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The Deterrent Effect of Whistleblowing on Insider Trading

Jacob Raleigh
Department of Accounting, Monash University
Jacob.raleigh@monash.edu

Abstract

I study whether the Dodd–Frank whistleblower program reduced informed trading by corporate insiders. To identify the effect, I partition firms based on the extent to which this program affected the likelihood of whistleblowing at each firm. I find a relative reduction in trading profits on purchases made by insiders at more affected firms after the program was initiated. I analyze insider sales in settings where they are more likely to be informed and find a reduction in the number of sales before negatively perceived events. The results suggest that whistleblower protections and rewards can effectively deter insider trading.

I. Introduction

The Dodd–Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd–Frank) introduced some of the most substantive changes to securities law in recent times. The goal of Dodd–Frank was to both strengthen the financial system in the wake of the financial crisis and also to increase the level of protection for Main Street investors. With this latter goal in mind, one provision of Dodd–Frank created a whistleblower bounty program (hereafter "WB Program") within the U. S. Securities and Exchange Commission (SEC), enhancing monetary rewards and anti-retaliation provisions. While there is a growing literature investigating the effects of many facets of Dodd–Frank, a question that remains unanswered is whether the whistleblowing provisions of this law affected informed and potentially illegal trading by corporate insiders (an exploitative activity that the SEC (n.d.) states "undermines investor confidence in the fairness and integrity of the securities markets"). The current study addresses this question.

By both raising the monetary benefit and lowering the retaliation cost of blowing the whistle, the WB Program aimed to increase the probability of having informants come forward (Dyck, Morse, and Zingales (2010)). Prior research finds that firms with allegations brought against them by whistleblowers reduce their

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potentially illegal financial reporting behavior (Wilde (2017), Wiedman and Zhu (2020), and Berger and Lee (2022)), and that regulatory actions involving whistleblowers are more effective at punishing wrongdoers (Call, Martin, Sharpe, and Wilde (2018)). However, there is no assurance that the WB Program will be helpful in detecting insider trading. The large financial reward may "incentivize frivolous, misleading, exaggerated or otherwise unreliable tips" (Ebersole (2011)) that fill the SEC's system with unactionable information, wasting resources that could otherwise have been spent more effectively. Additionally, as former SEC Division of Enforcement director Linda Chatman Thomsen says that cases involving insider trading "are unquestionably among the most difficult cases we are called upon to prove, and despite careful and time-consuming investigations, we may not be able to establish all of the facts necessary to support an insider trading charge" (Chatman Thomsen (2006)). Thus, it is ultimately an empirical question whether the WB Program leads to a reduction in insiders' opportunistic trading activity.

According to SEC reports, the WB Program has been successful in bringing unlawful behavior to light. Since the program's inception through the end of 2018, the SEC has received over 28,000 tips and has awarded a total of over $326 million to 59 individual whistleblowers. It has collected over $1.7 billion in total monetary sanctions, of which $901 million was disgorgement of ill-gotten gains and interest (SEC (2014), (2018)). The former director of the Division of Enforcement, Andrew Ceresney, said that the whistleblower program has transformed the agency "both in terms of the detection of illegal conduct and in moving our investigations forward quicker and through the use of fewer resources" (Ceresney (2016)). Specifically in relation to insider trading, the SEC received 2,949 tips from the start of the program in 2011 through 2021, making it the fourth-largest specific category of tips, behind "offering fraud," "corporate disclosures and financials," and "manipulation" (SEC (2014), (2018), (2021)). Additionally, both the SEC's website and several reports in the business press have highlighted the effectiveness of whistleblowers (e.g., Reuters (2012), Lynch (2014), Barlyn (2016), Sun (2018), and Sun and Broughton (2019)).

There is also anecdotal evidence that whistleblowers, incentivized by the WB Program, can successfully detect illegal insider trading and that the information provided by these whistleblowers can lead to punishment of informed traders. One example of the SEC using information from a whistleblower who reported through the program is the case of Phillip DeZwirek. The SEC brought an enforcement action against Phillip DeZwirek for insider trades he made while he was the CEO of CECO Environmental Corp and API Technologies Corp based on information provided by an internal auditor who blew the whistle. He made three informed purchases over a period of 2 years totaling $151,278 in ill-gotten gains and failed to report his insider trades over this period to the SEC (*Securities and Exchange Commission v. Phillip J. DeZwirek* (2013)). The enforcement action was settled for $1.5 million, with the whistleblower receiving a $300,000 reward (Cohn (2014)).

However, because Dodd–Frank is a one-time event that changed many aspects of firms' governance and information environment, it is difficult to isolate the effect of the WB Program on insider trading. Additionally, any effect likely varies across firms and individuals based on differences in governance and institutional features.

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To address this issue, I identify insiders that are more sensitive to whistleblowing allegations, and test whether their opportunistic insider trading behavior decreases after the WB Program, relative to that of insiders who are less sensitive to whistleblowing allegations. To distinguish sensitive insiders, I first identify firms that lobbied against the WB Program in 2010 and define their insiders as being more sensitive to this law.[1] This design choice is supported by Baloria, Marquardt, and Wiedman (2017) who find that firms that lobbied against the WB Program experienced positive market reactions around events that increased the probability of the program's passage, indicating that managers' lobbying efforts were less likely aimed at protecting shareholder interests and more likely aimed at preserving their own private benefits. Additionally, Baloria et al. (2017) find that lobbying firms had weaker internal whistleblower programs and more entrenched management when compared to a size- and industry-matched sample, suggesting that the firms that lobbied against the WB Program were less effective in addressing internal whistleblowers' complaints. Together, these results suggest that firms lobbied against the whistleblowing program to protect their managers' private benefits and were more likely to be affected by the WB Program.[2]

The previous measure uses the behavior of the firms to determine how sensitive their insiders are to the WB Program. However, firm-level decisions are endogenously chosen, which makes it difficult to rule out alternative explanations. To strengthen my conclusions, I use an alternative measure of sensitivity that does not rely on a potentially endogenous firm decision. Specifically, I measure the firm's total cumulative abnormal return around six key events related to the implementation of the WB Program as identified in Baloria et al. (2017). Prior literature uses market reactions to measure a firm's sensitivity to potential regulation changes, where a positive market reaction indicates that market participants believe the firm would benefit from the additional oversight provided by the regulation (Lo (2003), Baloria et al. (2017)). Following this literature, I define insiders at firms that experienced positive total abnormal returns around the six whistleblower events as being more sensitive to the law.

For the main analyses, I focus on insider purchases to measure opportunistic insider trading behavior. Insider purchases are more likely to be information-based, whereas insider sales are often driven by rebalancing and liquidity motivations thus making it difficult to identify insiders' informed selling behavior (Cohen, Malloy, and Pomorski (2012)). Illustrating this fact, of the 5,058 illegal trades identified by the SEC over the 2001–2015 window, 4,220 were insider purchases (Kacperczyk and Pagnotta (2019)). Thus, I follow prior literature and use the profitability of an

[1]Firms that lobbied against the whistleblower program did so because they disagreed with the provision that whistleblowers could bypass the firm's internal whistleblowing system and report directly to the SEC. They argued that this provision undermined the firm's own internal program. However, this does not seem to have been the case. The SEC reports that 83% of whistleblowers who came forward under the Dodd–Frank whistleblower program first reported to their company's internal system (SEC (2018)).

[2]Prior literature finds that firms that lobby against regulation changes are the ones investors perceive as needing greater oversight in other areas as well. For example, Lo (2003) finds that investors of firms that lobby against executive compensation reforms react more positively to the passage of those reforms, indicating the perceived benefits of tougher oversight for these firms.

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insider purchase to assess opportunistic insider behavior under the assumption that a more profitable trade is likely to be based on private information (Huddart and Ke (2007), Jagolinzer, Larcker, and Taylor (2011), and Gao, Lisic, and Zhang (2014)).

I find a decrease in the profitability of purchases by insiders at firms that are considered more sensitive to the WB Program. Specifically, the results suggest that, following the passage of Dodd–Frank, insiders at firms that lobbied against the whistleblower law earn trading profits that are 0.04% lower per day in the 180-day window following the trade relative to all other insiders in my sample. This amount is economically significant with the reduction in trading profits being about equal to the sample mean, and it is also in line with results found in the prior literature.[3] The magnitude of the results is quite similar, a 0.04% decrease in trading profits, when I identify sensitive insiders as those at firms that had a positive market reaction around six key events related to the implementation of the WB Program. These negative and economically meaningful effects suggest that the WB Program is an effective deterrent to insiders trading on their private information.[4]

Thus far the analyses focus on insider purchases. In additional analyses, I examine event settings where insider sales (as well as purchases) are more likely to be informed. Specifically, I focus on periods prior to earnings announcements and merger and acquisition announcements (M&As). Jagolinzer et al. (2011) show that insiders trade in restricted periods, namely, prior to earnings announcements, and these trades are found to be profitable. Following Jagolinzer et al. (2011), I expect insider sales (purchases) in the pre-announcement period to be information-based if the earnings announcement elicits a negative (positive) market reaction. Thus, I examine whether there is a post-Dodd–Frank reduction in the volume of insider sales (purchases) occurring in the 20 trading days prior to an earnings announcement that elicits a negative (positive) market reaction. Consistent with my expectation, I find that the volume of potentially information-driven insider sales (purchases) in the pre-earnings announcement window significantly reduces following Dodd–Frank. I then examine insider sales in the 20 trading days prior to an M&A announcement that is negatively perceived by investors and find less insider selling in that window in the post-Dodd–Frank period.[5]

This article makes several contributions. I contribute to the growing literature on the effects of the nonbanking provisions within Dodd–Frank (Baloria, et al. (2017), Wiedman and Zhu (2020), and Berger and Lee (2022)) and show that the regulation may be an effective step toward deterring and preventing illegal insider trading (an area of interest to regulators given their increased focus on investor

[3]Jagolinzer et al. (2011) find that insiders at firms whose trades require general counsel approval have a 0.08% reduction in daily trading profits as compared to insiders at firms who can trade without approval. Gao et al. (2014) find that insiders at firms that increase their corporate social responsibility consciousness have their daily trading profits reduced by 0.047% following the increase in corporate social responsibility as compared to a matched sample.

