

In over 500 (individual & collective) comment letters to the SEC, two main arguments came across about the impact of the proposed rules on shareholders. On the one hand, supporters of the new program argue that the shareholder protection will increase due to partnerships with company insiders that have specific knowledge concerning corporate misconduct. On the other hand, opponents of the program believe that the new rules will undermine the current internal compliance systems of companies, what makes detecting and deference of corporate fraud more difficult (Baloria, Marquardt & Wiedman, 2017). After considering the comments and making some modifications, the Whistleblower program became active on the 25th of May 2011 (SEC, 2011).

In this thesis, I utilize two different models to study the possible impact of the whistleblower program on earnings management. The two models make use of discretionary accrual-based earnings management and real earnings management. Moreover, this thesis compares the effect of the whistleblower program on lobbying and non-lobbying companies. To study the impact of the program, I examine earnings management before and after the program implementation. Moreover, I create a matched sample of lobbying companies and non-lobbying companies by size and industry to examine an equally distributed sample as a robustness check. I do not find support that the whistleblowing program implementation significantly affects earnings management. Consequently, this research has empirical and practical contribution and therefore, relevance.

This research relates to previous studies on the consequences of regulation changes regarding whistleblowing. According to the SEC (2011), some companies lobbied against the whistleblower program, which refers to a disagreement with the law and a lower corporate

[2] The seven Dodd-Frank Act changes were: The prohibition of speculative investments by banks, tougher monitoring of the financial industry, insurance industry and credit rating agencies, new regulations for high-risk financial products, the foundation of the Consumer Financial Protection Bureau and an updated whistleblower program.

[3] Lobbying is a way of influencing public officials or legislative body to make decisions in favor of a particular goal (Baloria et. al 2017).

governance structure. This event implicates that there is an opportunity to distinguish samples by lobbying and regular companies to create special measure conditions, such as a difference-in-difference method (Baloria et al. 2017).

Moreover, the study provides some additional value to governmental institutions about the practical effects of their own regulation. The new legislation fosters employees or witnesses with financial incentives to disclose fraud if they detect some suspicious information. The SEC has awarded more than $262 million to 53 whistleblowers since issuing its first award in 2012 (SEC, 2018). Besides these absolute results, it is relevant to perceive the effects on earnings management. The proposed rules force firms to change their policies and firms run more risk to appear as defrauder. Therefore, it is relevant to show some implications of the new federal policies concerning whistleblowing.

The structure of this thesis is as follows. Part II elaborates on the literature review related to earnings management (detection), whistleblowing, Dodd-Frank Act, lobbying and my hypotheses. Part III discusses the sample selection, the research methodology decisions and the different study methods. Part IV covers the empirical results and an analysis of the descriptive statistics, regressions and robustness checks. Finally, the research conclusions are presented in part V.

II. Literature Review

2.1 Earnings Management

The most relevant item in financial statements are earnings, sometimes called “the bottom line” or “net income” (Plummer & Mest, 2001). Earnings measure the extent to which a firm has engaged in value-added activities. Rising earnings are usually a sign for an increase in firm value, whereas descending earnings usually mean a decrease in firm value. As a result, company management has a strong interest in how earnings are reported. Executives should understand what the consequences of their accounting decisions are, so that they can make the optimal decisions for the company. Company leaders should learn how to “manage earnings”.

Schipper (1989) defines earnings management as purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain (as opposed to facilitating the neutral operation of the process). Earnings management is divided into accounting decisions and real operational decisions. Accounting decisions have to follow the International Financial Reporting Standards (IFRS) (Van Tendeloo & Vanstraelen, 2005). IFRS

are the set of rules, practices and conventions that describe what is acceptable financial reporting for external stakeholders (Beneish, 1997). An example of an accounting decision is to switch from a straight-line depreciation method to a units of production depreciation method to temper the costs for last year's poor production. The change of depreciation method could result in a higher net profit, which provides higher management bonuses. Real operational decisions, also known as economic earnings management, attempts to manage the cash flows and thus the revenues and expenses associated with cash flows. An example of an operational decision is providing short-term discounts to customers in order to increase sales for the current period (Van Tendeloo & Vanstraelen, 2005).

Earnings management may take place, because executives have flexibility in accounting or operational decisions or because executives attempt to share relevant private information in financial statements with a purpose (Van Tendeloo & Vanstraelen, 2005). This target can be motivated by a preference for more stable earnings, also known as earnings smoothing. Stable earnings can in turn signal lower risk and increase a company's market value (Subramanyam, 1996). Furthermore, debt covenants could drive earnings management with pressure to maintain levels of certain accounting ratios. The external pressure to provide increasing earnings and to beat analyst targets is also an important motivation for firms to manage earnings (Richardson, Tuna & Wu, 2002).

Previous research finds that executives' choices of accounting methods are affected by the impact of these accounting practices on their compensation. Managers with higher stock- and option-based compensation are more sensitive to short-term stock prices and attempt to use their discretion to affect reported earnings (Fields, Lys & Vincent, 2001). In addition to equity-based compensation, executives are also rewarded based on explicit bonus-linked targets for reported income (Healy, 1985). The flexibility in accounting or operating decisions provides space to influence earnings (and thus its share prices) in a desired way.

2.2 Earnings Management Detection

The National Association of Certified Fraud Examiners (1993) defines fraud as the intentional, deliberate misstatement or omission of material facts, or accounting data. This is misleading and, when considered with all information made available, would cause the reader to change or alter his or her judgment or decision. Although managing earnings is not illegal per se, there is a common criticism that it reduces transparency by concealing real company earnings (Perold & Lougee, 2011).

While the practice of earnings management is not always illegal, its occurrence is potentially a prescription for corporate fraud and unethical behavior (Capalbo et al. 2018). The problem with many accounting decisions is that there is often no obvious limit beyond which a decision is clearly illegal. An expense estimation for instance, may be illegal if the estimated amount is extreme, but perfectly legal if it is reasonable. GAAP does not work out what specifically is normal and what is extreme. The GAAP guidelines concerning earnings management are more like a speed limit sign that states "Don't Drive Too Fast!" (Needles Jr, Powers & Şenyigit, 2012).

Traditionally, research regarding earnings management have mostly focused on accrual-based and real earnings management (Jones, 1991; Jones, 1995; Dechow, 1995; Dechow & Dichev, 2002; McNichols, 2002; Stubben, 2010). The modified Jones model is a well-known option to measure earnings management. Accrual-based earnings management concerns influencing the accounting method (discretionary accruals) in order to achieve financial goals (Graham, Harvey & Rajgopal, 2005; Dechow, 1995). By contrast, real earnings management occurs via economic decisions towards financial targets, whereby real free cash flow changes may occur (Graham et al. 2005; Roychowdhury, 2006).

However, discretionary accrual models have been criticized from several angles. Recent studies claim that discretionary accrual models have statistical limitations. Discretionary accruals have been labeled to be noisy proxies of earnings management, producing results that are of low power and biased for certain non-random samples (McNichols & Stubben, 2018). Estimating raw residual or predicting values with a two-step regression procedure leads to biased coefficient estimates and unreliable t-statistics (Chen, Hribar & Melessa, 2018).

Dichev and Owens (2017) criticize discretionary accrual models on content. They argue that classic discretionary accrual models, such as Jones et al. (1991), fail to separate discretionary and non-discretionary accruals without significant measurement errors. As a solution, they study earnings management by using a multiple-step regression. First, Dichev and Owens (2017) measure the magnitude of accruals. Afterwards, they create deciles based on accrual magnitude and measure the difference between groups in earnings persistence over the years.

The critical studies of Chen et al. (2018) and McNichols et al. (2018) provide multiple solutions to improve the research design when using methods with discretionary accruals. I take the solutions suggested by these papers, which will be further elaborated in the Research Methodology section.

2.3 Whistleblowing

Whistleblowing is the practice of disclosing questionable practices involving an organization or its members, internally or externally (Chiasson et al. 1995). Previous research on whistleblowing in the accounting and finance literature has focused on whistleblowing rules of the Sarbanes-Oxley Act (SOX), enacted in 2002 (Cherry, 2004). The SOX Act came as response to the Enron and WorldCom scandals, which are perfect examples of internal whistleblowing cases that became public.

Dyck, Morse & Zingales (2010) have examined how to detect corporate fraud in cases of large U.S. firms over 1996-2004. Fraud detection does not only rely on standard corporate governance stakeholders (investors, SEC or auditors), it also relies on employees, media and industry regulators. Dyck et al. (2010) have found that employees detected most corporate fraud cases, with about 17% of the total cases. Employees that detect and report fraud internally or externally are defined as whistleblowers.

Section 301 of the SOX determines that companies require to install an independent audit committee (Cherry, 2004). The committee oversees establishing a policy concerning the receipt, retention and further actions towards information from internal whistleblowers. A high-quality audit committee is more likely to implement a stronger internal whistleblowing system, which in turn reduces the likelihood of external relative to internal reporting (Lee and Fargher, 2017). Furthermore, the commission takes care of confidential and anonymous submission by employees with important information or doubts about the current way of working for accounting and auditing matters (Cherry, 2004).

Section 406 of SOX requires all public companies to disclose whether the company has adopted a written Code of Ethics that meets the minimum criteria (Cherry, 2004). First, a Code of Ethics is designed to deter inappropriate accounting behavior. Second, it stimulates employees to comply with applicable governmental laws, rules and regulations. Third, it promotes internal reporting of wrongdoing to a responsible and trustful person or internal commission as identified in the Code of Ethics. Fourth, a Code of Ethics fosters accountability for maintaining the conditions of the ethical policy. Reporting intentions are higher when individuals perceive greater severity of wrongdoing and have a greater sense of professional ethics and morality (Hwang, Staley, Chen & Lan, 2008).

SOX section 806 and 1107 contain anti-retaliation measures for whistleblower protection (Cherry, 2004). Whistleblowing retaliation is defined as an undesirable action taken against a whistleblower who reported wrongdoing internally or externally (Near & Micelli, 2008). Whistleblowers will be supported when it comes to career reinstatement, employer back

pay and additional legal fees. Retaliators against a whistleblower risk to be juridically prosecuted with criminal penalties as a result. The threat of retaliation and greater personal costs reduces whistleblowing intentions (Arnold & Ponemon, 1991; Curtis, 2006).

2.4 Dodd-Frank Act

The Dodd-Frank Act addressed several solutions for the financial problems in the American economy. With the implementation in 2011, some major elements for whistleblowers have been changed (Ebersole, 2011). First, the Dodd-Frank determines provisions for whistleblowers with information that leads to corporate prosecution in court. The awards vary from 10 to 30 percent of the monetary sanction, with a minimum threshold of $1,000,000 (SEC, 2018). This helps the SEC in distributing limited resources to the most serious fraud cases (SEC, 2019).

Second, since the SOX program regarding anti-retaliation is generally seen as very weak, the Dodd-Frank enlarged the anti-retaliation program for whistleblowers in the following ways (Dworkin, 2007). First, the new procedure enacts that the new statute of limitations has been lengthened. Second, the employer back pay has been doubled. Third, it is possible to suspend mandatory arbitration of retaliation claims. Lastly, the new rules support whistleblowers with information that that do not match all the minimum requirements of the provision against retaliation (Ensign and Matthews, 2013).

Third, the new channel mandates to report information directly to the SEC, which is generally considered as most shocking (Ebersole, 2011). It used to be mandatory to report signs of fraud via the internal compliance systems first. However, some companies possess robust and bureaucratic internal compliance systems to report violations. Therefore, directly reporting to the SEC lowers the barrier for whistleblowers to report fraud. Despite the lower barrier, opponents of the Dodd-Frank think that this element violates the efficiency of the existing internal compliance, legal, audit and other internal systems.

