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Essays On The Spillover Effects Of Whistleblowing On Peer Firms

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ESSAYS ON THE SPILLOVER EFFECTS OF WHISTLEBLOWING ON PEER FIRMS

by

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Abstract

This dissertation examines the spillover effects of media reported corporate whistleblowing on industry peer firms in two essays. The first essay examines peer firm risk-taking and firm efficiency following a whistleblowing allegation. I find that peers significantly reduce their risk-taking following the allegation. They also increase their efficiency following the allegation and increase their market share at the expense of the whistleblowing firms, leading to increased profitability. My second essay examines peer firms' earnings management choices following a whistleblowing allegation. I find that peer firms significantly reduce their manipulation of real activities and reduce their use of accruals-based earnings management following the allegation. However, firms that just meet or beat earnings targets increase their use of real earnings management to help them to do so. Thus, I show that whistleblowing has a significant impact on the operations of industry peer firms, even though they are not the direct targets of the allegations.

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Dissertation Overview

This dissertation examines the spillover effects of whistleblowing on peer firms in a variety of settings. Whistleblowing is the practice of reporting questionable activities carried out by an organization or its members either internally or externally (Chiasson, Johnson, and Byington, 1995). Literature on whistleblowing has been growing in recent years (see Lee and Xiao, 2018 for a survey on whistleblowing literature), with a number of authors examining the determinants and consequences of whistleblowing (Dyck, Morse, and Zingales, 2010; Bowen, Call, and Rajgopal, 2010; Call et al., 2018; Wilde, 2017).

However, while research has shown that significant spillover effects of various corporate events on peer firms exist (Gleason, Jenkins, and Johnson, 2008; Lang and Stulz, 1992), the literature is largely silent on the spillover effects of whistleblowing on peer firms. This dissertation attempts to fill this literature void. Specifically, I examine the spillover effects of whistleblowing on peer firms from two angles. In Essay 1, I examine the spillover effects of whistleblowing on peer firms' risk-taking behaviors and profitability. In Essay 2, I examine the spillover effects of whistleblowing on peer firms' earnings management choices.

Essay 1 examines the spillover effects of whistleblowing on peer firm risk-taking and profitability. Using a sample of 163 whistleblowing allegations reported in the media between 1989 and 2014, and a difference-in-differences (DiD) research design, I document that peer firms significantly reduce their risk-taking following a whistleblowing allegation on a firm in the same 4-digit SIC industry. I show that peer firms reduce their leverage by using their excessive built up cash holdings. Peers also significantly decrease capital expenditures, and exhibit reduced volatility of stock returns following a whistleblowing allegation. Finally, peers appear to gain market share at the expense of the target, resulting in increased measures of profitability.

Essay 2 examines the spillover effects of whistleblowing on peer firms' earnings management. Firms manipulate their earnings in two main ways, namely through managing their accruals or through manipulating their real activities (REM). REM is carried out by offering excessive discounts or lenient credit terms to increase current period sales, overproducing to reduce the cost per unit, and/or reducing discretionary expenditures. Using the same sample of firms and a DiD method, and after controlling for differences in competitive strategy, I show that peer firms significantly reduce their use of accruals-based earnings management and REM, following a whistleblowing allegation. However, for subsets of peers firms that just meet or beat earnings targets, peers appear to increase their use of REM to help them achieve their targets. These results are consistent with managers in peer firms reducing their firms' riskiness by reducing earnings management.

Essay 1: Better Safe than Sorry - The Effect of Whistleblowing Allegations on Industry Peers' Risk-Taking and Profitability

1. INTRODUCTION

The corporate misdeeds which led to the eventual downfall of Enron and MCI-WorldCom were exposed in large part by employee whistleblowers. Regulators and legislators have been protecting whistleblowers since the False Claims Act passed in 1863. However, following the egregious violations of Enron and WorldCom, protections of whistleblowers were made even stronger. Some of the more recent pieces of legislation institutionalizing the protection of whistleblowers include the Sarbanes-Oxley Act of 2002 (SOX), the Tax Relief and Health Care Act of 2006 (TRHCA), and the Dodd-Frank Act of 2010. This paper examines the spillover effects of whistleblowing on peer firm risk-taking and profitability.

Post-SOX, whistleblowing has grasped headlines in the mainstream media. For example, in recent years, some of the headlines include "Dallas-based Tenet to pay $514 million to settle whistleblower lawsuit" and "Whistleblower triumphs to tune of $100 million".[1] The Securities and Exchange Commission (SEC) has lauded whistleblowers several times and stated that whistleblowers perform a great service to investors and help them combat fraud (SEC, 2014), and that insiders may hold the key to unlocking intricate fraudulent schemes (SEC, 2015). Furthermore, ever since the SEC began issuing its own whistleblower awards in 2012, they have awarded over a total of $262 million to whistleblowers (SEC, 2018). These eye-catching headlines and the astronomical sums of money involved attest to the importance of whistleblowing to all stakeholders, and its highly damaging effect on target firms.

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[1] Reported in The Dallas Morning News (Oct.3, 2016) and The Times (Feb. 18, 2016) respectively.

Although earlier literature is inconclusive with regards to the effectiveness of whistleblower protection programs (Anechiarico and Jacobs, 1996; Miceli and Near, 1992; Gobert and Punch, 2000), more recent literature has documented significant effects of whistleblowing on targets of the allegations (Bowen, Call, and Rajgopal, 2010; Call, Kedia, and Rajgopal, 2016; Call, Martin, Sharp, and Wilde, 2018; Wilde, 2017). In particular, Bowen et al. (2010) document that firms subject to whistleblowing allegations suffer market value and operating performance losses, and have a higher probability of restatements and shareholder lawsuits in the aftermath of the public allegations. Furthermore, they find that as a result of the whistleblowing allegations, target firms make adjustments to improve their corporate governance in the subsequent years.

While the aforementioned studies focus on the targets of whistleblowing allegations, this paper examines the effect of the allegations on targets' industry peers. As pointed out by Bowen et al. (2010), the mere possibility of becoming a target poses a risk to firms. Firms have become more connected in recent years due to constantly improving technology and the highly dynamic nature of current market forces. Further, existing research documents the spillover effects of events on industry peers (Gleason, Jenkins, and Johnson, 2008; Kedia, Koh, and Rajgopal, 2015; Lang and Stulz, 1992; Ferris et al., 1997). Such spillover effects can also initiate a response to the perceived negative consequences among unaffected firms. However, there is a void in the literature examining the consequences of whistleblowing on peer firms.

The saliency hypothesis from psychology documents that individuals deviate from the standard assumption that they use all available information to estimate probabilities of outcomes (Tversky and Kahneman, 1973, 1974). They instead use heuristics (mental shortcuts) to evaluate probabilities of outcomes based on close availability: the ease with which examples of such events come to mind. Research in the business literature also documents managers responding to salient

events in a similar fashion, thereby resulting in possibly suboptimal corporate policies being chosen (Dessaint and Matray, 2017; Bernile, Bhagwat, and Rau, 2017; Dittmar and Duchin, 2016).

Whistleblowing events reported in the media are salient events that distort peer firm managers' abilities to correctly assess the probability of future outcomes for their firms. I conjecture, therefore, that a whistleblowing allegation at a firm has a spillover effect on its industry peers, as the public allegation likely invites closer scrutiny from regulators and investors, in addition to the managers' responses to the saliency of risk.

If the whistleblowing allegation is related to a firm's accounting or finance related wrongdoing, industry peers may respond to these allegations by taking preventative measures to avoid the negative consequences of a possible investigation of themselves as well. This paper examines whether peer firms modify their risk-taking behavior following a whistleblowing allegation. I hypothesize that industry peers are likely to take risk reducing measures as a precaution in the aftermath of a whistleblowing allegation occurring in the same industry.

To test my hypothesis, I construct a sample of industry peer firms by industry-matching (four-digit SIC code) 163 hand-collected whistleblowing allegations reported in the media from 1989 to 2014.[2] The median number of peer firms for targets is 28. My final sample consists of over 35,000 firm-year observations following the matches of peers to controls. To measure risk taking, I examine changes in firm leverage (Debt_Ratio), cash holdings (Cash_Ratio), capital expenditures (CAPEX), and volatility of stock returns (SD_LNRET) following a whistleblowing allegation based on existing literature (Dittmar and Duchin, 2016; John, Litov, and Yeung, 2008; Bargeron,

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[2] I am grateful to Dr. Andy Call for providing me with the sample of 81 hand-collected, media reported whistleblowing allegations from 1989-2003, used in Bowen, Call and Rajgopal (2010). I follow the same procedures described in Bowen et al. (2010) and collect an additional 82 media reported whistleblowing allegations from 2004-2014. I end the data collection in 2014 because I require three years of post-allegation market and accounting data for my analyses.

Lehn, and Zutter, 2010; Bernile, Bhagwat, and Rau, 2017). I follow Wilde (2017) and employ a difference-in-differences (DiD) research design to examine changes in peer firms' risk-taking behaviors over a 7-year period, i.e. three years before to three years after a whistleblowing allegation.

My empirical results show that a whistleblowing allegation against one firm has a significant effect on its industry peers' risk-taking behaviors. Peer firms reduce their leverage following the whistleblowing allegation and net debt issues decrease. Debt reduction is consistent with reducing the costs of intense monitoring by debtholders in the period following a whistleblowing allegation. In addition, consistent with Jensen and Meckling (1976) and Jensen (1986), firms appear to pay down their debt using cash holdings and thus reduce agency problems associated with holding too much cash. Peer firms also exhibit a significant decrease in capital investment (CAPEX) and decreases in stock return volatility (SD_LNRET). Overall, these results are consistent with my hypothesis that industry peers become more cautious and thus more risk averse in the aftermath of a whistleblowing allegation in their industry.

While it is important to examine the spillover effect of a whistleblowing allegation on the average peer firm, it is also meaningful to understand which types of peer firms experience the greatest impact of the allegations. I perform various subsample analyses to answer the latter question. I first partition the full sample of peer firms by firm size and by the degree of financial constraint, measured using dividend payout ratio. Firms with high payout ratios are less financially constrained than firms with low payout ratios. In addition, large firms can be considered to be less constrained than small firms (Almeida, Campello, and Weisbach, 2004; Faulkender and Wang, 2006). I conjecture that the spillover effect of whistleblowing is more pronounced in the relatively

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more constrained firms, as financially constrained firms have to be more vigilant in the face of possible adversity. My subsample analyses provide evidence in support of this conjecture.

My paper is among the first in the literature to examine the spillover effects of a whistleblowing allegation on industry peers. I document that peer firms moderate their risk-taking behaviors in the aftermath of the allegation. These findings add empirical evidence to a growing stream of literature supporting the notion that whistleblowing can be an effective disciplining mechanism to constrain firms from engaging in corporate misdeeds.

The remainder of the paper is organized as follows. Section 2 reviews the extant literature pertaining to whistleblowing and spillover effects and discusses the hypothesis development. Section 3 presents the data and methodology. Section 4 presents the empirical results, while Section 5 concludes.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Saliency Hypothesis

The saliency hypothesis (Tversky and Kahneman 1973, 1974) suggests that indidviduals deviate away from the rational process of estimating probabilities of future outcomes based on all available information. They instead use shortcuts to make their estimations based on the availiability of information. One such shortcut taken based on availability of information is to infer probabilities of a future event based on the ease with which examples of such an event come to mind. This availability of information may be affected by the salience of that event (Gino, Ayal, and Ariely, 2009), with factors such as novelty, time proximity and coverage by media increasing the salience (Dessaint and Matray, 2017). In addition, according to Gino et al. (2009), individuals who are exposed to dishonest acts reduce their own acts of dishonesty by paying attention to their own standards of honesty. This is because exposure to the event increases the saliency of

dishonesty. This finding implies that increasing the saliency of the event can cause others to reevaluate their own responses to such events.

When examined from a firm manager's point of view, shortcuts based on the saliency of available information could lead to erroneous estimations of the probability of future outcomes for the firm since they rely upon only partially available information. Recent research has documented several examples of the saliency of events determining outcomes taken by managers. Dessaint and Matray (2017) find that when firms are located in the neighborhood of a hurricane strike, but not directly affected by the hurricane, they overreact to the saliency of risk and reduce measures of risk-taking in response. Bernile, Bhagwat, and Rau (2017) find a non-linear relation between a CEO's exposure to non fatal disasters in their early years and corporate risk-taking. They find that CEO risk-taking in a firm is dependent upon the level of consequences of the natural disasters they experience. Additionally, Dittmar and Duchin (2016) find that corporate policies are affected in firms run by CEOs who have experienced distress. Firms run by CEOs who have more recent experiences with distress have less debt and invest less than other firms.

2.2 Corporate Risk-Taking

There is a large volume of literature that examines corporate risk-taking in various settings. These include changes in risk-taking due to the passage of SOX (Bargeron, Lehn, and Zutter, 2010; Cohen, Dey, and Lys, 2013; Graham, Harvey, and Rajgopal, 2005; Litvak, 2007), changes in risk-taking and corporate choices caused by past experiences (Malmendier, Tate and Yan, 2011; Malmendier and Nagel, 2011; Greenwood and Nagel, 2009; Benmelech and Frydman, 2015; Dessaint and Matray, 2017; Bernile, Bhagwat, and Rau, 2017; Dittmar and Duchin, 2016), and

risk-taking in international setings (John, Litov, and Yeung, 2008; Li, Griffin, Yue, and Zhao, 2013).

Bargeron et al. (2010) compare the corporate risk-taking of U.S. and non-U.S. firms following the adoption of the Sarbanes-Oxley Act of 2002 (SOX). They find that U.S. firms become significantly more risk averse relative to non-U.S. firms following the adoption of SOX. Specifically, post-SOX, U.S. firms exhibit significant decreases in CAPEX, R&D expenditures, and stock return volatility, while exhibiting a significant increase in cash holdings. Graham et al. (2005), using a survey of CFOs, describe CFOs as believing that SOX negatively affects corporate risk-taking. Additionally, Litvak (2007) also finds stock price evidence of SOX negatively affecting corporate risk-taking. Cohen et al. (2013) find that SOX results in significant reductions in corporate risk-taking and examine the mechanisms through which it affects firms. They argue that changes in investments are partially due to changes in executive compensation contracts and partially due to the personal costs of engaging in risky activities increasing for executives.

2.3 Whistleblowing

Whistleblowing is the practice of reporting questionable activities within an organization to concerned individuals (Chiasson, Johnson, and Byington, 1995). The literature on whistleblowing is rapidly expanding (see Lee and Xiao, 2018 for a survey of the existing literature on whistleblowing).

While earlier literature on whistleblowing presents conflicting views on the efficacy of whistleblowing, more recent literature has documented significant effects of whistleblowing being an effective mechanism in curtailing corporate misconduct. The side arguing against the efficacy of whistleblowing programs include those who do not believe that whistleblowing or the

whistleblower protection programs are effective (Geiger & Mamudi, 2014; Heffernan, 2011; Weinberg, 2005; Wood, 2014). Others argue that whistleblower claims can be frivolous or made by disgruntled employees who seek payback (Gobert and Punch, 2000; Miceli and Near, 1992; Schmidt, 2005). On the other hand, more recent research provides evidence that whistleblowing is an effective mechanism with which to curtail corporate malpractice (Bowen, Call, and Rajgopal, 2010; Call, Martin, Sharp, and Wilde, 2018; Wilde, 2017). In fact, Call, Kedia, and Rajgopal (2016) find that some firms are so wary about whistleblowing, that they grant rank and file employees incentives in the form of stock-options to keep them quiet about possible financial irregularities within the firm.

While examining factors which affect a whistleblower's decision to blow the whistle, Dyck, Morse, and Zingales (2010) suggest that monetary rewards are the primary motivator for employee whistleblowers. However, Wilde (2017) argues that whistleblowers face extreme cost-benefit trade-offs. While whistleblowers could collect handsome rewards for the information provided to the government, they could also be retaliated against and shamed following the allegation. Hence, he argues that employee whistleblowers do not take the decision to be a whisleblower lightly.

Bowen et al. (2010) examine a sample of whistleblowing allegations reported in the media, as well as a sample of those reported to the Occupation Safety and Health Administration (OSHA), and find significant consequences for whistleblowing target firms in both cases. Target firms experience significant short-term and long-term stock price drops and are more likely to experience restatements. In addition, they have a higher probability of future shareholder lawsuits, and have a higher likelihood of improving their corporate governance following the allegations. Call et al. (2018) find that when whistleblowers are involved, target firms and employees are faced with

stiffer monetary penalties or longer prison sentences, and that enforcement actions by regulators begin more quickly. Wilde (2017) further documents that firms exhibit significant decreases in financial misreporting and tax aggressiveness following whistleblowing allegations.

2.4 Spillover Effects

The spillover effects of various events with negative consequences for firms have been documented in prior literature through information transfers. Intra-industry information tranfers occur when one firm's information release causes changes in stock prices of other industry firms. Numerous events are documented to result in information transfers including earnings restatements (Foster, 1981; Clinch and Sinclair, 1987; Pownall and Waymire, 1989; Han and Wild, 1990; Freeman and Tse, 1992; Ramnath, 2002; Kedia, Koh, and Rajgopal, 2015), management forecasts (Baginski, 1987; Han et al., 1989), bank failures (Aharony and Swary, 1983, 1996), bankruptcy filings (Lang and Stulz, 1992; Ferris et al., 1997), and regulatory changes (Bushee and Leuz, 2005).

Gleason et al. (2008) find that accounting restatements by firms also induce share price declines for their industry peers who do not restate. Furthermore, they find that revenue restatements by large firms in industries result in the strongest concentration of accounting contagion. Kedia et al. (2015) also use restatements to examine contagion in earnings management and find that firms have a higher likelihood to begin to manage earnings after a firm in their industry or neighborhood publicly announces a restatement.

Jia and Zhao (2020) expand the analysis of Gleason et al. (2008) to an international setting and examine the contagion effects of accounting restatements by foreign firms traded in the United States. They find that non-restating home country peer firms experience a significantly negative stock price reaction following a restatement by a firm from the same country. They also find that

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the effect is much stronger for firms from countries with weak rule of law than those from countries with strong rule of law.

Lang and Stulz (1992) study the contagion effect of bankruptcy announcements on industry peers and find that on average, a value weighted portfolio of industry competitors experiences a one percentage point decrease in value following a bankruptcy announcement.

2.5 Hypothesis Development

Based on the aforementioned literature on the effects of whistleblowing, spillover/contagion effects, and corporate risk-taking, I argue that corporate whistleblowing allegations have a spillover effect on industry peer firms through the saliency hypothesis. A whistleblowing allegation reported in the media increases the saliency of the event and causes firm managers to reevaluate the probability of a whistleblowing event in their own firm or a possible future investigation, even if the true probability of a possible whistleblowing allegation does not change.