[4]To ease concerns about my results being driven by differences in treatment and control sample, I rerun my analysis on lobbying firms in an entropy-balanced sample. I balance my treatment and control firms on the first, second, and third moments of all the independent variables used in my regression specification (Hainmueller (2012)). Results are robust to this design change.

[5]I focus on volume and not profitability because the profitability of the trade will be driven by the announcement return by construction. Given that I split my sample into positive- and negative-return groups, the profitability of the trade is mechanical.

protection). While previous studies have focused on firm-level misconduct such as fraud (Wiedman and Zhu (2020), Berger and Lee (2022)), I focus on misconduct at the individual level. My results suggest that the WB Program discouraged insiders from trading on their private information. Thus, Dodd–Frank not only reduced enterprise-level misconduct (Wilde (2017), Wiedman and Zhu (2020), and Berger and Lee (2022)), but also impacted the potentially illegal behavior of executives.

The study also contributes to the literature on the effectiveness of whistleblowers in preventing illegal activities. Prior literature focuses mainly on whistleblowers' ability to help detect financial or tax fraud (Dyck et al. (2010), Wilde (2017), Heese and Pérez-Cabazos (2019), and Berger and Lee (2022)). Financial and tax frauds are usually schemes that involve many participants and the falsification of documents, meaning there are potentially numerous opportunities for a whistleblower to obtain information on the alleged wrongdoing. I extend this literature by showing that whistleblowers may also be helpful in deterring crimes that do not leave an obvious paper trail and are difficult to prove, such as illegal insider trading. My findings suggest that incentivizing whistleblowers to come forward may be an effective way for regulators to obtain firsthand knowledge of potential violations and help separate coincidental behaviors from exploitative and illegal ones. This result should be of use to regulators who are aiming to prevent illegal insider trading, corporate governance practitioners who are aiming to improve the compliance culture within their company, and academics interested in these issues.

Finally, the study contributes to the literature on the strength of whistleblowing incentives. Previous literature has found that large monetary incentives can compel whistleblowers to come forward (Dyck et al. (2010)). However, the insider trading setting in this study is unique in that the WB Program replaced another whistleblower program that was exclusively for insider trading. The old program, established in 1989 as part of the Insider Trading and Securities Fraud Enforcement Act (ITSFEA), had weak monetary incentives with successful whistleblowers being entitled to only 10% of the insiders' ill-gotten profits. Thus, the implementation of the Dodd–Frank program represents a change in incentives rather than only the establishment of incentives. For this reason, my results can inform regulators about the potential benefits of *increasing* the value of incentives for whistleblowers.

II. Background

A. SEC Whistleblower Program

As part of Dodd–Frank, the SEC established the Office of the Whistleblower within their Division of Enforcement. This office oversees the new SEC whistleblower program, which substantially changes the way in which the government handles whistleblowing tips related to securities law violations including insider trading. First, the new provisions allow for whistleblowers to receive more monetary compensation for their tips. Under the Dodd–Frank rules, if the total sanctions are over $1,000,000, a whistleblower is entitled to between 10% and 30% of the monetary sanctions obtained as a result of their whistleblowing action.

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Second, the Dodd–Frank provisions allow a whistleblower to blow the whistle directly to the SEC. This differs from the previous law under the Sarbanes-Oxley Act (SOX), which required firms to establish internal whistleblower programs and had no formal process for whistleblowers to report claims regarding securities law violations externally (Archambeault and Webber (2015)). Third, the Dodd–Frank provisions strengthen the anti-retaliation provisions that were established by SOX. The new rules allow a whistleblower to file an anti-retaliation complaint in federal court, rather than pursuing an administrative process run by the Occupational Safety and Health Administration which ruled in favor of whistleblowers "only in the strongest cases" (Zuckerman (2017)). The anti-retaliation rules also increase the amount of damages a whistleblower can receive if they are a victim of retaliation, from back pay to double back pay. In addition, the whistleblower provisions give the SEC the ability to pursue firms who impede or prevent whistleblowers from coming forward.

The WB Program is an improvement over the previous SEC whistleblower program established as part of the ITSFEA which, whereas it was exclusively for insider trading allegations, had many significant weaknesses. Under the old program, the financial motive for whistleblowers to come forward was minimal. A successful whistleblower was eligible only to receive 10% of the insiders' ill-gotten profit and this reward was not guaranteed even in cases where the SEC successfully acted on the whistleblowers' information. Further, there was not much awareness of the program, with the SEC stating in their 2010 review of the program that it "is not widely recognized inside or outside the Commission" (SEC (2010)). The SEC processed 12 total claims and paid only $159,537 to the five successful claimants in the program's 20-year history (SEC (2010)). This lack of awareness likely suppressed any potential deterrent effect on insider trading and led Congress to establish an improved whistleblower program as part of Dodd–Frank.

As discussed in the introduction, the Dodd–Frank whistleblower program has been successful in bringing in claims to the SEC. Since the program's inception, the SEC has received an unprecedented number of tips on insider trades and has levied a significant number of sanctions against wrongdoers (SEC (2014), (2018), (2021)). Thus, the whistleblower program has been effective in detecting illegal conduct in a more timely and cost-effective manner (Ceresney (2016)). However, the effectiveness of the program in reducing hard-to-detect illegal activity such informed insider trading remains an unexplored question in the literature, which this study aims to address.

B. Insider Trading

Research into insider trading has found that despite the large potential penalties that come with being detected, insiders seem willing to trade on their private information for personal gain at the expense of other market participants. Illustrating this point, prior studies find that when countries enforce insider trading laws for the first time, firms experience a decline in the cost of equity capital (Bhattacharya and Daouk (2002)); an increase in analyst following (Bushman, Piotroski, and Smith (2005)); higher stock price informativeness (Fernandes and

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Ferreira (2009));[6] more timely loss recognition (Jayaraman (2012)); and lower reporting opacity (Zhang and Zhang (2018)).

Even in countries with relatively strict and well-established insider trading laws such as the United States, there is still evidence that insiders act opportunistically on their private information. Prior studies have found insider trading before comment letters from the SEC become public (Dechow, Lawrence, and Ryans (2016)); before accounting scandals are revealed (Agrawal and Cooper (2015)); before GAAP misstatements are disclosed (Thevenot (2012)); and before audit reports are released (Arif, Kepler, Schroeder, and Taylor (2022)). More recently, evidence has indicated that executives in politically connected banks profitably traded shares 30 days before their banks received Troubled Asset Relief Program infusions (Jagolinzer, Larcker, Ormazabal, and Taylor (2020)).

The literature has also examined factors that may prevent insiders from trading on their private information. Some mitigating influences on insider trading are litigation risk (Jung, Nam, and Shu (2018)); regulatory risk (Korczak, Korczak, and Lasfer (2010)); firms investing in corporate social responsibility (Gao et al. (2014)); and internal governance measures aimed specifically at insider trading, like requiring insiders to have general counsel approval to trade within restricted windows (Jagolinzer et al. (2011)). Prior studies have shown that external monitors, including the media (Dai, Parwada, and Zhang (2015)) and institutional owners (Hillegeist and Weng (2021)), lead to a reduction in insiders' trading profits.

The results in the literature examining the role of regulation changes in the United States in deterring illegal insider trading are mixed. Jaffe (1974) examines the effect of three court rulings during the 1960s that strengthened the SEC's ability to prosecute illegal insider trading cases. The results are inconclusive. The author finds a short-term reduction in insider trading profitability around two of the three court cases examined, but this reduction is short-lived and disappears within 8 months following the rulings. Seyhun (1992) examines the deterrent effect of an increase in statutory sanctions during the 1980s and finds no effect on insider trading profitability or trading volume. Garfinkel (1997) examines the effect of the ITSFEA on insider trading behavior. The ITSFEA increased the maximum criminal monetary penalty as well as the maximum prison sentence that can be imposed on insiders who trade illegally.[7] It also established a bounty program where informants were entitled to 10% of the insiders' profits. Garfinkel (1997) finds that, after the enactment of ITSFEA, there is a decrease in the amount of insider selling before an earnings announcement with a negative earnings surprise, consistent with a decrease in informed trading. More recently, Kacperczyk and Pagnotta (2024) examine legal changes that affect U.S. regulators' ability to successfully prosecute insider trading cases and find that insiders internalize these changes in legal risk when making their insider trading decisions.

[6]This result is contrary to findings in the early literature on insider trading (Manne (1966), Carlton and Fischel (1983)), which assert that insider trading leads to more informative stock prices by allowing insiders to incorporate their private information into the price. However, Fishman and Hagerty (1992) develop a model where insider trading may "crowd out" trading by other informed market participants, and lead to less efficient prices.

[7]Under the ITSFEA, the maximum criminal penalties were increased to a $1 million fine and 10 years in prison for each violation.

Dodd–Frank differs from these previous regulation changes because it deals solely with an increase in the potential detection of insider trading and not an increase in the punishment (or potential punishment) of lawbreaking insiders. The WB Program includes both a greatly increased monetary incentive for whistleblowers as compared to those offered under the ITSFEA as well as anti-retaliation provisions, which may make whistleblowers much more likely to come forward and provide a stronger deterrent effect on insiders.

C. The SEC Whistleblower Program and Insider Trading

All three key elements of the WB Program (increased financial rewards, strengthened anti-retaliation provisions, and the ability for whistleblowers to report directly to the SEC) are likely to increase the amount of insider trading violations that are reported to the SEC.

