Broken Windows: SEC Enforcement of Delinquent Insider Filings

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The SEC mandates insiders report trading activity by a deadline. Although insiders disregard this requirement 222,613 times from 1988 to 2023, only 0.5% of the violations prompt SEC enforcement action. Comparing enforced to unenforced filing violations we show the SEC pursues insiders who persistently violate the requirement. Evidence also suggests that targeted enforcement has a deterrence on future reporting violations and on other questionable trading practices, such as blackout and stealth trading. We illustrate the deterrence is not limited to the insider experiencing enforcement, and that the strength of the deterrence varies by the insiders' connection to the enforcement action.

1. Introduction

Does the enforcement of minor violations deter more serious offences? According to the broken windows theory, it does (Kelling and Wilson, 1982; Braga et al., 1999; Kelling and Sousa, 2001; Corman and Mocan, 2005). Kelling and Wilson (1982) state that "serious street crime flourishes in areas in which disorderly behavior goes unchecked." When there is a lack of enforcement against "quality-of-life offences," it signals an absence of law and order, leading to an increase in serious criminal activity. On the other hand, the enforcement of minor offences results in a reduction of serious wrongdoing, as demonstrated by Police Commissioner William J. Bratton's focus on minor offences to combat violent crimes in New York City.[1]

Following her appointment as the Chair of the Securities and Exchange Commission (SEC) in 2013, Mary Jo White declared a similar strategy for the regulation of financial markets, where even small infractions were to be pursued by the SEC. Her argument was that minor offences "feed bigger ones" and ignoring minor violations will "foster a culture where laws are increasingly treated as toothless guidelines" (White, 2013). The next year, for the first time in over a decade, the SEC brought charges against corporate insiders who were delinquent in reporting their transactions. These enforcements were followed by nine years without any enforcement actions by the SEC. Then, in 2023, similar charges were levied against a new set of delinquent corporate insiders.

An insider filing violation occurs when a corporate insider fails to disclose a transaction within the required two business days of the trade[2] – a relatively minor infraction when compared

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[1] Krauss, 1996, The Bratton Resignation: The Legacy, New York Times, http://www.nytimes.com/1996/03/27/nyregion/bratton-resignation-legacy-bratton-hailed-pioneer-new-style-policing.html?ref=williamjbratton

[2] Prior to the Sarbanes-Oxley Act of 2002 (SOX), trades by corporate insiders were required to be reported by the 10th day of the month following the transaction date. SOX amended Section 16(a) of the Securities Exchange Act of 1934, and as a result, trades by corporate insiders are required to be disclosed within two business days of the transaction.

to other offences in financial markets. However, these infractions occur 222,613 times in our sample and represent a prime example of "broken windows" in the securities markets that if left ignored can signal that more egregious behavior will be tolerated. In this study, we investigate whether enforcement actions against "broken widow" insider reporting violations serve as a deterrence for future filing violations. We also examine whether these enforcements have a spillover deterrence effect for other types of harmful trading practices exhibited by market participants.[3] Specifically, we evaluate how both reporting and trading behaviors such as blackout trading, stealth trading, and opportunistic trading of indicted and non-indicted insiders change following delinquent filings enforcement actions by the SEC.

Prior studies show that enforcement has a deterrence effect on financial crimes, including corporate insiders trading on private information. Del Guercio, Odders-White, and Ready (2017) highlight a negative association between SEC enforcement efforts and illegal insider trading prior to earnings and takeover announcements. Cohen, Malloy, and Pomorski (2012) demonstrate a decrease in opportunistic insider trading subsequent to news of SEC litigation against illegal insider trading. Cline and Posylnaya (2019) further show that insiders are less likely to break the law and trade on material nonpublic information following litigation targeting illegal insider trading. Davidson and Pirinsky (2022) add that insiders who are not convicted themselves, but are exposed to insider trading enforcement actions, earn lower abnormal returns following enforcement.

These studies provide evidence regarding the deterrence effect of enforcement actions against the same form of malfeasance, namely, trading on private information. Unique to our study,

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[3] In our sample, an enforcement strategy similar to the "broken windows" approach seemed to have been adopted throughout the 1990s, with the SEC enforcing a very small percentage of delinquent filings violations each year.

we focus not only on the relation between the enforcement of minor filing violations and the resulting deterrence of the same type of violation, but also investigate a spillover deterrence effect for more serious offences. In addition, we examine these effects on both the targeted insiders experiencing enforcement and on other insiders who were not directly associated with the enforcement action.

We document that the SEC focuses on filing violators that exhibit a high level of disregard for insider reporting requirements. Specifically, we show the agency concentrates its efforts on insiders who file a substantial percentage of their trades late, and who delay filing for longer periods of time. We do not find evidence of the SEC targeting violations based on the monetary amount of the trading activity or the abnormal returns around the transaction.

Evidence further suggests that subsequent to SEC enforcement actions targeting filing infractions, there are significant changes in the reporting behavior of insiders, regardless of whether the insider is directly involved in the SEC enforcement. For top filing violators experiencing enforcement, the likelihood of a filing violation following an SEC enforcement action is reduced by 32%.[4] The likelihood of a future filing violation is reduced by 33% for top violators witnessing enforcement indirectly through a fellow insider facing enforcement at their firm. This result indicates that enforcement not only alters the behavior of the disciplined insiders, but it also affects the behavior of insiders engaged in the same type of wrongdoing who witness the enforcement but do not face the enforcement themselves.

More importantly, we provide evidence that enforcement actions go beyond deterring future filing violations. Following an SEC filing infraction enforcement, corporate insiders who

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[4] Top violators are those who have a mean filing violation ratio greater than the sample mean for the period prior to an enforcement action.

experience enforcement are 2% less likely to trade during blackout periods and 18% less likely to engage in stealth trading compared to their pre-enforcement rate. Moreover, top filing violators indirectly exposed to an SEC enforcement through a fellow insider are 2% and 11% less likely to engage in blackout trading or stealth trading, respectively.

Finally, we examine an alternative explanation for the presence of SEC enforcement actions against filing violations. It is possible that the SEC chooses to enforce minor violations not to signal an environment of low tolerance for wrongdoing, but to open the door for the investigation of more serious offences, such as illegal insider trading. According to the SEC, trades placed by corporate insiders "in breach of a fiduciary duty or other relation of trust and confidence" while in possession of material, nonpublic information are illegal.[5]

Utilizing a hand collected sample of illegal insider transactions from the SEC Litigation Releases and SEC Complaints database, we find that only three firms named in SEC reporting violation enforcement actions are also named in SEC illegal insider trading cases. Within the sample period, there are no concurrent instances of both forms of enforcement at a firm, and the average lag between a filing violation enforcement and illegal insider trading enforcement at the same firm is 8.7 years. Moreover, there are no insiders directly involved in both a filing violation action and insider trading action. Thus, no evidence is found suggesting the SEC is targeting filing violations to facilitate investigations of illegal insider trading.