In addition, the whistleblowing allegation invites closer scrutiny from investors and regulators concerning corporate policies and practices. A whistleblowing allegation in one firm could also encourage employees in other industry peer firms to report potential corporate misdeeds. The mere possibility of a whistleblowing event poses a significant perceived risk to the firm. Therefore, consistent with the overreaction finding described by Dessaint and Matray (2017), I hypothesize that peer firms of a target of whistleblowing will reduce their risk-taking following the allegation.

Firstly, due to overreaction attributed to the saliency hypothesis, which results in a perceived increase in riskiness to the firm, CEOs may estimate that the distress costs to the firm

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will increase if the firm is subjected to an allegation of its own. In order to change investors' perceptions of the possibility of distress in the face of an allegation or investigation, CEOs may resolve to taking measures to make the firm appear less risky and more profitable.

Guay (2008) states that in settings characterized by a substantial probability of distress, managers may make decisions which are advantageous to shareholders at the expense of debtholders. Debt covenants allocate control rights to creditors in times when they do not trust managers to act in a way to maximize value.

Managers perceive an increased riskiness to the firm's operations, which also results in them perceiving an increased chance of having to forfeit their control rights to creditors in times of distress. By reducing the firm's debt levels beforehand, managers would be subject to less of the constraints placed on the firm's operations by debtholders, and will thereby also mitigate issues associated with debt covenants. Thus, they work to reduce issues associated with the agency costs of debt (Jensen and Meckling, 1976). This leads to my first hypothesis:

H1: Industry peers exhibit significantly lower debt levels following a whistleblowing allegation made against a firm in the same industry.

Gao, Harford, and Li (2013) investigate firm cash holdings and find that public firms hold about twice as much cash as similar private firms, even though private firms have a higher need for precautionary holdings of cash, due to their limited access to external financing. Thus, public firms on average tend to hold much higher levels of cash than needed, resulting in issues associated with the agency costs of free cash flow (Jensen, 1986). Gao et al. (2013) also state that public firms tend to spend excess cash through myopic investments and in ways that reduce operating performance. Even well-governed firms find themselves with more cash than necessary. They argue that such firms respond to their excessive cash levels by paying out or reducing leverage. In addition, firms also desire to appear profitable to investors. Thus, instead of using retained earnings to reduce debt

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levels, they use their built up excessive cash holdings to do so. This helps them to become more efficient while also maintaining profitability and balancing their balance sheet. Thus, my second hypothesis is stated as:

H2: Industry peers use cash holdings to reduce leverage following a whistleblowing allegation made against a firm in the same industry.

Bargeron et al. (2010) show that firms reduce risk-taking following the passage of SOX by decreasing investment levels. Firms are also shown to have reduced volatility of stock returns. Thus, I hypothesize that peer firms' capital expenditures and volatility of returns decrease following a whistleblowing allegation.

H3: Industry peers exhibit significantly lower levels of capital expenditures following a whistleblowing allegation made against a firm in the same industry.

H4: Industry peers exhibit significantly lower volatility of stock returns following a whistleblowing allegation made against a firm in the same industry.

I argue that managers change their corporate policies with an intent of appearing better suited to withstand a possible whistleblowing allegation or an investigation of their own. They reduce debt to appear more efficient, which should be observed through increased profitability measures following the allegation. Thus, I hypothesize that peers will exhibit higher profitability ratios following a whistleblowing allegation.

H5: Industry peers exhibit significantly higher profitability measures following a whistleblowing allegation made against a firm in the same industry.

Finally, whistleblowing targets are shown to have significantly negative market-related and firm operation-related outcomes in the years following an allegation. Peer firms can capitalize on the issues faced by their market competitors and gain market share at the expense of the target firms. Thus, I hypothesize that peers increase their industry market share following a whistleblowing allegation.

H6: Industry peers exhibit significantly higher market shares following a whistleblowing allegation made against a firm in the same industry.

3. DATA AND METHODOLOGY

3.1 Data

To construct the sample of industry peer firms for this study, I first hand-collect a sample of whistleblowing allegations reported in the media. A firm is then classified as an industry peer if it has the same four-digit SIC code as the target firm subject to a whistleblowing allegation.

Whistleblowers can report their allegations to either the news media or to OSHA. In this study, I focus on the media-reported whistleblowing allegations.[3] I follow the same procedure described in Bowen et al. (2010) to hand-collect whistleblowing allegations of financial or accounting-related corporate misdeeds reported in the media. Specifically, I search Lexis-Nexis for all combinations of the following two sets of keywords: the first set includes "whistle," "whistle-blowing," "whistle-blower," and "whistleblower," and the second set includes "financial," "accounting," "reporting," "fraud," and "accounting fraud". I only include reports that have mentions of the initiation of a whistleblower lawsuit. Reports about liability, settlements, etc. are not included in the sample.

I obtain 82 whistleblowing allegations over the period 2004-2014. Together with the 81 whistleblowing allegations between 1989 and 2003 used in the Bowen et al. (2010) study and provided to me by Dr. Andy Call, I have a total of 163 media-reported whistleblowing allegations reported from 1989-2014. As described earlier, I then construct a sample of industry peer firms as follows: A firm is included as an industry peer if it has the same four-digit SIC code as one of the 163 firms subject to a whistleblowing allegation. Additionally, firms are considered as peers if

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[3] I have recently obtained an additional sample of whistleblowing allegations through a Freedom of Information Act (FOIA) request with OSHA. I will incorporate allegations from OSHA in future drafts of the paper.

they have December fiscal year-ends. Target firms have a median of 28 peer firms using this process.

Further, I construct a sample of control firms to serve as a benchmark to the industry peer firms. To construct the sample of control firms, I employ the procedure for industry, size, and performance-matching described in Barber and Lyon (1996). Control firms are obtained by matching on industry group, total assets and lagged performance of the peer firms already obtained. A firm is included as a control firm for a peer firm if it has the same three-digit SIC code as the peer firm, has total assets that range between 70% and 130% of that of the peer firm, and has a lagged ROA that ranges between 90% and 110% of that of the peer firm.

Accounting information is obtained from Compustat, while stock price information is obtained from CRSP, including CRSP Stock Market Index data. GDP information is obtained from the FRED website of the Federal Reserve Bank of St. Louis. Stock return volatility is calculated on an annual basis, using the natural log of daily stock returns, which are obtained from CRSP. All variables are winsorized at the 1st and 99th percentiles.

In order to better understand the types of peer firms which react to the whistleblowing allegations, I also analyze subsamples of the data. Subsamples are created based on the degree of financial constraint, size, and industry concentration. Financial constraints are measured using dividend payout ratio, size is measured using annual sales, and industry concentration is measured using the Herfindahl Index (HHI). The subsamples are created following the methods described in Almeida et al. (2004) and Faulkender and Wang (2006).

Each year peer firm observations are sorted based on the above-mentioned variables and ranked into deciles. All firm year observations in the top three deciles of the ranked variable are

assigned to the high group, while all firm year observations in the bottom three deciles are assigned to the low group. In a similar manner, peer firms are grouped into large and small size groups.

3.2 Summary Statistics

Table 1 presents the summary statistics of the relevant firm characteristics for target firms of whistleblowing allegations (Panel A), their industry peers (Panel B), and the control firms for the peers (Panel C). The mean values of the summary statistics of peer firms and their control firms are quite similar, as would be expected from the process of selecting control firms which are industry, size, and performance-matched with the peer firms. Firms subject to media-reported whistleblowing allegations are much larger than their industry peers, with a mean size (measured as the natural logarithm of total assets) of 9.65 compared to a mean size of 5.76 for the peer firms. The control firms, on the other hand, have a mean size value of 4.73. The size results are consistent with past literature which describe large firms as being more likely to be the targets of whistleblowing allegations.

In addition, whistleblowing firms have debt ratios that are more than twice as high as those of industry peers. The mean debt ratio for the whistleblowing firms is 0.26 while that of the peer firms is 0.14. Control firms, meanwhile, have a mean debt ratio of 0.09. The mean market-to-book ratio for whistleblowing target firms is also much higher than that of both the peer firms and their selected controls. The whistleblowing target firms have a mean market-to-book ratio of 3.25, while the peer firms have a market-to-book ratio of 2.10. The control firms have a market-to-book ratio of 2.88, which is higher than that of the peer firms.

The higher debt ratio and much higher market-to-book ratio for the whistleblowing target firms describe firms that are much riskier than their industry counterparts. The high market-to-

book ratio for the whistleblowing target firms is also in agreement with extant literature such as

Bowen et al. (2010) and Baucus and Near (1991) who describe that high growth firms are more

likely to outgrow their controls and thus are more likely to be targets of whistleblowing.

Examining cash holdings shows that the mean cash to assets ratio for whistleblowing target

firms is 0.07, while that of the peer firms is also 0.07. On the other hand, the mean cash to assets

ratio of the control firms is much higher at 0.176. Finally, analysis of the summary statistics for

CAPEX shows that whistleblowing target firms have a mean CAPEX value that is much larger

than that of their industry peers. The mean CAPEX for whistleblowing target firms is 0.042, while

the peer firms have a mean CAPEX of 0.024. The control firms, on the other hand, have a mean

CAPEX value of 0.046 which is higher than that of both the target firms and the peer firms.

Essay 1 Table 1: Summary Statistics
This table presents the summary statistics of the whistleblowing target firms, their industry peer firms, as well as the control firms for the peers. All variables are winsorized at the 1% and 99% levels.

Panel A: Target Firms	N	Mean	Std. Dev	Median	Q1	Q3
Debt Ratio	440	0.257	0.188	0.228	0.131	0.328
Cash Ratio	426	0.070	0.093	0.039	0.018	0.077
CAPEX to Assets	421	0.042	0.043	0.030	0.010	0.058
S.D. of Return	435	0.024	0.014	0.019	0.014	0.028
Net Debt Issue	419	0.012	0.061	0.000	-0.014	0.024
Net Equity Issue	413	-0.023	0.051	-0.004	-0.035	0.001
Size	440	9.645	1.877	9.915	8.656	11.137
Market to Book	427	3.246	3.229	2.276	1.395	3.664
Tangibility	421	0.229	0.223	0.157	0.055	0.330
Tobin's Q	440	1.923	1.158	1.571	1.093	2.183
EBIT to Assets	439	0.100	0.074	0.093	0.031	0.150
ROA	440	0.053	0.070	0.047	0.010	0.092
Market Share	440	0.340	0.311	0.222	0.092	0.512
Panel B: Peer Firms						
Debt Ratio	35347	0.142	0.126	0.114	0.052	0.199
Cash Ratio	35248	0.070	0.120	0.027	0.017	0.054
CAPEX to Assets	28858	0.024	0.051	0.003	0.001	0.021
S.D. of Return	35208	0.030	0.018	0.024	0.017	0.038
Net Debt Issue	26375	0.009	0.074	0.000	-0.013	0.012

Net Equity Issue	26972	0.011	0.096	0.000	-0.002	0.003
Size	35364	5.763	2.019	5.493	4.311	6.926
Market to Book	35043	2.102	2.061	1.556	1.059	2.309
Tangibility	35138	0.090	0.180	0.019	0.012	0.046
Tobin's Q	35347	1.469	1.166	1.065	1.008	1.219
EBIT to Assets	33609	0.026	0.122	0.022	0.015	0.037
ROA	35347	0.005	0.120	0.010	0.006	0.017
Market Share	35360	0.016	0.056	0.000	0.000	0.003
Panel C:						
Control Firms						
Debt Ratio	8607	0.087	0.117	0.037	0.001	0.125
Cash Ratio	8601	0.176	0.216	0.058	0.017	0.288
CAPEX to Assets	4875	0.046	0.052	0.028	0.012	0.060
S.D. of Return	8592	0.043	0.025	0.036	0.025	0.056
Net Debt Issue	3768	0.010	0.088	0.000	-0.009	0.000
Net Equity Issue	3335	0.097	0.254	0.008	-0.002	0.051
Size	8607	4.725	1.579	4.456	3.634	5.603
Market to Book	8505	2.880	3.259	1.352	0.968	3.443
Tangibility	8607	0.066	0.093	0.024	0.010	0.088
Tobin's Q	8607	2.214	2.025	1.054	0.997	2.717
EBIT to Assets	5852	-0.118	0.313	0.016	-0.248	0.076
ROA	8607	-0.100	0.281	0.008	-0.090	0.017
Market Share	8607	0.023	0.071	0.006	0.001	0.013

Table 2 presents the correlation coefficient matrix of relevant firm-level variables. The correlation coefficient matrix serves as an elementary check for collinearity among the main regressors used in the DiD regressions. The only variables that have absolute values of correlation greater than 0.5 are variables that are not included simultaneously as regressors in the analyses. Thus, collinearity does not present itself as an issue in any of the analyses. Bold values in the table indicate a significance level of 1%.

Essay 1 Table 2: Correlation Matrix

This table presents the correlation coefficient matrix of the relevant variables used in the analyses.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Debt Ratio	1.00												
(2) Cash Ratio	**-0.19**	1.00											
(3) CAPEX	**0.22**	**0.13**	1.00										
(4) S.D. of Ret.	**-0.07**	**0.39**	**0.16**	1.00									
(5) Net Debt	**0.31**	**0.02**	**0.17**	**-0.04**	1.00								
(6) Net Equity	**-0.05**	**0.33**	**0.07**	**0.18**	**0.04**	1.00							
(7) Size	**0.23**	**-0.45**	**-0.23**	**-0.42**	-0.01	**-0.23**	1.00						
(8) Mkt to Bk	**0.01**	**0.42**	**0.20**	**0.13**	**0.11**	**0.24**	**-0.21**	1.00					
(9) Tangibility	**0.37**	**0.05**	**0.80**	**0.08**	**0.12**	0.01	**-0.10**	**0.14**	1.00				
(10) Tobin's Q	**-0.09**	**0.50**	**0.23**	**0.21**	**0.05**	**0.29**	**-0.31**	**0.89**	**0.16**	1.00			
(11) EBIT	**0.06**	**-0.37**	**-0.02**	**-0.41**	-0.01	**-0.35**	**0.30**	**-0.07**	**0.07**	**-0.09**	1.00		
(12) GDP Gr.	**0.02**	**0.00**	**0.17**	**-0.25**	**0.09**	**0.02**	**-0.11**	**0.13**	**0.07**	**0.07**	**0.045**	1.00	
(13) Index Gr.	**-0.04**	**-0.04**	**0.02**	**-0.23**	-0.01	**0.06**	**-0.01**	**0.08**	-0.01	**0.05**	**0.09**	**0.15**	1.00

Bold values indicate a significance level of 1%.

3.3 Methodology

Bowen et al. (2010) show that firm characteristics are significant predictors of whistleblowing, while Wilde (2017) argues that whistleblowing events cannot be considered as random events. This non-randomness results in needing to take measures to avoid the potential endogeneity problems that arise due to the possible effects of correlated omitted variables. Dey (2010) further points out that isolating the effect of an event such as SOX is one of the biggest identification challenges faced by researchers. To address the identification issues in this study, I employ a difference-in-difference (DiD) design (Wilde, 2017). For this procedure, accounting information is collected over a seven-year period around the allegation, i.e. three years before to three years following the allegation. Firm-year observations of the peers and the control firms from 1986 to 2017 are pooled in my DiD setting.

The DiD procedure requires a regression with two indicator variables and an interaction term between them as independent variables, plus the control variables. I argue that a whistleblowing allegation against one firm is an external shock to other firms in the same industry. Therefore, I use an indicator variable, *After*, to indicate before and after the shock. To isolate the effect of the shock on industry peers, I use another indicator variable, *Peer*. *After* equals one if a firm-year observation is post the shock, and zero otherwise. *Peer* equals one if a firm-year observation belongs to an industry peer, and zero if it belongs to a control firm.

The dependent variables are various risk-taking measures. Following Bates et al. (2009), Bargeron et al. (2010), Dessaint and Matray (2017), Gao et al. (2013), and Bernile et al. (2017), I examine changes in Debt Ratios (Debt_Ratio and Debt to Equity), cash-holdings (Cash_Ratio), capital expenditures to assets ratio (CAPEX), and stock return volatility (SD_LNRET). For stock return volatility, I use the annualized standard deviation of daily stock returns. Regression controls

are obtained from prior studies, namely, Bates et al. (2009), Bernile et al. (2017) and Bargeron et al. (2010). Finally, Bertrand, Duflo, and Mullainathan (2004) describe that the standard errors obtained in a DiD setting often severely underestimate the standard deviation of the estimators. This makes the standard errors biased downward. Thus, in order to account for this downward bias, they suggest clustering standard errors at the group level. Thus, all regressions present results with standard errors clustered by firm. Complete variable definitions are included in Appendix A.

I use the following DiD model to examine changes in leverage for firms and net debt and equity issues:

$Debt\ to\ Equity\ (Debt\_Ratio) = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3\ Peer*After + \beta_4 Size + \beta_5\ M2B + \beta_6 ROA + \beta_7 Tangibility + \beta_8 NDTS + \beta_9 Tax + \beta_{10} D\_dummy + \varepsilon$ $\qquad(1)$

$Net\ Debt\ (Equity)\ Issues = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3 Peer*After + \beta_4 Debt\_Ratio + \beta_s Profit\_Changes + \beta_6 Tangibility\_Lagged\_Assets + \beta_7 TobinQ + \varepsilon$ $\qquad(2)$

The variable of my interest is the interaction term, *Peer*After*. If my hypothesis holds, I should observe a negative and significant β_3 in both specifications of (1) and in the Net Debt Issues specification of (2). That is, peer firms significantly reduce their leverage relative to a control group following a whistleblowing allegation in the same industry.

Further, I use the following two DiD models for cash holdings analysis, i.e. Equation (3) uses controls described in Bates et al. (2009), while Equation (4) uses controls described in Bargeron et al. (2010):

$Cash\_Ratio = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3\ Peer*After + \beta_4 Size + \beta_5\ M2B + \beta_6 CF + \beta_7 NWC\_nonCash + \beta_8 CAPEX + \beta_9 Debt\_ratio + \beta_{10} D\_dummy + \beta_{11} R\&D + \beta_{12} Acquisition + \varepsilon$ $\qquad(3)$

$Cash\_Ratio = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3 Peer*After + \beta_4 EBIT + \beta_5 GDP + \beta_6 Index + \beta_7 M2B + \varepsilon$ $\qquad(4)$

The variable of interest is the interaction term, *Peer*After*. If my hypothesis holds, I should observe a negative and significant β_3 for the cash holdings regressions. That is, peer firms pay off their debt using cash and thus significantly reduce their cash holdings relative to a control group following a whistleblowing allegation in the same industry.