First, financial rewards have been shown to motivate whistleblowers to come forward (Dyck et al. (2010)). However, the cutoff necessary to achieve a reward is high with the SEC needing to collect at least $1 million in monetary penalties for the whistleblower to receive any financial compensation. Given that insider trading is an executive-level activity and not a firm-wide collaborative effort with many involved participants, potential whistleblowers may simply never acquire the evidence they need to come forward with a claim that qualifies for an award or find an attorney willing to represent them given the uncertain payout.[8] Therefore, the monetary provisions may motivate only whistleblowers with information on more severe or easily proven insider trading violations.

Nonetheless, it is possible that whistleblowers will come forward to report less severe cases of insider trading even if they do not qualify for a financial reward. Whistleblowers may be motivated to report illegal activity for nonmonetary reasons such as avoiding potential legal liability or improving their reputation (Rapp (2007), Dyck et al. (2010)). Whistleblowers who are motivated by nonmonetary incentives may still be more likely to come forward following the implementation of Dodd–Frank because anti-retaliation provisions like the ones included within the law lower the potential cost of blowing the whistle (Heese and Pérez-Cavazos (2021)).

Finally, the ability for whistleblowers to report directly to the SEC will likely result in a greater number of insider trading claims. Prior to the passage of Dodd–Frank, SOX (2002) required firms to establish internal programs to address whistleblower complaints. However, because there was no formal process to report claims externally and internal reporting was encouraged by regulators, firms could

[8]Prior literature suggests that many insider trading cases pursued by the SEC may not qualify for whistleblower rewards. For the 453 cases prosecuted by the SEC from 2001 to 2015, the median (mean) insider trading profit was $90,000 ($1.01 million) (Kacperczyk and Pagnotta (2019)). Note that the monetary penalties imposed by the SEC typically consist of a significant amount of punitive damages in addition to disgorgement of trading profits, with the maximum civil penalty being equal to three times the ill-gotten gains or avoided losses and the maximum criminal penalty being $5 million in fines and 20 years in prison. The total settlement amount could increase greatly if the insider passed information to another informed trader, or if the insider committed other related crimes (Perino (2020)). Related crimes can be other securities frauds such as bank fraud or failing to disclose the trade to the SEC when required. As an example, see *Securities and Exchange Commission v. Phillip J. DeZwirek* (2013).

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potentially delay or silence whistleblowers (Soltes (2020)). Allowing whistleblowers to bypass these potentially ineffective internal whistleblowing systems reduces the likelihood that their claims will be suppressed and allows more securities law violations such as insider trading to be reported to regulators.

Overall, the combination of increasing the potential benefit and lowering the potential costs of blowing the whistle should result in higher reporting of insider trading activity. The large volume of whistleblower tips received by the SEC for illegal insider trading indicates that this is the case, and that the WB Program has been successful in bringing informants forward.

III. Hypothesis Development and Identification

A. Hypothesis Development

As discussed in the introduction, whistleblowing (and the threat of whistleblowing) can effectively reduce illegal behavior by firms and punish wrongdoers. The revelation of a whistleblowing allegation is subject to an immediate negative response by the market and is associated with long-run negative outcomes such as shareholder lawsuits (Bowen, Call, and Rajgopal (2010)). Thus, prior studies show that whistleblowing allegations are not frivolous or uninformed on average. Call et al. (2018) provide further evidence for the usefulness of whistleblowers, finding that regulatory actions that involve a whistleblower result in higher monetary penalties on the offending firms and longer prison sentences for lawbreaking executives. Beyond their value in detecting wrongdoing that has already occurred, the threat of whistleblowing has been shown to deter potentially harmful firm behaviors such as financial misreporting, tax aggressiveness (Wilde (2017)), and financial fraud (Berger and Lee (2022)).

However, there are significant costs to blowing the whistle that may prevent whistleblowers from coming forward to report insider trading. First, blowing the whistle has both psychological and social costs to the whistleblower. By reporting allegations that can potentially lead to their employer's punishment, ranging from regulatory sanctions to the total dissolution of the company, whistleblowers risk being scorned by their coworkers who may be hurt by these actions. Future employers may also be reluctant to hire a whistleblower if they suspect disloyalty (Rapp (2007)). In survey evidence from Dutch whistleblowers, van der Velden, Pecoraro, Houwerzijl, and van der Meulen (2018) find that 85% of whistleblowers suffer from severe mental distress.

In an attempt to mitigate these issues, the SEC guarantees the anonymity of whistleblowers to all parties and the WB Program includes the anti-retaliation provisions. Additionally, the large volume of tips received by the WB Program provides evidence that the program has successfully increased the perceived benefits and lowered the perceived costs sufficiently to overcome the previous challenges.

In view of the previous arguments, I expect to find that the WB Program has resulted in a reduction in insiders' opportunistic trading. I test this hypothesis by identifying firms that are more sensitive to whistleblowing allegations, as measured by their lobbying behavior during the run-up to the passage of Dodd–Frank and

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their cumulative abnormal return around events related to the passage of the WB Program.

B. Identifying Sensitivity to the Dodd–Frank Whistleblower Program

Because Dodd–Frank was a one-time shock that changed many aspects of the economy simultaneously, it is necessary to identify firms that were more sensitive to potential whistleblowing allegations in the pre- Dodd–Frank period to isolate the effects of the whistleblowing provision from all other changes. I identify sensitive firms in two ways: firms that lobbied against the whistleblowing provision and firms with a positive market reaction around the passage date of the Dodd–Frank whistleblower program.

1. Lobbying

As the main identification, I follow Baloria et al. (2017) and consider firms that lobbied against the WB Program directly during the open comment period from Nov. 3, 2010 to Dec. 17, 2010 as being more sensitive to potential whistleblowing allegations. In their article, Baloria et al. (2017) find that lobbying firms have weaker internal whistleblower programs and a higher degree of managerial entrenchment than matched control firms. Consistent with the idea that lobbying firms would benefit from the additional governance provided by whistleblowers, Baloria et al. (2017) finds that the stock market reaction for lobbying firms around events that increased the probability of the implementation of the whistleblowing provision was positive. Thus, the evidence suggests that firms that lobbied against the whistleblowing provision were not doing so to prevent damage to their shareholders but were doing so to maximize the private benefits of their managers.

To identify lobbying firms, I follow Baloria et al. (2017) and gather all comment letters submitted to the SEC in response to their proposed rules for implementing the WB Program. I code LOBBY = 1 if the firm lobbied against the program.

2. Positive CAR Around Events Related to the Implementation of the WB Program

The previous measure is based on firm-level decisions that may be endogenous. Therefore, I develop another measure of sensitivity to the WB Program that does not rely on any type of firm decision. I use the market reaction around six key events related to the implementation of the WB Program as a proxy for how the market perceives each firm's sensitivity to the program. It is likely that positive total market reaction indicates that market participants think the firm would benefit from the additional oversight and governance provided by the regulation (Lo (2003), Baloria et al. (2017)).

As identified in Baloria et al. (2017), the six key events related to the implementation of the WB Program are: i) "SEC Chair to request new program that compensates WBs" on Mar. 26, 2009; ii) "SEC officially requests WB program" on July 14, 2009[9]; iii) "SEC releases proposed WB provisions" on Nov. 3, 2010;

[9]This event is confounded with the introduction of the Investor Protection Act on July 10, 2009. Therefore, following Baloria et al. (2017), the measurement window for this event begins 1 day before July 10, 2009 and ends 3 days after July 14, 2009.

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iv) "comment letters submitted to SEC" on Dec. 15, 2010; v) "house hearing on no internal reporting requirement" on May 11, 2011; and vi) "final WB rules are adopted with slight modifications" on May 25, 2011. I follow Baloria et al. (2017) and measure the market reaction in the (−1, +3) window around these dates and define an indicator variable, POSITIVE_CAR, that equals 1 for any firm with a positive total cumulative abnormal return in the event windows.[10]

IV. Research Design

A. Sample Selection

I obtain insider trading information from the Thomson Reuters Insider Filing Data, which contains information reported on SEC Forms 3, 4, and 5. I retain all trades made by C-suite executives as well as other top management such as presidents and vice presidents. I also retain all trades made by members of the board of directors (Ravina and Sapienza (2010)). Following the prior literature (e.g., Frankel and Li (2004), Jagolinzer et al. (2011), and Gao et al. (2014)), I include only open-market transactions made by insiders and exclude trades with i) a transaction price below $2; ii) the total number of shares traded below 100; and iii) the number of shares traded greater than the CRSP daily volume.

I define the pre-Dodd Frank period as the beginning of 2007 through (calendar) Q2 2010 because President Obama signed Dodd–Frank into law on July 21, 2010 (Wiedman and Zhu (2020)). I define the post-Dodd–Frank period as Q4 2011 through Q4 2014 because the SEC implemented the WB Program on Aug. 12, 2011. I drop the intermediate period between the passage of Dodd–Frank and the official implementation of the program because this was a time of regulatory uncertainty. Following Berger and Lee (2022), I exclude insiders in the financial or healthcare industries.[11] My final sample consists of 20,352 insider purchases over the period of 2007 to 2014. Data for control variables are from Compustat, CRSP, and IBES.

To identify the sample of lobbying firms, I begin with the full sample of 283 firms that lobbied against the WB Program as identified in Baloria et al. (2017). After eliminating foreign firms, private firms, firms in the healthcare and financial industries, and firms with missing control variables, the final sample consists of 131 firms that lobbied against the WB Program and had insider purchases during the sample period.

[10]My results are robust to using windows around all 19 events identified in Baloria et al. (2017) when using industry and industry and year fixed effects. They are also robust to using only the passage date as the event of interest.

[11]Firms in the healthcare industry are likely to be affected by Medicaid-only False Claims Act laws, which allow whistleblowers to report firms for fraudulently making Medicaid claims. Given that this law is like the Dodd–Frank whistleblower program in its structure, firm insiders may have already adapted to the possibility of having the whistle blown on them. Thus, these firms may be unaffected by the implementation of the Dodd–Frank program. Financial firms are excluded because Dodd–Frank includes numerous changes to the regulatory structure for financial firms beyond the whistleblower program. My results are robust to including financial and healthcare firms.