Collectively, these findings are consistent with the implications of the "broken windows" theory. Enforcement against relatively minor violations signal that the SEC does not employ a set of toothless guidelines. The actions taken against delinquent insiders have a significant, direct

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[5] See e.g., the Investor Glossary on Insider Trading from the U.S. SEC: https://www.investor.gov/additional-resources/general-resources/glossary/insider-trading.

deterrence effect on future filing violations, and a spillover deterrence effect on more egregious trading practices, such as blackout trading and stealth trading. Furthermore, the deterrence effect reduces negative trading behavior of both insiders directly involved in SEC enforcement actions and their fellow insiders who are indirectly affected by witnessing the enforcement. Our findings are important for researchers studying malfeasant behavior of financial market participants, as well as agencies investigating these violations and the potential deterrence effects of enforcement.

2. Background and Literature Review

The SEC Chairperson determines the course of the SEC's actions by making appointments of key staff (e.g., Directors of the SEC Divisions), allocating scarce resources, and directly setting the agenda of the agency (Langevoort, 2006). With the appointment of Mary Jo White as Chair of the Commission in 2013, the "broken windows" approach became a guiding principle for the agency. The theory states that, when a "broken widow" does not get fixed, it sends a signal that such actions are acceptable, leading to further damage (Kelling and Wilson, 1982; Corman and Mocan, 2005). Having a litigation background as a district attorney in New York in the 1990s, White was familiar with the implementation of the approach by William J. Bratton, Commissioner of the New York City Police Department, and the associated outcomes. In her speech at the 2013 Securities Enforcement Forum, White presented her strategy of enforcing minor, "broken windows" violations in the securities markets to deter more serious offences and foster a culture of compliance with the law (White, 2013).

A significant number of insiders file their trades outside the reporting window required by law (Cline and Houston, 2023). By the end of 2014, the Commission executed enforcement against

violations that had not previously been perceived by the agency as a high priority.[6] Sweeping action took place on September 10th, 2014, consisting of 34 separate cases, charging 28 individuals and 6 firms with violating federal securities laws mandating the prompt reporting of insider transactions (U.S. SEC, 2014a). In full, 304 individual insider trades were held accountable. Andrew Ceresney, Director of the SEC's Division of Enforcement at the time, stated the actions were to send a clear message to all corporate insiders and issuers of the importance of adhering to the requirements (U.S. SEC, 2014b). The SEC claimed to target repeat offenders and firms that show disregard for the regulation (U.S. SEC, 2014b), with the targeted offenders averaging 18 Form 4 violations and reporting an average of six months delinquent. The enforcement actions resulted in financial penalties totaling $2.6 million.

These seemingly successful enforcement actions were, however, followed by skeptical remarks from some of the Commissioners, such as Michael Piwowar, who spent several months as Acting Chair of the SEC in 2017. Piwowar expressed concerns regarding the effectiveness of the "broken widows" approach at the Securities Enforcement Forum in October of 2014. In his option, treating every rule as a priority meant that "no rule is a priority", which fosters a culture where the ultimate goal is regulatory compliance rather than fair and orderly capital markets (Piwowar, 2014). Furthermore, the Commissioner later added that the "broken windows" approach was a "misguided effort" that resulted in improved enforcement statistics for the agency but no better protection of investors (Piwowar, 2017).

However, on September 27th, 2023, the SEC took action against yet another round of insider filing delinquencies. The recent round of enforcement was similar to those in 2014,

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[6] The SEC was enforcing a very small percentage of reporting violations throughout the 1990s, followed by no enforcement actions from 2002 to 2014.

consisting of 11 cases, charging 6 individuals and 5 firms with failing to report transactions by the required deadline. Sanjay Wadhwa, Deputy Director of the SEC's Division of Enforcement, noted that similar enforcements were conducted "several years ago" and stated that these actions "should serve to remind SEC filers that reporting obligations under the securities laws are not optional" (U.S. SEC, 2023). The enforcement actions resulted in $1.6 million in financial penalties.

These strong but sporadic enforcements by the SEC over the past two decades highlight that the SEC is clearly not in agreement on the costs and benefits of the enforcement of delinquent reporting. While some administrations have enforced filing delinquencies according to the "broken windows" theory, others have left insider filings violations completely ignored.

The finance and economics literature, however, documents that enforcement has a deterrence effect on crime (Levitt, 2002; Lin, 2009; Del Guercio et al., 2017; Cumming, Groh, and Johan, 2018). Lin (2009) and Levitt (2002) find a negative association between police enforcement and both violent and property crimes. Cumming et al. (2018) extend this analysis to financial markets and illustrate that formalized cooperation agreements between the enforcement agencies, more severe punishments, and the required release of sanctions to the public have a negative impact on fraud.

Specific to insider trading, Bris (2005) documents that it is not the presence of insider trading laws, but the enforcement of the laws that alters insider trading behavior. Cohen et al. (2012) provide evidence that news concerning government enforcement against illegal insider trading decreases opportunistic insider trading. Del Guercio et al. (2017) add to this by showing a negative association between SEC enforcement efforts and illegal insider trading prior to earnings and takeover announcements. Cline and Posylnaya (2019) further demonstrate that insiders are less likely to take advantage of private information following litigation targeting illegal insider

trading. These findings imply that violators pay close attention to the prosecution of similar crimes and adjust their behavior accordingly. Following this logic, we conjecture that subsequent to SEC enforcement actions targeting insider filing infractions, corporate insiders will alter their reporting behavior.

Combining the empirical findings of enforcement's deterrence effect with the "broken windows" theory, we further conjecture that following filing violation enforcement, corporate insiders will adjust not only their reporting behavior but also reduce other nefarious trading behaviors as well. Specifically, trading patterns motivated by private information, such as opportunistic trading, stealth trading, and trading during blackout windows, are likely to attenuate.

Failure to disclose transactions in a lawful, timely manner is a breach of a technical rule, however, such minor infractions can mask more serious offences. Evidence provided by prior research establishes that trades by corporate insiders are informative (Seyhun, 2000; Aboody and Lev, 2000; Lakonishok and Lee, 2001; Frankel and Li, 2004; Piotroski and Roulstone, 2005; Huddart and Ke, 2007; Cohen et al., 2012; Cline, Gokkaya, and Liu, 2017). The information contained in the trades is disseminated not only via the transactions themselves (Manne, 1966; Carlton and Fischel, 1983; Seyhun, 1986; Fishman and Hagerty, 1992; Leland, 1992; Meulbroek, 1992) but also, and more significantly, via the reporting of these trades (Cheng, Nagar, and Rajan, 2007; Brochet, 2010; Betzer et al., 2015). Delaying disclosure beyond the legal deadline inhibits efficient price discovery and allows insiders to capitalize on their informational advantage during the delinquent period (Cline and Houston, 2023).