The DiD regression models for CAPEX and stock return volatility employ the same control variables as Bargeron et al. (2010):

$$CAPEX = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3 Peer*After + \beta_4 EBIT + \beta_5 GDP + \beta_6 Index + \beta_7 M2B + \varepsilon \tag{5}$$

$$SD\_LNRET = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3 Peer*After + \beta_4 EBIT + \beta_5 GDP + \beta_6 Index + \beta_7 M2B + \varepsilon \tag{6}$$

As I hypothesize that post-whistleblowing allegation, peer firms decrease their capital investment and exhibit reduced stock return volatility, I expect a negative and significant β_3 in Equations (5) and (6).

The DiD regression models for market share employ the same control variables as Bargeron et al. (2010) in addition to controls for each industry's Herfindahl Index (HHI) and the number of firms within a peer firm's industry:

$$Market\ Share = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3 Peer*After + \beta_4 Size + \beta_5 M2B + \beta_6 EBIT + \beta_7 HHI + \beta_8 FirmNum + \beta_8 GDP + \beta_8 Index + \varepsilon \tag{7}$$

As I hypothesize that post-whistleblowing allegation, peer firms increase market share, I expect a positive and significant β_3 in Equation (7).

4. RESULTS

This section presents the results of the various tests conducted examining the spillover effects of whistleblowing on industry peer firms.

4.1 Spillover Effect Observed from the Stock Market

The stock market performance of peer firms around the whistleblowing allegation can serve as a credible signal of the spillover effect of whistleblowing. To this end, I conduct an event study to examine peer firms' stock market performance over various windows. In Table 3, I examine the stock returns over three, five, and seven-day windows. As in Bowen et al. (2010), all windows begin one day before the event, with the event day being day 0. Thus, the event windows examined are [-1,1], [-1,3], and [-1,5]. I choose the Fama-French Three factor model with Momentum term included to model the returns.

The results describe a significantly negative reaction of peer firms' stock returns around the whistleblowing allegation. For the [-1,1] event window, the mean cumulative abnormal return (CAR) observed is -0.32% (t = -3.78). Similarly, over the [-1,3] window the mean CAR for peer firms is -0.35% (t = -3.22), while across the [-1,5] window, peer firms have a mean CAR of -0.35% (t = -2.73). The stock price reactions of peer firms across every event window point to a significant negative spillover effect of whistleblowing allegations on industry peers.

Essay 1 Table 3: Cumulative Abnormal Returns (CAR)
This table presents the mean cumulative abnormal returns (CAR) experienced by industry peers of whistleblowing target firms in the days surrounding the allegation. All event windows begin one day before the event and end at 1, 3, and 5 days after the event. The event day is considered day 0. The Fama-French three factor model with momentum factor is used to examine the return behavior. ***, ** and * represent significance levels at the 1%, 5% and 10%, respectively.

Event Window	Mean CAR	T-statistic
[-1,1]	-0.0032	-3.78***
[-1,3]	-0.0035	-3.22***
[-1,5]	-0.0035	-2.73***

4.2 Full Sample Analyses

This subsection presents results from the analyses conducted on the entire peer-control firm sample. Here, I analyze peer firm risk-taking by examining changes in peer firm leverage, cash holdings, capital expenditures, and stock return volatility following the whistleblowing allegation.

Table 4 presents the difference-in-difference regression results of firm leverage and net security issues. Columns 1 and 2 examine changes in leverage measured as the Debt to Equity ratio and Debt to Assets ratio respectively. Column 3 presents results for changes in Net Debt Issues while Column 4 presents results for Net Equity Issues.

The coefficient of the interaction term between Peer and After in Column 1, which measures leverage as the debt to equity ratio, is -0.463. This result is significant at the 1% significance level. Column 2, which measures changes in the debt to assets ratio, presents a significantly negative coefficient of -0.033 for the interaction term. This result is also significant at the 1% level. Thus, peer firms appear to reduce their leverage following the whistleblowing allegation. Columns 3 and 4 examine the channel through which leverage is reduced. Paying off debt and issuing equity are two ways through which firms could reduce their leverage ratios. Columns 3 and 4 show that firms do so using the debt payoff channel. Column 3 obtains a significant negative coefficient for the interaction term of -0.007. This result is significant at the 10% significance level. Column 4, on the other hand, obtains an insigiciant coefficient for the interaction term. Thus, peer firms appear to reduce their leverage following a whistleblowing allegation and do so by paying off their existing debt.

Essay 1 Table 4: Capital Structure

This table presents the difference-in-difference design regression results of peer firms' capital structure related variables (dependent variable, DV). Column 1 examines changes in firms' Debt to Equity Ratio. Column 2 examines changes to a peer's Debt to Assets Ratio. Columns 3 and 4 examine peers' Net Debt Issues and Net Equity Issues following a whistleblowing allegation respectively. Standard errors clustered by firm are in parenthesis. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

DV	(1) Debt to Equity	(2) Debt to Assets	(3) Net Debt Issues	(4) Net Equity Issues
Peer	0.443***	0.041***	0.002	-0.003
	(0.081)	(0.010)	(0.004)	(0.013)
After	0.358***	0.022**	0.007*	0.007
	(0.112)	(0.010)	(0.004)	(0.016)
Peer*After	-0.463***	-0.033***	-0.007*	-0.009
	(0.113)	(0.010)	(0.004)	(0.016)
Size	0.217***	0.022***		
	(0.018)	(0.002)		
Market to Book	-0.010	0.002**		
	(0.010)	(0.001)		
ROA	-0.888***	-0.073***		
	(0.156)	(0.015)		
Tangibility	0.327**	0.308***		
	(0.151)	(0.018)		
NDTS	-5.240***	-0.097		
	(1.326)	(0.117)		
Tax	-0.001***	-0.000***		
	(0.000)	(0.000)		
Dividend Dummy	0.241***	0.001		
	(0.066)	(0.006)		
Debt Ratio			0.162***	-0.059***
			(0.011)	(0.016)
Profit Changes			-0.007	-0.399***
			(0.008)	(0.033)
Tangibility to Lagged Assets			0.025***	0.131***
			(0.006)	(0.011)
Tobin's Q			0.003***	0.030***
			(0.001)	(0.003)
Constant	-0.746***	-0.080***	-0.025***	-0.012
	(0.143)	(0.013)	(0.004)	(0.014)
Obs.	33676	33676	25501	25610
R-squared	0.147	0.235	0.106	0.285
Adj. R-square	0.147	0.235	0.106	0.285

Table 5 then examines cash holdings for peer firms surrounding the whistleblowing event. While Bates et al. (2009) argue that firms hold extra cash for precautionary measures, Gao et al. (2013) argue that firms hold excessive cash and use this excess cash to pay off debt to address issues associated with agency costs of debt and free cash flow (Jensen and Meckling, 1976; Jensen, 1986). I hypothesize that peer firms seek to appear more efficient and streamlined following a whistleblowing allegation, and thus choose to use their cash to pay off their debt. The first three columns examine changes in cash ratios following Bates et al. (2009) while the fourth column examines changes in cash following Baregeron et al. (2010). Columns 1 and 4 use the cash to assets ratio as the dependent variables. Column 2 uses cash to net assets (where net assets is measured as book assets minus cash), and Column 3 uses the natural log of cash to net assets as the dependent variable. Bates et al. (2009) describe that the cash to net assets ratio generates extreme outliers for firms who have a majority of their assets in cash. Thus, taking the natural log of that variable mitigates the issues presented by the extreme outliers. The results consistently show that after controlling for various determinants of a firm's cash ratio, and after measuring cash ratios in different ways, peer firms' cash ratios decrease significantly following the whistleblowing allegation.

Column 1 presents a significant negative coefficient of -0.047 for the interaction term between Peer and After, while Column 2 describes a significant negative coefficient of -0.128 for the interaction term. The result in Column 1 is significant at the 5% level while the result in Column 2 is significant at the 10% level. However, this drop in significance when using cash to net assets as the dependent variable could be due to the extreme outliers generated for firms who have most of their assets in cash. Column 3, addresses this issue by taking the natural log of cash to net assets, and obtains a significant coefficient of -0.465. This result is significant at the 1%

significance level. Column 4 obtains an insignificant coefficient when examining changes in the

cash ratio following Bargeron et al. (2010).

Essay 1 Table 5: Cash Holdings
This table presents the difference-in-difference design regression results of cash holdings (dependent variable, DV) for peer firms. Columns 1 and 4 examine changes in Cash to Assets. Column 2 examines changes in Cash to Net Assets. Column 3 examines changes to the natural logarithm of Cash to Net Assets. Standard errors clustered by firm are in parenthesis. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

DV	(1) Cash to Assets	(2) Cash Net Assets	(3) Log Cash Net Assets	(4) Cash to Assets
Peer	0.013	0.067	0.111	-0.072***
	(0.018)	(0.048)	(0.152)	(0.017)
After	0.047**	0.151**	0.520***	0.032
	(0.019)	(0.063)	(0.151)	(0.020)
Peer*After	-0.047**	-0.128*	-0.465***	-0.027
	(0.019)	(0.066)	(0.157)	(0.020)
Size	-0.011***	-0.021***	-0.065***	
	(0.002)	(0.005)	(0.023)	
Cash Flow	-0.154***	-0.663***	-0.864***	
	(0.028)	(0.126)	(0.164)	
NWC Net Cash	-0.000***	-0.000***	0.000	
	(0.000)	(0.000)	(0.000)	
CAPEX	-0.434***	-1.178***	-5.675***	
	(0.050)	(0.159)	(0.549)	
Debt Ratio	-0.275***	-0.627***	-3.298***	
	(0.024)	(0.073)	(0.229)	
Dividend Dummy	-0.026***	-0.068***	-0.367***	
	(0.010)	(0.024)	(0.113)	
R&D to Sales	0.013	0.058	0.109**	
	(0.010)	(0.048)	(0.047)	
Acquisition to Assets	-0.259***	-0.751***	-1.634***	
	(0.039)	(0.119)	(0.409)	
Market to Book	0.009***	0.020***	0.099***	0.022***
	(0.002)	(0.005)	(0.013)	(0.001)
EBIT to Assets				-0.215***
				(0.029)
GDP Growth				-0.452***
				(0.072)
Index Growth				-0.021***
				(0.006)
Constant	0.139***	0.521***	-1.373***	0.119***
	(0.030)	(0.056)	(0.187)	(0.018)
Obs.	9715	9715	9684	32157
R-squared	0.420	0.313	0.424	0.328
Adj. R-Square	0.417	0.312	0.424	0.328

Table 6 presents the difference-in-difference regression results of the firm's investments and volatility of stock returns following the methodology used by Bargeron et al. (2010). Column 1 examines changes in capital expenditure to total assets while Column 2 examines the volatility of stock returns. Both columns exhibit significant negative coefficients for the interaction term. Column 1 obtains a significant negative coefficient for the interaction term between Peer and After of -0.009 (significant at the 5% significance level), while Column 2 obtains a significant negative coefficient of -0.004 (significant at the 10% significance level). Thus, peer firms appear to reduce their capital expenditures and exhibit a lower volatility of stock returns following a whistleblowing allegation.

Table 7 presents the DiD regression results of the peer firms' profitability ratios following the whistleblowing allegation. I argue that managers overreact to the saliency of risk by reducing their risk-taking but at the same time seek to appear more efficient with expectations of a higher profitability. ROA can also be considered as a measure of the efficiency of use of the firm's assets. A higher ROA for the peer firms following the whistleblowing allegation will signify a more efficient usage of the firm's assets as well as the profitability of the firm. In addition to ROA, Table 7 also examines ROE, ROI and ROS. Column 1 presents the results when using ROA as the dependent variable. Column 2 uses ROE as the dependent variable. Columns 3 and 4 examine ROI and ROS respectively. Controls used in Bowen et al. (2010) are used in these analyses.

All four columns obtain significantly positive coefficients for the interaction term signifying that peer firms have increased profitability measures following the whistleblowing allegation. Column 1, which examines changes to ROA following the whistleblowing allegation, describes a significant positive coefficient of 0.122. Column 2, examining changes to ROE, exhibits a significant positive coefficient of 0.102. Columns 3 and 4, which examine changes to

ROI and ROS respectively, exhibit significant positive coefficients of 0.126 and 0.331 respectively. All results are significant at the 1% significance level.

Essay 1 Table 6: CAPEX and Volatility of Returns
This table presents the difference-in-difference design regression results of capital expenditures (CAPEX) and volatility of returns (dependent variables, DV) for peer firms. Column 1 examines changes in CAPEX to Assets. Column 2 examines changes in the volatility of daily stock returns. Standard errors clustered by firm are in parenthesis. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

DV	(1) CAPEX to Assets	(2) Volatility of Returns
Peer	-0.007*	-0.010***
	(0.004)	(0.002)
After	0.009**	0.003*
	(0.004)	(0.002)
Peer*After	-0.009**	-0.004*
	(0.004)	(0.002)
EBIT to Assets	0.029***	-0.031***
	(0.006)	(0.002)
GDP Growth	0.234***	-0.239***
	(0.020)	(0.010)
Index Growth	-0.001	-0.016***
	(0.002)	(0.001)
Market to Book	0.003***	0.001***
	(0.000)	(0.000)
Debt Ratio		0.002***
		(0.000)
Constant	0.013***	0.046***
	(0.004)	(0.002)
Obs.	26944	32155
R-squared	0.071	0.331
Adj. R-Square	0.071	0.331

Essay 1 Table 7: Profitability Ratios

This table presents the difference-in-difference design regression results of return on assets (ROA), return on equity (ROE), return on investment (ROI), and return on sales (ROS) (dependent variables, DV) for peer firms. Column 1 examines changes in ROA. Column 2 examines changes in ROE. Column 3 examines changes in ROI. Column 4 examines changes in ROS. Standard errors clustered by firm are in parenthesis. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

DV	(1) ROA	(2) ROE	(3) ROI	(4) ROS
Peer	-0.053***	-0.037	-0.044**	-0.121***
	(0.012)	(0.024)	(0.019)	(0.037)
After	-0.152***	-0.215***	-0.196***	-0.491***
	(0.020)	(0.039)	(0.032)	(0.091)
Peer*After	0.122***	0.102***	0.126***	0.331***
	(0.020)	(0.038)	(0.031)	(0.089)
Size	0.018***	0.045***	0.034***	0.084***
	(0.002)	(0.004)	(0.003)	(0.009)
Market to Book	-0.003	-0.015***	-0.009***	-0.039***
	(0.002)	(0.004)	(0.003)	(0.008)
Constant	-0.046***	-0.154***	-0.109***	-0.289***
	(0.017)	(0.035)	(0.027)	(0.071)
Obs.	35437	35437	35430	35157
R-squared	0.129	0.126	0.134	0.100
Adj. R-square	0.129	0.125	0.134	0.100

Table 8 presents results of the changes to market share following a whistleblowing allegation. Column 1 presents results of the baseline regression. Column 2 adds in controls for industry HHI and the number of firms within the industry. Column 3 adds further controls for GDP Growth and Index Growth as in Bargeron et al. (2010). The results show that peers significantly increase market share following a whistleblowing allegation within the industry.

Column 1 presents a significant positive coefficient of 0.053 for the interaction term between Peer and After. Column 2 exhibits a significant interaction term of 0.033 following the whistleblowing allegation while Column 3 describes a significant positive interaction term of 0.034. All three results are significant at the 5% significance level.

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Essay 1 Table 8: Market Share Changes

This table presents the difference-in-difference design regression results of Market Share based on a different set of controls. Column 1 examines changes in market share given a baseline set of controls. Column 2 examines the effect when the Herfindahl Index and Number of Firms in the industry are included. Column 3 examines the changes to market share when GDP growth and index growth are included as controls. Standard errors clustered by firm are in parenthesis. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

DV	(1) Market Share	(2) Market Share	(3) Market Share
Peer	-0.076***	-0.033*	-0.033*
	(0.028)	(0.019)	(0.018)
After	-0.052**	-0.040**	-0.040**
	(0.025)	(0.016)	(0.016)
Peer*After	0.053**	0.033**	0.034**
	(0.025)	(0.016)	(0.015)
Size	0.010***	0.013***	0.013***
	(0.001)	(0.001)	(0.001)
Market to Book	0.003***	0.001***	0.001**
	(0.001)	(0.000)	(0.000)
EBIT to Assets	0.042***	0.018***	0.016**
	(0.007)	(0.006)	(0.006)
HHI		0.133***	0.136***
		(0.030)	(0.030)
Number of Firms		-0.000***	-0.000***
		(0.000)	(0.000)
GDP Growth			0.219***
			(0.036)
Index Growth			-0.006***
			(0.002)
Constant	0.013	-0.030**	-0.041***
	(0.025)	(0.012)	(0.012)
Obs.	32247	32247	32247
R-squared	0.148	0.341	0.347
Adj. R-square	0.147	0.341	0.346

4.3 Subsample Analyses

While results from the full sample analyses present a convincing picture of peer firms reducing their risk-taking behavior following a whistleblowing allegation on a target firm, it is also meaningful to examine what types of peer firms are impacted most by these allegations. To this

end, I also perform various subsample analyses to examine how different types of peer firms respond to the whistleblowing allegations.

I create three main partitions of the full sample for the subsample analyses. The three partitions include a partition created based on the degree of financial constraint of firms, a partition based on firm size and one based on the industry concentration of firms. Peer firms' financial constraints are measured using dividend payout ratio. Firms with high payout ratios are less financially constrained than those with low payout ratios (Almeida et al., 2004; Faulkender and Wang, 2006).

Tables 9, 10, and 11 present the results of the various subsample analyses carried out. I conjecture that while constrained firms must be more vigilant in the face of possible adversity, financially unconstrained firms will be better able to address the adversity faced. Thus, high payout ratio firms will be better able to make changes to their risk-taking behavior in the face of adversity due to their financial freedom.

Table 9 presents results for the various risk-taking measures for the financially constrained and unconstrained peer firms measured using payout ratio. Odd numbered columns present results for low payout firms, while even numbered columns present results for high payout firms. Consistent with the Gao et al. (2013) argument that firms hold excessive amounts of cash, high payout firms appear to significantly reduce their cash holdings following a whistleblowing allegation. This could be in the form of increased payouts to shareholders since they do not appear to use the cash to reduce leverage. As they are unconstrained, they may not foresee any future issues related to their debtholders or debt covenants. High payout firms also appear to significantly reduce capital expenditures following the whistleblowing allegation. These payouts and reduction in excessive expenditures may serve as positive signals to the market leading to better estimation

of their underlying valuations. Thus, stock return volatility will reduce, an outcome that can be

observed in Column 8.