Besides, the Dodd-Frank triggers some net costs for shareholders. First, if Managers already attempt to address some violation problems internally, reporting directly to the SEC probably leads to public exposure that is harmful for the company (Bowen, Call & Rajpogal, 2010). Second, perhaps reporting directly to the SEC extents the duration of violation problems. Managers are unaware of current violations and the SEC does not always have the resources to investigate allegations on the short-term. Third, reporting directly works counterproductive to existing internal compliance systems. There is less motivation to help companies reporting, investigating and avoiding violation problems internally, because of the external bonuses to report directly to the SEC. Fourth, the “bounty program” possibly increases the number of

unjustified claims against companies, which leads to reputation damage and redundant firm resources. Lastly, some firms already optimized their investments in an excellent internal compliance system, whereas the usage would be discouraged to report internally by the SEC.

However, if the new rules function as they are supposed to do, shareholders take advantage of the new regulation. Managers have to find solutions to violations of which they are unaware before or may be unwilling to address before due to agency problems. Continuing with unethical behavior could be disclosed with all its consequences. Another advantage for shareholders is that managers will probably invest more in their existing governance structure that prevents other agency issues. Lastly, with the creation of a public good, shareholders profit from the costs of corporate governance to external authorities (Cherry, 2004). In summary, the new whistleblower program attempts to generate a more effective and efficient enforcement by the SEC with as ultimate objective a better information exchange between companies and shareholders/investors (Turk & Swicegood, 2012).

2.5 Lobbying

After the presentation of the new rules, the SEC offered the opportunity to submit comments in response to the proposed rules. Lobbying is a way of influencing public officials or actors of the legislative branch to make decisions in favor of a particular goal (Baloria et. al 2017). Most of the researches in the United States on interest groups and lobbying have underestimated the role of interest groups in the legislative process (Austen-Smith & Wright, 1994). Research suggests that interest groups inefficiently communicate citizen preferences to representatives and also have little control over representatives. Despite the aforementioned little control, it has been observed that journalistic extracts and subjective articles have influenced legislative processes. Therefore, lobbying is often considered the first step towards change (Austen-Smith & Wright, 1994). Further, firms that spend more on lobbying in a given year have been found to pay lower effective tax rates in the next year (Richter, Samphantharak & Timmons, 2009).

The deadline for comments regarding the whistleblower program was set on the 17th of December 2010, and yet suggestions were still submitted for days after. In fact, up until January 2011 the SEC received 224 comments from over 510 entities and the commission received around 280 comments from different companies. The study of Baloria et al. (2017) shows that the new rules got negatively accepted by corporates (0% overall positivity), whereas comments from individuals are rather positive about the proposed changes (87% overall positivity). Potter and Van Winden (1992) state that it is not the content of the message as such, but rather the

characteristics of the interest group that induces potential changes in the policymaker's behavior, for example individuals versus companies.

As expected, the element of directly informing violations to the SEC instead of using the internal compliance systems first caused the most arguable comments. Individuals express: *"Whistleblowers should never be forced or encouraged to take their concerns to their potentially corrupt bosses first."* Corporates, on the other hand, all clearly disagreed with 283 companies commenting negatively on the issue. Comments about enhanced financial rewards to whistleblowers and the enlarged anti-retaliation programs of the SEC received more support from both individuals and corporates (Baloria et al. 2017). The general pattern is that individuals support the whistleblower program, whilst companies mostly disagree with the new rules.

2.6 Hypotheses

My primary goal of this research is to compare the change of elements of the Dodd-Frank for stimulation of whistleblowing with a treatment and a control group over the years. The implementation of the Dodd-Frank Act conveys benefits and costs for all stakeholders of the new law. The relation of whistleblowing with earnings management has a central perspective in this research. By comparing these benefits and costs over time, I am able to draw conclusions about the impact of the regulation changes on earnings management, whether the financial statements are more realistic than before.

First, I study the impact of the whistleblower program implementation on earnings management via accounting methods. As described in 2.2, the problem with many accounting decisions is that there is often no obvious limit beyond which a decision is clearly illegal. An expense estimation for instance, may be illegal if the estimated amount is extreme, but perfectly legal if it is reasonable. Dechow and Skinner (2000) find that firms with extremer accruals are more likely to engage in earnings management. Therefore, I assume that companies with larger accruals practice a higher level of earnings management in their financial statements. With the implementation of the whistleblower program, I expect that the level of earnings management will decrease due to more threat of sanctions imposed on managers. Moreover, I foresee that it influences the potential adverse publicity and legal costs imposed on executives and firms due to improper reporting practices. This introduces my first hypothesis:

H1: *Higher protection and stimulation of accounting-related whistleblowers negatively affects the level of earnings management via accounting methods.*

Second, I examine the effect of the whistleblower program on earnings management via operations, because earnings can also be manipulated with real financial decisions. Also, for this method of earnings management the issue is that there is often no obvious limit beyond which a decision is clearly illegal for many accounting decisions. Roychowdhury (2006) finds evidence that firms deliberately try to avoid losses by offering price discounts to temporarily increase sales, engage in overproduction to lower cost of goods sold (COGS), and reduce discretionary expenditures aggressively to improve margins. Applying the real earnings manipulation model of Roychowdhury (2006), I examine the relation between the program implementation and real earnings management. Consistent with hypothesis 1, I expect that the level of earnings management will decrease with the implementation of the whistleblower program. This leads to the second hypothesis:

H2: *Higher protection and stimulation of accounting-related whistleblowers negatively affects the level of earnings management via real operational decisions.*

According to Baloria et al. (2017), firms with weaker whistleblowing programs are more likely to lobby against the whistleblowing program proposed in the Dodd-Frank Act. Their research was designed to recognize stock price trends around important Dodd-Frank events. The outcome of their study refers to my expectation that firms with weaker whistleblowing programs are more vulnerable to the new federal law. Thus, my expectation is that firms with weaker whistleblower programs will operate more carefully, which indirectly implies that firms that lobby against the Dodd-Frank report with extra cautiousness.

III. Research Methodology

3.1 Data and Sample selection

Given the research question and the hypothesis, data should be retrieved to start the analysis. The research sample data is from listed U.S. firms from 2006 to 2015, which implies five years before and five years after the whistleblower program implementation in May 2011. I decide to take 2011 as post event in the analysis, because the majority of the data (more than seven months) is after the event. I think that the current time range is useful to recognize a certain trend and contains enough firm years pre-/post-event in order to provide a valid conclusion about the implementation of the whistleblower program. Moreover, I compare the impact of the whistleblower program on a treatment and a control group. Previous research has demonstrated that firms that lobbied against strict implementation of the proposed rules via comment letter

submission to the SEC as those that are most likely to be affected by the new law (Baloria et al. 2017). The treatment group consists of lobbying firms, whereas the control group consists of "less-affected" regular firms.

I start with hand-collecting the companies that lobbied against the Dodd-Frank whistleblower program. On the website of the SEC, all individual and collective comment letters are published. I am able to identify 238 listed companies that submitted a comment about the concerning whistleblower program. Once I have identified the lobbying companies on the SEC website, I start collecting the yearly data for my research.

Afterwards, I gather the main dataset from Compustat with the acquired company codes for lobbying companies to measure earnings management and additional control variables. Compustat contains annual industrial and research files since 1987. Data consists of balance sheets, income statements, cash flow statements and stock information. I use Compustat to obtain the main variables of this study. The database provides 2,099 firm-years for lobbying companies and 112,492 firm-years for regular companies after removing missing and duplicate values.

Subsequently, I collect stock price data from CRSP for lobbying companies. CRSP provides information about indices since 1960 in order to bridge the gap between theory and practice. The indices of CRSP are investable indices that include cap-based, industry sector and value-growth indices. The data is useful for information about control variables that proxy capital market risk. After removing duplicates, missing values and merging the database with Compustat, I keep 1,956 firm-years for lobbying companies and 55,524 firm-years for regular companies.

Once the data of Compustat has been merged to the CRSP dataset, I consult the AuditAnalytics database for information about detailed research on over 150,000 active audits and more than 10,000 accounting firms. With this database, I obtain information about control variables for the vulnerability to whistleblower allegations. Also, this database does not have an extensive amount of companies, which probably limits my research data after merging with CRSP and Compustat. There are 1,821 firm-years left for lobbying firms and 36,269 firms-years left for regular firms after removing irrelevant data.

Next, the ISS database contains information about corporate governance and responsible investment solutions, which includes data, analytics and research. I make use of *Director Information* for years 2007-2015 and the more traditional dataset *Director Legacy* for the year 2006. A disadvantage of this database is the exclusivity of the company information; therefore,

the data availability is less apparent for this database. Here, I lose the majority of my data. After the last merge, I have 8,870 firm-years in total for my analysis.

The following table summarizes how the sample is constructed. Losing data is a result of merging different databases and removing duplicates and missing values. Some databases (for example Compustat) contain data that does not exist in other databases (for example ISS). After merging this data, it will be removed from the dataset due to missing variables. The number of firm-years significantly differs for lobbying firms in comparison with non-lobbying firms. However, I do not expect problems in the regression analysis, since the number of observations is sufficient to reflect the group characteristics. Moreover, regressions with a more and less equal number of firm-years will also be run to confirm this expectation.

Table 1: Overview of Total Observations after Merging Databases

	Lobbying firms:	Non-Lobbying firms:
1. Compustat data:	2,099	112,492
Merging CRSP / Deleting duplicates and missing values	(43)	(66,972)
2. Compustat + CRSP:	1,956	55,524
Merging Audit Analytics / Deleting duplicates and missing values	(135)	(19,255)
3. Compustat + CRSP + Audit Analytics:	1,821	36,269
Merging ISS / Deleting duplicates and missing values	(714)	(28,496)
4. Compustat + CRSP + Audit Analytics + ISS:	1,107	7,773
Total:	8,870	

The retrieved data allow me to start my analysis. In this research, two ways of earnings manipulation are fundamental. First, accruals are defined as adjustments to the underlying cash flows that shift their recognition over time (Dichev & Owens, 2018). Accrual-based earnings management is defined as manipulating earnings via accruals. Second, real earnings management examines whether manipulation of real financial decisions occurs within companies. Real activities manipulation is defined as management actions that deviate from normal business practices, undertaken with the primary objective of meeting certain earnings thresholds (Roychowdhury, 2006). For the measurement of earnings management, these two types of earnings management will determine the level of earnings manipulation within companies.

Opposite to previous research, the single-step regression method will be used (Chen et al 2018). Earnings management used to be estimated with a two-step regression via residuals. However, this way of estimating contains several statistical misspecification errors. First, a two-step model generates biased coefficients and standard errors that can lead to incorrect

inferences, with both Type I and Type II errors. Second, the magnitude of the bias in coefficients and standard errors is a function of the correlations between the two model regressors (Chen et al. 2018). As a solution, the variables of the first and second step will be regressed in one model together.

Furthermore, this research examines the whistleblower implementation with clustered standard errors at firm level. Analyzing the same firm twice in your data discloses less information than seeing two distinct firms, since firm's possible earnings manipulation is correlated over time. Firm-years are correlated within firm for two reasons. First, companies that manipulate accruals this year, will probably influence accruals next year as well. Second, managing different business often leads to different accruals processes. If the business stays equal, the accruals process will be the same. As a solution, clustering standard errors accounts for within-cluster correlation or heteroscedasticity (Machado, Parente & Santos Silva, 2017).

Studies could substantively improve by paying attention to several research design concerns. First, it is pivotal to utilize the correct accrual model. If discretion is only expected to influence non-cash working capital accruals, then the term-adjusted Jones model or the model of Dichev and Owens might be appropriate. If the researcher also foresee discretion for depreciation expenses, the original Jones model might be sufficient. If discretion is expected to affect all accruals, a model of total accruals would fit better with the research goals. This thesis concentrates on non-cash working capital accruals, because there is a wide scope for managerial discretion. Thus, I apply the model of Dichev and Owens (2018). Second, if a randomized treatment is missing, other approaches can be employed to strengthen the identification of the treatment effect without biases. I choose to construct benchmark groups, such that the treatment and control groups are similar in every dimension except for the treatment effect. The benchmark groups in this research are lobbying and regular companies. Third, research improves by including control variables that capture differences between treatment and control group that do not appear from the treatment itself. The selected control variables will be described in section 3.4. Fourth, doing a robustness check improves the research design of this study. Researchers should discuss the economic significance of their findings. My robustness check possibly detects discretion where it is most likely to occur for more specific firms or industries (McNichols et al. 2018).