Intent to benefit from the possession of private information can be concealed in the patterns of the transactions by corporate insiders. The predictive power of a transaction varies with corporate events that have higher levels of information asymmetry (Seyhun, 1990; Lee, Mikkelson,

and Partch, 1992; Lee, 1997; Ke, Huddart, and Petroni, 2003). For instance, earnings announcements occur on a quarterly basis and are associated with periods of elevated information asymmetry in the period leading up to the announcements. This presents an opportunity for insiders to take advantage of private information. To limit such trading behavior, many firms impose internal trading restrictions prior to the release of new earnings (Jeng, 1998; Bettis, Coles, and Lemmon, 2000; Roulstone, 2003). However, some corporate insiders disregard these restrictions and choose to place trades during these restricted periods. According to Cline and Houston (2023), when insiders violate these internal blackout restrictions, they are less likely to report the trade on time to avoid detection.

Another trading pattern employed by insiders to exploit private information is the sequencing of smaller trades in the same direction prior to reporting any of the transactions. Betzer et al. (2015) and Klein, Maug, and Schneider (2017) define this deliberate pattern as stealth trading. Trading multiple times before reporting the trades limits the unfavorable price impact for the insiders' subsequent trades, which allows the insider to delay the pricing signal contained in their transactions from entering the market until all their trades are executed.

Additionally, according to Cohen et al. (2012), corporate insiders' trades can be classified as "routine" or "opportunistic" depending on how consistent the timing of the trades is from year to year. While "routine" trades represent transactions that are on average based on motives unrelated to private information, "opportunistic" trades are likely to be driven by an insiders' attempt to benefit from private information (Cohen et al., 2012).

We extend the existing literature by documenting that following the enforcement actions of the SEC against relatively minor reporting infractions, there are both direct effects and spillover effects that both alter the reporting and trading behavior of corporate insiders. These findings

demonstrate that enforcement actions provide a deterrence on not only the same type of infraction but also other types of harmful trading practices, such as blackout trading, stealth trading, and opportunistic trading.

3. Data and Descriptive Statistics

Data on enforcement actions are hand-collected from the SEC website for the 1988 through 2023 period. The SEC Annual Reports contain all enforcement actions, including cases prompted by the insiders' failure to file transactions by the required deadline. We use case numbers from the Annual Reports to pull individual reports from the digital collection on the SEC website. These files provide details on each case from 1996 to the present.

Case details prior to 1996 are collected from the SEC Daily Digest, which is a daily report of the main enforcement cases brought by the SEC against companies or insiders. All available details from the cases are recorded, including (among other variables) the names of the offender, the firms whose securities were traded, the time frame of the investigation, total transaction value, and the total number of forms not filed by the deadline. Individual transaction details are limited throughout the sample.[7] For each case, we record all filing violation transactions made by the insider within the period the SEC reports as under investigation. The resulting dataset contains information on 1,103 insider filing violation trades from 1988-2023.

Enforcement data are merged with insider transactions from Thompson Reuters. All open market transactions from 1988 to 2023 are retained to track and compare changes in filing and trading behavior of all insiders pre- and post-enforcement. Following Lakonishok and Lee (2001), trades where the reported price is more than 20% above or below the closing price reported in

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[7] For example, data on the individual transactions under investigation are not available in any of the SEC Daily Digest publications from 1988 to 1995. From 1996 to the present, over half of the digital files contain the individual transactions under investigation, but complete data in this time frame are still limited.

CRSP are excluded. All amended transactions are also removed. Trades with reporting dates preceding the transaction date or that are missing a transaction or reporting date are removed. Only trades with cleanse codes R, H, C, L, and I are kept, which corresponds to the highest levels of data validity (Otto, 2014; Liu and Swanson, 2016). In addition, we only retain trades with matching firm level data available on Compustat to construct firm level control variables. All remaining transactions are aggregated per insider, per day (Carter, Mansi, and Reeb, 2003; Brochet, 2010; Betzer et al., 2015; Cline and Houston, 2023). This process results in a sample of 1,353,278 aggregated transactions.

Filing violations and subsequent enforcement actions are aggregated on an annual basis and presented in Table 1. Column (1) contains the calendar year, while column (2) provides the number of *Filing Violations* in the corresponding year. In columns (3) and (4), *Enforced Violations (by Transaction Date)* and the *Enforced Percentage (by Transaction Date)* are the number of late filings later associated with enforcement and the number of enforced violations scaled by the total filing violations per year, respectively.[8] *Enforced Violations (by Enforcement Date)*, reported in column (5), is the total number of filing violations that were associated with an SEC enforcement case, aggregated by the year of enforcement. *Penalty Amount* in column (6) is the total penalties levied against late filers, per year.

[Insert Table 1]

The information in Table 1 reveals that SEC action against delinquent filings is limited throughout our sample period. The number of filing violations fluctuates during the 1990s, but the percentage of enforced offences remains below one percent per year. Interestingly, following the

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[8] The average (median) time lag between the transaction date of an enforced filing violation and the SEC action date is 1.8 (1.6) years.

passage of the Sarbanes-Oxley Act in 2002, which mandates a more stringent filing deadline for insiders,[9] the first enforcement action took place on September 10th, 2014. The implementation of Mary Jo White's "broken windows" approach led to actions targeting 304 (1.41%) of the filing violations from 2006 to 2013.[10] Twenty-eight individuals and 6 firms were charged with delinquent filings amounting to $2.6 million in penalties (U.S. SEC, 2014a). All but one of the charges immediately settled out of court and paid the fine.[11] The one case that went to trial was ruled in favor of the SEC (U.S. SEC, 2015).

The second enforcement action since Sarbanes-Oxley took place on September 27th, 2023. It consisted of 11 cases, charging 6 individuals and 5 firms with failing to report 80 different transactions by the deadline. These enforcement actions resulted in $1.6 million in aggregated financial penalties, and all charged parties agreed to pay the fine.

The disparity demonstrated in Table 1 between the number of violations and the number of cases brought against violators raises at least three questions: 1) is there a difference between the enforced and non-enforced filing violations, 2) if there is, which violations does the SEC choose to pursue, and, more importantly, 3) does the reporting and trading behavior of insiders change following reporting violations enforcement?

Andrew Ceresney, Director of the SEC's Division of Enforcement in 2014, stated that the enforcement actions of 2014 targeted violators of the shortened filing requirements mandated by SOX, who were repeat offenders and from firms that showed a disregard for the regulation (U.S. SEC, 2014b). Sanjay Wadhwa, Deputy Director of the SEC's Division of Enforcement, stated after

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[9] Specifically, corporate insiders are required to file all Form 4 documents within two business days. By June 30, 2003, insider transactions were also required to be posted on their corporate website one day after the SEC filing.