Essay 1 Table 9: Financial Constraints and Peer Firm Risk-Taking

This table presents subsample results based on annually ranked payout ratios. Payout ratio is measured as total dividends (total common dividends plus repurchases) over earnings following Faulkender and Wang (2006). Firms in the top (bottom) three deciles of annual payout ratios are assigned to the unconstrained (constrained) groups for each year. All odd numbered columns contain results for the constrained firms (low payout) and all even numbered columns contain results for the unconstrained firms (high payout). The outcome variables (dependent variable, DV) are measures of peer firms' capital structures, cash holdings, capital expenditures, and volatility of returns. Columns 1 and 2 examine changes in the Debt to Equity ratio. Columns 3 and 4 examines changes in Cash to Assets ratio. Columns 5 and 6 examine changes in CAPEX to Assets ratio. Columns 6 and 7 examine changes in volatility of the natural logarithm of daily stock returns. Standard errors clustered by firm are in parenthesis. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

DV	(1) Low Payout Debt to Equity	(2) High Payout Debt to Equity	(3) Low Payout Cash to Assets	(4) High Payout Cash to Assets	(5) Low Payout CAPEX to Assets	(6) High Payout CAPEX to Assets	(7) Low Payout Return Volatility	(8) High Payout Return Volatility
Peer	0.693***	0.513***	-0.087***	-0.064***	-0.001	-0.009	-0.008***	-0.009***
	(0.140)	(0.094)	(0.021)	(0.023)	(0.007)	(0.006)	(0.002)	(0.002)
After	-0.422***	-0.058	0.037	0.095***	0.009	0.012*	-0.009***	0.005*
	(0.158)	(0.116)	(0.024)	(0.022)	(0.007)	(0.006)	(0.002)	(0.003)
Peer*After	0.193	0.075	-0.034	-0.089***	-0.004	-0.013**	0.007***	-0.006**
	(0.144)	(0.125)	(0.025)	(0.022)	(0.007)	(0.006)	(0.002)	(0.003)
Size	-0.006	-0.005						
	(0.032)	(0.027)						
ROA	-0.151	-1.334***						
	(0.222)	(0.286)						
Tangibility	-0.423**	-0.494***						
	(0.212)	(0.175)						
Div. Dummy	0.522***	0.559***						
	(0.119)	(0.065)						
Mkt. to Book	-0.007	-0.026*	0.018***	0.016***	0.005***	0.003***	0.001***	0.002***
	(0.025)	(0.014)	(0.003)	(0.002)	(0.001)	(0.001)	(0.000)	(0.000)
EBIT			-0.276***	0.016	0.025***	0.079***	-0.022***	-0.034***
			(0.048)	(0.052)	(0.008)	(0.017)	(0.002)	(0.005)
GDP Growth			-0.145	-0.306***	0.207***	0.200***	-0.388***	-0.224***
			(0.108)	(0.080)	(0.047)	(0.024)	(0.019)	(0.012)
Index Growth			-0.017**	-0.006	-0.013***	0.003	-0.021***	-0.021***
			(0.008)	(0.008)	(0.004)	(0.002)	(0.002)	(0.001)
Debt Ratio							0.002***	0.003***
							(0.000)	(0.000)
Constant	-0.682***	0.214	0.122***	0.098***	0.003	0.012**	0.053***	0.040***
	(0.250)	(0.298)	(0.022)	(0.023)	(0.007)	(0.006)	(0.002)	(0.002)
Obs.	5453	10460	5362	10384	5194	9772	5349	10446
R-squared	0.133	0.171	0.387	0.231	0.053	0.123	0.396	0.369
Adj. R-square	0.127	0.169	0.386	0.230	0.052	0.122	0.395	0.369

Table 10 presents the results for the size groups created using the procedures described above. All odd numbered columns present results for small firms while even numbered columns present results for large firms. The results do not show any significant differences between small and large firms, other than large firms exhibiting increased volatility of returns following the whistleblowing allegation.

Essay 1 Table 10: Firm Size and Peer Firm Risk-Taking
This table presents subsample results based on annually ranked firm size. Firm size is measured using sales, following Faulkender and Wang (2006). Firms in the top (bottom) three deciles of annual sales are assigned to the large firm (small firm) groups for each year. All odd numbered columns contain results for small firms and all even numbered columns contain results for large firms. The outcome variables (dependent variable, DV) are measures of peer firms' capital structures, cash holdings, capital expenditures, and volatility of returns. Columns 1 and 2 examine changes in the Debt to Equity ratio. Columns 3 and 4 examines changes in Cash to Assets ratio. Columns 5 and 6 examine changes in CAPEX to Assets ratio. Columns 6 and 7 examine changes in volatility of the natural logarithm of daily stock returns. Standard errors clustered by firm are in parenthesis. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

DV	(1) Small Firms Debt to Equity	(2) Large Firms Debt to Equity	(3) Small Firms Cash to Assets	(4) Large Firms Cash to Assets	(5) Small Firms CAPEX to Assets	(6) Large Firms CAPEX to Assets	(7) Small Firms Return Volatility	(8) Large Firms Return Volatility
Peer	0.315**	0.763***	-0.018	-0.064***	0.007	0.015***	-0.002	-0.008***
	(0.146)	(0.102)	(0.081)	(0.020)	(0.011)	(0.006)	(0.005)	(0.002)
After	-0.005	0.340*	0.031	0.022	0.004	0.001	0.004	-0.006***
	(0.135)	(0.174)	(0.054)	(0.017)	(0.018)	(0.005)	(0.007)	(0.002)
Peer*After	0.159	-0.247	-0.032	-0.020	-0.004	-0.008	-0.004	0.005***
	(0.138)	(0.179)	(0.054)	(0.017)	(0.018)	(0.005)	(0.007)	(0.002)
Size	-0.152***	-0.047						
	(0.057)	(0.043)						
ROA	-0.350	-3.620***						
	(0.262)	(0.667)						
Tangibility	-0.524***	-0.684***						
	(0.189)	(0.182)						
Div. Dummy	0.169	0.547***						
	(0.106)	(0.091)						
Mkt. to Book	-0.078***	0.031	0.026***	0.015***	0.006***	0.000	0.002***	0.001***
	(0.018)	(0.028)	(0.004)	(0.002)	(0.001)	(0.001)	(0.000)	(0.000)
EBIT			-0.192***	0.054	0.059**	0.204***	-0.015**	-0.019***
			(0.073)	(0.078)	(0.025)	(0.038)	(0.006)	(0.005)
GDP Growth			-0.408**	-0.501***	0.320***	0.411***	-0.277***	-0.218***
			(0.175)	(0.071)	(0.109)	(0.057)	(0.030)	(0.015)
Index Growth			-0.033**	-0.019***	0.020	0.032***	-0.004*	-0.017***
			(0.013)	(0.006)	(0.013)	(0.008)	(0.002)	(0.001)
Debt Ratio							0.003***	0.003***

							(0.000)	(0.000)
Constant	1.568***	0.189	0.063	0.105***	-0.006	-0.004	0.041***	0.039***
	(0.364)	(0.227)	(0.080)	(0.020)	(0.012)	(0.006)	(0.006)	(0.003)
Obs.	5624	12218	5319	11924	4369	10445	5246	11993
R-squared	0.142	0.161	0.239	0.228	0.060	0.112	0.210	0.289
Adj. R-square	0.136	0.159	0.238	0.227	0.059	0.112	0.209	0.288

Finally, Table 11 presents results for the groups created based on industry concentration. Odd numbered columns present results for firms in competitive industries while even numbered columns present results for firms in concentrated industries. Results show that firms in concentrated industries increase their leverage as opposed to reducing it. This could be due to the fact that there are few competitors in a concentrated industry and so there are less possibilities for market forces to cause a change in the risky attitudes of firms. The lack of competitors in the industry could also explain the lower volatility of stock returns for firms in concentrated industries. Such firms could take on debt as a signal of their ability to bear the consequences of a possible investigation of their own. This signal could help investors to better value the firms leading to fewer variations between expectations leading to less variable returns. Additionally, firms in competitive industries appear to reduce their capital expenditures while those in concentrated industries do not. Due to the presence of more competitors in their industries, firms may reduce capital expenditures to signal an increase in efficiency and their ability to withstand the consequences of future negative events.

Essay 1 Table 11: Industry Concentration and Peer Firm Risk-Taking

This table presents subsample results based on annually ranked Herfindahl Hirschman Index (HHI). Firms in the top (bottom) three deciles of HHI are assigned to the Concentrated Industry (Competitive Industry) groups for each year. All odd numbered columns contain results for firms in competitive industries and all even numbered columns contain results for firms in concentrated industries. The outcome variables (dependent variable, DV) are measures of peer firms' capital structures, cash holdings, capital expenditures, and volatility of returns. Columns 1 and 2 examine changes in the Debt to Equity ratio. Columns 3 and 4 examines changes in Cash to Assets ratio. Columns 5 and 6 examine changes in CAPEX to Assets ratio. Columns 6 and 7 examine changes in volatility of the natural logarithm of daily stock returns. Standard errors clustered by firm are in parenthesis. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

DV	(1) Comp. Debt to Equity	(2) Conc. Debt to Equity	(3) Comp. Cash to Assets	(4) Conc. Cash to Assets	(5) Comp. CAPEX to Assets	(6) Conc. CAPEX to Assets	(7) Comp. Return Volatility	(8) Conc. Return Volatility
Peer	0.393***	0.217**	-0.092***	-0.040**	-0.004	0.010*	-0.005***	-0.002
	(0.122)	(0.088)	(0.028)	(0.016)	(0.005)	(0.006)	(0.002)	(0.002)
After	-0.227**	-0.079	0.018	0.027	0.003	-0.000	-0.005**	0.001
	(0.114)	(0.088)	(0.022)	(0.028)	(0.004)	(0.006)	(0.002)	(0.002)
Peer*After	-0.151	0.156*	-0.008	-0.034	-0.008*	-0.001	-0.003	-0.004*
	(0.133)	(0.092)	(0.023)	(0.030)	(0.004)	(0.006)	(0.002)	(0.002)
Size	-0.002	0.015						
	(0.018)	(0.023)						
ROA	0.001	0.029*	0.019***	0.015***	0.004***	0.000	0.002***	0.001***
	(0.014)	(0.015)	(0.002)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)
Tangibility	-1.155***	-0.357***						
	(0.264)	(0.114)						
Div. Dummy	0.485***	0.972***						
	(0.172)	(0.162)						
Mkt. to Book	0.460***	0.170*						
	(0.070)	(0.093)						
EBIT			-0.114**	-0.335***	0.029**	0.024***	-0.034***	-0.034***
			(0.052)	(0.033)	(0.011)	(0.006)	(0.004)	(0.003)
GDP Growth			0.136	-0.469***	0.219***	0.198***	-0.174***	-0.131***
			(0.141)	(0.156)	(0.026)	(0.040)	(0.016)	(0.017)
Index Growth			-0.064***	-0.019*	-0.004*	-0.019***	-0.024***	-0.016***
			(0.010)	(0.011)	(0.002)	(0.004)	(0.001)	(0.001)
Debt Ratio							0.001***	0.002***
							(0.000)	(0.001)
Constant	0.127	-0.002	0.131***	0.166***	0.007	0.036***	0.043***	0.043***
	(0.441)	(0.339)	(0.027)	(0.017)	(0.005)	(0.006)	(0.002)	(0.002)
Obs.	5251	5085	5247	5170	5224	5181	5246	5182
R-squared	0.216	0.088	0.228	0.329	0.201	0.023	0.329	0.301
Adj. R-square	0.211	0.081	0.227	0.328	0.200	0.022	0.328	0.300

5. CONCLUSIONS

A growing strand of research has been examining the effects of whistleblowing allegations on various aspects of firm operations. However, extant literature has not examined the impact of

these allegations on industry peers. My paper fills this gap in the literature by examining the spillover effects of whistleblowing allegations on target firms' industry peers. Specifically, I examine risk-taking behaviors and profitability changes of industry peers following a whistleblowing allegation.

Using a sample of 163 hand-collected whistleblowing allegations reported in the media between 1989 and 2014, I document that industry peers significantly decrease their risk-taking behavior following a whistleblowing allegation. Specifically, peer firms decrease their debt levels using their excessive cash holdings to do so. They also significantly decrease their capital expenditures, and exhibit decreased stock return volatility following a whistleblowing allegation. Peer firms also increase their market share at the expense of the whistleblowing targets following the allegation. This leads to increased profitability among peer firms.

To understand which groups of peer firms experience the greatest spillover effects, I create subsamples based on peers' degree of financial constraints, size and industry concentration. Financial constraint is measured using firm dividend payout ratio and industry concentration is measured using the Herfindahl Index (HHI). I find that unconstrained firms reduce capital expenditures and they appear to use their excessive cash to increase their payout ratios.

My paper documents a significant spillover effect of whistleblowing on industry peers. A whistleblowing allegation against one firm brings attention to all industry peers from investors and regulators. The mere perceived possibility of becoming a target of internal whistleblowing due to the saliency of the associated risk has a chilling effect on peer firms' management. As a response, peer firms take risk-reducing precautions. In conclusion, my findings support the notion that whistleblowing is an effective mechanism in deterring corporate misdeeds.

Essay 2: The Path of Least Resistance - Earnings Management following a Whistleblowing Allegation on a Peer

1. INTRODUCTION

Employee whistleblowers caused a shakeup in the corporate world when their exposure of the corporate misdeeds at Enron and MCI-WorldCom led to the eventual downfall of the companies. The value of employee whistleblowers has since been noted by regulators and legislators alike with the introduction of numerous whistleblower programs to encourage employees to speak up about potential wrongdoing within their firms. From the False Claims Act passed in 1863, Congress has passed legislation including the Sarbanes-Oxley Act of 2002 (SOX), the Tax Relief and Health Care Act of 2006 (TRHCA), and the Dodd-Frank Act of 2010 in order to enhance the protection of whistleblowers, and to provide sizeable awards to whistleblowers who provide valuable information upon which the government is able to act and levy sizeable fines on offenders.

Substantial research shows that managers engage in earnings management. Managers manage earnings to meet or beat earnings targets during or at the end of a fiscal year. Accrual-based earnings management involves a change in the estimates used or the accounting methods employed for transactions presented in financial statements. On the other hand, real activities management involves manipulation of business practices by managers to deviate from their firms' regular operations in order to meet or beat an earnings benchmark.

This paper examines the spillover effect of whistleblowing in an earnings management context. Specifically, I examine peer firm real activities management and accrual-based earnings management following a whistleblowing allegation reported in the media. There are a number of

reasons to believe that managers would reduce their firms' earnings management following a whistleblowing allegation.

Earnings management through the manipulation of real activities can impose significant long-term costs on the firm. When a firm is subject to a whistleblowing allegation, due to the saliency of the event, managers of peer firms perceive an increased risk of a whistleblowing allegation or an investigation of their own (Dessaint and Matray, 2017; Tversky and Kahneman, 1973, 1974). This causes them to reduce their firm's risk-taking in order to demonstrate to investors that their firms are prepared to overcome any negative consequences of an investigation of their own. Accruals-based earnings management is an even riskier form of earnings management, as it is more likely to draw the attention of regulators and auditors. Thus, peer firm managers may choose to reduce both forms of earnings management following a whistleblowing allegation in the industry.

Using a sample of industry matched (four-digit SIC code) peer firms obtained from an original sample of 163 hand collected whistleblowing allegations reported in the media from 1989 to 2014, I examine real activities manipulation through the use of two composite measures developed by combining firms' abnormal cash flows from operations, excessive cutting of discretionary expenses, and overproduction (Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Zang, 2012). I examine accruals based earnings management using performance matched discretionary accruals measures proposed by Kothari, Leone, and Wasley (2005).

Further, I examine earnings management in subsets of peer firms that have a higher likelihood of carrying out such manipulations. Suspect peer firms are those that that just meet/beat important earnings benchmarks (Burgstahler and Dichev, 1997; Degeorge et al., 1999). The benchmarks I use are firms that just meet or beat previous year's earnings per share, those that just

meet or beat zero earnings per share, and those that just meet or beat one cent earnings per share (Degeorge et al., 1999; Roychowdhury, 2006).

The ways that firms can engage in real earnings management are threefold: The first way is through artificially boosting sales by offering price discounts and more lenient credit terms. Sales management activities should lower current period cash flow from operations and increase production costs relative to those during regular sales levels. The second way managers can manage real activities is by reducing their discretionary expenditures such as expenditure on research and development (R&D) and advertising. A third way that managers can manage earnings is by lowering the fixed costs per unit by overproducing goods.

Results show significant evidence of peer firms reducing both their engagement in accruals-based and real activities based earning management following a whistleblowing allegation on a peer. Difference-in-differences (DiD) regressions show that peer firms have significantly lower discretionary accruals, and composite measure of real earnings management RM1 following a whistleblowing allegation. The real earnings management results appear to be driven by changes in peer firms' abnormal cash flow from operations.

Results from tests on suspect firms show different results. Firms that just meet or beat previous year's earnings per share do not have significantly different discretionary accruals but exhibit higher values of composite real earnings management measures RM1 and RM2. The real earnings management results appear to be driven by these firms overproducing to reduce cost of goods sold and by them substantially reducing discretionary expenses. Results for firms who just meet or beat 1 cent earnings per share also exhibit no change for discretionary accruals but a significant increase in composite real earnings management measure RM1. These real earnings

management results appear to be driven by reduced abnormal cash flow from operations and reduced discretionary expenditures.

There are a number of reasons why firms looking to just meet or beat targets might engage in real earnings management over accruals-based earnings management. As stated in Roychowdhury (2006), real decisions about pricing and production are less likely to draw scrutiny from auditors or regulators than the manipulation of accruals. An additional risk is that if accruals management is the only form of earnings management employed, and the reported income falls below the desired threshold even after accrual manipulation, then real activities cannot be manipulated at the end of the fiscal year should the need for manipulation arise.

Further, in order to better understand which kinds of peer firms react more strongly to the whistleblowing allegations, I also analyze subsamples of the peer firms by partitioning the sample of peer firms using various criteria. The subsamples are created by partitioning based on the degree of financial constraint which is measured using dividend payout ratio, size, measured using annual sales, and growth, measured using the market to book ratio. Firms with high payout ratios are less financially constrained than those with low payout ratios. Additionally, large firms can also be considered to be less financially constrained than small ones (Almeida, Campello, and Weisbach, 2004; Faulkender and Wang, 2006). While less financially constrained peers would be better suited to deal with the long term negative effects of real activities manipulation if they choose to engage in earnings management, more financially constrained peers might choose to reduce all forms of earnings management. This is in order to be able to demonstrate to investors their capability to withstand the negative effects of a possible investigation of their own following the whistleblowing allegation.