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B. Measurement of Insider Trading Profits

Following prior literature (Huddart and Ke (2007), Jagolinzer et al. (2011), and Gao et al. (2014)), I use the alpha from the following regression as my measure of insider trading profit, measured over 180 days following the day of trade[12]:

$$R_i - -R_f = \alpha + \beta_1 (R_{\text{MKT}} - R_f) + \beta_2 \text{SMB} + \beta_3 \text{HML} + \beta_4 \text{UMD} + \varepsilon, \tag{1}$$

where R_i is firm i's daily stock return, R_f is the daily risk-free interest rate, R_{MKT} is the CRSP value-weighted market return, and SMB, HML, and UMD represent the size, BTM, and momentum factors.[13] Alpha represents the average daily abnormal trading profit.

For my main analyses, I focus on insider purchases to measure opportunistic insider trading behavior. Insider purchases are more likely to be information-based, whereas insider sales are often used for portfolio rebalancing and liquidity reasons which makes it difficult to identify insiders' informed selling behavior.[14] I follow Jagolinzer et al. (2011) and count multiple insider purchases on the same firm-day as one observation.[15] Later, I extend the analysis to insider sales in event-specific settings.

C. Main Model

The main analyses are based on the following transaction-day-level model:

$$\begin{aligned} \text{TRADING_PROFIT}_t = {} & \alpha + \beta_1 [\text{DODD_FRANK} \times \text{TREATMENT}] \\ & + \beta_2 \text{DODD_FRANK} + \beta_3 \text{TREATMENT} \\ & + \Sigma \beta_k \text{CONTROLS}_{k,t-1} + \varepsilon, \end{aligned} \tag{2}$$

where TRADING_PROFIT_t is the alpha from equation (1), DODD_FRANK is an indicator variable that equals 1 if the trade-day occurs in the post-Dodd–Frank period, and TREATMENT is either LOBBY or POSITIVE_CAR. LOBBY is an indicator variable that equals 1 if the insider's firm lobbied against the WB Program. POSITIVE_CAR is an indicator variable that equals 1 if the insider's firm had a positive total cumulative abnormal return in the (−1, +3) windows around six key events related to the implementation of the WB Program. I predict a negative coefficient on β_1, which would indicate a reduction in profitability of purchases after the WB Program for insiders at firms that are sensitive to the program relative to insiders of other firms.

[12]Prior literature primarily uses or highlights a 180-day window for the main analyses (i.e., Ravina and Sapienza (2010), Jagolinzer et al. (2011), Gao et al. (2014), and Khalilov and Osma (2020)). The rationale for this window is that Section 16(b) of the Securities and Exchange Act of 1934, or the "short swing rule," penalizes insiders for profits made on transactions that are offset within 6 months.

[13]I thank Kenneth French for providing the data for R_m, R_f, SMB, HML, and UMD on his website, available at https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

[14]One potential concern with my focus on insider purchases is that regulators may be more concerned with insider sales before negative firm events because the damage to investors is more clearly observable. However, the opposite seems to be true. Of the 5,058 illegal trades pursued by the SEC over the 2001–2015 window, 4,220 were insider purchases (Kacperczyk and Pagnotta (2019)).

[15]The results are robust to keeping each individual transaction.

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I follow Gao et al. (2014) to develop an exhaustive set of controls. Prior studies find that firms with R&D (Aboody and Lev (2000)) and firms with losses (Huddart and Ke (2007), Brochet (2010)) have higher levels of information asymmetry which gives insiders an advantage when trading in their firm's stock. Thus, I include indicator variables that equal 1 if the firm had positive R&D expenses ($R\&D_{t-1}$) or reported a loss ($LOSS_{t-1}$) for the year-end prior to the transaction date. Ravina and Sapienza (2010) find that stock price volatility is positively related to insider trading profits, so I include a control ($VOLATILITY_{t-1}$) that equals the variance of daily stock returns over the (−380, −20) day window relative to the transaction date. To proxy for the level of investor attention given to the firm, I include the log of 1 plus the number of analysts following the firm in the year prior to the transaction date ($ANALYST_{t-1}$) and the average daily stock turnover in the (−380, −20) day window relative to the transaction date ($AVERAGE_TURNOVER_{t-1}$). To control for firm-level governance that can affect insider trading, I include an indicator variable that equals 1 if the firm has a restricted window for trading ($RESTRICTED_WINDOW_{t-1}$) in the year prior to the transaction. A firm is considered to have a restricted window if more than 75% of their insider trades within the fiscal year occur in a 30-day window following an earnings announcement. Because insiders tend to be contrarian traders (Lakonishok and Lee (2001)), I control for firm characteristics that may be related to insider trading profitability. These controls are the BTM ratio (BTM_{t-1}), the earnings-price ratio (EP_{t-1}), and the firm's average sales growth over the prior 5 years ($AVERAGE_SALES_GROWTH_{t-1}$). I also include a control for past returns ($BUY_AND_HOLD_RETURN_{t-1}$), which is measured as the market-adjusted buy-and-hold return in the (−380, −20) day window prior to the trade. Because large firms are likely to have more investor and regulator attention, I include a variable for firm size ($SIZE_{t-1}$), measured as the natural logarithm of the market value of equity at the end of the year prior to the transaction. Variable definitions can be found in the Appendix.

Following Wilde (2017), I include fixed effects for industry at the Fama and French (1997) 48-industry and year fixed effects in my analysis using lobbying firms.[16] All continuous variables are winsorized at the 1% and 99% levels.

D. Event-Specific Tests

Next, I extend the analysis to examine insider sales. Because it is difficult to identify information-driven insider sales in broad samples (Lakonishok and Lee (2001), Ravina and Sapienza (2010), and Gao et al. (2014)), I do not examine insider sales for the full sample, but instead identify settings where insider sales (as well as purchases) are likely to be informed. Insiders have been shown to trade profitably before earnings announcements (Jagolinzer et al. (2011)), as well as before M&A announcements (Seyhun (1990), Meulbroek (1992)). Therefore, I use both settings to identify informed insider trading.[17] I define an insider sale

[16]These results are robust to using firm and firm and year fixed effects.

[17]Following Bao and Edmans (2011), I examine only the market reaction for acquirers. I drop all deals in which the acquirer's initial stake exceeded 50% or its final stake was below 50%. I drop deals with a value below $1 million. My results are robust to including targets in the sample as well. M&A data were obtained from SDC Platinum.

(purchase) as informed if it is made in the 20-trading-day window before an event that elicits a negative (positive) abnormal market reaction, as measured in the (−1, +1) window around the event. For each event, I collect both the number of informed transactions made within the window as well as the scaled value, which is measured as the value of the insider transactions over the market value of equity at the prior quarter-end. I then test the univariate difference in these variables following the passage of the WB Program. If the program reduced the level of informed insider trading, I expect a reduction in both the number of transactions and the scaled value traded in the post-period.

I also examine this question using the following regression:

$$\begin{aligned}(3)\qquad \#_\text{SELLS}_t = {} & \alpha + \beta_1[\text{DODD_FRANK} \times \text{NEGATIVE_CAR}] \\ & + \beta_2\text{DODD_FRANK} + \beta_3\text{NEGATIVE_CAR} \\ & + \Sigma\beta_k\text{CONTROLS}_{k,t-1} + \varepsilon,\end{aligned}$$

where #_SELLS is the number of sales transactions occurring in the 20-trading-day window before the event, DODD_FRANK is the period after Q4 2011, and NEGATIVE_CAR is an indicator variable that equals 1 if the cumulative abnormal return in the (−1,+1) window around the announcement is negative. Following Huddart, Ke, and Shi (2007), I include controls for firm characteristics that may influence insider behavior within the pre-event window. These controls are firm size and BTM ratio, both measured at the closest fiscal quarter-end prior to the event window, and the previous buy-and-hold return in the (−380, −20) window relative to the event. Following my prior tests, I also include year and Fama–French 48-industry fixed effects.

I predict that β_1 will be negative, which would indicate that insiders sell less frequently before events with negative market reactions than they do before events with positive market reactions following the passage of the Dodd–Frank whistleblower program. This would provide evidence of a decrease in informed trading, and not just a decrease in insider trading in general within these pre-event windows.

I examine all firms within this setting, and not just those I identify as sensitive to whistleblowing allegations in my broad sample. As discussed, I assume that any profitable trade made within the window before an information event is informed. I expect all insiders that trade within the pre-event window to be sensitive to whistleblowing allegations for two reasons. First, firms that allow these profitable trades to occur in the pre-event window are more likely to have weak controls over insider trading (Jagolinzer et al. (2011)) and therefore are more sensitive to whistleblowing. Second, because the period before an information event is a high-jeopardy period, insiders who trade in this period are exposed to an elevated risk of enforcement for illegal insider trading (Huddart et al. (2007)). The increased threat of whistleblowing following Dodd–Frank may make any insider who trades within these high-jeopardy windows more cautious, because the probability of having their risky trades detected has increased regardless of whether the insider is at a firm that is coded as sensitive within my broad sample. For these two reasons, all insiders who profitably trade within the window are likely sensitive to the increase in the probability of having a whistleblower report their behavior, and I expect an

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on-average reduction in this behavior for all firms following the implementation of the WB Program.

V. Results

A. Descriptive Statistics

Table 1 presents descriptive statistics for the sample of insider purchases. The average insider purchase is profitable in the sample, earning 0.038% daily abnormal trading profit. The mean value of LOBBY shows that 6% of the trade-days within the sample are by insiders at firms that lobbied against the WB Program. When POSITIVE_CAR is used to define sensitivity, 61.1% of trade-days are treated.