[10] The 34 enforcement cases in 2014 relate to 304 filing violations; 3 violations occurred in 2006, and 83, 72, 134, and 12 violations that occurred in 2010, 2011, 2012, and 2013, respectively.

[11] The one exception was the case against Ligang Wang, the Vice President of China Shen Zhou Mining & Resources, a mining company that extracts and processes various metals from the People's Republic of China.

the 2023 enforcement wave that reporting obligations are not optional, and that there are consequences for disregarding this securities law (U.S. SEC, 2023). While this provides perspective on the SEC's view regarding the first two questions, we have yet to uncover the direct and indirect effects of filing violation enforcement.

We begin the univariate analysis by examining summary statistics for all filing violation transactions in our sample. Table 2 provides a comparison of the variables of interest for violations that resulted in enforcement by the SEC to those that did not experience enforcement. *Enforced Filing Violations* are delinquent filings with enforcement, and *Non-Enforced Filing Violations* are delinquent filings that did not face legal action. There are 1,103 enforced filing violations and 221,510 non-enforced violations from 1988 through 2023.

[Insert Table 2]

We consider several measures designed to capture insider reporting behavior. *Insider Ratio* is the total number of violations per insider in the five years prior to the transaction scaled by the total number of trades for that insider over the same period. From Table 2, violators who experience enforcement have a significantly higher historic insider violation ratio than violators who do not experience enforcement. The difference in means is 0.31, indicating that enforced violators are historically late 31% more often than violators who are not enforced against.

Firm Ratio is the total number of violations per firm in the five years prior to the transaction scaled by the total number of trades at that firm over the same period. The firm ratio for enforced violations compared to non-enforced violations is significantly higher as well, with a difference in means of 0.19, indicating that enforced violations are at firms that have late filings 19% more often.

Days Late is the number of business days past the required deadline that the insider files the transaction with the SEC, scaled by the number of business days between the transaction and reporting date. The difference shows that enforced violations are 0.28 (72.5 days) later, on average, than those that go unenforced. These preliminary findings suggest that, as claimed, the SEC targets more egregious reporting violators, proxied by the ratio of violations to total trades at both the insider and firm level, and by the number of business days the transactions are filed delinquent.

Next, we investigate other trading behaviors not directly related to filing violations but that illustrate questionable trading choices made by insiders. Specifically, we examine *Blackout, Stealth,* and *Opportunistic Trades*. Most firms voluntarily restrict insider trading to a short window following earnings announcements to mitigate insider trading on private information (Jeng, 1998; Bettis, Coles, and Lemmon, 2000; Roulstone, 2003). *Blackout Trades* is a variable that marks transactions made in the month preceding an earnings announcement, at a firm classified as restricting insider trading, to the month following the earnings announcement (Roulstone, 2003).

Insiders attempting to benefit from access to private information tend to trade in specific patterns. This can be accomplished through sequencing smaller trades in the same direction prior to jointly reporting them to delay the pricing signal from entering the market (Betzer et al., 2015; Klein et al., 2017), or through trading outside a normal pattern in an "opportunistic" fashion (Cohen et al., 2012). *Stealth Trade* identifies a series of trades made by the same individual in the same direction, with all trades jointly reported after the last transaction. *Opportunistic Trade* identifies trades made at an inconsistent time of the year relative to the transactions the insider conducted over the two previous years. *Negative Insider Behavior* is an indicator variable set to one when an insider engages in either blackout trading, stealth trading, or opportunistic trading.

Results reported in Table 2 show that enforced violations have a significantly higher likelihood of being stealth and opportunistic trades relative to non-enforced violations.[12] The propensity for *Negative Insider Behavior* is also significantly higher for enforced violations. The difference in *Negative Insider Behavior* between enforced violations and non-enforced violations is 0.28 and is statistically significant at the 1% level.

Corporate Suite, Directors, Officers, *Beneficial Owner,* and *Other Insider* indicate the role of the insider. Given the trade is a filing violation, a significantly higher percentage of delinquent trades by Beneficial Owners face legal action, while a significantly lower percentage of late trades by Directors, Officers, and Other Insiders experience enforcement. *Trade Value* is the dollar amount of a violation trade scaled by the market capitalization of the firm; the difference in trade value between enforced and non-enforced violations is insignificant. Return on Assets (*ROA*) and *Leverage* are insignificantly different, while *Ln*(*Size)* is significantly lower for firms that experience enforcement relative to those that do not. The *Book to Market* ratio is significantly higher, with a difference of 0.25 for enforced violations.

Overall, our preliminary findings demonstrate significant differences between enforced filing violations and non-enforced filing violations. Specifically, both insider and firm level violation ratios and the number of days reported late are greater for violation transactions that experience enforcement. We also show that violations associated with other forms of questionable trading behavior, such as stealth trading or opportunistic trading, are more likely to face enforcement. However, the average trade value and firm size of enforced violations are not

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[12] The number of trades that can be categorized as blackout, stealth, or opportunistic differ due to the conditions necessary for categorization. For example, a blackout trade categorization can be made for every trade by comparing the timing of the trade to the implied firm policy. A stealth categorization can be made for every trade since it either did or did not occur within a sequence. However, an opportunistic categorization requires three years of insider trading data per insider, otherwise the categorization is missing. This data requirement significantly reduces the number of trades that can be labeled as opportunistic or routine.

significantly greater. This preliminary evidence implies that the SEC pays closer attention to the disregard an insider has for the filing requirements but is not necessarily focused on the value of the transactions or size of the firm.

4. SEC Enforcement Determinate Analysis

Linear probability models are used to further investigate the characteristics of insider filing violations that trigger SEC enforcement action. Utilizing the sample from Table 2, only filing violation trades are included in the analysis. For all models reported in Table 3, the dependent variable is an indicator that equals one if the trade reported late experiences enforcement by the SEC; otherwise, it equals zero. The independent variables of interest defined above, and in the data appendix, are included in the models.

[Insert Table 3]

Insider Ratio is positive and significant in column (1), with the baseline controls. Point estimates from column (1) indicate that a one-standard deviation increase of the *Insider Ratio* increases the likelihood of being named in an SEC enforcement action by 0.16%, or from 0.49% to 0.65%.[13] *Firm Ratio* is positive and significant in baseline column (2). The coefficient of 0.005 indicates that a one-standard deviation increase of the *Firm Ratio* increases the likelihood of an enforcement by 0.15%, or from 0.49% to 0.64%. *Insider Ratio* and *Firm Ratio* remain significant when including all controls in columns (6) and (7), respectively. *Days Late* is significant in all models where it is included. A one-standard deviation increase in *Days Late* increases the likelihood of the violation being part of an SEC enforcement action by 0.23%. *Negative Insider Behavior* is positive and significant in columns (4) and (7), which indicates that trades associated

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[13] The base of 0.49% is derived from the total enforced filing violations divided by all filing violations in our sample, reported in Table 1.

with other forms of questionable behavior are more likely to be enforced. *Beneficial Owner* is

marginally significant, and it is the only insider role that is significant at conventional levels.