Results for the financial constraint subsample analyses show that constrained peer firms do reduce real earnings management with a significant negative composite earnings management measure RM1. In the size-based subsample analyses, large peers demonstrate significant reductions in both composite measures of real earnings management RM1 and RM2. On the other hand, small firms demonstrate a reduction in only the more risky accrual-based earnings management. Finally, in the firm growth-based subsample analyses, only high growth peer firms react to the whistleblowing allegation and respond by reducing their accruals-based earnings management.

This paper is among the first to examine the industry spillover effects of whistleblowing in the context of earnings management. I document that real consequences to whistleblowing exist by showing that peer firms reduce both accruals-based and real activities based earnings management following a whistleblowing allegation. However, if peer firms are shown to just meet or beat certain earnings targets, they appear to use real activities manipulation instead of accruals-based earnings management to do so.

The remainder of the paper is structured as follows. Section 2 reviews existing literature on whistleblowing, spillover effects, and earnings management (both accrual-based and real earnings management). Section 3 presents the data and methodology. Section 4 presents the results and Section 5 presents the conclusions.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Corporate Whistleblowing

Whistleblowing is the practice of reporting questionable events associated with an organization or members of the organization to concerned individuals (Chiasson, Johnson, and Byington, 1995). Whistleblowers can report their allegations using internal or external pathways.

Internal employee whistleblowing involves the employee reporting the questionable practices within the firm, while external whistleblowing involves employees reporting the questionable practices to outside individuals such as regulatory authorities or media personnel. Investors, regulators and other members of the public prefer external whistleblowing as they would be unable to determine the existence of or the intensity of wrongdoings, if the activity was only reported internally (Lee and Xiao, 2018). This paper focuses on the impact of external whistleblowing and the use of the term whistleblowing in this paper refers to external whistleblowing.

Research on the value and corporate impact of whistleblowing has burgeoned in recent years, with the more recent research emphasizing the positive effects of whistleblowing. Dyck, Morse, and Zingales (2010) examine all reported cases of corporate fraud in the United States between 1996 and 2004 and find that the detection of fraud is not completely reliant on the standard corporate governance players such as auditors, investors and SEC enforcement. Rather, corporate fraud detection also involves scrutiny by nontraditional players such as employees and the media. The United States government, also recognizing the value of whistleblowers in providing information with which to prosecute financial wrongdoings, enacted legislation to encourage whistleblowers to speak up such as the Sarbanes-Oxley Act (SOX) of 2002 and the Dodd-Frank Act of 2010.

Under SOX, companies which are listed in the U.S. are required to establish internal whistleblowing processes. Additionally, SOX also lists provisions for the protection of corporate whistleblowers from retaliation under Section 806 of the Act. The Dodd-Frank Act of 2010 further enhanced the protection of corporate whistleblowers provided under Section 806 of SOX. Additionally, under Section 922 of the Act, new measures were included which allow the SEC to

reward whistleblowers with financial awards in the event that their voluntarily provided information results in a positive enforcement action.

Archival research in finance and accounting on the impact of whistleblowing is also plentiful. Bowen, Call, and Rajgopal (2010) examine cases of whistleblowing reported to the media and to the Occupational Safety and Health Administration (OSHA) and find significant negative consequences for firms following the allegations. Firms are faced with significantly lower stock returns both in the short- and long-term, greater likelihoods of future restatements and lawsuits, and lower subsequent operating performance.

Call et al. (2018) examine the outcomes of enforcement actions for financial misrepresentations and find that whistleblower involvement leads to stiffer penalties for the involved firms. Targeted firms and employees are faced with higher monetary penalties and culpable executives face longer prison sentences when whistleblowers are involved. Additionally, the presence of whistleblowers results in regulators beginning enforcement proceedings much quicker than if whistleblowers were not involved. Wilde (2017) examines employee whistleblowing allegations reported to OSHA and finds that target firms exhibit significant decreases in financial misreporting and tax aggressiveness following the allegation, with the deterrent effect persisting for at least two years beyond the year of the allegation.

2.2 Spillover Effects

Existing literature has documented the spillover effects of a firm's outcomes on its peers' outcomes. An intra-industry information transfer occurs when stock prices of other firms in the industry are affected by the information released by a firm (Gleason, Jenkins, and Johnson, 2008). Information transfers are documented for a variety of events such as earnings restatements (Foster, 1981; Clinch and Sinclair, 1987; Pownall and Waymire, 1989; Han and Wild, 1990; Freeman and

Tse, 1992; Ramnath, 2002), management forecasts (Baginski, 1987; Han et al., 1989), bank failures (Aharony and Swary, 1983, 1996), bankruptcy filings (Lang and Stulz, 1992; Ferris et al., 1997), hedge fund activism (Gantchev et al., 2019), and regulatory changes (Bushee and Leuz, 2005).

Negatively perceived events are prime sources for observing spillover effects and existing research has documented significant spillover effects due to these events. Lang and Stulz (1992) document that bankruptcy announcements decrease the value of a value weighted portfolio of competitors on average. Gleason et al. (2008) find that accounting restatements induce a stock price decline for non-restating industry peer firms, with high industry-adjusted accruals peers experiencing greater stock price declines. Durnev and Mangen (2009) find that peer firm investments are lower in the year after a restatement announcement, while Beatty, Liao, and Yu (2013) investigate the spillover effects of fraudulent financial reporting and find that peers increase investments during the fraud periods, following the distorted signals sent out by the culpable firm prior to the detection of misreporting.

2.3 Earnings Management

Earnings management is an extensively researched topic. Most of the existing literature in accounting and finance focuses on accruals-based earnings management (reviews by Healy and Wahlen, 1999; Fields, Lys, and Vincent, 2001), while a smaller portion of the existing literature examines real activities manipulation in firms (Roychowdhury, 2006; Gunny, 2010). A still further subset of the earnings management literature examines the choice between accrual-based and real activities based earnings management and the consequences of that choice (Cohen, Dey, and Lys, 2008; Cohen and Zarowin, 2010; Zang, 2012).

Numerous researchers define earnings management and its main components, real activities based or accruals-based earnings management, in their papers. Healy and Wahlen (1999) describe that "Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting practices." Dechow and Skinner (2000) explain accrual-based earnings management as involving accounting choices within generally accepted accounting principles (GAAP) which aim to mask true economic performance. Accrual-based earnings management involves changing the accounting methods or estimates used when presenting transactions in financial statements. As Zang (2012) describes, changing the depreciation method for fixed assets and the estimate for provision for doubtful accounts can bias reported earnings without modifying the underlying transactions.

Roychowdhury (2006) defines real activities manipulation as "departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations." Badertscher (2011) describes real transactions management in a simpler form as the purposeful alteration of reported earnings by manipulating the timing or structure of an operating, financing or investment decision.

The literature on real activities management is plentiful. Early literature on real transactions management focused on the reduction of discretionary expenditures to reduce reported expenses. Baber, Fairfield, and Haggard (1991), and Bushee (1998) find evidence of reduction in research and development expenses (R&D) to meet earnings benchmarks. Roychowdhury (2006) examines real transactions management in a comprehensive manner by documenting that managers avoid

reporting annual losses by manipulating sales, overproducing inventory, and reducing discretionary expenditures, with an intention of biasing earnings upwards. Additionally, other types of real activities management researched in the literature include reduction in advertising expenses (Cohen, Mashruwala, and Zach, 2010), stock repurchases (Hribar, Jenkins, and Johnson, 2006), profitable asset sales (Bartov, 1993; Herrmann, Inoue, and Thomas, 2003), sales price reductions (Jackson and Wilcox, 2000), and securitization (Dechow and Shakespeare, 2009).

Following Hayn (1995), a number of research papers document that while small reported profits are unusually common, small reported losses are unusually rare. Similarly, Dechow and Skinner (2000) point out that research also shows that small declines in earnings are documented to be unusually rare while small increases in reported earnings are unusually common (Burgstahler and Dichev, 1997; Degeorge et al. 1999).

Roychowdhury (2006) investigates patterns in cash flow from operations (CFO), discretionary expenses and production costs using the preliminary patterns detected by Burgshahler and Dichev (1997) as the primary reason to focus on firms close to the zero earnings benchmark. He defines deviations from the normal levels of the variables as abnormal levels and the new variables are termed as abnormal CFO, abnormal production costs, and abnormal discretionary expenses. He then examines the effect of three manipulation techniques on the abnormal levels of the three variables. The three manipulation techniques include sales manipulation, reduction of discretionary expenditures, and overproduction. Sales manipulation consists of the acceleration of the timing of sales and/or the generation of unsustainable sales through lenient credit terms or aggressive price cutting through discounts while overproduction consists of increasing production to lower COGS. Excessive price discounts and overproduction lead to abnormally high production costs relative to sales while reduction of discretionary

expenditures lead to abnormally low discretionary expenses relative to sales. Additionally, aggressive price discounts and overproduction have a negative effect on contemporaneous CFO, while decreased discretionary expenditures positively affect CFO.

Furthermore, Graham, Harvey, and Rajgopal (2005) use survey methods to examine financial executives' attitudes towards earnings management. They find that executives highly value meeting earnings targets such as the zero earnings target and are willing to potentially reduce firm value through real activities manipulation, such as by offering aggressive price discounts or by overproduction, to achieve their targets. Firm value is reduced because such manipulations to increase current period earnings could have negative effects on the potential future cash flows of the firm. Despite the perceived greater long-term costs of real activities manipulation, executives appear more willing to manipulate earnings using real activities rather than accruals-based methods.

According to Roychowdhury (2006), this could be due to at least two reasons. The first reason is that manipulation of accruals is more likely to draw the attention of auditors or regulators than real decisions about the pricing of products or production numbers, which lie in the hands of the firm's management. Thus, real activities manipulation is considered less risky than accruals-based earnings management (Chan et al., 2015). Additionally, if accruals management is the only form of earnings management employed, and the reported income falls below the threshold even after accrual manipulation, then real activities cannot be manipulated at the end of the fiscal year, should the need for such manipulation arise.

Existing literature also documents firms' choices between accruals-based and real activities-based earnings management and the tradeoff between the choices (Cohen et al., 2008; Cohen and Zarowin, 2010; Zang, 2012). Cohen et al. (2008) document that post-SOX, the level of

real activities manipulation increases while the level of accruals-based earnings management decreases. This is consistent with firms switching from accruals-based earnings management to real activities manipulation after the passage of SOX.

Cohen and Zarowin (2010) examine earnings management around seasoned equity offerings (SEO) and find that firms engage in both forms of earnings management in the years of an SEO. Additionally, they show that there is a positive correlation between the tendency for SEO firms to use real activities manipulation and the costs of accrual-based earnings management in such firms.

Zang (2012) examines the use of the two forms of earnings managements as substitutes and finds that managers trade off the two forms of earnings management based on their relative costs. Additionally, they also adjust the level of accrual-based earnings management based on the level of realized real activities manipulation.

2.4 Hypothesis Development

Literature has documented that whistleblowing is a significantly negative event for firms that results in stock price drops, a higher likelihood of restatements and lawsuits, and lower future operating performance (Bowen et al., 2010). Additionally, Gleason et al. (2008) document that there are significant spillover effects of negative events on peer firms' stock prices. Lang and Stulz (1992) document a spillover effect of bankruptcy announcements by showing a reduction in value of a portfolio composed of industry competitors following the announcement. Dessaint and Matray (2017) argue that managers overreact to events based on their saliency and thus may take measures based on higher perceived probabilities of future events, even though the true probabilities of the future events do not change.

Peer firm managers will be subject to increased scrutiny not only from auditors and regulators but also from investors and analysts following a whistleblowing allegation within the industry. Managers are also shown to reduce risk-taking following an industry whistle-blowing allegation in a previous essay. Thus, I hypothesize that managers will choose to reduce all forms of earnings management following a whistleblowing allegation.

H1: Industry peers of the target of a whistleblowing allegation reduce their engagement in real activities manipulation (REM) following a whistleblowing allegation.

H2: Industry peers of the target of a whistleblowing allegation reduce their engagement in accruals-based earnings management following a whistleblowing allegation.

Research argues that real transactions management is a less risky form of earnings management than accruals-based earnings management, due to lesser scrutiny of such real decisions from auditors and regulators (Roychowdhury, 2006; Chan et al., 2015). Research also documents that firms tradeoff between the two forms of earnings management after examining the relative costs of both forms of earnings management (Cohen et al., 2008; Cohen and Zarowin, 2010; Badertscher, 2011; Zang, 2012). Degeorge et al. (1999) also find that firms who just meet or beat earnings targets might be more likely to manipulate earnings to do so. Following a whistleblowing allegation, managers of firms that just meet or beat earnings targets may choose to engage in the manipulation of real activities rather than discretionary accruals, due to its lower risk of being detected. Thus, I hypothesize that firms which just meet or beat earnings targets will have increased levels of real activities manipulation and either lower or unchanged values of discretionary accruals.

H3: Industry peers of whistleblowing target firms which just meet or beat earnings targets increase their real activities manipulation following a whistleblowing allegation.

H4: Industry peers of whistleblowing target firms which just meet or beat earnings targets reduce or have no change to their accruals-based earnings management following a whistleblowing allegation.

3. DATA AND METHODOLOGY

3.1 Data

The data used in this study is a sample of peer firms created from a hand-collected sample of whistleblowing allegations reported in the media (target firms). The peer firms are obtained from the target firm sample by matching based on the four digit SIC code of the target firms.

Whistleblowers have the choice to report their allegations to the news media or to the Occupational Safety and Health Administration (OSHA) or both. The media-reported whistleblowing sample is obtained following the data collection procedure described in Bowen et al. (2010). I use Lexis-Nexis to search for all combinations of two sets of keywords pertaining to whistleblowing and financial or accounting misconduct. The set of whistleblowing keywords include "whistle," "whistle-blowing," "whistle-blower," and "whistleblower", while the set of financial or accounting keywords include "financial," "accounting," "reporting," and "accounting fraud". Each obtained news report is then manually examined to determine if it is a true whistleblowing allegation that is suitable to the study.

The target whistleblowing sample consists of 82 whistleblowing allegations reported in the media between the years 2004 and 2014. I combine these 82 data points with 81 additional media-reported whistleblowing allegations reported between the years 1989 and 2003 obtained from Dr. Andy Call, one of the authors of the Bowen et al. (2010) study. Thus, I have a total of 163 media-reported whistleblowing allegations between the years 1989 and 2014. I end the data collection in 2014 in order to have accounting data until 2017 for my analyses.

Accounting information is obtained from Compustat, while PERMNOs, industry membership and stock price information are obtained from CRSP. Peer firms are then obtained from the set of 163 target firms by matching on industry. A firm is considered a target firm's peer if it has the same 4 digit SIC code as the target firm. In addition, peers are required to have December fiscal year-ends.

I then obtain a sample of control firms to be used as a benchmark against which to compare changes in peer firms due to the whistleblowing event. The control firm sample is obtained from the peer firm sample using the procedure for industry, size and performance matching as described in Barber and Lyon (1996). A firm is considered a control firm for a peer firm if it belongs to the same 3 digit SIC industry but not the same 4 digit SIC industry as the peer firm, if it has total assets ranging between 70% and 130% of the peer firm's total assets, and has a lagged ROA that lies between 90% and 110% of the peer firm's lagged ROA.

To better understand the kinds of firms that experience the spillover effects of whistleblowing more strongly and hence engage in differing amounts of earnings management, I construct a number of subsamples by partitioning the peer firms based on various criteria. Subsamples are created based on financial constraints, size and firm growth. Financial constraints are measured using dividend payout ratio, size is measured using annual sales, while growth options are measured using the market-to-book ratio.

Procedures described in Almeida et al. (2004) and Faulkender and Wang (2006) are employed to construct the subsamples. Each year, peer firms are sorted into deciles based on their payout ratios, sizes, and market-to-book ratios. The top three dividend payout ratio deciles are then assigned to the low financial constraint group while the bottom three deciles for the payout ratio are assigned to the high financial constraint group. Similarly, for size, the top three deciles are

assigned to the large firm group while the bottom three deciles are assigned to the small firm group. Finally, for the market-to-book ratio, observations in the top three deciles are assigned to the high growth firms group while observations in the bottom three deciles are assigned to the low growth firms group.

3.2 Summary Statistics

Table 1 presents the summary statistics of the relevant firm characteristics for target firms of whistleblowing allegations (Panel A), their industry peers (Panel B), and the control firms for the peers (Panel C). The mean values of the summary statistics of peer firms and their control firms are quite similar, as would be expected from the process of selecting control firms which are industry, size, and performance-matched with the peer firms. Firms subject to media-reported whistleblowing allegations are much larger than their industry peers, with a mean size (measured as the natural log of market value of equity) of 10.70 compared to a mean size of 6.71 for the peer firms. The control firms, on the other hand, have a mean size value of 6.03. The size results are consistent with past literature which describe large firms as being more likely to be the targets of whistleblowing allegations.

The mean market-to-book ratio for whistleblowing target firms is also much larger than that of both the peer firms and their selected controls. The whistleblowing target firms have a mean market-to-book ratio of 4.24, while the peer firms have a market-to-book ratio of 3.55. The control firms have a market-to-book ratio of 3.73, which is higher than that of the peer firms.

The higher market-to-book ratio for the whistleblowing target firms describe firms that are much riskier than their industry counterparts. The high market-to-book ratio for the whistleblowing target firms is also in agreement with extant literature such as Bowen et al. (2010) and Baucus and

Near (1991) who describe that high growth firms are more likely to outgrow their controls and thus are more likely to be targets of whistleblowing.

Essay 2 Table 1: Summary Statistics
This table presents the summary statistics of the whistleblowing target firms, their industry peer firms, as well as the control firms for the peers. All variables are winsorized at the 1% and 99% levels. Please see Appendix A for variable definitions.