B. Full-Sample Results

Table 2 reports the main results from using the LOBBY variable as the measure of sensitivity to the WB Program. Panel A presents a univariate difference-in-differences analysis to provide an intuitive overview for the effect of the WB Program on the LOBBY firms. In the pre-period, insiders at firms who lobbied against the WB Program had more profitable insider purchases on average (0.067% average daily alpha for treated insiders versus 0.032% for the control group). After the WB Program was implemented, this advantage disappears. Both the decrease in TRADING_PROFIT for LOBBY firms after the WB Program was implemented and the difference-in-differences estimator are statistically significant at the 5% level. These results provide evidence in favor of my hypothesis that insiders who are more sensitive to potential whistleblowing allegations are less likely to trade on their private information following the enactment of the whistleblower program.

Panel B of Table 2 presents the results from estimating equation (2) with LOBBY as the measure of sensitivity to the WB Program. The variable of interest

TABLE 1

Descriptive Statistics

Table 1 presents the summary statistics for the sample of insider purchases over the period of 2007 to 2014. See the Appendix for variable definitions.

Variables	*N*	Mean	Std. Dev.	p10	p50	p90
	1	2	3	4	5	6
TRADING_PROFIT	20,352	0.038	0.275	−0.273	0.037	0.359
LOBBY	20,352	0.060	0.237	0	0	0
POSITIVE_CAR	20,352	0.611	0.488	0	1	1
CAR_CONTINUOUS	20,352	0.060	0.176	−0.136	0.044	0.286
R&D	20,352	0.476	0.499	0	0	1
LOSS	20,352	0.307	0.461	0	0	1
BUY_AND_HOLD_RETURN	20,352	−0.044	0.435	−0.487	−0.111	0.427
AVERAGE_DAILY_TURNOVER	20,352	0.008	0.007	0.001	0.006	0.018
VOLATILITY	20,352	0.001	0.001	0.000	0.001	0.003
AVERAGE_SALES_GROWTH	20,352	0.127	0.196	−0.044	0.084	0.322
BTM	20,352	0.662	0.500	0.202	0.553	1.218
EP	20,352	−0.011	0.205	−0.175	0.040	0.122
ANALYST	20,352	1.552	1.037	0	1.609	2.944
RESTRICTED_WINDOW	20,352	0.318	0.466	0	0	1
SIZE	20,352	5.944	1.965	3.478	5.792	8.524

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TABLE 2

Lobbying and Insider Trading Profits

Table 2 presents results on the effect of the Dodd–Frank whistleblower program on firms that lobbied against it. Panel A presents the univariate effect on the average daily trading profit measured over the 180-day window following the day of an insider purchase. Panel B presents the results from equation (2) where the dependent variable is the average daily trading profit measured over the 180-day window following the day of an insider purchase. LOBBY is an indicator variable that equals 1 if the insider is in a firm that lobbied against the Dodd–Frank whistleblower bounty program. See the Appendix for all other variable definitions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. *P*-values in parentheses. Standard errors are clustered by transaction date.

Panel A. Univariate Results

	Treatment = LOBBY			
Treatment	Trading Profit (%)	Standard Error	*t*-Stat	*p*-Value
Before Dodd–Frank				
Control	0.032			
Treated	0.067			
Diff (T-C)	0.035	0.011	3.32	0.001***
After Dodd–Frank				
Control	0.046			
Treated	0.037			
Diff (T-C)	−0.009	0.013	0.70	0.481
Diff-in-Diff	**−0.044**	**0.017**	**2.67**	**0.008*** **

Panel B. Regression Results

	TRADING_PROFIT		
Variables	1	2	3
DODD_FRANK × LOBBY	−0.051***	−0.039***	−0.039***
	(<0.001)	(0.005)	(0.006)
DODD_FRANK		0.027***	
		(<0.001)	
LOBBY	0.051***	0.050***	0.050***
	(<0.001)	(<0.001)	(<0.001)
R&D	0.004	−0.017***	−0.020***
	(0.284)	(0.003)	(<0.001)
LOSS	0.012*	−0.001	−0.001
	(0.077)	(0.848)	(0.908)
BUY_AND_HOLD_RETURN	−0.009*	−0.010*	−0.017***
	(0.064)	(0.050)	(0.001)
AVERAGE_DAILY_TURNOVER	−2.110***	−1.216***	−0.892***
	(<0.001)	(<0.001)	(0.010)
VOLATILITY	18.584***	24.509***	17.899***
	(<0.001)	(<0.001)	(<0.001)
AVERAGE_SALES_GROWTH	0.002	−0.010	−0.011
	(0.862)	(0.399)	(0.342)
BTM	−0.010*	0.007	−0.004
	(0.060)	(0.242)	(0.447)
EP	0.054***	0.064***	0.059***
	(0.003)	(<0.001)	(0.001)
ANALYST	−0.002	−0.003	−0.004
	(0.468)	(0.324)	(0.166)
RESTRICTED_WINDOW	0.003	0.002	0.003
	(0.516)	(0.675)	(0.502)
SIZE	−0.002	0.001	−0.001
	(0.349)	(0.646)	(0.645)
CONSTANT	0.043***	0.009	0.044***
	(<0.001)	(0.442)	(<0.001)
No. of obs.	20,352	20,352	20,352
R^2	0.024	0.048	0.055
Fixed effect	Year	Industry	Industry and year

is DODD_FRANK × LOBBY which indicates the change in profitability of insider purchases following the enactment of the WB Program for insiders in firms that lobbied against the program, as compared to all other insiders. The first three columns present the results when lobbying is defined at the firm-level. The results

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show that the profitability of insider purchases is reduced by about 0.04% per day for insiders that are sensitive to the new WB Program relative to all other insiders. This result is economically meaningful, with the reduction in trading profits being about equal to the sample mean. The negative and significant coefficients across all specifications are once again consistent with my hypothesis that insiders who are sensitive to the WB Program will be less likely to trade on their private information following its enactment.[18] Most control variables are in the predicted direction, consistent with the prior literature. Insiders at firms with losses (LOSS) and higher volatility (VOLATILITY) have on-average higher trading profits, whereas insiders at firms with a higher monitoring intensity (AVERAGE_DAILY_TURNOVER) and higher previous returns (BUY_AND_HOLD_RETURN) have on-average lower trading profits.

To address potential endogeneity concerns, I rerun the analysis from Table 2 in an entropy-balanced sample. Entropy balancing allows me to achieve covariate balance between my treatment and control firms without losing observations or having to specify a selection model, which is required for methods such as propensity score matching and may be sensitive to research design decisions (DeFond, Erkens, and Zhang (2016)). I balance the treatment and control groups on the first, second, and third moments of all independent variables (aside from the treatment condition) reported in Table 2 (Hainmueller (2012)). Table 3 presents the results from the entropy-balanced sample. The coefficient values are slightly lower in the entropy-balanced sample compared to the results from Table 2. However, the coefficients remain significant at least at the 5% level and the magnitudes are sizeable (about equal to the mean of TRADING_PROFIT). These results provide assurance that the main findings are not driven by fundamental differences between treatment and control observations.

Panel A of Table 4 reports the regression results when using the market-based measure of an insider's sensitivity to whistleblowing allegations (whether the firm had a positive total market reaction around the six key events related to the implementation of the WB Program). The coefficient on DODD_FRANK × POSITIVE_CAR is negative and significant across all three columns with a reduction of trading profits in the range of 0.037% to 0.039%, consistent with my prior findings.

Panel B of Table 4 also presents results using the continuous values of CAR. When using this alternative definition, the coefficient on DODD_FRANK

[18]The positive coefficient on the DODD_FRANK main effect indicates that nontreated insiders have increased profitability on their trades in the post-period. This may be because the pre-period is during a recessionary period, meaning that there were fewer potentially profitable buying opportunities for insiders. Since all firms experienced the same recessionary period, this potential increase in buying opportunities following Dodd–Frank should uniformly affect both the treatment and control firms, biasing against finding a negative coefficient on DODD_FRANK × LOBBY. The univariate analyses from Panel A of Table 2 show that the TRADING_PROFIT for treated LOBBY insiders decreases in the post-period (from 0.067% to 0.037%). This decrease is statistically significant at the 10% level, indicating that treated insiders have reduced profitability in the post-period and the effect isn't solely driven by changes in the control group. Additionally, the entropy-balanced model in Table 3 should address concerns that exiting the recession affected insiders differently depending on firm characteristics. Finally, Table 7 alters the pre-period to be before the recessionary period. Therefore, the results observed are unlikely to be driven solely by a change in nontreated insider behavior.

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TABLE 3

Lobbying and Insider Trading Profits (Entropy-Balanced Sample)

Table 3 presents the results from an entropy-balanced regression where the dependent variable is the average daily trading profit measured over the 180-day window following the day of an insider purchase. LOBBY is an indicator variable that equals 1 if the insider is in a firm that lobbied against the Dodd–Frank whistleblower bounty program. See the Appendix for all other variable definitions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. *P*-values are in parentheses. Standard errors are clustered by transaction date.