Finally, the *(Ln)Size* of the firm is positive and significant in all models, suggesting insiders at

larger firms are more likely to face SEC action.

Overall, the results in Table 3 indicate that insiders who repeatedly violate, who are at firms

with high violation rates, who wait longer after the deadline to file, and engage in other

questionable trading practices are more likely to experience enforcement. In addition, insiders at

larger firms are significantly more likely to face enforcement action. In contrast, the size of the

transaction does not significantly influence the likelihood of enforcement by the SEC.[14] The next

question we explore is whether enforcement actions alter the behavior of corporate insiders and

deter future violations of the filing requirement.

5. Deterrence Effect of Enforcement on Delinquent Filing Violations

Prior research finds that enforcement has a deterrence effect on crime (Levitt, 2002; Lin,

2009), including crimes in financial markets (Cohen et al., 2012; Del Guercio et al., 2017;

Cumming et al., 2018; Cline and Posylnaya, 2019). The literature also documents that insiders

trading on private information take note of insider trading enforcement and adjust their behavior

accordingly. We extend this logic to filing violators and hypothesize that if an insider is the target

of enforcement or if an insider observes someone else experiencing enforcement, they will alter

their future pattern of filing delinquencies. We test this conjecture and report results from the

analysis in Table 4 using all insider trades within a five-year pre-enforcement and five-year post-

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[14] In untabulated analysis that subdivides the sample into purchases and sales, we included the DGTW adjusted abnormal returns for purchases (sales) in the (0,+3) days around the date the violation trade is reported. The return variable is insignificant in all models.

enforcement window. For these tests and all that follow, we restrict the sample to include transaction only through 2019 since five years of data are required for post-transaction analysis.[15]

Recognizing that the SEC's actions are experienced by the violators who face enforcement, and by other insiders who witness these enforcement efforts, we measure the impact relative to the insider's proximity to enforcement. We do this by separating insiders into three levels of exposure. Level 1 consists of insiders directly involved in the SEC enforcement. For example, Porter McKinnon, a director and beneficial owner at ABS Industries, was named in an SEC enforcement case for his 37 late Form 4 filing violations in 1995.

Level 2 includes indirectly affected insiders who did not face the enforcement themselves but were at the firm where a fellow insider was indicted. Robert Craft is classified as Level 2. Craft was a director at ABS Industries at the same time as Porter McKinnon but was not named in the SEC action himself despite having committed a filing violation within the same time frame.

Finally, Level 3 is comprised of loosely connected insiders at firms where enforcement did not take place, but who are associated with an enforced firm through an indirectly affected insider employed at both firms. One example are trades that Robert Craft made at another firm, Inter-Tel INC, where he was also a director at the time Porter McKinnon was named in the SEC delinquent filing case. Another example of a Level 3 insider is Steven Nichols, Vice President of Inter-Tel INC at the time Robert Craft was a director. Both Robert Craft's and Steven Nichols' trades at Inter-Tel INC fall under the third level of exposure. Robert Craft had a position at a company where no one faced enforcement while also being a director at a firm where a fellow insider experienced enforcement. Steven Nichols did not even indirectly observe an enforcement, but both insiders were loosely connected to Porter McKinnon's enforcement through Robert Craft's position at ABS

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[15] For robustness, we conduct tests using the extended period, and the results are qualitatively unchanged.

Industries. Insiders are classified into one of these three levels of exposure and included in the following tests.

The first comparison in Panel A of Table 4 is between pre- and post-enforcement trades from all insiders connected to enforcement. Connected insiders are defined broadly as any insider classified as having a Level 1, Level 2, or Level 3 connection to the enforcement as described above. There are a total of 61,776 connected insider transactions, 33,631 of which were made prior to enforcement and 28,145 made after enforcement.

[Insert Table 4]

Of the 33,631 pre-enforcement trades by insiders connected to an enforcement, 23.8% are filed delinquent (*Propensity to Violate)*. Post enforcement, the *Propensity to Violate* drops to 18.6% of connected insider trades. The difference in means of -5.2% indicates a significant decline in the *Propensity to Violate* post-enforcement. The *Firm Ratio* is likewise reduced by a significant -6.8% (from 27.5% pre-enforcement to 20.7% post-enforcement) for insiders connected to enforcement. Both differences are significant at the 1% level. This suggests that insiders both directly and indirectly connected to enforcement adjust their reporting behavior following SEC action.

For robustness, we also compare the propensity to violate pre- and post-enforcement for the insiders not connected to enforcement through any of the three levels of exposure.[16] There is a total of 1,061,611 non-connected insider transactions. Of these trades, 572,175 were placed prior to an enforcement and 489,436 were placed after. As shown, *Propensity to Violate* and *Firm Ratio* have a lower magnitude of change relative to connected insiders; however, the post enforcement

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[16] Trades made by insiders not connected to an enforcement action that are within a five-year pre-enforcement window or five-year post-enforcement window are marked. For cases of multiple enforcement dates, the match with the minimum absolute difference between the transaction date and the enforcement date is retained.

decline remains significant for the subset of non-connected insiders. Thus, in the univariate, the enforcement appears to have a significant but reduced effect on deterring filing violations for insiders not connected to enforcement. Collectively, the results from Panel A suggest that enforcement helps curtail future filing violations, with the most pronounced effect on insiders connected to enforcement.

In Panel B, we report analysis similar to that in Panel A but subdivide the sample of connected insiders into the three levels based on the insiders' level of exposure to the enforcement. The classification renders 2,355 Level 1 insider transactions, 7,226 Level 2 insider transactions, and 52,195 Level 3 insider transactions. Insiders at the firm where enforcement took place, with direct Level 1 exposure, significantly reduce delinquent filings by 43.1% and experience a firm ratio that is 23.4% lower in the post-enforcement period. Level 2 insiders also significantly reduce their propensity to violate by 14.9% and the firm ratio is reduced by 15.8% post-enforcement. Insiders with indirect Level 3 exposure exhibit a significant decrease following enforcement for both the propensity to violate and the firm ratio. However, their propensity to violate in the post-enforcement period is reduced by only 1.4%, and the firm ratio is only 4.0% lower post-enforcement.