Panel A: Target Firms	N	Mean	Std. Dev	Median	Q1	Q3
DACC	136	0.058	0.058	0.039	0.020	0.076
RM1	136	-0.029	0.115	-0.032	-0.097	0.038
RM2	136	0.015	0.085	0.022	-0.050	0.077
ACFO	136	-0.057	0.066	-0.049	-0.095	-0.016
APRO	136	0.015	0.078	0.002	-0.028	0.064
AEXP	136	0.042	0.084	0.035	-0.007	0.108
Size	136	10.707	1.525	11.033	9.788	12.046
Market to Book	136	4.237	3.072	3.372	2.359	5.120
Net Income	136	0.102	0.054	0.094	0.067	0.135
Panel B: Peer Firms						
DACC	4754	0.094	0.104	0.063	0.027	0.124
RM1	4754	-0.073	0.166	-0.052	-0.147	0.021
RM2	4754	-0.024	0.133	-0.009	-0.084	0.052
ACFO	4754	-0.044	0.100	-0.044	-0.098	0.008
APRO	4754	-0.004	0.101	-0.002	-0.053	0.050
AEXP	4754	0.068	0.119	0.051	-0.002	0.126
Size	4754	6.711	2.366	6.401	4.952	8.320
Market to Book	4754	3.551	2.621	2.740	1.658	4.595
Net Income	4754	0.062	0.121	0.071	0.023	0.129
Panel C: Control Firms						
DACC	5053	0.115	0.118	0.080	0.032	0.150
RM1	5053	-0.127	0.194	-0.100	-0.218	0.001
RM2	5053	-0.058	0.157	-0.031	-0.132	0.039
ACFO	5053	-0.041	0.114	-0.048	-0.105	0.016
APRO	5053	-0.029	0.108	-0.018	-0.082	0.035
AEXP	5053	0.099	0.144	0.079	0.005	0.171
Size	5053	6.033	1.866	5.739	4.785	7.058
Market to Book	5053	3.726	2.713	2.888	1.733	5.012
Net Income	5053	0.012	0.171	0.055	-0.070	0.122

Table 2 presents the correlation coefficient matrix of relevant firm-level variables. Bold values in the table indicate a significance level of 1%. The correlation coefficient matrix serves as

an elementary check for collinearity among the main regressors used in the DiD regressions. The only variables with absolute value of correlations above 0.5 are not used simultaneously in a regression. Thus, the correlations do not present any collinearity issues for the upcoming regressions.

Essay 2 Table 2: Correlation Matrix

This table presents the correlation coefficient matrix of the relevant variables for the peer firms. Please see Appendix A for variable definitions.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) DACC	1.000								
(2) RM1	**-0.054**	1.000							
(3) RM2	**-0.065**	**0.785**	1.000						
(4) ACFO	**-0.037**	**-0.029**	**-0.477**	1.000					
(5) APRO	0.019	**0.696**	**0.484**	**-0.416**	1.000				
(6) AEXP	**0.093**	**-0.841**	**-0.713**	**-0.262**	**-0.215**	1.000			
(7) Size	**-0.180**	**0.090**	**0.087**	-0.010	**0.042**	**-0.084**	1.000		
(8) Mkt. to Book	0.026	**-0.139**	**-0.176**	**0.201**	**-0.208**	**0.037**	**0.408**	1.000	
(9) Net income	**-0.239**	**0.049**	**-0.103**	**0.367**	**-0.161**	**-0.179**	**0.417**	**0.251**	1.000

Bold values indicate a significance level of 1%

3.3 Methodology

In addition to testing changes in earnings management for all peer firms, I also examine changes in earnings management for subsets of peer firms who are likely to have engaged in earnings management. Following Degeorge et al. (1999), Roychowdhury (2006), and Zang (2012), I create subsets of peer firms who just meet or beat certain earnings thresholds. I examine firms which just meet or beat previous year's earnings per share, those which just meet or beat zero earnings per share and those which just meet or beat one cent earnings per share separately.

3.3.1 Measures of Real Activities Manipulation

CFO represents cash flow from operations as reported in the statement of cash flows. Discretionary expenses (*DISEXP*) are measured as the sum of advertising expenses, R&D

expenses, and selling, general and administrative expenses (SG&A). Production costs (*PRO*) are measured as the sum of cost of goods sold (COGS) and change in inventory.

Dechow, Kothari, and Watts (1998) describe models to derive normal levels of CFO, discretionary expenses, and production costs for each firm-year. Deviations from these normal levels are then described as abnormal CFO (*ACFO*), abnormal production costs (*APRO*), and abnormal discretionary expenses (*AEXP*).

Following Roychowdhury (2006) and Zang (2012), I estimate the normal levels of production costs (*PRO*) using industry-year regressions as follows:

$$PRO_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \alpha_2 (S_t/A_{t-1}) + \alpha_3 (\Delta S_t/A_{t-1}) + \alpha_4 (\Delta S_{t-1}/A_{t-1}) + \varepsilon_t \tag{1}$$

where *PRO*$_t$ is the sum of the cost of goods sold in year t and the change in inventory from t-1 to t. A_{t-1} is the total assets in year t-1. S_t is the net sales in year t while ΔS_t is the change in the net sales from year t-1 to t.

The normal levels of discretionary expenditures (*DISEXP*) are also measured following the model described in Roychowdhury (2006):

$$DISEXP_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \alpha_2 (S_{t-1}/A_{t-1}) + \varepsilon_t \tag{2}$$

where *DISEXP*$_t$ is the discretionary expenditures for year t.

Finally, normal cash flow from operations (*CFO*) is measured using the following cross-sectional regression for each industry and year as in Roychowdhury (2006):

$$CFO_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \alpha_2 (S_t/A_{t-1}) + \alpha_3 (\Delta S_t/A_{t-1}) + \varepsilon_t \qquad (3)$$

where CFO_t is the cash flow from operations in year t.

However, Srivastava (2019) argues that models that estimate real activities manipulation do not control for competitive behavior as they should. These controls are necessary because firms that follow distinct competitive strategies also display different cost patterns relative to peers, which researchers usually call real activities manipulation. Thus, competitive strategy related differences in cost patterns can be misinterpreted as real earnings management.

Srivastava (2019) suggests a set of corrective steps to be taken to reduce the possibility of misinterpreting competitive strategy based cost differences as real earnings management. He suggests including proxies suggested by Gunny (2010) for a firm's size, past profitability and growth, as well as the firm's own past expenses to identify deviations in behaviors relative to previous years. In addition, Srivastava (2019) includes future revenues in the first step estimation model, arguing that firms spend on intangibles to secure future benefits as well, and not just to produce current revenues. Thus equations (1) to (3) are re-estimated in the following manner:

$$PRO_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \alpha_2 (S_t/A_{t-1}) + \alpha_3 (\Delta S_t/A_{t-1}) + \alpha_4 (\Delta S_{t-1}/A_{t-1}) + \alpha_5 Size_t + \alpha_6 ROA_{t-1}$$

$$+ \alpha_7 M2B_t + \alpha_8 (S_{t+1}/A_{t-1}) + \alpha_9 (PRO_{t-1}) + \varepsilon_t \qquad (4)$$

Abnormal production costs (*APRO*) are measured as the estimated residual from Equation (4). A higher residual indicates a larger amount of inventory overproduction, which results in an increase in reported earnings due to a reduction in the cost of goods sold.

$$DISEXP_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \alpha_2 (S_{t-1}/A_{t-1}) + \alpha_3 Size_t + \alpha_4 ROA_{t-1} + \alpha_5 M2B_t + \alpha_6 (S_{t+1}/A_{t-1})$$
$$+ \alpha_7 (DISEXP_{t-1}) + \varepsilon_t \tag{5}$$

Abnormal levels of discretionary expenditures (*AEXP*) are also measured as the estimated residuals from Equation (5) as done for *APRO*.

$$CFO_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \alpha_2 (S_t/A_{t-1}) + \alpha_3 (\Delta S_t/A_{t-1}) + \alpha_4 Size_t + \alpha_5 ROA_{t-1} + \alpha_6 M2B_t$$
$$+ \alpha_7 (S_{t+1}/A_{t-1}) + \alpha_8 (CFO_{t-1}) + \varepsilon_t \tag{6}$$

Once again, abnormal CFO (*ACFO*) is measured as the estimated residual from Equation (6) as done for APRO and AEXP.

Finally, I use composite measures of real earnings management RM1 and RM2 that incorporate the information in ACFO, APRO and AEXP. They are defined as in Zang (2012) and Cohen and Zarowin (2010) as follows:

$$RM1 = APRO - AEXP \tag{7}$$
$$RM2 = -ACFO - AEXP \tag{8}$$

3.3.2 Measures of Accruals-based Earnings Management

I use performance matched discretionary accruals, the difference between firms' actual accruals and normal level of accruals, as a proxy for accruals-based earnings management. The normal levels of firm accruals are estimated using the modified Jones model, and they are then performance matched using the procedures described in Kothari et al. (2005):

$$\text{Total\_Accruals}_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \alpha_2 ((\Delta S_t - \Delta AR_t)/A_{t-1}) + \alpha_3 (PPE_t/A_{t-1}) + \varepsilon_t \tag{9}$$

where *Total_Accruals*$_t$ is earnings before extraordinary items and discontinued operations minus the operating cash flows reported in the statement of cash flows in year t. PPE$_t$ is gross property, plant and equipment for year t. ΔS_t is the change in sales from time t-1 to t and ΔAR_t is the change in accounts receivable between the years t-1 and t.

Kothari et al. (2005) also argue for the use of an intercept in the above model for multiple reasons. Firstly, deflation by assets does not completely alleviate the issue of heteroscedasticity, so the intercept term provides an extra control for heteroscedasticity. It also mitigates problems associated with an omitted size (scale) variable. Lastly, modeling discretionary accruals with an intercept term makes the distribution more symmetric, adding power to the tests. Discretionary accruals are measured as the residual from equation (9).

Kothari et al. (2005) also describe the performance matching procedure. Performance matching is carried out by matching each firm-year observation with another observation that has the same two digit SIC code and year and the closest ROA in the current year. The modified Jones model performance matched discretionary accrual is then the difference between the discretionary accrual obtained for firm i at year t and the matched firm's discretionary accrual at year t. Thus, accruals-based earnings management (*DACC*) is then proxied for by this performance matched discretionary accrual. I examine the absolute value of performance matched discretionary accruals in order to account for accrual reversal within the three year period following the whistleblowing allegation.

3.3.3 Generation of Suspect Firm Years

Since prior literature has documented that firms that just meet or beat earnings targets are more likely to have engaged in earnings management to achieve those targets (Burgstahler and Dichev, 1997; Bartov, Givoly and Hayn, 2002; Degeorge et al. 1999), I test my hypotheses for those firms which are suspected to be earnings manipulators (suspect firms). Following prior literature, I examine firms which just meet or beat three benchmark targets: previous year's earnings per share, zero earnings per share, and one cent earnings per share.

Suspect firms are obtained using the procedure described in Roychowdhury (2006). Firms are grouped into intervals based on income before extraordinary items (*IB*) scaled by total assets (*AT*) at the beginning of the year.

For the firms which just meet or beat the zero earnings benchmark, I call firm-years suspect firm-years if they have income scaled by lagged assets greater than or equal to -0.005 but less than 0.005. For the analyses of zero earnings firms, firm-years are assigned a value of *Suspect_NI* equals 1 if they are determined to be suspect firm-years and 0 otherwise.

Similarly, to examine firms which just meet or beat previous year's earnings per share, I assign a value of *Suspect_NI_EPS* equals 1 if they are determined to be suspect firm-years and 0 otherwise. Firm-year observations are considered to be suspect under this scenario if their earnings per share minus lagged earnings per share value is greater than or equal -0.005 but less than 0.005.

Finally, to examine firms which just meet or beat earnings per share of one cent, I assign a value of *Suspect_NI_1cent* equals 1 if they are determined to be suspect firm-years and 0 otherwise. Firm-year observations are considered suspect under this scenario if their earnings per share value is greater than or equal 0.005 but less than 0.015.

3.3.4 Difference in Differences Research Design

The main analyses to test the hypotheses are then conducted using a difference-in-differences (DiD) research design as described in Wilde (2017). Wilde (2017) argues that whistleblowing events cannot be considered random events, which necessitates the taking of steps to avoid potential endogeneity issues which could arise due to the presence of correlated omitted variables. The DiD design compares the average change in the outcome variable for the treatment group with that of the control group and hence minimizes the endogeneity problems faced otherwise. To use this procedure, I collect accounting information in a seven-year window around each whistleblowing allegation (from three years before the allegation to three years after). Thus, since my whistleblowing sample ranges from 1989 to 2014, I obtain accounting information from 1986 to 2017.

The DiD regression procedure consists of a regression containing two indicator variables and an interaction term between them as independent variables, in addition to the control variables. The main variable of interest in a DiD setting is the interaction term between the two indicator variables. A whistleblowing allegation against one firm serves as an external shock in the industry. Firms react to the allegation once it has been established, so I argue that there are differences in firm behavior before and after the allegation. I use an indicator variable, *After*, to indicate before and after the external shock to firms in the industry. If a firm-year observation occurs after the whistleblowing allegation then *After* equals one, else *After* equals zero.

I also create another indicator variable to isolate the effect of the shock on industry peers called *Peer*. If a firm-year observation belongs to a four-digit SIC code industry peer then *Peer* equals one, else *Peer* equals zero. If *Peer* equals zero then the firm-year observation belongs to

the benchmark control group. My main variable of interest is the interaction term between *Peer* and *After*.

In the analyses for the various designated suspect firm groups, I am interested in observing how suspect peer firms manipulate their activities and accruals following a whistleblowing allegation. Thus, I create a three-way interaction between *Suspect_NI (or Suspect_NI_EPS or Suspect_NI_1Cent)*, *Peer* and *After* and examine that variable to determine how those suspect firms manage their earnings following the allegation.

The dependent variables in the main DiD regressions are the various proxies for real activities management and accrual-based earnings management, namely *DACC*, *RM1*, *RM2*, *ACFO*, *APRO*, and *AEXP*, the measures for performance matched discretionary accruals and composite and individual measures of real earnings management respectively. Following Bertrand, Duflo, and Mullainathan (2004), I cluster standard errors by firm to account for the downward bias associated with standard errors in a DiD setting. Regressions also include year fixed effects.

The regressions for discretionary accruals and composite measures of REM are of the form:

$$DACC_t = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3 Peer*After + \beta_4 NI_t + \beta_5 Size_{t-1} + \beta_6 MTB_{t-1} + \varepsilon \qquad (10)$$
$$RM1_t = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3 Peer*After + \beta_4 NI_t + \beta_5 Size_{t-1} + \beta_6 MTB_{t-1} + \varepsilon \qquad (11)$$
$$RM2_t = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3 Peer*After + \beta_4 NI_t + \beta_5 Size_{t-1} + \beta_6 MTB_{t-1} + \varepsilon \qquad (12)$$

Here, *MTB* represents the market-to-book ratio measured as the ratio of market value of equity to book value of equity. *Size* represents firm size and is measured as the natural log of market value of equity. These variables are included as controls to account for systematic variation in abnormal CFO, production costs, and discretionary expenditures with firm size and growth opportunities. *NI* represents net income and is included as a control since Dechow et al. (1995, 1996) argue that abnormal accruals obtained using common non-discretionary accrual models have measurement error that is positively correlated with firm performance. *NI* is scaled by total assets.

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As discussed in Roychowdhury (2006), since all dependent variables are deviations away from a mean value, all controls are also listed as deviations from their industry-year means in the regressions.

Similarly, regressions for the individual components of REM are as follows:

$$ACFO_t = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3 Peer*After + \beta_4 NI_t + \beta_5 Size_{t-1} + \beta_6 MTB_{t-1} + \varepsilon \qquad (13)$$
$$APRO_t = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3 Peer*After + \beta_4 NI_t + \beta_5 Size_{t-1} + \beta_6 MTB_{t-1} + \varepsilon \qquad (14)$$
$$AEXP_t = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3 Peer*After + \beta_4 NI_t + \beta_5 Size_{t-1} + \beta_6 MTB_{t-1} + \varepsilon \qquad (15)$$

The coefficient β_3 is of importance in equations (10) – (15). If firms reduce their accruals based earnings management and real earnings management following a whistleblowing allegation as hypothesized, then β_3 will have a significant negative coefficient for equations (10), (11) and (12). In addition, for the individual measures, overproduction is a sign of increased real earnings management, while reduced discretionary expenditures are also a sign of increased real earnings management. Thus, if real earnings management is increasing, β_3 in equation (14) will obtain a significantly positive sign and β_3 in equation (15) will obtain a significantly negative sign. The sign of the coefficient for *ACFO* is unknown, since it depends on the levels of overproduction and discretionary expenses.

Lastly, the regressions used in the examination of the various specifications of suspect firm years (*Suspect_NI*, *Suspect_NI_EPS*, *Suspect_NI_1cent*) are of the following form:

$$DACC_t = \beta_0 + \beta_1 Suspect\_NI_t*Peer*After + \beta_2 Suspect\_NI_t*Peer + \beta_3 Suspect\_NI_t*After$$
$$+ \beta_4 Peer*After + \beta_5 Suspect\_NI_t + \beta_6 Peer + \beta_7 After + \beta_8 NI_t + \beta_9 Size_{t-1} + \beta_{10} MTB_{t-1} + \varepsilon \qquad (16)$$

$$RM1_t = \beta_0 + \beta_1 Suspect\_NI_t*Peer*After + \beta_2 Suspect\_NI_t*Peer + \beta_3 Suspect\_NI_t*After$$
$$+ \beta_4 Peer*After + \beta_5 Suspect\_NI_t + \beta_6 Peer + \beta_7 After + \beta_8 NI_t + \beta_9 Size_{t-1} + \beta_{10} MTB_{t-1} + \varepsilon \qquad (17)$$

$$RM2_t = \beta_0 + \beta_1 Suspect\_NI_t*Peer*After + \beta_2 Suspect\_NI_t*Peer + \beta_3 Suspect\_NI_t*After$$
$$+ \beta_4 Peer*After + \beta_5 Suspect\_NI_t + \beta_6 Peer + \beta_7 After + \beta_8 NI_t + \beta_9 Size_{t-1} + \beta_{10} MTB_{t-1} + \varepsilon \qquad (18)$$

In these regressions, the coefficient of importance is that of the three way interaction term, β_1. I hypothesize that real earnings management will increase for firms who just meet or beat earnings benchmarks, while their use of accruals based earnings management will either stay the same or reduce. Thus, I expect either a significantly negative or an insignificant coefficient β_1 in equation (16). I also expect significantly positive coefficients for β_1 in equations (17) and (18), since I hypothesize that real earnings management will increase for suspect firms.

3.3.3 Incorrect Inferences when Using Residuals as Dependent Variables

Chen, Hribar, and Melessa (2018), hereby CHW, describe that the common two step procedure used in accounting and finance literature, to decompose a dependent variable into its predicted and residual components using a regression model and then to use the residual as the dependent variable in a second step regression, produces biased coefficients and standard errors. This leads to researchers making incorrect inferences, with both Type I and Type II errors being possible. They suggest ways to alleviate this issue. One of the means suggested to alleviate the bias in the coefficients is to include all first step regressors in the second step regressions as well. Thus, in every regression listed from equation (10) to (18), all regressors in the first step regressions are also included as controls.