	TRADING_PROFIT		
Variables	1	2	3
DODD_FRANK × LOBBY	−0.030**	−0.032**	−0.032**
	(0.029)	(0.021)	(0.020)
DODD_FRANK		−0.005	
		(0.351)	
LOBBY	0.040***	0.048***	0.047***
	(<0.001)	(<0.001)	(<0.001)
R&D	−0.029***	−0.029***	−0.026**
	(<0.001)	(0.009)	(0.016)
LOSS	0.020*	0.009	0.010
	(0.094)	(0.460)	(0.409)
BUY_AND_HOLD_RETURN	−0.017*	−0.030***	−0.025**
	(0.088)	(0.004)	(0.013)
AVERAGE_DAILY_TURNOVER	−2.173***	−1.725***	−1.854***
	(<0.001)	(0.002)	(0.001)
VOLATILITY	11.508**	15.409***	16.459***
	(0.029)	(0.001)	(0.004)
AVERAGE_SALES_GROWTH	−0.183***	−0.162***	−0.161***
	(<0.001)	(<0.001)	(<0.001)
BTM	−0.013	−0.010	−0.006
	(0.229)	(0.352)	(0.584)
EP	0.008	0.026	0.023
	(0.880)	(0.610)	(0.644)
ANALYST	0.029***	0.023***	0.024***
	(<0.001)	(<0.001)	(<0.001)
RESTRICTED_WINDOW	0.003	−0.000	−0.001
	(0.652)	(0.995)	(0.910)
SIZE	−0.023***	−0.022***	−0.022***
	(<0.001)	(<0.001)	(<0.001)
CONSTANT	0.185***	0.178***	0.166***
	(<0.001)	(<0.001)	(<0.001)
No. of obs.	20,352	20,352	20,352
R^2	0.071	0.112	0.117
Fixed effect	Year	Industry	Industry and year

× CAR_CONTINUOUS remains negative and significant.[19] This effect is economically significant, with a 1-standard-deviation increase in CAR_CONTINUOUS being associated with a 0.015% reduction in insider trading profits for treated insiders relative to control insiders.

These results support the hypothesis that insiders at firms perceived by market participants as benefiting from the additional oversight provided by the WB Program experience a reduction in their informed trading following the implementation of the program. Additionally, by finding an effect consistent with the prior results when using a market-based measure as opposed to the measure based on firm

[19]These results are robust to using windows around all 19 events identified in Baloria et al. (2017) with industry and industry and year fixed effects, as well as using only the passage date of the WB Program as the event of interest.

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TABLE 4

Market Reaction Around Six Key Events Related to WB Program Implementation

Table 4 presents the results from equation (2) where the dependent variable is the average daily trading profit measured over the 180-day window following the day of an insider purchase. POSITIVE_CAR is an indicator variable that equals 1 if the insider is in a firm that had a positive total cumulative abnormal return in the (−1, +3) windows around the six key events related to the implementation of the Dodd–Frank whistleblower program as identified in Baloria et al. (2017). CAR_CONTINUOUS is the total cumulative abnormal return for the insider's firm in the (−1, +3) windows around the six key events related to the implementation of the Dodd–Frank whistleblower program as identified in Baloria et al. (2017). See the Appendix for all other variable definitions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. *P*-values are in parentheses. Standard errors are clustered by transaction date.

Panel A. Positive CAR (Indicator)

	TRADING_PROFIT		
Variables	1	2	3
DODD_FRANK × POSITIVE_CAR	−0.037***	−0.038***	−0.039***
	(<0.001)	(<0.001)	(<0.001)
DODD_FRANK		0.046***	
		(<0.001)	
POSITIVE_CAR	0.042***	0.041***	0.040***
	(<0.001)	(<0.001)	(<0.001)
R&D	0.003	−0.017***	−0.020***
	(0.495)	(0.003)	(<0.001)
LOSS	0.013**	0.000	0.001
	(0.040)	(0.980)	(0.889)
BUY_AND_HOLD_RETURN	−0.010**	−0.011**	−0.017***
	(0.048)	(0.035)	(0.001)
AVERAGE_DAILY_TURNOVER	−2.353***	−1.412***	−1.086***
	(<0.001)	(<0.001)	(0.002)
VOLATILITY	17.496***	23.966***	17.271***
	(<0.001)	(<0.001)	(<0.001)
AVERAGE_SALES_GROWTH	−0.001	−0.011	−0.013
	(0.949)	(0.322)	(0.267)
BTM	−0.009*	0.008	−0.003
	(0.086)	(0.174)	(0.572)
EP	0.054***	0.064***	0.058***
	(0.003)	(<0.001)	(0.001)
ANALYST	−0.001	−0.002	−0.003
	(0.735)	(0.512)	(0.287)
RESTRICTED_WINDOW	0.003	0.001	0.003
	(0.542)	(0.730)	(0.552)
SIZE	−0.001	0.001	−0.000
	(0.479)	(0.450)	(0.877)
CONSTANT	0.027**	−0.014	0.029**
	(0.013)	(0.255)	(0.013)
No. of obs.	20,352	20,352	20,352
R^2	0.027	0.050	0.057
Fixed effect	Year	Industry	Industry and year
Panel B: CAR (Continuous)			
DODD_FRANK × CAR_CONTINUOUS	−0.073***	−0.087***	−0.086***
	(0.003)	(<0.001)	(<0.001)
DODD_FRANK		0.029***	
		(<0.001)	
CAR_CONTINUOUS	0.081***	0.067***	0.067***
	(<0.001)	(<0.001)	(<0.001)
R&D	0.004	−0.016***	−0.019***
	(0.320)	(0.005)	(0.001)
LOSS	0.013*	0.000	0.001
	(0.050)	(0.987)	(0.902)
BUY_AND_HOLD_RETURN	−0.010**	−0.011**	−0.018***
	(0.043)	(0.032)	(0.001)
AVERAGE_DAILY_TURNOVER	−2.293***	−1.332***	−1.007***
	(<0.001)	(<0.001)	(0.004)

(continued on next page)

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TABLE 4 (continued)

Market Reaction Around Six Key Events Related to WB Program Implementation

Panel B: CAR (Continuous) (continued)			
VOLATILITY	17.646***	24.157***	17.351***
	(<0.001)	(<0.001)	(<0.001)
AVERAGE_SALES_GROWTH	−0.002	−0.012	−0.014
	(0.868)	(0.297)	(0.243)
BTM	−0.009*	0.007	−0.004
	(0.086)	(0.203)	(0.511)
EP	0.056***	0.066***	0.061***
	(0.002)	(<0.001)	(0.001)
ANALYST	−0.002	−0.003	−0.004
	(0.461)	(0.337)	(0.171)
RESTRICTED_WINDOW	0.002	0.001	0.002
	(0.610)	(0.797)	(0.612)
SIZE	−0.000	0.002	0.000
	(0.831)	(0.244)	(0.795)
CONSTANT	0.037***	0.003	0.039***
	(0.001)	(0.830)	(0.001)
No. of obs.	20,352	20,352	20,352
R^2	0.025	0.048	0.055
Fixed effect	Year	Industry	Industry and year

behavior, these results provide assurance that the results I observe are not solely attributable to endogenously chosen factors.

C. Event-Specific Results

Table 5 reports the results from the event-specific analyses. Panels A and B present univariate results. Panel A presents the changes in trading behavior by insiders between the pre- and post-Dodd–Frank period in the 20-trading-day window before earnings announcements (EAs). The results show that, in the post-Dodd–Frank period, insiders make a smaller number of purchase transactions before an EA with a positive market response and a smaller number of sale transactions before an EA with a negative market response. The reduction in sales transactions is quite substantial, with insiders making 39% fewer sales transactions within the EA window in the post-period (6.837 transactions in the pre-period versus 4.187 transactions in the post-period). When examining the value traded, there is a numerical but statistically insignificant reduction in the value of insider purchases and a significant reduction in the value of insider sales within the EA window after Dodd–Frank.[20]

Panel B of Table 5 repeats the analysis using M&A announcements as the event of interest. The results are similar but weaker than those found around

[20]Results are similar when using only LOBBY firms. Sales within the negative EA window are reduced from 6.588 in the pre-period to 3.150 in the post-period. Purchases within the positive EA window fall from 1.5 in the pre-period to 1.272 in the post-period. The similarity between LOBBY firms and the broad sample highlights the risk all insiders face, regardless of their firm's current corporate governance over insider trading, when trading in the high-jeopardy period before earnings announcements.

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TABLE 5

Event-Specific Analyses

Table 5 presents analyses of insider trading behavior before and after the passage of Dodd–Frank. Panel A describes the trading behavior around earnings announcements. Panel B describes the trading behavior around M&A announcements. Panel C presents the results from equation (3) where the dependent variable is the number of sales transactions made by insiders in the 20-trading-day window prior to the event. NEGATIVE_CAR is an indicator variable that equals 1 if the insider is in a firm that had a negative cumulative abnormal return in the (−1, +1) window around the event. See the Appendix for all other variable definitions. ***, **, and * indicate significant differences in the Pre and Post coefficients at the 1%, 5%, and 10% levels for univariate tests, and significance at the 1%, 5%, and 10% level for regression tests. *P*-values are in parentheses. Standard errors are clustered by firm.

Panel A. Earnings Announcement Univariate Results

Purchases Before Positive Event				Sales Before Negative Event			
No. of Transactions		% Market Cap Traded		No. of Transactions		% Market Cap Traded	
Pre	1.557	Pre	0.019	Pre	6.837	Pre	0.128
Post	1.384	Post	0.017	Post	4.187	Post	0.075
Difference	−0.173***	Difference	−0.002	Difference	−2.650***	Difference	−0.053***

Panel B. M&A Announcement Univariate Results

Purchases Before Positive Event				Sales Before Negative Event			
No. of Transactions		% Market Cap Traded		No. of Transactions		% Market Cap Traded	
Pre	1.842	Pre	0.050	Pre	10.856	Pre	0.134
Post	1.804	Post	0.022	Post	5.450	Post	0.117
Difference	−0.038	Difference	−0.028	Difference	−5.406***	Difference	−0.017

Panel C. Regression Results

	EAs		M&As	
	#_SELLS	#_SELLS	#_SELLS	#_SELLS
Variables	1	2	3	4
DODD_FRANK × NEGATIVE_CAR	−0.653**	−0.545*	−0.397	−0.044
	(0.022)	(0.052)	(0.772)	(0.974)
DODD_FRANK	−2.148***		−4.959***	
	(<0.001)		(<0.001)	
NEGATIVE_CAR	0.394	0.287	1.143	0.725
	(0.103)	(0.221)	(0.350)	(0.552)
SIZE	0.164*	0.204**	0.585**	0.663***
	(0.070)	(0.025)	(0.010)	(0.003)
BTM	−1.583***	−0.907**	−7.396***	−6.054***
	(<0.001)	(0.019)	(<0.001)	(<0.001)
BUY_AND_HOLD_RETURN	0.554***	0.853***	0.333	0.478
	(0.001)	(<0.001)	(0.331)	(0.197)
CONSTANT	5.866***	4.000***	7.884***	4.184**
	(<0.001)	(<0.001)	(<0.001)	(0.033)
No. of obs.	7,699	7,699	1,206	1,206
R^2	0.067	0.097	0.116	0.136
Fixed effect	Industry	Industry and year	Industry	Industry and year

earnings announcements. There is a significant decrease in the number of sales transactions before a negatively-perceived M&A, and an insignificant decrease in the number of purchase transactions before a positively-perceived M&A. I find consistent but insignificant results when I examine the value traded for both sales and purchases before M&As[21]. Together, these results provide evidence to support my hypothesis that insiders are less likely to use their private information to sell before a negative information event, and weak evidence to support the idea that they are less likely to purchase before a positive information event following the enactment of the WB Program.