The robustness check in this research contain regressions on a matched sample. Once I have removed the lobbying companies from the total data, I create a matched sample of lobbying and regular companies. The match is based on two-digit SIC-code (industry) and

average total assets in a range of 30% (size). Next, I add dummy variables for lobbying/non-lobbying firms and pre-/post-event before the final dataset is properly adjusted for analysis.

The purpose of the robustness check is to compare a more equally distributed sample for several reasons. First, companies lobbied specifically against the whistleblower program, so observations are strongly related to whistleblower provisions. Second, the matching approach controls multiple general macroeconomic trends, besides the regulation changes (Baloria et al. 2017). Third, the minimum fine threshold of $1,000,000 will relate to large-sized companies. Since the minimum threshold for the SEC is the penalty of $1,000,000; I expect that mainly large-sized firms are affected by the whistleblowing program implementation. By matching on size and industry, the sample of lobbying versus regular companies is better comparable, because the size and industry are more equal. As a result, the two groups have a more similar probability to be affected by the whistleblower program.

3.2 Accrual-based Earnings Management

As discussed in the literature review, multiple papers already attempted to capture earnings management within companies. The first regression captures earnings with the application of discretionary accruals. Accruals are defined as adjustments to the underlying cash flows that shift their recognition over time (Dichev & Owens, 2018). For instance, companies decide to apply accruals for accounts receivable to shift the recognition of sales revenue from the time of cash collections to an earlier time, often the moment of sale. I aim to detect earnings management with the discretionary accruals of Dichev & Owens (2018). Discretionary accruals are the component of accruals that are most easily subject to successful managerial manipulation, because of a longer duration. (Teoh, Wong & Rao, 1998). This component is often a non-obligatory expense, which gives managers discretion to influence the magnitude. Dichev & Owens (2018) state that their manner of measuring earnings management is more accurate, because they make use of accrual persistence instead of accrual magnitude.

However, the Dichev & Owens model demonstrates accrual persistence with comparisons between deciles. In this approach, it is difficult to compare treatment and control groups over time, because it is difficult to create deciles and make the comparison for each year. A better option is to measure the discretionary accrual magnitude of their model. However, discretionary accruals have been labeled to be noisy proxies of earnings management, producing results that are of low power and biased for certain non-random samples (McNichols & Stubben, 2018; Chen et al. 2018). As a solution, Chen et al. (2018) provide options to avoid statistical misspecification with residuals as dependent variables in two-step regressions. They

suggest estimating the coefficients for all model regressors in a single-step regression, instead of a two-step regression.

The first step of the model is splitting accruals in discretionary and non-discretionary components (Dichev & Owens, 2018). As mentioned before, the discretionary accruals are the elements of accruals that are easily subject to successful managerial manipulation. Meanwhile, managers have limited impact on non-discretionary accruals, due to fixed relation between the accrual and its concurrent cash flow. The non-discretionary accruals are the zero-duration accruals, whose timing and magnitude are related to the timing and magnitude of their concurrent cash flows. For example, with invoicing a customer sale, a firm could recognize an actual sales execution at the end of August. However, with a payment term of 14 days, the actual customer payment takes place in September. As a result, the concurrent cash flow is recorded in September by the firm. This is a fixed relation and more difficult to manipulate, so zero duration accruals are irrelevant for this research.

Nevertheless, in many cases there is no clear identification of the associated cash flows and accruals, as a result of aggregated specifications for total accruals or working capital. Given the theory that discretionary accruals are not directly associated with concurrent accruals, a solution for this issue is to revert the relation between accruals and the concurrent cash flows (Dichev & Owens, 2018). Therefore, I rely on the following equation:

$$Accruals_{i,t} = \delta_0 + \delta_1 AssociatedCashFlows_{i,t} + \varepsilon_{i,t} \quad (1)$$

The key is to successfully proxy the accruals and associated cash flows as closely as possible to the theoretical backgrounds. Dichev & Owens (2018) utilize the proxies cashflow from operations and change in non-cash working capital accruals from bookkeeping data, where both variables are scaled by average total assets. The formula of their first-step OLS is the following:

$$\frac{\Delta WCAccruals_{i,t}}{Total\ Assets_{i,t}} = \beta_0 + \beta_1 \frac{OpCashFlow_{i,t}}{Total\ Assets_{i,t}} + \varepsilon_{i,t} \quad (2)$$

Where:

WCAccrual $_{i,t}$ = firm i's non-cash working capital accruals in year t (excluding depreciation).

$$\Delta WCAccruals_{i,t} = Non\ Cash\ Working\ Capital_{i,t} - Non\ Cash\ Working\ Capital_{i,t-1}.$$

$OpCashFlow_{i,t}$ = firm i's cash flows from operations in year t.

$Total\ Assets_{i,t}$ = firm i's total assets in year t.

In order to retrieve the discretionary accruals, Dichev & Owens estimate the residual term of this regression. Next, the residual can be utilized as dependent variable. However, this research concentrates on a single-step model. I follow the variables of the Dichev & Owens

(2018) model, but I regress the variables in a model with the independent and control variables of my regression. For the next equations, I apply the single-step model directly. I use the following formula:

$$\frac{\Delta WCAccruals_{i,t}}{Total\ Assets_{i,t}} = \beta_0 + \beta_1 LOBBYt + \beta_2\ LOBBYxPERIOD + \beta_3 \frac{OpCashFlow_{i,t}}{Total\ Assets_{i,t}} + CONTROLS + \varepsilon_{i,t} \quad (3)$$

Where:

LOBBY$_t$ = Dummy variable that indicates whether a firm lobbied against the whistleblower program, ("No" = 0, "Yes" = 1).

PERIOD$_t$ = Dummy variable that indicates whether the data is before or after the program implementation, ("Before" = 0, "After" = 1). In the regression model, *PERIOD* is substituted by time fixed effects.

LOBBYxPERIOD = Interaction term of *LOBBY* and *PERIOD*

CONTROLS = Control variables of the regression, which will be explained in section 3.4.

The outcome of this regression is consistent with the hypothesis, if *β3* is either positive or negative, and significant. A significantly positive or negative relation between the difference-in-difference multiplier and discretionary accrual earnings management is expected. Earnings could be positively or negatively manipulated, depending on the earnings purposes.

3.3 Real Earnings Management

Previous studies have already proxied for real activities earnings management, because executives are unlikely to rely solely on accrual manipulation to manage earnings (Dechow et al. 1998; Roychowdhury, 2006). Whereas previous research on real earnings management has mainly concentrated on investing activities, such as R&D expenses, Roychowdhury (2006) focuses on operational activities. In order to measure the manipulation of real activities of operations, Roychowdhury (2006) relies on the following (bookkeeping) variables: cash flow from operations, production expenses and discretionary expenses. I focus on three ways of real earnings manipulation:

1. Sales manipulation: managers attempt to increase short-term sales during this period by offering price discounts or better credit terms to suppliers. Sales manipulation is proxied by cashflow from operations (CFO).
2. Production manipulation: managers can influence costs per unit by expanding the production levels. With more production units, fixed overhead costs are spread over a higher production amount, lowering the fixed costs per unit. If the marginal costs per

unit do not increase due to the reduction of fixed costs per unit, total costs per unit decline. Production is measured by costs of goods sold (COGS) and change in inventory (ΔINV).

3. Manipulation of discretionary expenses: influencing costs associated with business activities that are not directly tied to operations, such as R&D, advertising and maintenance expenses. This type of expenses is generally expensed in the same period as they are incurred. Thus, managers can lower reported expenses and increase earnings, by reducing their discretionary expenses. This is most likely to occur when such expenditures do not result in immediate revenues and income.

A key element of real activities measurement is the usage of normal and abnormal values of bookkeeping variables. The normal value is the expected value of a variable, whilst an abnormal value is the difference between the actual and the expected value of a variable. Particularly, the following three measures of detecting earnings management are relevant for real earnings decisions: abnormal levels of operating cash flows from operations (AB_CFO), abnormal production costs (AB_PROD) and abnormal discretionary expenses (AB_DISC). These variables have been estimated via residuals in a two-step model. Residuals are defined as the difference between the actual value and the predicted value of a variable.

However, this model focuses on a single-step model like the accrual-based earnings management model. I follow the variables of the model developed by Dechow et al. (1998) and used by Roychowdhury (2006), but I regress the variables in a model with the independent and control variables of my regression.

The first equation states cash flow from operations as a function of sales and variation in sales.[4] I rely on the following equation with absolute bookkeeping values:

$$\frac{CFO_{i,t}}{Total\ Assets_{i,t-1}} = \beta_0 + \beta_1 LOBBYt + \beta_2\ LOBBYxPERIOD + \beta_3\ \frac{1}{Total\ Assets_{i,t-1}} +$$

$$\beta_4 \frac{Sales_{i,t}}{Total\ Assets_{i,t-1}} + \beta_5 \frac{\Delta Sales_{i,t}}{Total\ Assets_{i,t-1}} + CONTROLS + \varepsilon_{i,t} \qquad (4)$$

Where:

$CFO_{i,t}$ = Cash flow from operations of company i in year t

LOBBY$_t$ = Dummy variable that indicates whether a firm lobbied against the whistleblower program, ("No" = 0, "Yes" = 1).

[4] The cash flow from operations is the same value as the independent variable *OpCashFlow* in the previous model.

PERIOD$_t$ = Dummy variable that indicates whether the data is before or after the program implementation, ("Before" = 0, "After" = 1). In the regression model, *PERIOD* is substituted by time fixed effects.

LOBBYxPERIOD = Interaction term of *LOBBY* and *PERIOD*

$Total\ Assets_{i,t-1}$ = Total assets of company i, previous year

$Sales_{i,t}$ = Net sales of company i in year t

$\Delta Sales_{i,t}$ = Variation in Sales of company i in year t ($Sales_{i,t} - Sales_{i,t-1}$)

CONTROLS = Control variables of the formula, which will be explained in section 3.4.

Production costs are defined as $PROD_{i,t} = COGS_{i,t} + \Delta INV_{i,t}$, which are separately estimated in equation (4) and (5). Costs of goods sold is estimated with the next equation of absolute bookkeeping values:

$$\frac{COGS_{i,t}}{Total\ Assets_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{Total\ Assets_{i,t-1}} + \beta_2 \frac{Sales_{i,t}}{Total\ Assets_{i,t-1}} + \varepsilon_{i,t} \quad (5)$$

Where:

$COGS_t$ = Cost of goods sold of company i in year t

Likewise, the model for normal inventory is estimated with absolute bookkeeping values, following the next equation:

$$\frac{\Delta INV_{i,t}}{Total\ Assets_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{Total\ Assets_{i,t-1}} + \beta_2 \frac{\Delta Sales_{i,t}}{Total\ Assets_{i,t-1}} + \beta_3 \frac{\Delta Sales_{i,t-1}}{Total\ Assets_{i,t-1}} + \varepsilon_{i,t} (6)$$

Where:

$\Delta INV_{i,t}$ = change in inventory of company i in year t, ($INV_{i,t} - INV_{i,t-1}$)

This thesis calculates the production costs (PROD) as the sum of costs of goods sold (COGS) and change in inventory (ΔINV). From the two equations of COGS (5) and ΔINV (6), the production equation will be substituted as follows in equation (7).

$$\frac{PROD_{i,t}}{Total\ Assets_{i,t-1}} = \beta_0 + \beta_1 VOI + \beta_2 \frac{1}{Total\ Assets_{i,t-1}} + \beta_3 \frac{Sales_{i,t}}{Total\ Assets_{i,t-1}} +$$

$$\beta_4 \frac{\Delta Sales_{i,t}}{Total\ Assets_{i,t-1}} + \beta_5 \frac{\Delta Sales_{i,t-1}}{Total\ Assets_{i,t-1}} + CONTROLS + \varepsilon_{i,t} \quad (7)$$

Where:

$PROD_{i,t}$ = Absolute production costs of company i in year t

VOI = Variables of Interest, which will be elaborated in equation (8)

I utilize these independent and dependent variables in the following single-step model.

$$\frac{PROD_{i,t}}{Total\ Assets_{i,t-1}} = \beta_0 + \beta_1 LOBBY + \beta_2\ LOBBYxPERIOD + \beta_3 \frac{1}{Total\ Assets_{i,t-1}} +$$

$$\beta_4 \frac{Sales_{i,t}}{Total\ Assets_{i,t-1}} + \beta_5 \frac{\Delta Sales_{i,t}}{Total\ Assets_{i,t-1}} + \beta_6 \frac{\Delta Sales_{i,t-1}}{Total\ Assets_{i,t-1}} + CONTROLS + \varepsilon_{i,t} \quad (8)$$

The discretionary expenses are expenses, which are not directly necessary for the daily operations, but they could indirectly influence the daily operations. Thus, they are not depending on sales amounts which makes managers able to influence discretionary expenses. Discretionary expenses are estimated using the following formula:

$$\frac{DISC_{i,t}}{Total\ Assets_{i,t-1}} = \beta_0 + \beta_1 LOBBYt + \beta_2\ LOBBYxPERIOD + \beta_3\ \frac{1}{Total\ Assets_{i,t-1}} +$$

$$\beta_4 \frac{Sales_{t-1}}{Total\ Assets_{i,t-1}} + CONTROLS + \varepsilon_t \quad (9)$$

Where:

$DISC_t$ = Discretionary expenses of company i in year t. Discretionary expenses are calculated as the sum of R&D expenses, advertising expenses and selling, general and administrative expenses. I use the dependent and independent in a single-step regression.