Thus, all regressions finally estimated are of the following form:

$$DACC_t = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3 Peer*After + \beta_4 NI_t + \beta_5 Size_{t-1} + \beta_6 MTB_{t-1}$$
$$+ \beta_i\, CHW\ Controls_i + \varepsilon \qquad\qquad (19)$$

$$RM1_t = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3 Peer*After + \beta_4 NI_t + \beta_5 Size_{t-1} + \beta_6 MTB_{t-1}$$
$$+ \beta_i\, CHW\ Controls_i + \varepsilon \qquad\qquad (20)$$

$$RM2_t = \beta_0 + \beta_1 Peer + \beta_2 After + \beta_3 Peer*After + \beta_4 NI_t + \beta_5 Size_{t-1} + \beta_6 MTB_{t-1}$$
$$+ \beta_i\, CHW\ Controls_i + \varepsilon \qquad\qquad (21)$$

4. RESULTS

4.1 Full Sample Analyses

The full sample analyses begin with an examination of changes in the variables representing real activities management and accruals-based earnings management following Equations (10) – (12) with CHW controls included, as in equations (19) to (21) in the previous section.

Table 3 presents results from the DiD regressions with year fixed effects estimating changes in discretionary accruals and composite measures of REM, *RM1* and *RM2*, while Table 4 breaks down the measures of REM into their components *ACFO*, *APRO*, and *AEXP*. Results in Table 3 demonstrate that peer firms significantly reduce their accruals-based earnings management as well as *RM1* following the whistleblowing allegation. The coefficient on the interaction term for the discretionary accruals regression is a significantly negative value of -0.009. This coefficient is significant at the 5% significance level. Further, the coefficient on the interaction term for *RM1* is a significantly negative value of -0.025. This coefficient is significant at the 1% significance level. *RM1* is created as the difference between *APRO* and *AEXP*.

Results from Table 4 show that although *APRO* and *AEXP* are not independently significantly changing following the whistleblowing allegation, their combination is significantly lower, leading to a significantly negative coefficient for RM1 in Table 3. Table 4 also obtains a significantly positive interaction term coefficient for *ACFO* of 0.018 (significant at the 1% significance level).

Essay 2 Table 3: Composite Earnings Management Measures

This table presents the difference-in-difference design regressions of peer firms' accruals-based earnings management and composite measures of real activities management (RAM) following Roychowdhury (2006) and Cohen and Zarowin (2010). Size, Market to Book Ratio, and Earnings are defined as deviations from their industry-year means. Further controls include those described by Chen, Hribar, and Melessa (2018) and Srivastava (2019). Column 1 examines accruals-based earnings management using industry-adjusted discretionary accruals (DACC) as described by Kothari, Leone, and Wasley (2005). Columns 2 and 3 examine firms' RAM. Column 2 examines changes in composite measure RM1. Column 3 examines changes in composite measure RM2. Standard errors clustered by firm are in parenthesis. All regressions include year fixed effects. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

DV	(1) DACC	(2) RM1	(3) RM2
Peer	-0.009***	0.021***	0.016***
	(0.003)	(0.007)	(0.006)
After	0.016***	-0.009	-0.010
	(0.004)	(0.010)	(0.008)
Peer*After	-0.009**	-0.025***	-0.004
	(0.004)	(0.009)	(0.008)
Size	-0.005***	-0.041***	-0.014***
	(0.001)	(0.007)	(0.005)
Market to Book	-0.000	0.002	-0.004**
	(0.001)	(0.002)	(0.002)
Earnings	-0.103***	0.105*	-0.117***
	(0.019)	(0.059)	(0.041)
Constant	0.118***	-0.161***	-0.051*
	(0.017)	(0.041)	(0.029)
Further Controls	Yes	Yes	Yes
Obs.	33537	8631	9858
R-squared	0.082	0.346	0.274
Adj. R-Square	0.081	0.343	0.271

Essay 2 Table 4: Real Activities Management Measures

This table presents the difference-in-difference design regressions of peer firms' real activities management (RAM) measures following Roychowdhury (2006). Size, Market to Book Ratio, and Earnings are defined as deviations from their industry-year means. Further controls include those described by Chen, Hribar, and Melessa (2018) and Srivastava (2019). Column 1 examines changes in abnormal cash flow from operations. Column 2 examines changes in abnormal production costs. Column 3 examines changes in abnormal discretionary expenditures. Standard errors clustered by firm are in parenthesis. All regressions include year fixed effects. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

DV	(1) ACFO	(2) APRO	(3) AEXP
Peer	0.003	0.007**	-0.010*
	(0.003)	(0.003)	(0.005)
After	-0.027***	0.004	0.028***
	(0.004)	(0.005)	(0.008)
Peer*After	0.018***	-0.001	-0.004
	(0.004)	(0.004)	(0.007)
Size	-0.030***	-0.004	0.039***
	(0.002)	(0.002)	(0.006)
Market to Book	0.007***	-0.004***	-0.004**
	(0.001)	(0.001)	(0.002)
Earnings	0.363***	-0.244***	-0.134***
	(0.021)	(0.022)	(0.042)
Constant	-0.216***	-0.472***	0.283***
	(0.012)	(0.042)	(0.034)
Further Controls	Yes	Yes	Yes
Obs.	31611	27453	9872
R-squared	0.233	0.132	0.270
Adj. R-Square	0.232	0.130	0.267

Tables 5 and 6 present results from DiD regressions with year fixed effects for suspect firms who just meet or beat the previous year's EPS. In Table 5, suspect firms display significant evidence of increasing measures of REM, while not changing their accruals-based earnings management. The coefficient on the three way interaction term for *RM1* is a significantly positive value of 0.177. This coefficient is significant at the 1% significance level. Further, the coefficient

on the three way interaction term for *RM2* is also a significantly positive value of 0.091. This

coefficient is significant at the 5% significance level.

Essay 2 Table 5: Composite Earnings Management Measures
for Firms that Just Meet or Beat Previous
Year's EPS

This table presents the difference-in-difference design regressions of suspect peer firms' accruals-based earnings management and composite measures of real activities management (RAM) following Roychowdhury (2006) and Cohen and Zarowin (2010). Suspect firms are those which just meet or beat previous year's earnings. Size, Market to Book Ratio, and Earnings are defined as deviations from their industry-year means. Further controls include those described by Chen, Hribar, and Melessa (2018) and Srivastava (2019). Column 1 examines accruals-based earnings management using industry-adjusted discretionary accruals (DACC) as described by Kothari, Leone, and Wasley (2005). Columns 2 and 3 examine firms' RAM. Column 2 examines changes in composite measure RM1. Column 3 examines changes in composite measure RM2. Standard errors clustered by firm are in parenthesis. All regressions include year fixed effects. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

DV	(1) DACC	(2) RM1	(3) RM2
Peer	-0.009***	0.022***	0.016***
	(0.003)	(0.007)	(0.006)
After	0.016***	-0.007	-0.010
	(0.004)	(0.010)	(0.008)
Peer*After	-0.009**	-0.028***	-0.006
	(0.004)	(0.009)	(0.008)
Suspect Firm	-0.027	0.103**	0.050
	(0.019)	(0.049)	(0.032)
Peer*Suspect	-0.004	-0.092**	0.003
	(0.018)	(0.044)	(0.035)
After*Suspect	-0.009	-0.115**	-0.052*
	(0.040)	(0.051)	(0.028)
Peer*After*Suspect	0.030	0.177***	0.091**
	(0.035)	(0.058)	(0.040)
Size	-0.005***	-0.041***	-0.012**
	(0.001)	(0.007)	(0.005)
Market to Book	-0.000	0.002	-0.004**
	(0.001)	(0.002)	(0.002)
Earnings	-0.103***	0.108*	-0.118***

	(0.019)	(0.059)	(0.041)
Constant	0.117***	-0.169***	-0.049*
	(0.016)	(0.041)	(0.030)
Further Controls	Yes	Yes	Yes
Obs.	33537	8631	9858
R-squared	0.083	0.348	0.276
Adj. R-Square	0.081	0.344	0.272

Results from Table 6 describe that the results are driven by overproduction to reduce cost of goods sold, and excessive reduction in discretionary expenses. The coefficient on the three way interaction term for *APRO* is a significantly positive value of 0.069. This coefficient is significant at the 1% significance level. Further, the coefficient on the three way interaction term for *AEXP* is a significantly negative value of -0.113. This coefficient is significant at the 5% significance level.

Essay 2 Table 6: Real Activities Management Measures
for Firms that Just Meet or Beat Previous
Year's EPS

This table presents the difference-in-difference design regressions of suspect peer firms' real activities management (RAM) measures following Roychowdhury (2006). Suspect firms are those which just meet or beat previous year's earnings. Size, Market to Book Ratio, and Earnings are defined as deviations from their industry-year means. Further controls include those described by Chen, Hribar, and Melessa (2018) and Srivastava (2019). Column 1 examines changes in abnormal cash flow from operations. Column 2 examines changes in abnormal production costs. Column 3 examines changes in abnormal discretionary expenditures. Standard errors clustered by firm are in parenthesis. All regressions include year fixed effects. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

DV	(1) ACFO	(2) APRO	(3) AEXP
Peer	0.003	0.007**	-0.010*
	(0.003)	(0.003)	(0.005)
After	-0.027***	0.004	0.027***
	(0.004)	(0.005)	(0.008)
Peer*After	0.018***	-0.002	-0.003
	(0.004)	(0.004)	(0.007)
Suspect Firm	0.014	0.027	-0.092*
	(0.017)	(0.019)	(0.047)
Peer*Suspect	-0.011	-0.021	0.053
	(0.015)	(0.023)	(0.035)
After*Suspect	-0.009	-0.051***	0.082*
	(0.026)	(0.019)	(0.049)
Peer*After*Suspect	-0.012	0.069***	-0.113**
	(0.027)	(0.026)	(0.047)
Size	-0.030***	-0.004	0.039***
	(0.002)	(0.002)	(0.006)
Market to Book	0.007***	-0.004***	-0.004**
	(0.001)	(0.001)	(0.002)
Earnings	0.363***	-0.245***	-0.133***
	(0.021)	(0.022)	(0.042)
Constant	-0.216***	-0.472***	0.282***
	(0.012)	(0.042)	(0.034)
Further Controls	Yes	Yes	Yes
Obs.	31611	27453	9872
R-squared	0.233	0.132	0.271
Adj. R-Square	0.232	0.130	0.268

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Tables 7 and 8 present results from DiD regressions with year fixed effects for suspect firms who just meet or beat the zero EPS target. The results for suspect firms in Table 7 do not display any evidence of adjustment of accruals based or real activities based earnings management.

Essay 2 Table 7: Composite Earnings Management Measures
for Firms that Just Meet or Beat Zero EPS

This table presents the difference-in-difference design regressions of suspect peer firms' accruals-based earnings management and composite measures of real activities management (RAM) following Roychowdhury (2006) and Cohen and Zarowin (2010). Suspect firms are those which just meet or beat zero earnings. Size, Market to Book Ratio, and Earnings are defined as deviations from their industry-year means. Further controls include those described by Chen, Hribar, and Melessa (2018) and Srivastava (2019). Column 1 examines accruals-based earnings management using industry-adjusted discretionary accruals (DACC) as described by Kothari, Leone, and Wasley (2005). Columns 2 and 3 examine firms' RAM. Column 2 examines changes in composite measure RM1. Column 3 examines changes in composite measure RM2. Standard errors clustered by firm are in parenthesis. All regressions include year fixed effects. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

DV	(1) DACC	(2) RM1	(3) RM2
Peer	-0.009***	0.020***	0.015***
	(0.003)	(0.007)	(0.006)
After	0.016***	-0.009	-0.010
	(0.004)	(0.010)	(0.008)
Peer*After	-0.009**	-0.024***	-0.004
	(0.004)	(0.009)	(0.008)
Suspect Firm	-0.043***	-0.050	-0.036
	(0.011)	(0.041)	(0.023)
Peer*Suspect	0.022*	0.039	0.036
	(0.013)	(0.037)	(0.024)
After*Suspect	-0.006	0.009	-0.007
	(0.015)	(0.040)	(0.038)
Peer*After*Suspect	-0.001	-0.053	-0.020
	(0.017)	(0.044)	(0.043)
Size	-0.005***	-0.041***	-0.012**

	(0.001)	(0.007)	(0.005)
Market to Book	-0.000	0.002	-0.004**
	(0.001)	(0.002)	(0.002)
Earnings	-0.102***	0.109*	-0.116***
	(0.019)	(0.060)	(0.041)
Constant	0.139***	-0.165***	-0.048
	(0.019)	(0.041)	(0.030)
Further Controls	Yes	Yes	Yes
Obs.	33537	8631	9858
R-squared	0.084	0.348	0.275
Adj. R-Square	0.083	0.345	0.272

An examination of individual components of REM in Table 8 also display no evidence of significant changes to any of the components.

Essay 2 Table 8: Real Activities Management Measures for Firms that Just Meet or Beat Zero EPS

This table presents the difference-in-difference design regressions of suspect peer firms' real activities management (RAM) measures following Roychowdhury (2006). Suspect firms are those which just meet or beat zero earnings. Size, Market to Book Ratio, and Earnings are defined as deviations from their industry-year means. Further controls include those described by Chen, Hribar, and Melessa (2018) and Srivastava (2019). Column 1 examines changes in abnormal cash flow from operations. Column 2 examines changes in abnormal production costs. Column 3 examines changes in abnormal discretionary expenditures. Standard errors clustered by firm are in parenthesis. All regressions include year fixed effects. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

| | (1) | (2) | (3) |
DV	ACFO	APRO	AEXP
Peer	0.003	0.007**	-0.009*
	(0.003)	(0.003)	(0.005)
After	-0.027***	0.004	0.028***
	(0.004)	(0.005)	(0.008)
Peer*After	0.018***	-0.001	-0.005
	(0.004)	(0.004)	(0.007)
Suspect Firm	0.007	-0.001	0.015
	(0.014)	(0.013)	(0.036)

Peer*Suspect	-0.003	0.003	-0.031
	(0.015)	(0.017)	(0.030)
After*Suspect	0.006	-0.015	-0.019
	(0.016)	(0.018)	(0.035)
Peer*After*Suspect	0.003	0.004	0.026
	(0.018)	(0.023)	(0.035)
Size	-0.030***	-0.003	0.039***
	(0.002)	(0.002)	(0.006)
Market to Book	0.007***	-0.004***	-0.004**
	(0.001)	(0.001)	(0.002)
Earnings	0.363***	-0.244***	-0.134***
	(0.021)	(0.022)	(0.042)
Constant	-0.216***	-0.473***	0.282***
	(0.012)	(0.044)	(0.034)
Further Controls	Yes	Yes	Yes
Obs.	31611	27453	9872
R-squared	0.233	0.132	0.270
Adj. R-Square	0.232	0.130	0.267

Tables 9 and 10 present results from DiD regressions with year fixed effects for suspect firms who just meet or beat EPS of one cent. In Table 9, once again, suspect firms display significant evidence of increasing measures of REM, while not changing their accruals-based earnings management. The coefficient on the three way interaction term for *RM1* is a significantly positive value of 0.165. This coefficient is significant at the 1% significance level. The coefficient on the three way interaction term for *RM2* is positive signed but insignificant.

Essay 2 Table 9: Composite Earnings Management
Measures for Firms that Just Meet or Beat
EPS of One Cent

This table presents the difference-in-difference design regressions of suspect peer firms' accruals-based earnings management and composite measures of real activities management (RAM) following Roychowdhury (2006) and Cohen and Zarowin (2010). Suspect firms are those which just meet or beat earnings per share of one cent. Size, Market to Book Ratio, and Earnings are defined as deviations from their industry-year means. Further controls include those described by Chen, Hribar, and Melessa (2018) and Srivastava (2019). Column 1 examines accruals-based earnings management using industry-adjusted discretionary accruals (DACC) as described by Kothari, Leone, and Wasley (2005). Columns 2 and 3 examine firms' RAM. Column 2 examines changes in composite measure RM1. Column 3 examines changes in composite measure RM2. Standard errors clustered by firm are in parenthesis. All regressions include year fixed effects. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

DV	(1) DACC	(2) RM1	(3) RM2
Peer	-0.009***	0.021***	0.015***
	(0.003)	(0.007)	(0.006)
After	0.016***	-0.008	-0.010
	(0.004)	(0.010)	(0.008)
Peer*After	-0.009**	-0.026***	-0.004
	(0.004)	(0.009)	(0.008)
Suspect Firm	0.007	0.264***	0.106***
	(0.039)	(0.041)	(0.031)
Peer*Suspect	0.004	-0.160***	-0.020
	(0.044)	(0.045)	(0.059)
After*Suspect	-0.009	-0.282***	-0.153***
	(0.051)	(0.044)	(0.054)
Peer*After*Suspect	-0.019	0.165***	0.068
	(0.052)	(0.054)	(0.067)
Size	-0.005***	-0.041***	-0.012**
	(0.001)	(0.007)	(0.005)
Market to Book	-0.000	0.002	-0.004**
	(0.001)	(0.002)	(0.002)
Earnings	-0.103***	0.108*	-0.118***
	(0.019)	(0.059)	(0.041)
Constant	0.118***	-0.168***	-0.049
	(0.017)	(0.041)	(0.030)
Further Controls	Yes	Yes	Yes
Obs.	33537	8631	9858

| | R-squared | 0.082 | 0.348 | 0.275 |
| | Adj. R-Square | 0.081 | 0.345 | 0.271 |

Results from Table 10 describe that the results are driven by excessive reduction in discretionary expenses. There is significant evidence that cash flow from operations is also reduced following the whistleblowing allegation. The coefficient on the three way interaction term for *AEXP* is a significantly negative value of -0.09. This coefficient is significant at the 10% significance level. Further, the coefficient on the three way interaction term for *ACFO* is a significantly negative value of -0.123. This coefficient is also significant at the 10% significance level.