Several observations can be made from Table 4. First, in Panel A, the univariate tests suggest that all three levels of insiders connected to enforcement, and insiders not connected to enforcement, demonstrate a higher propensity to violate in the pre-enforcement period. However, once enforcement occurs, the propensity to violate for all groups is significantly reduced. Second, in Panel A and Panel B, we observe that the magnitude of the difference between pre- and post-enforcement violations is strictly increasing in the level of connection to the enforcement. Collectively, these results provide preliminary evidence that enforcement of filing violations has a

significant deterrence effect on future reporting behavior. Furthermore, the effect is strongest for the insiders with the closest connections to the enforcement.

Table 5 reports linear probability regression analysis for the effect of SEC filing violation enforcement on the propensity of connected and non-connected insiders to violate the reporting requirement. In columns (1) through (6), the trades of connected insiders are partitioned according to their respective level of exposure to the enforcement to evaluate how the deterrence effect differs depending on how closely the insider is connected to an SEC enforcement case. Columns (7) and (8) report regressions on the sample of non-connected insiders. The dependent variable in all models is a dichotomous variable equal to one when the transaction is a filing violation and zero otherwise. The primary independent variables of interest are *Trade After Enforce*, an indicator for insider trades taking place after the SEC enforcement date, and its interaction with *Top Violator,* an indicator for trades made by insiders who have a pre-enforcement filing violation ratio that exceeds the mean violation ratio.

[Insert Table 5]

In column (1), the negative coefficient on *Trade After Enforce* for Level 1 insiders suggests that transactions made by directly involved insiders are significantly less likely to be delinquent following an enforcement action. Specifically, the probability of a violation goes down by 28% post-enforcement relative to the insider's propensity to violate pre-enforcement. When *Trade After Enforce* is interacted with *Top Violator* in column (2), the interaction term is negative and significant. The coefficient of -0.317 implies that following an SEC enforcement action, trades placed by pre-enforcement top violators are 31.7% less likely to be filed delinquent.[17]

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[17] The results are robust to top filing violators being determined by the median violation rate.

For Level 2, indirectly connected insiders, the results are similar but with a reduced coefficient on *Trade after Enforce*. Columns (3) and (4) show that the likelihood of a filing violation following SEC enforcement is 13.4% lower post enforcement, and 32.8% lower when placed by indirectly affected top pre-enforcement violators. Columns (5) and (6) present the results for Level 3, loosely connected insiders. In column (5), the coefficient is negative and insignificant, and in Column (6) the coefficient indicates that the probability of a delinquent filing is 29.5% lower following enforcement if the trade is placed by a Level 3 top pre-enforcement violator.

Finally, columns (7) and (8) report regressions for insiders not connected to enforcement through any of the three levels. The coefficient on *Trade After Enforce* is insignificant. However, the interaction of *Trade After Enforce* and *Top Violator* in column (8) is negative and significant. The coefficient of -0.110 implies that following an SEC enforcement action, trades placed by pre-enforcement top violators not connected to the enforcement is 11% less likely to be filed delinquent post-enforcement. The significant but reduced magnitude for the interaction with top violators indicates that the most egregious violators in the pre-enforcement period tend to take notice of enforcement and reduce delinquent filings even when they are not connected to an enforcement.

These findings demonstrate a significant change in insider reporting behavior following a SEC enforcement action. Taken together, the impact of enforcement on future filing delinquency is most acute for Level 1 insiders. Indirectly connected insiders who are at firms where the enforcement took place also exhibit significantly lower violation rates post-enforcement; however, the marginal change is lower than that of directly connected insiders. In fact, the deterrence effect attenuates as an insider is further removed from the enforcement.

The decreasing effect of the enforcement is likewise observed for the interaction term of *Trade After Enforce* and *Top Violator*. However, pre-enforcement top filing violators significantly

reduce future delinquent filing regardless of the level of connection to the enforcement. This suggests that filing violation enforcement provides a significant deterrence for insiders who historically violate filing requirements most aggressively, regardless of their level of connection to enforcement. This finding is not surprising since these are the insiders that are likely to pay closest attention to enforcement even when it is not occurring at their firms or with someone with whom they are in direct contact.

These results are consistent with prior literature on crime deterrence (Levitt, 2002; Lin, 2009; Del Guercio et al., 2017; Cumming et al., 2018), and with our expectations that SEC enforcement actions will deter future wrongdoing of the same nature (Cohen, Malloy, and Pomorski, 2012; Del Guercio et al., 2017; Cline and Posylnaya, 2019). Next, we investigate the spillover effect of filing enforcements on other forms of questionable trading practices.

6. Deterrence Effect on Other Trading Behaviors

According to the "broken windows" theory adopted by the SEC, not only should enforcement against insider filing violations reduce future filing delinquencies, but it should also deter other more serious offenses. Expanding the reach of the "broken windows" theory, we examine changes to other questionable trading practices following enforcement actions targeting filing violations. We focus on the key argument behind the "broken windows" theory, that the enforcement of minor violations sends a clear message regarding the importance of legal order. We conjecture that enforcement of filing infractions by the SEC provides a deterrence effect not only on filing violations but also on other trading practices of corporate insiders.

We begin this analysis by first testing for an empirical association between filing violations and other questionable insider trading behavior. In Table 6, univariate differences in *Propensity to*

Violate and *Firm Ratio* are reported for all transactions during a blackout window, a series of stealth trades, and from trades classified as opportunistic.

[Insert Table 6]

Panel A of Table 6 reports that for insiders connected to enforcement, there are 1,341 trades made during a blackout period, of which, 27.8% are filed delinquent, as measured by *Propensity to Violate*. For the same set of insiders, there are 60,435 non-blackout trades, with 21.3% filed delinquent. The difference in means of 6.5% indicates that trades made during a blackout period have a significantly higher *Propensity to Violate* relative to those made outside of a blackout period. Blackout transactions by insiders connected to enforcement also have a *Firm Ratio* that is 2.2% higher than trades not made during a blackout period.[18] For insiders not connected to enforcement, the results for *Propensity to Violate* are similar in significance.

In Panel B of Table 6, for insiders connected to enforcement, stealth transactions on an insider (firm) level are 12.7% (9.0%) more likely to be filed delinquent relative to non-stealth trades. The difference is similar in size and significance for both connected and non-connected insiders. Opportunistic trading is significantly positively related to filing delinquency for three out of four differences across both insiders connected and not connected to enforcement in Panel C. These findings provide preliminary evidence that filing violations, which are relatively minor infractions, are associated with other forms of questionable trading behavior.

Next, we examine whether insiders associated with SEC action against filing violations alter their propensity to engage in blackout, stealth, or opportunistic trading following the filing

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[18] Blackout and non-blackout trades, stealth and non-stealth trades, and opportunistic and routine trades all have a different number of observations because the process to classify the trade as one of these specifications is dependent on data availability for prior years, information on the insider, and information regarding the firm. For any of the specifications, if a trade does not have the required data to categorize the trade, it is marked as missing for that specification.

violation enforcement. Univariate comparisons are reported in Panel A of Table 7. All trades analyzed in Panel A are made by an insider with a Level 1, Level 2, or Level 3 connection to enforcement.