Cohen et al. (2007) estimated the abnormal cash flow from operations (AB_CFO), abnormal production costs (AB_PROD) and abnormal discretionary accruals (AB_DISC) by the difference between the actual and the normal value of the equations (4), (8), and (9). Besides they captured these values separately, they aggregated these residual values into one variable. However, I utilize a single-step model without residuals. As a result, I investigate the actual values CFO, PROD and DISC separately (Roychowdhury, 2006).

The outcome of the regressions (4), (8) and (9) is consistent with the hypothesis, if β3 is significantly positive or negative. I expect a significantly positive or negative relation between the difference-in-difference multiplier and real earnings management, because managers have multiple goals for earnings manipulation, either positive or negative.

3.4 Control Variables

In this section, I describe variables that are related to whistleblowing allegations and earnings management. To study a certain relation, it is important that other variables do not disturb the observations. Differences between the treatment and control group are often situation specific. Critical controls should contribute beyond the factors in the hypothesis in order to reduce endogeneity factors. Following previous research, I distinguish the controls in three categories: general determinants for lobbying, reporting quality and external board quality (Baloria et al 2017). Moreover, I execute a robustness check on a matched sample with lobbying and regular companies, based on firm size (Total Assets) and industry (two-digit SIC-code).

The first category contains general determinants of lobbying. The general determinants can be separated into two categories; growth and firm performance (Bowen et al. 2010).

Growth: **f**irms that are growing rapidly, are more likely to experience outgrowing of their controls. As a firm grows, more decision-making authority and responsibility divides over individuals, which leads to less information and authority for each individual to stop violation (Baucus and Near, 1991). Therefore, I predict that growing firms are more sensitive for whistleblowing. The most appropriate proxy for growth is *market-to-book ratio*, calculated as the price per share divided by book value per share, acquired from the Compustat and CRSP databases via WRDS.

Firm performance: my expectation is that firms with stronger past performances have more chance to be victim of whistleblowing events for two reasons. First, firms with better performances are more newsworthy to the media, which makes the impact of a whistleblowing event more significant. Second, companies that achieve artificially stronger performances are more likely to be perceived as violators. The variables *Return-on-Assets* (ROA), *Leverage* (LEV) and *Free Cashflow* (FCF) from Compustat (via WRDS) will proxy firm performance in this research.

The second category is reporting quality:

Reporting quality: the PCAOB (2004) explain Internal Control Weaknesses as the significant likelihood that a material misstatement of annual or interim financial statements will not be prevented or detected. Companies with weaker internal controls are more vulnerable for violations of the securities law, which will affect whistleblowing behavior (Baloria et al. 2017). *Internal Control Weaknesses* and *Restatements* will be obtained from the AuditAnalytics database via WRDS. I obtain *Idiosyncratic stock volatility* from CRSP.

The third category external board quality can be distinguished into two categories; external monitoring and governance (Bowen et al. 2010).

External monitoring: when external monitoring of companies is weak, executives are more likely to engage in financial misconduct. To control for the quality of external monitoring on the firm's financial statements I apply three different control variables. First, the fraction *Board Independence* is measured as number of company employees divided by the number of total board members. Second, the fraction of board's *Financial Expertise* is calculated as the number of board members with financial expertise divided by the total number of board members. Third, average *Board Age (BOARDAGE)* controls for the experience of the board members. I obtain these variables from the ISS database.

Governance: with weak corporate governance and strong private gains, managers are more likely to be involved in financial misconducting. When the CEO is chairman of the board, the governance structure is less independent, and the CEO has more power to influence the

activities in his/her own interest. Therefore, the variable *CEO=COB* (CEOCOB) is used to control for governance. Second, *shares held by the board* (BOARDSHAR) is computed as fraction from the total outstanding shares of the company to control for the board's interest/priority in the company. I get these variables from the ISS database.

Lastly, I execute a robustness check by comparing more equally characterized companies with a matched sample on *firm size and industry*. The size of the company impacts the controllability of the employee wrongdoing, because a more complicated internal compliance system is necessary. In some industries there are more opportunities to violate the regulations. I control for these factors by matching the lobbying and non-lobbying on *average Total Assets* (firm size) and *two-digit SIC-code* (firm industry), both obtained from Compustat.

IV. Results

4.1 Descriptive Statistics

The descriptive statistics contain information about the mean and standard deviation for the total population before and after the implementation of the whistleblower program. Both company types are compared with a T-test. The output is summarized in table 1 and most interesting results will be discussed. Furthermore, there is a correlation table in appendix 7.3, which displays the correlations between the dependent and independent variables.

Table 1 shows the descriptive statistics for the company characteristics that are involved in the regression as dependent and control variables. I notice significant differences between the time before and after the program implementation. For instance, the means of CFO and DISEXP are significantly different before and after the implementation, whereas PROD and WCAccrual are relatively similar between periods.

Previous research has demonstrated that the control variables possibly influence the relation between whistleblowing and earnings management (Baloria et al. 2017). Growth is investigated as Market-to-Book ratio (MTB). A market-to-book ratio that is higher than 1 indicates that the stock price is overvalued in comparison with its book value. A value lower than 1 induces that the stock price is undervalued in relation to the company's book value. I perceive that firms generally have an overpriced stock, but this overvaluation is significantly higher after the program implementation with a difference in mean of 0.294.

I analyze the variables ROA, FCF and LEV as a proxy for (past) firm performance. The average return-on-assets (ROA) for the full sample is approximately 5.1%; earnings are more

than five percent of a company's firm size. The average free cash flow (FCF) is with 22.9% and 23.0% similar for both groups, which mean that free cash flows are more than five percent of the total assets on average. Leverage (LEV) is significantly different for both periods (p>0.01). With different industries in the sample, it is difficult to draw a conclusion on these scores.

I attempt to capture reporting quality with the proxies Internal Control Weaknesses (ICW), Restatements (RESTATE) and Idiosyncratic Stock Price Volatility (IDIOVOL). With significant (p>0.01) lower means for ICW, RESTATE and IDIOVOL after the implementation, the external reporting quality seems to have improved after the program implementation. Especially the decrease in internal control weaknesses is remarkable, because it is a reduction of almost a third of the previous mean.

Table 2: Univariate Comparison of Firm Characteristics Before and After the Event

	(1) PRE		(2) POST		(3) DIFFERENCE	
	MEAN	SD	MEAN	SD	P	T
AVG ROA	0.049	0.061	0.052	0.057	-0.003*	(-2.138)
AVG LEV	0.174	0.148	0.189	0.153	-0.014***	(-4.522)
AVG FCF	0.229	0.690	0.230	0.741	-0.001	(-0.088)
AVG MTB	1.136	4.361	1.429	5.011	-0.294**	(-2.948)
AVG ICW	0.066	0.272	0.044	0.184	0.022***	(4.488)
AVG RESTATE	0.432	0.826	0.348	0.685	0.084***	(5.205)
AVG IDIOVOL	2.245	0.934	1.928	0.816	0.317***	(16.984)
AVG BOARDINDEP	0.664	0.244	0.728	0.210	-0.064***	(-13.253)
AVG FINEXPERT	8.261	20.973	8.243	21.071	0.018	(0.040)
AVG CEO=COB	0.576	0.401	0.539	0.432	0.037***	(4.149)
AVG BOARDAGE	53.570	20.881	55.291	21.127	-1.721***	(-3.857)
AVG BOARDSHAR	0.093	0.244	0.075	0.178	0.017***	(3.797)
AVG TA	24382.544	124590.056	29891.710	148352.679	-5509.166	(-1.897)
AVG COGS	5695.877	18345.735	6373.642	20762.265	-677.765	(-1.631)
AVG INV	1354.064	12051.570	1142.838	5794.611	211.226	(1.043)
AVG CFO	1015.059	3362.668	1398.385	4174.569	-383.326***	(-4.774)
AVG SALES	8440.565	24828.979	9811.303	28271.808	-1370.737*	(-2.429)
AVG XAD	96.913	442.358	108.308	491.955	-11.395	(-1.148)
AVG XRD	158.853	712.942	207.571	889.949	-48.718**	(-2.852)
AVG XSGA	1288.930	4156.793	1601.323	5192.243	-312.393**	(-3.136)
AVG WCAccrual/TA	-0.002	0.026	0.003	0.024	0.001	(1.320)
AVG CFO/TAt-1	0.111	0.075	0.100	0.072	-0.008*	(-2.540)
AVG PROD/TAt-1	0.699	0.758	0.650	0.750	0.005	(0.130)
AVG DISEXP/TAt-1	0.232	0.230	0.221	0.225	0.019*	(2.159)
Observations	4319		4551		8870	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

This table provides an overview of statistics of dependent and independent variables before and after the whistleblower program implementation. The difference in means is demonstrated in column (3).

Controlling for external monitoring ensures that companies have extra monitors for their activities. The quality of external monitoring is represented by the variables BOARDINDEP, FINEXPERT, CEO=COB, BOARDAGE and BOARDSHAR. In general, the external board quality is significantly higher after the event. Only the level of financial expertise in the board is lower after the implementation, but the only insignificant difference. External boards own a significantly higher fraction of total shares before the whistleblower program, which shows a lower board quality before the event.

The correlation table in the appendix 7.3 describes the relation between the independent variables of this research with the correlation coefficients. I perceive that the key determinants for lobbying of previous research (ROA, FCF, LEV and MTB) are significant with the lobbying and the whistleblower program in this research. However, these variables do not demonstrate strong influence on lobbying and the interaction term, because the coefficients are low.

The proxies for external board quality (*Board Independence, Financial Expertise, Board Age, CEO=COB, Board Shares*) relate significantly to the whistleblower program and the difference-in-difference multiplier, which indicates that strong external board quality leads to stronger whistleblower programs over time. Moreover, indicators for reporting quality (ICW, RESTATE and IDIOVOL) are significantly negative related to the whistleblower program and the multiplier, from which can be concluded that firms with strong reporting quality have stronger whistleblower programs.

With the correlation table, I measure the correlation between independent and dependent variables separately. A high correlation, either positive or negative, between two variables indicates that there is strong linear relation. This could significantly affect regression output, with multicollinearity as a result (Belsley, Kuh, and Welsch, 1980). As a consequence, I decide to drop variables with a correlation higher than 0.50 or lower than -0.50. I can conclude that the correlation coefficient exceeds the 0.50 or -0.50 for only two variables.

To avoid that *ROA* and *FCF* will influence this research negatively, I have decided to eliminate these variables in the regression analysis. An explanation for a high correlation of ROA with the dependent variable cash flow from operations, is that both variables are related to the level of sales. Free cash flow and cash flow from operations are both related to the amount of cash flow.