Essay 2 Table 10: Real Activities Management Measures
for Firms that Just Meet or Beat EPS of
One Cent

This table presents the difference-in-difference design regressions of suspect peer firms' real activities management (RAM) measures following Roychowdhury (2006). Suspect firms are those which just meet or beat earnings per share of one cent. Size, Market to Book Ratio, and Earnings are defined as deviations from their industry-year means. Further controls include those described by Chen, Hribar, and Melessa (2018) and Srivastava (2019). Column 1 examines changes in abnormal cash flow from operations. Column 2 examines changes in abnormal production costs. Column 3 examines changes in abnormal discretionary expenditures. Standard errors clustered by firm are in parenthesis. All regressions include year fixed effects. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

| | (1) | (2) | (3) |
DV	ACFO	APRO	AEXP
Peer	0.002	0.007**	-0.010*
	(0.003)	(0.003)	(0.005)
After	-0.027***	0.004	0.028***
	(0.004)	(0.005)	(0.008)

Peer*After	0.019***	-0.001	-0.005
	(0.004)	(0.004)	(0.007)
Suspect Firm	-0.044	0.065	-0.133***
	(0.066)	(0.056)	(0.023)
Peer*Suspect	0.049	-0.049	0.050
	(0.069)	(0.058)	(0.044)
After*Suspect	0.090	-0.074	0.144***
	(0.068)	(0.064)	(0.032)
Peer*After*Suspect	-0.123*	0.057	-0.090*
	(0.073)	(0.067)	(0.051)
Size	-0.030***	-0.004	0.039***
	(0.002)	(0.002)	(0.006)
Market to Book	0.007***	-0.004***	-0.004**
	(0.001)	(0.001)	(0.002)
Earnings	0.363***	-0.244***	-0.134***
	(0.021)	(0.022)	(0.042)
Constant	-0.221***	-0.472***	0.282***
	(0.025)	(0.042)	(0.034)
Further Controls	Yes	Yes	Yes
Obs.	31611	27453	9872
R-squared	0.233	0.132	0.271
Adj. R-Square	0.232	0.130	0.268

4.2 Subsample Analyses

In order to better understand which kinds of suspect peer firms are affected differently by the whistleblowing allegations I split the sample into subsamples based on various criteria. Examination of these subsamples help better understand how different peer firms manage their real activities and discretionary accruals following a whistleblowing allegation within their industry.

I construct subsamples based on firm constraints measured using payout ratio and firm size following Almeida et al. (2004) and Faulkender and Wang (2006), and on growth measured using the market to book ratio. Each year firms are sorted into deciles based on their payout ratios, sizes, and market to book ratios. The top three deciles for payout ratio (size) are then grouped into a high payout ratio (Large firm) group, while the bottom three deciles are grouped into a low payout ratio (Small firm) group. High payout ratio firms and large firms are considered to be financially

unconstrained while low payout ratio and small firms are considered to be financially constrained. Similarly, for the growth subsamples, firms in the top three deciles are grouped into a high growth firm group, while firms in the bottom three deciles are grouped into a low firm growth group.

I argue that if firms choose to engage in REM, then financially unconstrained firms will be better able to bear the long-term negative consequences of such forms of suboptimal management of activities than financially constrained firms. On the other hand, more financially constrained peer firms may choose to reduce all forms of earnings management in order to appear more suited to face the consequences of a possible whistleblowing allegation or investigation of their own.

Table 11 presents results from DiD regressions with year fixed effects examining both real activities management and accruals-based earnings management for high and low payout ratio firms. All odd columns represent regressions run on low payout ratio firms, and all even columns represent regressions run on high payout ratio firms. Low payout ratio firms appear to significantly reduce their real activities manipulation while not changing their accruals based earnings management. The coefficient on the interaction term for *RM1* is a significant and negative value of -0.1. This coefficient is significant at the 1% level.

Essay 2 Table 11: Financial Constraints and Peer Firm Earnings Management

This table presents subsample results based on annually ranked payout ratios. Payout ratio is measured as total dividends (total common dividends plus repurchases) over earnings following Faulkender and Wang (2006). Firms in the top (bottom) three deciles of annual payout ratios are assigned to the unconstrained (constrained) groups for each year. All odd numbered columns contain results for the constrained firms (low payout) and all even numbered columns contain results for the unconstrained firms (high payout). The outcome variables are a measure of accruals-based earnings management and composite measures of real activities management (RAM) following Roychowdhury (2006) and Cohen and Zarowin (2010). Size, Market to Book Ratio, and Earnings are defined as deviations from their industry-year means. Further controls include those described by Chen, Hribar, and Melessa (2018) and Srivastava (2019). Columns 1 and 2 examine accruals-based earnings management using industry-adjusted discretionary accruals (DACC) as described by Kothari, Leone, and Wasley (2005). Columns 3 to 6 examine firms' RAM. Columns 3 and 4 examine changes in composite measure RM1. Column 5 and 6 examine changes in composite measure RM2. Standard errors clustered by firm are in parenthesis. All regressions include year fixed effects. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

DV	(1) Low Payout DACC	(2) High Payout DACC	(3) Low Payout RM1	(4) High Payout RM1	(5) Low Payout RM2	(6) High Payout RM2
Peer	0.009	-0.026**	0.068**	0.012	0.022	0.002
	(0.014)	(0.012)	(0.026)	(0.028)	(0.022)	(0.016)
After	0.014	0.014	0.154***	-0.011	0.070**	0.012
	(0.019)	(0.015)	(0.037)	(0.034)	(0.035)	(0.021)
Peer*After	-0.010	-0.008	-0.100***	0.013	-0.025	-0.011
	(0.018)	(0.016)	(0.037)	(0.034)	(0.027)	(0.021)
Size	-0.005*	-0.003*	-0.018	-0.021**	0.007	-0.001
	(0.003)	(0.002)	(0.017)	(0.008)	(0.015)	(0.005)
Market to Book	0.001	0.003**	0.008	-0.002	0.000	-0.004
	(0.002)	(0.001)	(0.006)	(0.004)	(0.003)	(0.003)
Earnings	-0.091***	-0.032	-0.019	-0.011	-0.110**	-0.109*
	(0.034)	(0.039)	(0.126)	(0.104)	(0.055)	(0.060)
Constant	0.083***	0.090***	-0.108	-0.267***	-0.123**	-0.009
	(0.014)	(0.021)	(0.092)	(0.072)	(0.056)	(0.046)
Further Controls	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	1581	3866	308	1015	343	1075
R-squared	0.076	0.108	0.515	0.323	0.441	0.361
Adj. R-Square	0.052	0.100	0.447	0.293	0.371	0.335

Table 12 presents results from DiD regressions with year fixed effects examining real activities management and accruals-based earnings management for large and small firms. All odd columns represent regressions run on small firms, while all even columns represent regressions run on large firms. Results show that small suspect peer firms appear to significantly reduce their

use of accruals based earnings management (coefficient of -0.074, significant at the 5% significance level) while not changing their real earnings management. On the other hand, large peers demonstrate significantly reduced measures of real earnings management, while not changing their use of accruals based earnings management. The coefficients on *RM1* and *RM2* are -0.069 and -0.040 respectively. Both results are significant at the 1% significance level.

Essay 2 Table 12: Firm Size and Peer Firm Earnings Management

This table presents subsample results based on annually ranked firm size. Firm size is measured using sales, following Faulkender and Wang (2006). Firms in the top (bottom) three deciles of annual sales are assigned to the large firm (small firm) groups for each year. All odd numbered columns contain results for small firms and all even numbered columns contain results for large firms. The outcome variables are a measure of accruals-based earnings management and composite measures of real activities management (RAM) following Roychowdhury (2006) and Cohen and Zarowin (2010). Size, Market to Book Ratio, and Earnings are defined as deviations from their industry-year means. Further controls include those described by Chen, Hribar, and Melessa (2018) and Srivastava (2019). Columns 1 and 2 examine accruals-based earnings management using industry-adjusted discretionary accruals (DACC) as described by Kothari, Leone, and Wasley (2005). Columns 3 to 6 examine firms' RAM. Columns 3 and 4 examine changes in composite measure RM1. Column 5 and 6 examine changes in composite measure RM2. Standard errors clustered by firm are in parenthesis. All regressions include year fixed effects. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

	(1) Small Firms	(2) Large Firms	(3) Small Firms	(4) Large Firms	(5) Small Firms	(6) Large Firms
DV	DACC	DACC	RM1	RM1	RM2	RM2
Peer	0.028	-0.008	-0.036	0.020	-0.019	0.011
	(0.025)	(0.010)	(0.049)	(0.021)	(0.031)	(0.014)
After	0.061*	-0.005	-0.010	0.060***	-0.011	0.041***
	(0.034)	(0.013)	(0.066)	(0.021)	(0.041)	(0.013)
Peer*After	-0.074**	0.003	0.014	-0.069***	0.013	-0.040***
	(0.036)	(0.013)	(0.066)	(0.022)	(0.041)	(0.014)
Size	-0.008	0.003	0.044	-0.020**	0.029	-0.000
	(0.008)	(0.002)	(0.029)	(0.010)	(0.018)	(0.006)
Market to Book	0.004	0.003***	-0.003	-0.002	-0.004	-0.003
	(0.003)	(0.001)	(0.009)	(0.003)	(0.006)	(0.003)
Earnings	-0.052	-0.071*	0.252*	-0.065	-0.001	-0.100*
	(0.036)	(0.042)	(0.140)	(0.102)	(0.077)	(0.059)
Constant	-0.010	0.078***	0.249	-0.207***	0.131	-0.060*
	(0.024)	(0.021)	(0.202)	(0.050)	(0.102)	(0.032)
Further Controls	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	1277	5343	279	1200	285	1224
R-squared	0.097	0.075	0.454	0.306	0.316	0.301
Adj. R-Square	0.069	0.068	0.370	0.280	0.213	0.276

Table 13 presents results from DiD regressions with year fixed effects for REM and accruals-based earnings management for high and low growth firms. All odd columns represent regressions run on high growth firms, while all even columns represent regressions run on low growth firms. High growth firms appear to significantly reduce their use of the riskier accruals-based earnings management following the whistleblowing allegation. They do not change their use of REM. The coefficient on the interaction term for *DACC* is -0.029. This result is significant at the 5% significance level.

Essay 2 Table 13: Firm Growth and Peer Firm Earnings Management

This table presents subsample results based on annually ranked Market to Book Ratio (M2B). Firms in the top (bottom) three deciles of M2B are assigned to the High Growth Firm (Low Growth Firm) group for each year. All odd numbered columns contain results for high growth firms and all even numbered columns contain results for low growth firms. The outcome variables are a measure of accruals-based earnings management and composite measures of real activities management (RAM) following Roychowdhury (2006) and Cohen and Zarowin (2010). Size, Market to Book Ratio, and Earnings are defined as deviations from their industry-year means. Further controls include those described by Chen, Hribar, and Melessa (2018) and Srivastava (2019). Columns 1 and 2 examine accruals-based earnings management using industry-adjusted discretionary accruals (DACC) as described by Kothari, Leone, and Wasley (2005). Columns 3 to 6 examine firms' RAM. Columns 3 and 4 examine changes in composite measure RM1. Column 5 and 6 examine changes in composite measure RM2. Standard errors clustered by firm are in parenthesis. All regressions include year fixed effects. *** represents significance at the 1% significance level. ** represents significance at the 5% significance level. * represents significance at the 10% significance level.

	(1) High Growth	(2) Low Growth	(3) High Growth	(4) Low Growth	(5) High Growth	(6) Low Growth
DV	DACC	DACC	RM1	RM1	RM2	RM2
Peer	0.004	-0.018	0.042**	0.031	0.024*	0.021
	(0.012)	(0.012)	(0.020)	(0.060)	(0.013)	(0.034)
After	0.031**	0.025*	-0.011	-0.024	-0.004	-0.022
	(0.013)	(0.014)	(0.024)	(0.058)	(0.017)	(0.041)
Peer*After	-0.029**	-0.016	-0.028	-0.040	-0.016	0.005
	(0.013)	(0.016)	(0.024)	(0.068)	(0.018)	(0.043)
Size	-0.008***	-0.004*	-0.030**	-0.055*	-0.014*	-0.014
	(0.002)	(0.002)	(0.012)	(0.028)	(0.007)	(0.014)
Market to Book	0.002**	0.002	0.000	0.002	-0.002	-0.010
	(0.001)	(0.002)	(0.003)	(0.008)	(0.002)	(0.008)
Earnings	-0.075***	-0.099**	0.085	-0.094	-0.153***	-0.263***
	(0.023)	(0.043)	(0.086)	(0.120)	(0.057)	(0.090)

Constant	0.063***	0.121***	-0.295***	-0.219	-0.069	-0.077
	(0.019)	(0.041)	(0.101)	(0.135)	(0.052)	(0.072)
Further Controls	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	4726	2169	1259	300	1396	360
R-squared	0.088	0.131	0.321	0.559	0.336	0.512
Adj. R-Square	0.080	0.115	0.298	0.489	0.316	0.450

5. CONCLUSIONS

While the effects of whistleblowing on target firms have been examined in the literature, an examination of the spillover effects of whistleblowing is lacking. This paper examines the spillover effect of whistleblowing on peer firms' real choices, through an examination of peer firm real activities manipulation (REM) and accruals-based earnings management following a whistleblowing allegation.

Using a sample of 163 hand-collected whistleblowing allegations reported in the media from 1989-2014, I document that peer firms reduce their use of both real earnings management and accruals-based earnings management following a whistleblowing allegation in their industry. On the other hand, firms that just meet or beat earnings targets appear to increase their use of REM to meet their earnings targets. This is consistent with Roychowdhury (2006), Cohen et al. (2008), and Zang (2012) who argue that REM is a less risky form of earnings management since it is less likely to draw the scrutiny of auditors and regulators.

Further, in order to better understand which kinds of suspect peer firms are affected differently by the whistleblowing allegations, I split the sample into subsamples based on financial constraints, measured using payout ratio, firm size, measured using annual sales, and firm growth, measured using the market to book ratio. High payout ratio firms and large firms are considered to be financially unconstrained firms while low payout ratio and small firms are considered as financially unconstrained firms.

Results for the financial constraint subsample analyses show that constrained peer firms reduce real earnings management while unconstrained firms do not. In the size-based subsample analyses, large peers demonstrate significant reductions in both composite measures of real earnings management *RM1* and *RM2*. On the other hand, small firms demonstrate a reduction in only the more risky accrual-based earnings management. Finally, in the firm growth-based subsample analyses, only high growth peer firms react to the whistleblowing allegation and respond by reducing their accruals-based earnings management.

This essay documents a significant spillover effect of whistleblowing, through the lens of earnings management. By demonstrating that peer firms significantly reduce both forms of earnings management following a whistleblowing allegation in the industry, I build on existing literature to demonstrate that whistleblowing has a significant effect on not only the firm being targeted, but also on the real activities of peer firms not directly targeted by the allegation.

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Appendix
Variable Definitions

Peer   =   Indicator variable (=1) if firm is a four digit SIC industry peer

After   =   Indicator variable (=1) if the year is after the whistleblowing event

Cash_ratio   =   Ratio of cash to total assets [CH/AT]

Cash to Net Assets   =   Ratio of cash to net assets [CH/(AT-CH)]

CAPEX   =   Ratio of capital expenditures to total assets [CAPX/AT]

SD_LNRET   =   Volatility of stock returns (Measured as annualized standard deviation of log daily returns

Market Share   =   Ratio of Firm Sales to Industry Sales

ROA   =   Return on Assets [NI/AT]

Size   =   Natural log of Total Assets [log AT]

Debt_ratio   =   Total Debt Ratio [(DLTT+DLC)/AT]

Debt to Equity   =   Ratio of Debt to Shareholder's Equity [(DLTT+DLC)/SEQ]

M2B   =   Ratio of market value of equity to book value of equity [(PRCC_F*CSHO)/(BKVLPS*CSHO)]

EBIT   =   Ratio of earnings to total assets [EBIT/AT]

Tobin's Q   =   Market Value to Book Value [(AT + PRCC_F*CSHO – CEQ)/AT]

GDP   =   Annual growth in Gross Domestic Product obtained from FRED

Index   =   Annual growth in the Stock Index obtained from CRSP

CF   =   Cash Flow [OIBDP-XINT-TXT-DVC]

NWC_noncash   =   Working Capital – Cash [WCAP-CH]

D_dummy   =   Indicator variable (=1) if firms pay out dividends

R&D   =   Ratio of R&D expenditure to Sales [XRD/SALE]

Acquisition   =   Ratio of acquisition expenditure to total assets [AQC/AT]

NDTS	=	Depreciation and Amortization to total assets [DP/AT]
Tax	=	Total Income Tax [TXT]
Profit_Changes	=	Operating Income before Depreciation to lagged total assets [OIBDP/AT$_{t-1}$]
Suspect_NI	=	Indicator variable (=1) if Net Income scaled by Total Assets is greater than or equal -0.005 but less than 0.005 [-0.005 ≤ IB/AT< 0.005]
Suspect_NI_EPS	=	Indicator variable (=1) if change in EPS is is greater than or equal -0.005 but less than 0.005 [-0.005 ≤ EPS$_t$ – EPS$_{t-1}$< 0.005]
Suspect_NI_1Cent	=	Indicator variable (=1) if Net Income scaled by Total Assets is greater than or equal 0.005 but less than 0.015 [0.005 ≤ IB/AT< 0.015]
CFO	=	Cash flow from Operations [OANCF-XIDOC]
PRO	=	Sum of Cost of Goods Sold and Change in Inventory [COGS + ΔINV]
DISEXP	=	Sum of Advertising Expenses, R&D Expenses, and Selling, General and Administrative Expenses (SG&A) [XAD+XRD+XSGA]
APRO	=	Abnormal Production Costs, measured as estimated residual from Equation (4)
AEXP	=	Abnormal Discretionary Expenditures, measured as estimated residual from Equation (5)
ACFO	=	Abnormal Cash Flow from Operations, measured as estimated residual from Equation (6)
DACC	=	Absolute value of Discretionary Accruals, measured as the performance matched estimated residual from Equation (9)
RM1	=	APRO – AEXP
RM2	=	–ACFO – AEXP
NI	=	Income Before Extraordinary Items scaled by Total Assets [IB/AT]

Vita

Emmanuel Joseph Sequeira, MS, BS, originally hails from India but has grown up in many countries around the world. His research interests focus on the spillover effects of events on competitors. He obtained his Bachelor of Science in Applied Mathematics from the Metropolitan State University of Denver in 2010. He also obtained a Master of Science in Statistics from the University of Texas at El Paso in 2016. He enjoys teaching and has taught a variety of courses within the Finance curriculum at UTEP's College of Business Administration. In 2018, he was awarded the Outstanding PhD Student Teaching Award by the College of Business Administration at UTEP. In 2020, he was awarded the Outstanding Graduate Teaching Award by the UTEP Graduate School. He has accepted a tenure-track position at San Jose State University and will start as an Assistant Professor there in the Fall 2020 semester.