[Insert Table 7]

Of the 33,631 pre-enforcement trades by insiders connected to enforcement, 2.3% occur during a blackout restriction. Post enforcement, the likelihood of a blackout trade drops to 1.9% for connected insider trades. The difference in means reported in the last columns of 0.4% indicates a significant decline in the *Propensity for Blackout Trades* post-enforcement. The *Propensity for Stealth Trades* is likewise reduced from 54.0% pre-enforcement to 53.0% post-enforcement, which is a significant reduction of 1.0% for insiders connected to enforcement. Insiders connected to enforcement also show a significant decline of 2.2% in their *Propensity for Opportunistic Trades* relative to their pre-enforcement activity. These findings provide evidence that insiders connected to SEC actions targeting filing violations reduce other questionable trading behaviors following enforcement by the SEC.

In Panel B, we assess differences in these questionable trading practices pre- and post-enforcement for filing violations according to the level of connection an insider has to the enforcement. We split the sample of connected insiders based on the level of connection to the enforcement but combine Level 1 and Level 2 insiders due to the significant reduction in sample size. Our expectation is that the effects, like those reported in Table 5, are strongest for the insiders with the closest connections to the enforcement.

For the Level 1 and 2 sample, which includes all insiders at a firm where enforcement occurs, the propensity for blackout, stealth, and opportunistic trading all significantly decrease following enforcement. Specifically, the likelihood of a blackout trade falls by 0.7%, the likelihood

25

of a stealth trade drops by 8.5%, and the likelihood of an opportunistic trade is reduced by 5.9%;

all differences are significant at the 1% level. The impact of enforcement on the behavior of Level

3 insiders that are loosely connected to the enforcement is attenuated, with only the propensity of

blackout and opportunistic trading significantly decreasing and doing so at a lower magnitude than

that of Level 1 and 2 insiders.

Enforcing the law for filing violations is relatively easy and straightforward. Either the

transaction was filed on time, or it was delinquent. One implication from these initial results is that

when insider trading violations are enforced, the SEC can indirectly reduce other more potentially

harmful trading practices that are inherently more difficult and more costly to monitor and

prosecute.

In Table 8, we further investigate the spillover deterrence mechanism from filing violation

enforcement in a multivariate setting. Specifically, we examine the effect of filing violation

enforcement on blackout, stealth, and opportunistic trading and how this association changes post-

enforcement for the three levels of insiders connected to the enforcement. Only trades from

insiders connected to enforcement and trades within a five-year pre-and post-enforcement window

around the enforcement date are used in the analysis.

Separate regressions are estimated across the three levels of connected insiders based on

their proximity to the SEC action. In Panel A of Table 8, the dependent variable is a dichotomous

variable equal to one for *Blackout Trades*; otherwise, it is zero. In Panel B, the dichotomous

variable is equal to one for *Stealth Trades* and is zero otherwise. Panel C reports regressions where

the dependent variable is a dichotomous variable equal to one for *Opportunistic Trades* and is zero

otherwise. To determine the impact of filing enforcement on other malfeasant trading practices of

insiders, the primary independent variables of interest are, *Trade After Enforce*, and its interaction with *Top Violator*.

[Insert Table 8]

Panel A of Table 8 reports the filing violation enforcement spillover effect on *Blackout Trades*. In column (1), the coefficient on *Trade After Enforce* is negative and significant, implying that transactions made post-enforcement by Level 1 violators are 2.4% less likely to violate a blackout restriction relative to their pre-enforcement trades. The interaction between *Trade After Enforce* and *Top Violator* in column (2) indicates that top filing violators reduce blackout trading by 4.1% relative to their pre-enforcement trading rate.

Level 2, indirectly affected insiders experience a significant deterrence of 1.8% after the SEC reporting indictments, as shown in column (3). The interaction between *Trade After Enforce* and *Top Violator* in column (4) suggests that top violators are 1.6% less likely to trade during a blackout period post-enforcement relative to their pre-enforcement blackout trading. In column (5), we observe a significant deterrence effect for Level 3 insiders that are loosely connected with the enforcement. Level 3 insiders are 1.4% less likely to violate a blackout restriction following SEC filing violation enforcement. The interaction with *Top Violator* reported in column (6) is insignificant at conventional levels.

Three observations emerge from the results presented in Panel A. First, all three levels of connected insiders significantly reduce blackout trading after experiencing delinquent filing enforcement. Second, the effect is largest for a Level 1 *Top Violator*, insiders who are historically more egregious in their filing violations and experienced enforcement first-hand. Third, the magnitude of the deterrence effect is reduced the further removed the insider is from the enforcement. Collectively, the evidence supports the premise of the "broken windows" theory.

Namely, other forms of potentially more serious negative behavior are reduced by the enforcement of minor violations.

The analysis from Panel A is repeated in Panel B of Table 8 to examine the filing violation spillover enforcement effect on *Stealth Trades*. *Trade After Enforce* point estimates in column (1) indicate that the likelihood of a stealth trade is reduced by 18.2% following SEC enforcement relative to the pre-enforcement rate of stealth trading for Level 1 insiders. The coefficient on *Trade After Enforce* for Level 2 insiders in column (3) is also negative and significant, indicating that the likelihood of a stealth trade is reduced by 11.3% following SEC enforcement. The interaction with *Top Violator* in column (4) is negative and significant as well. This suggests that insiders who egregiously violate filing requirements in the pre-enforcement period and observe a filing enforcement at their firm reduce stealth trading by 13.4% relative to their pre-enforcement rate. Columns (5) and (6) suggests that there is no significant deterrence effect on stealth trading post enforcement for Level 3 insiders. Yet, the interaction between *Trade After Enforce* and *Top Violator* in column (6) is weakly significant. The weak association for Level 3 insiders highlights that the insiders furthest removed from the enforcement do not reduce their propensity to engage in stealth trading like the more closely affiliated Level 1 and 2 insiders.

Finally, in Panel C of Table 8, we examine potential spillover enforcement effects for opportunistic trading. None of the primary independent variables of interest are significant. Thus, although we find some evidence in the univariate analysis, the multivariate results do not support a significant spillover effect of filing violation enforcement on changes in opportunistic trading behavior.

Collectively, the findings from Table 7 and Table 8 suggest that SEC enforcement actions targeting insider filing delinquency play a significant role in reducing other forms of questionable

insider trading practices. The evidence indicates the strongest deterrence effect for blackout trading and stealth trading. Level 1 insiders directly involved in enforcement cases are less likely to trade during blackout windows or engage in stealth trading following SEC enforcement against filing violations. Indirectly affected, Level 2, insiders are also significantly less likely to engage in blackout trading and stealth trading post-enforcement. Additionally, Level 2 top filing violators reduce their blackout and stealth trading behavior post-enforcement. Loosely connected Level 3 insiders, significantly decrease blackout trading following enforcement.