[21]Results remain similar when using only LOBBY firms.

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Panel C of Table 5 presents the results from estimating equation (3) for both the earnings announcement and M&A announcement samples. The variable of interest is DODD_FRANK × NEGATIVE_CAR, which indicates the differential reduction in sales transactions before a negative event as compared to a positive event following the enactment of the WB Program. Columns 1 and 2 present my results for the EA sample. The coefficient DODD_FRANK × NEGATIVE_CAR is negative and significant in both specifications, representing a reduction of approximately 0.6 sales transactions in the pre-earnings announcement window following Dodd–Frank. This result is also economically significant, representing approximately a 10% differential reduction in sales transactions before negative events relative to the pre-Dodd–Frank mean. These results provide evidence in favor of the study's hypothesis of reduced insider selling in the high-jeopardy period before earnings announcements. Interestingly, the coefficient on DODD_FRANK is also significantly negative with a large magnitude of −2.148 in column 2. This indicates that insiders reduce sales transactions before both positive *and* negative information events. This result could indicate that, because of the increased likelihood of having the whistle blown on them, insiders are more cautious in general before information events regardless of the direction to avoid the appearance of informed trading. It could also reflect better governance over insider trading within these high-jeopardy periods.

Columns 3 and 4 of Table 5 present my results for the M&A sample. The coefficient on DODD_FRANK × NEGATIVE_CAR is negative as expected, although statistically insignificant. The coefficient on DODD_FRANK remains strongly negative. This result could reflect greater uncertainty about the direction of the information event. While earnings announcements have clear benchmarks to meet or beat and the direction of the insider's information is likely to be unambiguous, it is less clear whether an insider would be able to accurately anticipate how the market will react to their firm's M&A announcement. Therefore, the effect of an increased overall sense of caution or better governance may overpower any direction-specific effect.

VI. Robustness

While the results of this study have consistently shown that there is a reduction in opportunistic insider trading following the enactment of the WB Program, there may still be concerns about the validity of the results. One potential concern is that the small number of treated observations when using LOBBY as the treatment may increase the likelihood that idiosyncratic factors are causing the observed reduction in insider trading profitability for insiders at these firms. While I partially address this issue using entropy balancing (see Table 3), I provide additional assurance here by considering an alternative firm-behavior-based specification based on the effectiveness of the firm's internal whistleblower program. I define insiders as being more sensitive to the whistleblower law when their firms have weaker internal whistleblower programs based on the volume of complaints received and the firm's responsiveness to them (Stubben and Welch (2020)). As discussed in Section II.C, the WB Program formalized a process for whistleblowers to report their claims directly to the SEC. Prior to this rule change, internal reporting was encouraged by

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regulators and there was no formal process to report claims externally. This meant that firms with effective programs could address issues before they became damaging to the firm (Stubben and Welch (2020)). In contrast, firms with ineffective or weak programs could potentially delay or silence whistleblowers (Soltes (2020)). Because firms with weak programs may no longer be able to suppress whistleblower complaints, I identify these firms as more sensitive to whistleblowing allegations following Dodd–Frank.

To identify firms with weak internal whistleblower programs, I use the USAGE variable from Stubben and Welch (2019).[22] USAGE represents the common factor underlying these researchers' three measures of system effectiveness: the number of reports per employee, the percentage of whistleblower reports that are reviewed by the firm, and the fraction of five key reporting variables that are available within the firm's reporting system.[23] USAGE is reported at the industry level and normalized to have a mean of 0 and a variance of 1, with below-zero firms having weaker internal systems. I create an indicator variable called LOW_USAGE which equals 1 for insiders at firms within industries that have an average USAGE score below 0.[24] This alternative treatment has much greater coverage than LOBBY, with 42.3% of observations being treated.

Table 6 reports the regression results. The coefficient on DODD_FRANK × LOW_USAGE is negative and significant in all specifications, indicating a reduction in insider trading profits in the post-Dodd–Frank period.[25] The magnitude of the coefficients is lower than for the lobbying firms, with a reduction in trading profits between 0.016% and 0.025% per day. These results provide further support of the study's hypothesis that insiders in firms that are sensitive to whistleblowing allegations reduced their opportunistic behavior following the enactment of the WB Program.

Another potential concern is that, since the pre-Dodd–Frank period in this article includes the recessionary period from 2008 to 2010, this design decision may be responsible for the observed results. To address this issue, I rerun the main analyses in Table 2, while defining the pre-Dodd–Frank period as 2005–2007 to exclude the recessionary period. The results are reported in Table 7. The conclusions from Table 2 remain fully robust when using this alternative pre-period. Following the enactment of the Dodd–Frank whistleblower program, the average daily abnormal profitability on insider purchases is reduced by 0.025% to 0.034% for insiders at firms that lobbied against the program relative to insiders at firms that did not.

[22]This is an earlier working paper version of Stubben and Welch (2020). This working paper is available at: http://www.utah-wac.org/2019/Papers/stubben_UWAC.pdf.

[23]The five key variables are as follows: i) how the individual became aware of the activity (e.g., observed personally, informed by customer); ii) how long the inappropriate activity has been occurring; iii) whether management was aware of the activity; iv) whether management was involved in the activity; and v) the outcome of the investigation.

[24]The results are robust to using the continuous values of USAGE when using firm and firm and year fixed effects. I focus on the industry-level measure of USAGE as I do not have access to the firm-level data provided by NAVEX Global that was used in Stubben and Welch (2019). The following industries (as defined by Barth, Beaver, and Landsman (1998)) have below-zero USAGE: "Food," "Textiles/Publishing," "Chemicals," "Pharmaceuticals," "Extractive," "Utilities," "Retail," and "Other."

[25]Given that LOW_USAGE does not vary within industry, industry fixed effects are not appropriate.

TABLE 6

Weak Internal Whistleblower Program and Insider Trading Profits

Table 6 presents the results from equation (2) where the dependent variable is the average daily trading profit measured over the 180-day window following the day of an insider purchase. LOW_USAGE is an indicator variable that equals 1 if the insider belongs to a firm in an industry with a below zero value of USAGE as presented in Stubben and Welch (2019). See the Appendix for all other variable definitions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. *P*-values are in parentheses. Standard errors are clustered by transaction date.

	TRADING_PROFIT		
Variables	1	2	3
DODD_FRANK × LOW_USAGE	−0.016**	−0.025***	−0.022**
	(0.039)	(0.010)	(0.019)
DODD_FRANK		0.038***	
		(<0.001)	
LOW_USAGE	0.019***		
	(0.002)		
R&D	0.009**	−0.005	−0.000
	(0.030)	(0.785)	(0.997)
LOSS	0.012*	0.011	0.008
	(0.061)	(0.191)	(0.329)
BUY_AND_HOLD_RETURN	−0.010**	−0.010	−0.011*
	(0.039)	(0.133)	(0.090)
AVERAGE_DAILY_TURNOVER	−2.132***	−1.850***	−1.403**
	(<0.001)	(0.006)	(0.033)
VOLATILITY	18.889***	1.971	11.459***
	(<0.001)	(0.496)	(0.001)
AVERAGE_SALES_GROWTH	−0.002	−0.015	0.026
	(0.834)	(0.597)	(0.367)
BTM	−0.009	0.030***	0.028***
	(0.114)	(0.001)	(0.003)
EP	0.056***	0.026	0.042**
	(0.002)	(0.179)	(0.031)
ANALYST	−0.002	−0.015***	−0.015***
	(0.522)	(<0.001)	(<0.001)
RESTRICTED_WINDOW	0.003	−0.010**	−0.012**
	(0.500)	(0.039)	(0.020)
SIZE	−0.001	−0.120***	−0.134***
	(0.670)	(<0.001)	(<0.001)
CONSTANT	0.030***	0.759***	0.837***
	(0.006)	(<0.001)	(<0.001)
No. of obs.	20,352	20,010	20,010
R^2	0.024	0.442	0.447
Fixed effect	Year	Firm	Firm and year

Finally, there may be concern that the results are driven by the numerous other changes that were implemented as part of Dodd–Frank. The law contains many changes to firms' corporate governance and information environments that may indirectly influence the profitability of insider trades. Two such changes are the mandated independence of the firm's compensation committee to be listed on a stock exchange and the required disclosure of an executive pay ratio. Regarding the first rule, if the newly independent compensation committee is better able to monitor the firm executives or design compensation in such a way to discourage insiders from engaging in reputation-damaging activities, then this change could possibly interfere with the observed results. Similarly, if the disclosure of the executive pay ratio causes outside monitors to pay more attention to the firm and provide better governance over firm executives, this may also interfere with the

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TABLE 7

Lobbying Analyses (Pre-Period = 2005 Through 2007)

Table 7 presents the results from equation (2) where the dependent variable is the average daily trading profit measured over the 180-day window following the day of an insider purchase. LOBBY is an indicator variable that equals 1 if the insider is in a firm that lobbied against the Dodd–Frank whistleblower bounty program. See the Appendix for all other variable definitions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. *P*-values are in parentheses. Standard errors are clustered by transaction date.