4.2 Multivariate Analysis

Accrual-based Earnings Management

Influencing accounting methods is one of the methods to manipulate earnings. With the following regression in table 3, I measure the effect of the introduced whistleblower program over time between lobbying and non-lobbying firms in relation to earnings management. In the five columns, I measure the main effect and the influence of the relevant control variables in this relation. In the first column, I measure the direct relation between the key variables of interest. In the second, third and fourth column, I include the impact of the control variables for lobbying, reporting quality and external board quality. Column (5) contains the regression of a dataset without control variables for external board quality, which increases the number observations with 15,332.

In column (1), the only significant variable is cash flow from operations ($p>0.001$). This implies that the cash flow from operations affects the change of working capital accruals negatively. LOBBY has a weak, insignificant negative effect on discretionary accruals. There is not a significant difference between lobbying and regular firms in discretionary accruals manipulation. The interaction term is not significant either, which means that there is no difference between lobbying and regular firms in earnings management before and after the implementation.

Columns (3) and (4) contain the effect of reporting quality (ICW, RESTATE and IDIOVOL) and external board quality (CEO=COB, BOARDINDEP, BOARDAGE, FINEXPERT and BOARDSHAR) on earnings management. None of these control variables are significant, so they do not affect the studied relation. The difference of the adjusted R^2 with column (2) is limited, which indicates a low contribution to the model.

The ISS database with control variables for external board quality is limited, hence a sample size without external board quality has been selected as well. As a result, I have almost tripled the number of observations and clusters. Column (5) does not have very different results in comparison with column (3). The variables of interest (LOBBY and LOBBYxPERIOD) have the same signs, but less strong than column (3). The control variables leverage and idiosyncratic stock volatility are significant for the model with more observations.

Table 3: Accrual-based Earnings Management Regression

	(1) WCAccrual	(2) WCAccrual	(3) WCAccrual	(4) WCAccrual	(5) WCAccrual
LOBBY	-0.0052	-0.0055	-0.0071	-0.0068	-0.0029
	(0.0033)	(0.0033)	(0.0040)	(0.0039)	(0.0027)
LOBBYxPERIOD	0.0080	0.0078	0.0080	0.0076	0.0002
	(0.0048)	(0.0048)	(0.0049)	(0.0049)	(0.0037)
OpCashFlow	-0.0613***	-0.0596***	-0.0613***	-0.0615***	0.0831**
	(0.0143)	(0.0145)	(0.0146)	(0.0147)	(0.0285)
LEV		0.0035	0.0030	0.0030	0.0110*
		(0.0048)	(0.0048)	(0.0048)	(0.0046)
MTB		-0.0003	-0.0003	-0.0003	0.0000
		(0.0002)	(0.0002)	(0.0002)	(0.0000)
ICW			-0.0010	-0.0009	-0.0017
			(0.0013)	(0.0017)	(0.0011)
RESTATE			-0.0016	-0.0016	-0.0007
			(0.0011)	(0.0013)	(0.0022)
IDIOVOL			-0.0019	-0.0019	0.0034*
			(0.0020)	(0.0020)	(0.0017)
CEO=COB				-0.0002	
				(0.0013)	
BOARDINDEP				0.0029	
				(0.0054)	
BOARDAGE				-0.0000	
				(0.0001)	
FINEXPERT				-0.0000	
				(0.0001)	
BOARDSHAR				0.0014	
				(0.0020)	
INTERCEPT	0.0098**	0.0097**	0.0137**	0.0143	-0.0086
	(0.0032)	(0.0035)	(0.0044)	(0.0099)	(0.0057)
N of Observations	8870	8870	8870	8870	24202
N of Std. Err. clusters	922	922	922	922	2586
adj. R^2	0.010	0.012	0.012	0.012	0.024
F	7.0906	6.4132	5.3450	4.2224	9.3639
Prob > F	0.0001	0.0001	0.0003	0.0048	0.0390
Year Fixed Effects	✓	✓	✓	✓	✓

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

This table contains regressions of equation (3). I test the impact of the whistleblower program implementation (PERIOD) for lobbying and regular companies (LOBBY) on earnings management (WCAccrual). The regression in column (5) studies a sample without the controls for external board quality.
The impact of time is tested via PERIOD and year fixed effects. Because of the limited difference, I choose for the cleaner measurement; year fixed effects. Panel data often have to deal with within-cluster correlation or heteroscedasticity. As solution, I use clustered standard errors at firm level. Prob > F shows the significance of the Overall F-test.

Due to the insignificance of the difference-in-difference multiplier, I reject the alternative hypothesis regarding earnings management via discretionary accruals. None of the key variables LOBBY or LOBBYxPERIOD are significant, which contradicts my expectations. When assessing a regression outcome, it is particularly important to question the effect difference of the study. An effect difference measures the difference between the regression coefficient and the critical value coefficient, scaled by the standard deviation. A small effect difference could indicate a small difference between significance and insignificance of the coefficient of interest. It may well be that the study was underpowered and that I have incorrectly accepted the null hypothesis, a type II error (Jones, Carley & Harrison, 2003).

I calculate the difference between the regression coefficient and the critical value coefficient, that would result in statistical significance to reject the hypothesis. I consider values below 0.20 as small effect differences, values between 0.20 and 0.50 as medium effect differences and values above 0.50 as large effect differences. The effect difference is medium for the WCAccrual regression. The regression coefficient is 0.0076, whereas a coefficient of 0.0096 results in significance. As a result, the probability of a type II error (incorrectly accepting the null hypothesis) is relatively plausible, because the regression coefficient is relatively similar to the critical beta value. I refer to Appendix 7.4 for the power calculation.

I notice that the interaction term (LOBBYxPERIOD) for WCAccrual has an equal magnitude as LOBBY, but opposite signs (+/-). To test whether the regression coefficients of these variables have significant effect on earnings management together, I execute a F-test for the variables LOBBYxPERIOD and LOBBY. Appendix 7.5 demonstrates that the variables LOBBYxPERIOD and LOBBY do not influence WCAccrual together. Moreover, the power calculation shows a probability of a type II error. As a result, the test results prove that the hypothesis test is possibly inconsistent, so I cannot exclude the chance that the relation does not exist.

The overall F-test shows that the independent variables of the full model have a better fit than a model without independent variables. The significant F-test results demonstrates that betas are not equal to zero and thus, the relevance of independent variables to the regression. However, I recognize that the significance of the F-test decreases by adding more control variables. This indicates that the contribution of the controls to the model is low.

Real Earnings Management

Another approach for earnings management is affecting real financial decisions. Table 4 contains the regression of the whistleblower program and (the separate indicators of) real

earnings management. I perceive consistency in the significance of leverage, which is significant for each of the three real earnings management indicators. I also examine a model without control variables for external board quality in column (2), (4) and (6). This almost tripled the number of observations and clusters.

Columns (1) and (2) consist of the first component of real earnings management; cash flow from operations (CFO). The control variables LEV, ICW, and IDIOVOL have significant effect on the manipulation of cash flow from operations. The LOBBYxPERIOD term is negative, but is not significantly influencing real earnings management via cash flows. The control variables LEV and IDIOVOL are consistently significant, whereas ICW is insignificant and RESTATE is significantly negative in this model.

The production costs are regressed in column (3) and (4). Lobbying companies have not significantly manipulated their earnings via production costs in comparison with regular companies, because the variable LOBBY is insignificant for both models. The LOBBYxPERIOD multiplier is positively insignificant in (3) and negative insignificant in (4), which indicates that production costs manipulation is not affected over time.The R^2 is remarkably high with the values 0.934 and 0.610. However, these high values of R^2 are consistent with the original model of Roychowdhury (2006) and therefore acceptable.

Columns (5) and (6) examine the effect of the program on the third element of real earnings manipulation: discretionary expenses. Most proxies for external board quality (CEO=COB, BOARDINDEP, BOARDAGE and FINEXPERT) are significant. CEO=COB, BOARDAGE and FINEXPERT suggest that companies with CEOs as chairman of the board, high average board age and high financial expertise of the board, manipulate their discretionary expenses negatively. Companies with relatively independent boards influence their discretionary expenses positively. In column (6), the controls LEV and MTB are significant, which means that firm performance negatively influences the relation on earnings manipulation via discretionary expenses. Moreover, reporting quality has some significant impact on the relation, because the variable IDIOVOL is significantly positive.

The difference-in-difference indicator in column (5) demonstrates a significantly negative effect, which refers to the fact that lobbying companies generally manipulate their discretionary expenses more negatively than non-lobbying companies over time. A negative relation indicates that companies negatively affect their discretionary expenses. The variable LOBBY is separately not significant for the relation on DISEXP, but the variable displays significance with PERIOD in an interaction term.

Table 4: Real Earnings Management Regression

	(1) CFO	(2) CFO	(3) PROD	(4) PROD	(5) DISEXP	(6) DISEXP
LOBBY	-0.0096	0.0080	0.0081	0.0331	0.0227	-0.0093
	(0.0130)	(0.0083)	(0.0340)	(0.0615)	(0.0321)	(0.0206)
LOBBYxPERIOD	-0.0013	-0.0000	0.0117	-0.0085	-0.0195*	-0.0002
	(0.0052)	(0.0066)	(0.0101)	(0.0235)	(0.0097)	(0.0135)
1/TAt-1	6.2492*	-4.2176**	-40.0424***	-3.2162	46.4662***	9.7035***
	(2.6252)	(1.3727)	(6.1866)	(1.9459)	(4.4695)	(0.8545)
SALt/TAt-1	0.0220***	0.0185**	0.8490***	0.0630		
	(0.0049)	(0.0069)	(0.0193)	(0.0639)		
SALt-1/ TAt-1					0.1156***	-0.0267*
					(0.0175)	(0.0134)
dSALt/ TAt-1	0.0329*	0.1011***	0.0320	0.6561***		
	(0.0135)	(0.0088)	(0.0324)	(0.0492)		
dSALt-1/ TAt-1			0.0316	-0.0238		
			(0.0376)	(0.0544)		
LEV	-0.0319*	-0.0483*	0.1123***	-0.1010	-0.1508***	-0.1663***
	(0.0129)	(0.0214)	(0.0338)	(0.0669)	(0.0301)	(0.0306)
MTB	0.0001	0.0002	-0.0006	-0.0010	0.0004	-0.0007***
	(0.0002)	(0.0001)	(0.0004)	(0.0007)	(0.0003)	(0.0001)
ICW	-0.0096***	-0.0045	0.0099	0.0228*	-0.0005	0.0078
	(0.0020)	(0.0027)	(0.0062)	(0.0089)	(0.0068)	(0.0053)
RESTATE	-0.0055	-0.0148**	0.0089	0.0139	0.0003	0.0116
	(0.0029)	(0.0048)	(0.0080)	(0.0198)	(0.0083)	(0.0177)
IDIOVOL	-0.0156***	-0.0181*	0.0219**	0.0339***	0.0029	0.0272**
	(0.0024)	(0.0074)	(0.0074)	(0.0091)	(0.0077)	(0.0088)
CEO=COB	-0.0014		0.0134		-0.0233*	
	(0.0037)		(0.0101)		(0.0098)	
BOARDINDEP	0.0260		-0.0965*		0.0926*	
	(0.0151)		(0.0433)		(0.0430)	
BOARDAGE	-0.0009		0.0046**		-0.0060***	
	(0.0005)		(0.0016)		(0.0017)	
FINEXPERT	-0.0006		0.0038*		-0.0050*	
	(0.0005)		(0.0019)		(0.0020)	
BOARDSHAR	-0.0057		-0.0487		0.0682	
	(0.0038)		(0.0331)		(0.0372)	
INTERCEPT	0.1536***	0.1170***	-0.4290***	0.4557***	0.3994***	0.2165***
	(0.0335)	(0.0159)	(0.1146)	(0.0733)	(0.1196)	(0.0303)
N of observations	8870	24170	8870	24170	8870	24170
N of Std. Err. clusters	922	2586	922	2586	922	2586
adj. R^2	0.126	0.250	0.934	0.610	0.338	0.303
F	9.7411	31.2985	262.9784	28.7572	23.6118	28.5468
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Year Fixed Effects	✓	✓	✓	✓	✓	✓

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

This table contains regressions of equations (4), (7) and (8). I test the impact of the whistleblower program implementation (PERIOD) for lobbying and regular companies (LOBBY) on earnings management (via CFO, PROD and DISEXP). The regression in column (2), (4) and (6) study a sample without the controls for external board quality.
The impact of time is tested via PERIOD and year fixed effects. Because of the limited difference, I choose for the cleaner measurement; year fixed effects. Panel data often have to deal with within-cluster correlation or heteroscedasticity. As solution, I use clustered standard errors at firm level. Prob > F shows the significance of the Overall F-test.

However, I perceive that LOBBY and LOBBYxPERIOD have the same coefficient magnitude in column (5), but opposite signs. Therefore, I execute a F-test to test the significant influence of LOBBY and LOBBYxPERIOD on the relation with DISEXP in appendix 7.5. To conclude, I perceive that LOBBY + LOBBYxPERIOD is equal to zero, which indicates that they do not have influence on the dependent variable. This does not align with hypothesis 2, since the whistleblower program implementation insignificantly affects real earnings management for lobbying firms in comparison with non-lobbying companies via CFO and PROD.

As explained for WCAccruals in the previous paragraph, it is important to question the effect difference of the study when assessing a regression outcome. I calculate the power for this model to examine the probability whether the test will correctly accept the null hypothesis. The calculation for CFO and PROD demonstrates relatively high effect difference. The effect difference for DISEXP is relatively low. Thus, the power calculation suggests that CFO and PROD possess high power, whereas DISEXP has low power in this research design. As a result, the probability of a Type II error (incorrectly accepting H0) is relatively low for CFO and PROD. The probability of a Type I error (incorrectly rejecting H0) is relatively high for DISEXP. However, the significant overall F-test demonstrates that the independent variables are not equal to zero, which indicates their relevance for the regression model. The model has more relevance than an intercept-only model.

4.3 Robustness Check

Accrual-based Earnings Management

As explained in the Research Methodology section, I examine the effect of the whistleblower program implementation with a matched sample, based on size and industry as robustness check. For accrual-based earnings management, I execute the same analysis as in the Multivariate Analysis, but with a different sample. In the first column is the direct relation between the independent and dependent variables depicted. Without the control variables, there is only a strong significantly ($p>0.001$) negative effect for OpCashFlow.

In column (2), (3) and (4), the control variables are added to the model. In comparison with the multivariate analysis in section 4.2, the control variables MTB, BOARDINDEP and BOARDSHAR are significant. The control variables of reporting quality seem to have limited impact on earnings management, because their insignificance and minimal adjusted R^2 of 0.017.

Table 5: Accrual-based Earnings Management Robustness Regression

	(1) WCAccrual	(2) WCAccrual	(3) WCAccrual	(4) WCAccrual
LOBBY	-0.0063	-0.0061	-0.0055	-0.0070
	(0.0045)	(0.0046)	(0.0047)	(0.0047)
LOBBYxPERIOD	0.0080	0.0077	0.0071	0.0074
	(0.0060)	(0.0061)	(0.0061)	(0.0062)
OpCashFlow	-0.1070***	-0.1059***	-0.1038***	-0.1128***
	(0.0297)	(0.0290)	(0.0289)	(0.0299)
LEV		0.0038	0.0041	0.0075
		(0.0119)	(0.0117)	(0.0121)
MTB		0.0001*	0.0001*	0.0001*
		(0.0000)	(0.0000)	(0.0000)
IDIOVOL			0.0083	0.0085
			(0.0065)	(0.0065)
ICW			0.0002	0.0000
			(0.0056)	(0.0056)
RESTATE			0.0023	0.0022
			(0.0024)	(0.0023)
CEO=COB				0.0085
				(0.0220)
BOARDINDEP				0.0322*
				(0.0129)
BOARDAGE				0.0014
				(0.0028)
FINEXPERT				-0.0003
				(0.0002)
BOARDSHAR				0.0421*
				(0.0197)
INTERCEPT	0.0078	0.0069	0.0000	0.0047
	(0.0067)	(0.0075)	(0.0090)	(0.0239)
N of Observations	1304	1304	1304	1304
N of Std. Err. clusters	150	150	150	150
adj. R^2	0.015	0.014	0.014	0.017
F	2.2760	2.2526	1.9905	1.9250
Prob > F	0.0003	0.0003	0.0014	0.0016
Year Fixed Effects	✓	✓	✓	✓

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

This table contains regressions of equation (3) with a matched sample on size and industry. I test the impact of the whistleblower program implementation (PERIOD) for lobbying and regular companies (LOBBY) on earnings management (WCAccrual).
The impact of time is tested via PERIOD and year fixed effects. Because of the limited difference, I choose for the cleaner measurement; year fixed effects. Panel data often have to deal with within-cluster correlation or heteroscedasticity. As solution, I use clustered standard errors at firm level. Prob > F shows the significance of the Overall F-test.

In this model with less observations, I still perceive a constant relation between the independent and dependent variables with the application of the controls. The coefficients of the variables LOBBY and LOBBYxPERIOD hardly change between the columns (1), (2), (3) and (4). The difference-in-difference multiplier is insignificant in all columns. This indicates that lobbying firms have not been affected by the implementation of the whistleblower program over time.

To conclude, the null hypothesis regarding earnings management via discretionary expenses will be accepted, because of the insignificance of the interaction term LOBBYxPERIOD. Even the difference between lobbying and regular companies is insignificant, which also contradicts my expectation. To assess the power and consistency of this regression, I calculate the effect difference. An effect difference measures the difference between the regression coefficient and the critical value coefficient, scaled by the standard deviation. The power calculation in the appendix suggests that the regression possesses acceptable power to correctly accept the null hypothesis, since the effect difference is relatively large. A large effect difference indicates that the regression coefficient is relatively different from the critical value. As a result, this regression has relatively high power. The chance of a Type II error (incorrectly accepting the null hypothesis) is relatively low.

I perceive that the variables LOBBY and LOBBYxPERIOD have the same size, but opposite signs (+/-). The F-test shows that the two explanatory variables are equal to zero together, which indicates their insignificant relation with the dependent variable WCAccrual. However, the significant F-test of the aggregate model ($P > 0.0016$) demonstrates that the dependent variables have generally more influence on earnings management than an intercept-only model. The independent variables have relevance to the model.

Real Earnings Management

With the matched sample of lobbying and regular companies, I expect a more equally distributed sample to support hypothesis 2 regarding real earnings management. In column (1) is the relation between the independent variables with the dependent variable CFO described. The program implementation does not result in a significantly different level of real earnings management via cash flow from operations. I observe that lobbying companies do not have a significant impact on real earnings management. Consequently, the LOBBYxPERIOD multiplier is not significant either.

This contradicts hypothesis 2 which states that the implementation of whistleblower program has more effect on lobbying companies with regards to real earnings management.

Table 6: Real Earnings Management Robustness Regression

	(1) CFO	(2) PROD	(3) DISEXP
LOBBY	0.0001	-0.0316	0.0376
	(0.0125)	(0.0317)	(0.0297)
LOBBYxPERIOD	-0.0077	0.0297	-0.0215
	(0.0070)	(0.0167)	(0.0161)
1/TAt-1	12.2757	-100.4931**	99.3211***
	(8.6007)	(31.1238)	(28.0342)
SALt/TAt-1	0.0076	0.9078***	
	(0.0091)	(0.0425)	
SALt-1/ TAt-1			0.0871*
			(0.0355)
dSALt/ TAt-1	0.0505	-0.0320	
	(0.0325)	(0.0637)	
dSALt-1/ TAt-1		-0.1157*	
		(0.0492)	
LEV	-0.0695	0.0822	-0.1701*
	(0.0364)	(0.0880)	(0.0816)
MTB	0.0000	-0.0000	0.0000
	(0.0002)	(0.0003)	(0.0003)
ICW	-0.0082	0.0056	-0.0073
	(0.0082)	(0.0232)	(0.0214)
RESTATE	-0.0193*	0.0294	-0.0196
	(0.0094)	(0.0265)	(0.0237)
IDIOVOL	-0.0089	0.0094	0.0089
	(0.0052)	(0.0147)	(0.0142)
CEO=COB	-0.0703	0.1694	-0.0778
	(0.0483)	(0.1311)	(0.1226)
BOARDINDEP	0.0873*	-0.2708**	0.2693**
	(0.0382)	(0.1005)	(0.0910)
BOARDAGE	-0.0113	0.0284	-0.0350
	(0.0078)	(0.0192)	(0.0189)
FINEXPERT	0.0003	0.0014	-0.0022
	(0.0006)	(0.0021)	(0.0023)
BOARDSHAR	-0.0042	0.0454	-0.1236
	(0.0535)	(0.2112)	(0.1851)
INTERCEPT	0.1746**	-0.4095*	0.2946
	(0.0622)	(0.1808)	(0.1809)
N of Observations	1304	1304	1304
N of Std. Err. clusters	150	150	150
adj. R^2	0.103	0.941	0.312
F	3.8603	50.0342	5.5967
Prob > F	0.0000	0.0000	0.0000
Year Fixed Effects	✓	✓	✓

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

This table contains regressions of equations (4), (7) and (8) with a matched sample on size and industry. I test the impact of the whistleblower program implementation (PERIOD) for lobbying and regular companies (LOBBY) on earnings management (via CFO, PROD and DISEXP).
The impact of time is tested via PERIOD and year fixed effects. Because of the limited difference, I choose for the cleaner measurement; year fixed effects. Panel data often have to deal with within-cluster correlation or heteroscedasticity. As solution, I use clustered standard errors at firm level. Prob > F shows the significance of the Overall F-test.

Columns (2) and (3) with the control variables endorse this conclusion for manipulation via production and discretionary expenses. The control BOARDINDEP is significant for all real earnings management indicators. RESTATE is significant for the relation on earnings management via CFO and LEV is significant for the relation on earnings manipulation via discretionary expenses.

Also, there is a power calculation for this model to examine the probability of correctly accepting the null hypothesis. In this research design, there is relatively high power for the CFO and DISEXP regressions, because the effect difference is high. As a result, the chance of a type II error (incorrectly accepting H0) is proportionally small. The power calculation demonstrates low power for PROD, because the correlation coefficient is relatively equal to the critical value beta. Thus, the probability of a Type II error (incorrectly accepting H0) is relatively high for PROD. As a result, there is a possible relation between the whistleblower program implementation and earnings manipulation via production expenses for lobbying firms.
I perceive that the variables LOBBY and LOBBYxPERIOD have the same size, but opposite signs (+/-) for PROD and DISEXP. To test the relation of LOBBY and LOBBYxPERIOD on the dependent variable, I utilize a F-test. The F-test demonstrates that the two explanatory variables are equal to zero together. The two variables do not affect earnings management via production expenses or discretionary expenses. Nevertheless, the overall F-test also demonstrates significant results for this aggregate model, so the model has more relevance than an intercept-only model.

V. Conclusion and Discussion

In this thesis, I have examined the relation between the implementation of SEC's whistleblower program as part of the Dodd-Frank Act and earnings management, among lobbying and non-lobbying companies in a difference-in-difference design. I have applied two models to measure the impact on earnings management; with discretionary accruals for accounting method manipulation (Dichev et al. 2018) and real earnings for real operational decisions (Roychowdhury, 2006). These two models are adjusted to the single-step model of Chen et al.

Previous research has mainly focused on the program's effect on motives, incentives and negative implications for whistleblowers (Lee & Xiao, 2018) and investor reactions (Baloria et al. 2017). However, this paper has concentrated on company behavior itself and attempts to capture a difference for lobbying and non-lobbying companies. Internal and external

whistleblowing could negatively affect a company's image. Therefore, earnings management should reflect the source; finding an effective method to influence company behavior positively concerning earnings management (Peters, 2003).