	TRADING_PROFIT		
Variables	1	2	3
DODD_FRANK × LOBBY	−0.034***	−0.025**	−0.027**
	(0.006)	(0.042)	(0.030)
DODD_FRANK		0.012***	
		(0.003)	
LOBBY	0.036***	0.037***	0.038***
	(<0.001)	(<0.001)	(<0.001)
R&D	0.018***	0.010*	0.009*
	(<0.001)	(0.055)	(0.097)
LOSS	0.029***	0.014**	0.016**
	(<0.001)	(0.032)	(0.011)
BUY_AND_HOLD_RETURN	0.010*	0.006	0.003
	(0.058)	(0.211)	(0.550)
AVERAGE_DAILY_TURNOVER	−1.579***	−1.511***	−1.264***
	(<0.001)	(<0.001)	(0.001)
VOLATILITY	18.465***	19.101***	17.280***
	(<0.001)	(<0.001)	(<0.001)
AVERAGE_SALES_GROWTH	−0.009	−0.030***	−0.035***
	(0.380)	(0.008)	(0.002)
BTM	0.020***	0.029***	0.024***
	(<0.001)	(<0.001)	(<0.001)
EP	0.145***	0.134***	0.133***
	(<0.001)	(<0.001)	(<0.001)
ANALYST	−0.002	−0.004	−0.004
	(0.413)	(0.142)	(0.102)
RESTRICTED_WINDOW	0.000	0.003	0.004
	(0.919)	(0.345)	(0.333)
SIZE	−0.004**	−0.003*	−0.003**
	(0.013)	(0.052)	(0.038)
CONSTANT	0.030***	0.027**	0.037***
	(0.007)	(0.023)	(0.002)
No. of obs.	16,675	16,675	16,675
R^2	0.029	0.045	0.051
Fixed effect	Year	Industry	Industry and year

observed effect.[26] The audit committee independence requirement was the first of these rules to become enforceable, going into effect for the New York Stock Exchange and Nasdaq on July 1, 2013 (SEC (2013a), (2013b)). I rerun the main LOBBY analysis and drop all observations after this date to remove any potentially confounded time periods. Results are presented in Table 8. All LOBBY specifications are robust to this change. Daily abnormal trading profits for treated insiders are reduced between 0.035% and 0.048% when compared to untreated insiders after the implementation of Dodd–Frank.

[26]These concurrent legislation changes should only confound the results if they also differentially affect the treatment sample in a similar way to the Dodd–Frank whistleblower program. This concern should be mitigated by the sensitivity measures being specific to the whistleblowing law.

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TABLE 8

Lobbying Analyses (Drop Observations After July 1, 2013)

Table 8 presents the results from equation (2) where the dependent variable is the average daily trading profit measured over the 180-day window following the day of an insider purchase. LOBBY is an indicator variable that equals 1 if the insider is in a firm that lobbied against the Dodd–Frank whistleblower bounty program. See the Appendix for all other variable definitions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. *P*-values are in parentheses. Standard errors are clustered by transaction date.

	TRADING_PROFIT		
Variables	1	2	3
DODD_FRANK × LOBBY	−0.048***	−0.035**	−0.033**
	(0.002)	(0.024)	(0.035)
DODD_FRANK		0.035***	
		(<0.001)	
LOBBY	0.049***	0.048***	0.049***
	(<0.001)	(<0.001)	(<0.001)
R&D	−0.001	−0.022***	−0.026***
	(0.845)	(0.001)	(<0.001)
LOSS	0.022***	0.014*	0.011
	(0.003)	(0.061)	(0.126)
BUY_AND_HOLD_RETURN	−0.014**	−0.014**	−0.022***
	(0.011)	(0.014)	(<0.001)
AVERAGE_DAILY_TURNOVER	−1.791***	−1.117***	−0.784**
	(<0.001)	(0.003)	(0.040)
VOLATILITY	18.512***	25.277***	18.266***
	(<0.001)	(<0.001)	(<0.001)
AVERAGE_SALES_GROWTH	−0.025*	−0.023*	−0.024*
	(0.060)	(0.093)	(0.084)
BTM	−0.019***	−0.005	−0.014**
	(0.001)	(0.414)	(0.023)
EP	0.058***	0.075***	0.070***
	(0.003)	(<0.001)	(<0.001)
ANALYST	0.003	0.002	0.001
	(0.376)	(0.561)	(0.842)
RESTRICTED_WINDOW	−0.001	−0.004	−0.003
	(0.904)	(0.434)	(0.575)
SIZE	−0.003*	−0.000	−0.002
	(0.091)	(0.936)	(0.275)
CONSTANT	0.053***	0.015	0.052***
	(<0.001)	(0.262)	(<0.001)
No. of obs.	17,129	17,129	17,129
R^2	0.024	0.047	0.053
Fixed effect	Year	Industry	Industry and year

VII. Conclusion

The Dodd–Frank Act enhanced the ability of the SEC to detect securities law violations through the creation of the WB Program which includes substantial financial rewards and strong anti-retaliation provisions. While prior research has shown that the WB Program reduced the level of financial fraud committed by firms, whether the program would deter illegal insider trading was unclear. Insider trading is an executive-level activity that is difficult to prove and blowing the whistle on unverifiable behavior may be psychologically or financially harmful to the whistleblower (Rapp (2007)). Therefore, I examine whether the increase in the threat of whistleblowing because of the WB Program reduced insiders' opportunistic trading behavior.

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I study this question by identifying insiders who are sensitive to whistleblowing allegations and examine the change in their abnormal daily trading profits on purchases. I identify sensitive insiders in two ways. My primary identification defines sensitive insiders as those in firms that lobbied against the WB Program. As a secondary measure, I use a market-based measure to identify sensitive insiders. Specifically, I measure the market reaction around six key events related to the implementation of the WB Program and identify insiders at firms with a positive market reaction as being sensitive to the law. I find that sensitive insiders' daily abnormal trading profit on purchases is significantly reduced following the enactment of the WB Program, which provides evidence that the program reduced opportunistic trading by corporate insiders.

I also study the effect of the WB Program on informed insider sales in context-specific settings, specifically before earnings announcements and M&A announcements. Using an event-specific approach, I define an insider sale as informed if it is made within the 20-trading-day window before an earnings or M&A announcement that elicits a negative market reaction. I find evidence to support a reduction in informed insider sales in these event-specific settings.

Overall, the results suggest that the WB Program has been successful at deterring illegal insider trading by firm executives. This study makes three important contributions. First, I contribute to the literature on Dodd–Frank by showing that the regulation not only affected firm-wide misconduct, but also reduced executive-level illegal activity, namely insider trading. Second, I contribute to the literature on the effectiveness of whistleblowers by showing they can be helpful in preventing illegal behavior that does not leave an obvious paper trail. I also contribute to this literature by demonstrating the benefit of increasing the financial incentives offered to whistleblowers. Third, I contribute to the literature on context-specific insider sales by showing that the threat of whistleblowing can serve as a deterrent to this opportunistic behavior by insiders. This article should be of interest to researchers and regulators who are searching for deterrent mechanisms to prevent illegal insider trading.

Appendix. Variable Definitions

TRADING_PROFIT: The alpha from the following regression:

$$R_i - R_f = \alpha + \beta_1 \left(R_{\mathrm{MKT}} - R_f\right) + \beta_2 \mathrm{SMB} + \beta_3 \mathrm{HML} + \beta_4 \mathrm{UMD} + \varepsilon$$

measured over the 180-day window following each trade-day with an insider purchase.

LOBBY: An indicator variable that equals 1 if the insider is in a firm that lobbied against the Dodd–Frank whistleblower program. For more details, see Baloria, Marquardt, and Wiedman (2017)

POSITIVE_CAR: An indicator variable that equals 1 if the insider's firm had a positive total cumulative abnormal return in the (−1, +3) windows around six key events related to the implementation of the Dodd–Frank whistleblower program as identified in Baloria et al. (2017).

CAR_CONTINUOUS: The total cumulative abnormal return for the insider's firm in the (−1, +3) windows around six key events related to the implementation of the Dodd–Frank whistleblower program as identified in Baloria et al. (2017).

LOW_USAGE: An indicator variable that equals 1 if the insider is in an industry with a USAGE score below zero, as reported in Stubben and Welch (2019).

R&D: An indicator variable that equals 1 if the insider's firm had positive R&D expenditures, measured at the nearest prior year-end relative to the trade-day.

LOSS: An indicator variable that equals 1 if the insider's firm had negative income before extraordinary items in the previous year.

BUY_AND_HOLD_RETURN: The firm's buy-and-hold return in the (−380, −20) window relative to the trade-day.

AVERAGE_DAILY_TURNOVER: The average daily share turnover in the (−380, −20) window relative to the trade-day.

VOLATILITY: The variance of daily stock return in the (−380, −20) window relative to the trade-day.

AVERAGE_SALES_GROWTH: The average annual sales growth over the 5 years prior to the trade-day. When sales growth is missing in any year during the 5-year period, that year's value is set equal to sales growth of year −1.

BTM: The book value of equity over the market value of equity, measured at the nearest prior year-end relative to the trade-day.

EP: The ratio of net income before extraordinary items of the previous year over the price as measured 20 days before the trade-day.

ANALYST: The natural logarithm of 1 plus the number of analysts following the insider's firm in the prior year.

RESTRICTED_WINDOW: An indicator variable that equals 1 if 75% or more of insider trades in the prior year occur in a 30-day window following an earnings announcement.

SIZE: The natural logarithm of price as measured 20 days before the trade-day multiplied by total common shares outstanding as measured at the nearest prior year-end.

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