Although Chen et al. (2018) and McNichols et al. (2018) have been critical on applying discretionary accruals as proxy for earning management, they provide multiple solutions to improve the research design when using methods for discretionary accruals. These suggestions provide substantial additions to existing literature with the application of discretionary accruals and real earnings in a difference-in-difference design. Measuring company behavior in combination with whistleblowing in the setting of the Dodd-Frank implementation is unique. Especially the single-step model of Chen et al. (2018) is new in this research context.

Furthermore, this thesis has provided practical implications to governmental institutions on what the effects of their own regulation changes practically mean. Empirically testing the hypotheses provides insights about the effectiveness of the Whistleblower program. The differences in descriptive statistics before and after the whistleblower implementation were expected. Most of the variables significantly differ before and after the implementation. The correlation table has showed high correlation for ROA and FCF with dependent variables, so I have decided to eliminate these variables from the analysis. The only insignificant control variable with difference in mean pre/post was board's financial expertise.

Altogether, I did not find support for the influence of the whistleblower program on lobbying or regular US firms regarding earnings manipulation. The Dodd-Frank whistleblower program implementation did not have significant effect on the level of earnings management via discretionary expenses and real operational decisions. Moreover, there is no significant difference between lobbying versus non-lobbying companies in earnings manipulation of their financial statements.

Applying the control variables for external board quality resulted in many lost observations and a low contribution due to a low adjusted R^2. Thus, I have decided to eliminate the control variables for external board quality in a few columns of the Multivariate Analysis. I did not have to consult the ISS database with minimal data availability, which resulted in 15,300 more observations. However, the analyses without external board quality controls have showed the same outcomes. This insignificance holds pre-/post-implementation. As a robustness check, I have analyzed a matched sample size as robustness check. The purpose of this check was to examine a more equally distributed sample regarding size and industry. I have not found supporting results to reject both hypotheses either.

Although this research has shown some unexpected implications, it confirms previous research to some extent. Nwogugu (2015) finds that the current state law tort systems (and criminal statutes) have been grossly inadequate and have not provided adequate incentives for investigation and enforcement, and punishment appears to have been ineffective. This relates to my findings about the ineffective whistleblower program on earnings management. Governmental institutions do not have the power to discourage executives and firms from improper reporting practices. The Dodd-Frank Act partly covers regulation relating to executive compensation, which influences executive behavior (Beuselinck, Deloof and Vanstraele, 2010). However, the implementation did not address the allocation of "liability" among shareholders, corporate officers and boards of directors. Liability here refers to corporate liability for increasing systemic risk, fraud, earnings management and anti-competitive misconduct (Nwogugu, 2015). As a solution, the SEC should concentrate on better incentives or compensation for shareholders, corporate officers and boards of directors.

This thesis contains some fundamental limitations with this research design. First, my analysis does not permit me to attribute the above changes in earnings management activities solely to the Dodd-Frank Act. The act established seven new measures in a short period of time. I have attempted to filter the most essential problems by taking the implementation date as event perspective and by applying a control group for specific "anti-whistleblower program lobbying firms" in the sample. However, with yearly data it is still difficult to measure the effect of an event (the implementation of the whistleblower program) itself.

Second, I followed previous research (Bowen et al 2010; Baloria et al. 2017) to include appropriate control variables. Nevertheless, the control variables seem to have low power when I analyzed the adjusted R^2. It might be interesting for future research purposes to include a different set of control variables.

Third, data availability is an issue in this thesis. I have lost many observations due to combining multiple databases for a small set of companies. By restricting the number of different databases, there is possibly more data available, which could improve the results. Obtaining more data (for instance by consulting another set of databases) might find other outcomes for the influence on the Dodd-Frank Act whistleblower program on earnings management.

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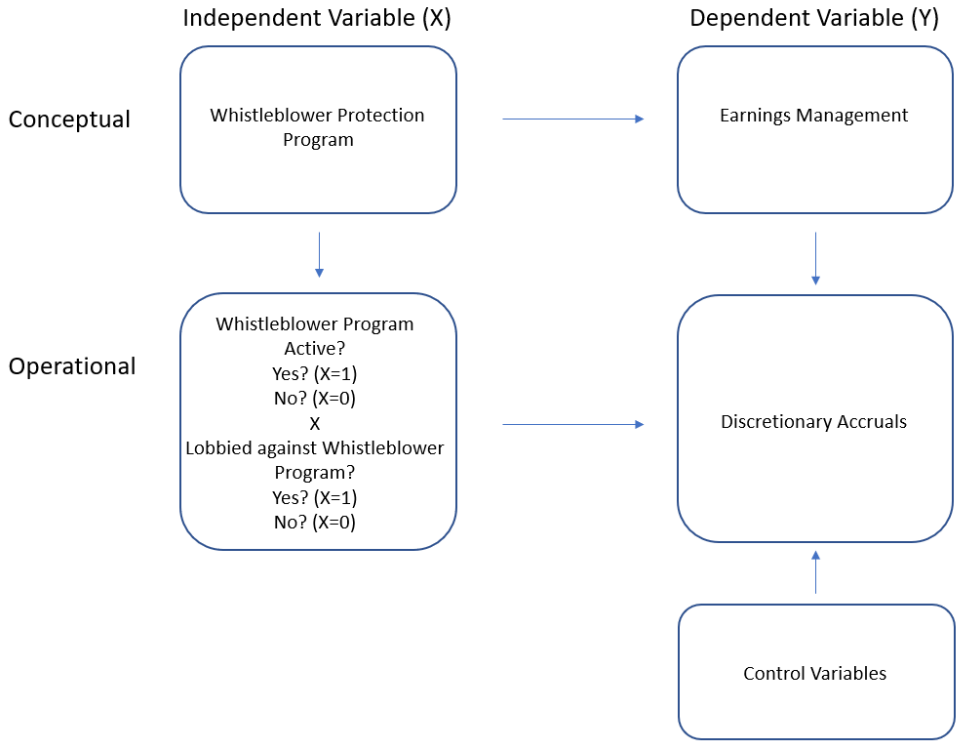
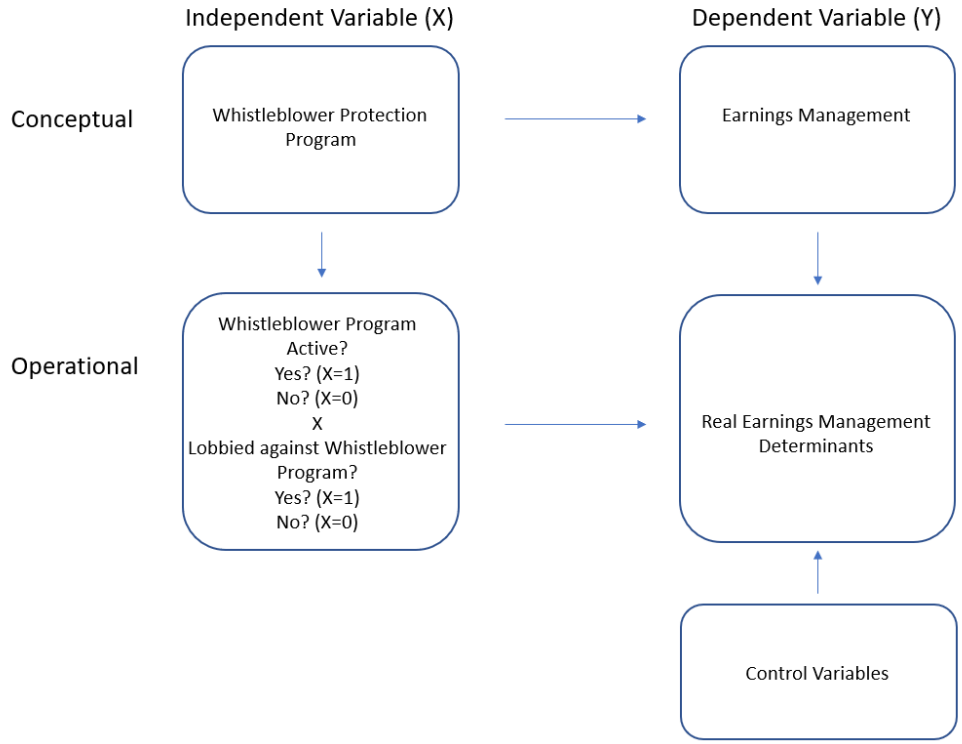
VII. Appendix

7.1 Libby Boxes

Model 1: Discretionary Accrual-based Earnings Management



Model 2: Real Earnings Management



7.2 Definitions of Variables

Category:	Variable:	Definition:	Calculation:	Function:	Database:
Key Variables	LOBBY	Whether a company lobbied against the whistleblower program	(Yes=1, No=0)	Independent Variable	SEC website
	PERIOD	Whether the deadline of submitting comments against the program has been passed	(Yes=1, No=0)	Independent Variable	-
	LOBBY*PERIOD	-	LOBBY*PERIOD	Interaction Term	-
Discretionary Accruals	dWCAccrual	Delta Working Capital Accruals	Non-Cash Working Capital (i, t) - Non-Cash Working Capital (i, t-1)	Dependent Variable	Compustat
	OpCashFlow	Cash Flow from Operations	-	Independent Variable	Compustat
	Total Assets		-		Compustat
Real Earnings	CFO	Cash Flow from Operations	-	Dependent Variable	Compustat
	Sales		-	-	Compustat
	dSales	Delta Sales	Sales (i, t) – Sales (i, t-1)	-	-
	COGS	Costs of Goods Sold	-	-	Compustat
	dINV	Delta Inventory	INV (i, t) – INV (i, t-1)	-	Compustat
	PROD	Production Expenses	COGS (i, t) + dINV (i, t-1)	Dependent Variable	Compustat
	DISC	Discretionary Expenses	Advertising Expenses + R&D Expenses + Selling, General & Administrative Expenses	Dependent Variable	Compustat
	AB_CFO	Abnormal Cash Flow from Operations	-	Residual Term	-
	AB_PROD	Abnormal Production Expenses	-	Residual Term	-
	AB_DISC	Abnormal Discretionary Expenses	-	Residual Term	-
	AB_RE	Abnormal Real Earnings	UN_CFO + UN_PROD + UN_DISC	Aggregated Residual Term	-

Category:	Variable:	Definition:	Calculation:	Function:	Database:
Firm Performance	ROA	Return-on-Assets ratio	Income before Extraordinary Items / Total Assets	Control Variable	Compustat
	MTB	Market-to-Book ratio	Price per Share / Book Value per Share	Control Variable	CRSP/Compustat
	LEV	Leverage	Long Term Debt / Total Assets	Control Variable	Compustat
	FCF	Free Cash Flow	(Operating Cash Flow - Capital Expenditures) / Total Assets	Control Variable	Compustat
Reporting Quality	ICW	Internal Control Weaknesses	Number of Internal Control Weaknesses	Control Variable	AuditAnalytics
	RESTATE	Restatement	Number of Restatements	Control Variable	AuditAnalytics
	std_dev	Standard Deviation	$sd(\ln(prc(t)) - \ln(prc(t-1)))^2$	-	CRSP
	IDIOVOL	Idiosyncratic Stock Volatility	sqrt(trading_days*std_dev)	Control Variable	-
External Board Quality	CEOCOB	CEO = Charity of Board	Yes (X=1), No (X=0)	Control Variable	ISS
	BOARDAGE	Average Board Age	Total Age of Board / Number of Board Members	Control Variable	ISS
	FINEXPERT	Financial Expertise	Number of Members with Financial Expertise / Total Board Members	Control Variable	ISS
	BOARDINDEP	Board Independence	Number of External Board Members / Total Board Members	Control Variable	ISS
	BOARDSHAR	Board Shares	Shares hold by the Board / Total Shares Outstanding	Control Variable	ISS/CRSP
Size	Average Total Assets	Company size	Aggregated Total Assets / Number of Years	Matching Variable	Compustat
Industry	SIC-code	Industry type		Matching Variable	Compustat

7.3 Pearson Correlation Coefficient Table

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) WCAccrual	1.000													
(2) OpCashFlow	-0.067***	1.000												
	(0.000)													
(3) CFO/TAt-1	-0.049***	0.951***	1.000											
	(0.000)	(0.000)												
(4) PROD/TAt-1	0.056***	0.137***	0.143***	1.000										
	(0.000)	(0.000)	(0.000)											
(5) DISEXP/TAt-1	0.035**	0.336***	0.346***	0.256***	1.000									
	(0.001)	(0.000)	(0.000)	(0.000)										
(6) LOBBY	0.006	0.027*	0.024*	0.002	-0.022*	1.000								
	(0.599)	(0.011)	(0.026)	(0.886)	(0.040)									
(7) PERIOD	0.035**	-0.065***	-0.065***	-0.032**	-0.024*	0.006	1.000							
	(0.001)	(0.000)	(0.000)	(0.003)	(0.022)	(0.542)								
(8) LOBBYxPERIOD	0.013	0.002	0.001	0.009	-0.024*	0.694***	0.191***	1.000						
	(0.233)	(0.835)	(0.896)	(0.385)	(0.025)	(0.000)	(0.000)							
(9) 1/TAt-1	0.030**	0.110***	0.133***	0.095***	0.368***	-0.095***	-0.071***	-0.073***	1.000					
	(0.005)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)						
(10) SAL/TAt-1	0.060***	0.288***	0.297***	0.963***	0.479***	0.006	-0.039***	0.014	0.171***	1.000				
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.580)	(0.000)	(0.181)	(0.000)					
(11) SALt-1/TAt-1	0.015	0.273***	0.258***	0.915***	0.473***	0.003	-0.050***	0.015	0.164***	0.953***	1.000			
	(0.152)	(0.000)	(0.000)	(0.000)	(0.000)	(0.776)	(0.000)	(0.150)	(0.000)	(0.000)				
(12) dSAL/TAt-1	0.152***	0.126***	0.204***	0.419***	0.155***	0.010	0.020	0.001	0.072***	0.426***	0.132***	1.000		
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.336)	(0.066)	(0.936)	(0.000)	(0.000)	(0.000)			
(13) dSALt-1/TAt-1	0.018	0.141***	0.162***	0.317***	0.104***	0.013	-0.126***	-0.036***	0.047***	0.322***	0.351***	0.006	1.000	
	(0.094)	(0.000)	(0.000)	(0.000)	(0.000)	(0.224)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.556)		
(14) ROA	0.107***	**0.523*** **	**0.550*** **	0.142***	0.191***	0.020	0.017	0.017	0.051***	0.243***	0.197***	0.208***	0.159***	1.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.066)	(0.112)	(0.100)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(15) LEV	0.013	-0.122***	-0.130***	-0.148***	-0.259***	0.011	0.045***	0.018	-0.282***	-0.194***	-0.192***	-0.063***	-0.077***	-0.164***
	(0.239)	(0.000)	(0.000)	(0.000)	(0.000)	(0.310)	(0.000)	(0.089)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
(16) MTB	-0.049***	0.017	0.019	0.016	0.033**	-0.033**	0.014	-0.023*	0.009	0.025*	0.033**	0.018	0.041***	0.030**
	(0.000)	(0.112)	(0.081)	(0.137)	(0.002)	(0.002)	(0.190)	(0.030)	(0.380)	(0.020)	(0.002)	(0.099)	(0.000)	(0.005)
(17) FCF	0.008	**0.687*** **	**0.687*** **	0.008	0.029**	0.207***	0.000	0.155***	-0.037***	0.020	0.018	0.014	0.009	0.055***
	(0.476)	(0.000)	(0.000)	(0.476)	(0.006)	(0.000)	(0.972)	(0.000)	(0.001)	(0.054)	(0.098)	(0.177)	(0.401)	(0.000)
(18) IDIOVOL	0.011	-0.063***	-0.065***	0.022*	0.076***	-0.279***	-0.158***	-0.403***	0.210***	0.026*	0.034**	0.019	0.003	-0.152***
	(0.298)	(0.000)	(0.000)	(0.038)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.016)	(0.001)	(0.079)	(0.807)	(0.000)
(19) ICW	0.008	-0.044***	-0.043***	0.002	0.005	0.021*	-0.028**	0.014	0.019	0.002	0.002	0.001	0.008	-0.037***
	(0.469)	(0.000)	(0.000)	(0.877)	(0.633)	(0.048)	(0.008)	(0.197)	(0.080)	(0.864)	(0.867)	(0.954)	(0.431)	(0.001)
(20) RESTATE	0.006	0.033**	0.035***	0.013	-0.041***	0.339***	-0.052***	0.401***	-0.102***	0.018	0.018	0.005	0.001	0.013
	(0.590)	(0.002)	(0.001)	(0.223)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.090)	(0.089)	(0.644)	(0.924)	(0.234)
(21) CEO=COB	0.002	0.010	0.008	0.012	-0.078***	0.143***	-0.038***	0.109***	-0.091***	0.001	0.001	0.003	0.006	0.033**
	(0.815)	(0.356)	(0.457)	(0.246)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.962)	(0.891)	(0.802)	(0.551)	(0.002)
(22) BOARDINDEP	0.003	-0.035**	-0.040***	-0.022*	0.024*	-0.522***	0.135***	-0.374***	0.041***	0.018	0.009	-0.032**	-0.031**	-0.033**
	(0.743)	(0.001)	(0.000)	(0.040)	(0.026)	(0.000)	(0.000)	(0.000)	(0.000)	(0.085)	(0.386)	(0.002)	(0.004)	(0.002)
(23) BOARDAGE	0.003	-0.056***	-0.057***	0.007	0.029**	-0.423***	0.041***	-0.503***	0.116***	0.008	0.010	0.005	0.001	-0.029**
	(0.807)	(0.000)	(0.000)	(0.499)	(0.006)	(0.000)	(0.000)	(0.000)	(0.000)	(0.456)	(0.337)	(0.667)	(0.913)	(0.007)
(24) FINEXPERT	0.001	0.042***	0.043***	0.015	-0.058***	0.468***	0.001	0.310***	-0.131***	-0.022*	-0.023*	0.003	0.006	0.028**
	(0.889)	(0.000)	(0.000)	(0.147)	(0.000)	(0.000)	(0.948)	(0.000)	(0.000)	(0.039)	(0.029)	(0.802)	(0.574)	(0.009)
(25) BOARDSHAR	0.005	0.004	0.009	0.017	0.102***	0.020	-0.033**	-0.023*	0.054***	0.036***	0.042***	0.005	0.006	0.008
	(0.621)	(0.740)	(0.405)	(0.108)	(0.000)	(0.065)	(0.002)	(0.033)	(0.000)	(0.001)	(0.000)	(0.632)	(0.581)	(0.431)
N	8870													

	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
(15) LEV	1.000										
(16) MTB	0.008	1.000									
	(0.447)										
(17) FCF	0.001	0.013	1.000								
	(0.928)	(0.217)									
(18) IDIOVOL	-0.045***	0.014	-0.246***	1.000							
	(0.000)	(0.182)	(0.000)								
(19) ICW	0.004	0.003	0.005	-0.037***	1.000						
	(0.678)	(0.757)	(0.613)	(0.000)							
(20) RESTATE	0.008	-0.042***	0.268***	-0.693***	0.069***	1.000					
	(0.434)	(0.000)	(0.000)	(0.000)	(0.000)						
(21) CEO=COB	0.022*	0.001	0.060***	-0.179***	0.001	0.168***	1.000				
	(0.036)	(0.920)	(0.000)	(0.000)	(0.948)	(0.000)					
(22) BOARDINDEP	0.019	0.042***	-0.269***	0.651***	-0.060***	-0.755***	-0.107***	1.000			
	(0.076)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)				
(23) BOARDAGE	-0.024*	0.044***	-0.309***	0.767***	-0.048***	-0.870***	-0.186***	0.839***	1.000		
	(0.025)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)			
(24) FINEXPERT	0.032**	-0.045***	0.304***	-0.781***	0.046***	0.875***	0.191***	-0.841***	-0.981***	1.000	
	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		
(25) BOARDSHAR	-0.031**	0.005	0.015	0.009	0.036***	-0.033**	-0.074***	-0.097***	0.037***	-0.037***	1.000
	(0.004)	(0.668)	(0.161)	(0.419)	(0.001)	(0.002)	(0.000)	(0.000)	(0.001)	(0.000)	

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

7.4 Power of the Tests

When I assess negative study results it is particularly important to question the effect difference of the study. It may well be that the study was underpowered and that we have incorrectly accepted the null hypothesis, a type II error. I calculate the difference between the regression coefficient and the coefficient of the critical value, that would result in statistical significance to reject the hypothesis. In order to obtain the coefficient of the critical value, I assume a Z-score of 1,96 (α = 0.05). For the calculation, I have to retrieve the beta of the critical value first.

1. $Z = \frac{\beta - 0}{s}$ $\left(s = \frac{\sigma_p}{\sqrt{n}}\right)$ -> $\beta = Z * s$

Afterwards, I want to compare relative effect differences. I measure the effect difference between the critical value and the regression coefficient, scaled by the standard deviation. I consider values below 0.20 as small effect differences, values between 0.20 and 0.50 as medium effect differences and values above 0.50 as large effect differences.

2. $Z = \frac{\beta_\alpha - \beta_s}{s}$

Multivariate Analysis:	**Robustness Check:**
WCAccrual: 1. β = 1.96*0.0049 = 0.0096 2. $\frac{0.0096 - 0.0076}{0.0049}$ = 0.4082 (medium)	WCAccrual: 1. β = 1.96*0.0062 = 0.0122 2. $\frac{0.0122 - 0.0074}{0.0062}$ = 0.7742 (large)
CFO: 1. β = -1.96*0.0052 = -0.0102 2. $\frac{-0.0102 - (-0.0013)}{0.0053}$ = 1.6792 (large)	CFO: 1. β = -1.96*0.0070 = -0.0137 2. $\frac{-0.0137 - (-0.0077)}{0.0070}$ = 0.8571 (large)
PROD: 1. β = 1.96*0.0101 = 0.0198 2. $\frac{0.0198 - 0.0117}{0.0101}$ = 0.8020 (large)	PROD: 1. β = 1.96*0.0167 = 0.0328 2. $\frac{0.0328 - 0.0297}{0.0167}$ = 0.1856 (small)
DISEXP: 1. β = -1.96*0.0097 = -0.0190 2. $\frac{-0.0190 - (-0.0195)}{0.0097}$ = -0.0515 (small)	DISEXP: 1. β = -1.96*0.0161 = -0.0316 2. $\frac{-0.0316 - (-0.0215)}{0.0161}$ = 0.6273 (large)

7.5 F-Tests

1.

For each regression, I examine whether the independent variables have more impact on the dependent variable than an intercept-only model. Therefore, I utilize a F-test with the following hypotheses:

H0: $\beta_1 = \beta_{\dots} = \beta_{CONTROLS} = 0$
H1: $\beta_1 \neq \beta_{\dots} \neq \beta_{CONTROLS} \neq 0$

The F-test results are included in the bottom side of the regression tables. All regression models are significant, which means that the independent variables have more influence on the dependent variable than an intercept-only model.

2.

I notice that some interaction terms (LOBBYxPERIOD) have an equal magnitude as LOBBY, but opposite signs (+/-). To test whether the regression coefficients of these variables are significantly different, I execute a F-test with the following hypotheses:

H0: $\beta_{LOBBY} + \beta_{LOBBYxPERIOD} = 0$
H1: $\beta_{LOBBY} + \beta_{LOBBYxPERIOD} \neq 0$

	Multivariate Analysis		**Robustness Check**		
	WCAccrual:	**DISEXP:**	**WCAccrual:**	**PROD:**	**DISEXP:**
Table:	*3*	*4*	*5*	*6*	*6*
Column:	*4*	*5*	*4*	*2*	*3*
F:	0.05	0.02	0.20	0.20	1.18
Prob > F:	0.8199	0.9015	0.6531	0.6523	0.2786
Observations:	8870	8870	1304	1304	1304
Conclusion:	H0 accepted	H0 accepted	H0 accepted	H0 accepted	H0 accepted

As a result, H0 will be accepted: $\beta_{LOBBY}\ and\ \beta_{LOBBYxPERIOD}$ are equal to zero for all tested regressions. The variables LOBBY and LOBBYxPERIOD are not significantly different from each other.