Overall, and consistent with the "broken windows" theory, our results suggest that there is a spillover effect of filing violation enforcement that curtails other questionable trading behaviors. Its magnitude, however, depends on how closely the insider is associated with the enforcement action and how egregiously the insider historically violated the reporting requirements.

7.   Illegal Insider Trading

It is plausible that the SEC enforces seemingly minor insider filing violations not to assert regulation to deter further wrongdoing as proposed by the "broken windows" theory, but rather as a tool to facilitate investigations into more serious offences in financial markets, namely illegal insider trading. Under this competing theory, regulators are not interested in policing minor offenses, they simply use filing violations as a mechanism to investigate other significant negative behavior by the individual or firm.

The enforcement of insider trading laws proves to be quite challenging for the SEC. While SEC Rule 10b-5 requires that insiders refrain from trading on material, non-public information (Meulbroek, 1992), the burden of proof that a transaction placed by an insider is based on such information rests on the SEC. However, obtaining hard evidence of such actions is difficult (Bharara, 2010). According to Thomas Newkirk, Associate Director of the SEC Division of

Enforcement, and Melissa Robertson, Senior Counsel for the Division, "direct evidence of insider trading is extremely rare" and investigation of such cases can be compared to "putting together pieces of a puzzle" where liability and cooperative witnesses can be extremely important (Newkirk and Robertson, 1998). In other words, an insider who violates reporting requirements that are relatively easy to prove and who also participates in or witnesses illegal insider trading activities may be helpful in proving that this alleged illegal insider trading has occurred.

Thus, the lack of consistent enforcement of insider filing violations, and perhaps the long delays between violations and enforcement, may be due to a perception by the SEC that delinquent filings themselves are not harmful, yet they can be utilized to facilitate investigations of suspected trading on private information. We therefore test for a potential link between insider reporting violation enforcement and illegal insider trading actions. To do so, we hand-collect data on illegal insider trading enforcement from the SEC Litigation Releases and SEC Complaints. The dataset includes information regarding the insiders and firms associated with illegal trades, as well as the details of these transactions.

We attempt to identify insiders named in both filing violation enforcement and illegal insider trading cases. However, no insider who faced a SEC delinquent filing enforcement was also named in a SEC illegal insider trading case. Next, we search for overlap in firms where both types of enforcement occurred. Out of the 127 firms named in SEC filing violation enforcement actions, only three of these firms are also part of SEC illegal insider trading cases: Osteotech Inc., Wellco Enterprises, and Dow Jones & Company. Examining the timeline of the filing violation cases and illegal insider trading cases for the three firms, we find no overlap in the investigations. Furthermore, the average lag between the three filing violation enforcement cases and subsequent illegal insider trading enforcement action is 8.7 years. The lack of overlap in individual cases and

the substantial gap between the two types of enforcement at the same firm suggest that the SEC is not utilizing filing violation enforcement to investigate more serious offences like illegal insider trading. Due to no overlap at the insider or firm level, we conclude that there is little evidence to support the alternative hypothesis that the SEC employs filing violations as a mechanism to open the door to investigate other offenses such as insider trading.

8.   Conclusion

According to the "broken windows" theory, the enforcement of minor violations can deter more serious criminal offences (Kelling and Wilson, 1982). Some SEC administrations have advocated for this approach of improving confidence in U.S. securities markets, while others have taken the approach of overlooking minor violations, with the purpose of directing resources towards the detection of more serious trading offences.

Prior to the passage of SOX, the SEC rarely brought charges against insider filing violations, with over 99% of violations going unenforced. Despite the more stringent reporting requirements contained in SOX due to growing concerns regarding timely reporting, the enforcement of filing violations came to an abrupt halt after the passage of the act. There were no enforcement cases until Mary Jo White became Chair in 2013 and declared that the SEC will pursue a "broken windows" approach. Following this announcement, delinquent filing enforcement actions were levied against 34 insiders and firms on September 10th, 2014. However, once this wave of enforcement ended, not a single action was taken by the SEC for the next nine years. Then, on September 27th, 2023, the SEC renewed its enforcement against reporting violations, bringing charges against 11 different insiders and firms.

In this study, we investigate the merits of the "broken windows" theory by examining the influence of SEC enforcement against delinquent insider reporting. Consistent with the theory, we

show that following enforcement measures by the SEC, the probability of future filing violations is significantly reduced. This deterrence effect is present for both insiders directly involved in the SEC enforcement cases and insiders who have an indirect exposure to the enforcement.

Perhaps more important, we present evidence that enforcement actions targeting filing violations have a spillover effect on other malfeasant trading behavior. Specifically, we find that following delinquent filing enforcement, blackout trading and stealth trading significantly decrease as well. This deterrence is observed for both insiders directly indicted for filing violations and for other insiders who were not charged but observed a fellow insider at their firm being indicted.

Overall, our findings are consistent with the "broken windows" theory, where enforcement against relatively minor violations – the requirement to file a transaction by a specific deadline – has a deterrence effect not only on future filing violations but also on more serious negative trading behavior. An important implication from these results is that when minor insider trading violations are enforced, the SEC can indirectly reduce other more harmful trading practices that are inherently more difficult and more costly to monitor and prosecute. Given this finding, more stringent enforcement of minor violations can play a crucial role in deterring broader corporate malfeasance and contribute to enhancing market integrity.

References

Aboody, D., and Lev, B. (2000). Information asymmetry, R&D, and insider gains. *The Journal of Finance*, *55*(6), 2747-2766.

Bettis, J., Coles, J., and Lemmon, M. (2000). Corporate policies restricting trading by insiders. *Journal of Financial Economics*, *57*(2), 191-220.

Betzer, A., Gider, J., Metzger, D., and Theissen, E. (2015) Stealth trading and trade reporting by corporate insiders, *Review of Finance* 19 (2): 865-905

Bharara, P. (2010). The future of white collar enforcement: A prosecutor's view'. Speech at the New York City Bar Association.

Braga, A., Weisburd, D., Waring, E., Mazerole, L., Spelman, W., Gajewski, F. (1999) Problem-oriented policing in violent crime places: A randomized controlled experiment. *Criminology 37 (3)*, 541–580.

Bris, A. (2005). Do insider trading laws work?. *European Financial Management*, *11*(3), 267-312. doi:10.1111/j.1354-7798.2005.00285.

Brochet, F. (2010) Information content of insider trades before and after the Sarbanes-Oxley Act, *Accounting Review* 85, 419–446.

Carlton, D., and Fischel, D. (1983). The regulation of insider trading. *Stanford Law Review*, 857-895.

Carter, M., Mansi, S., and Reeb, D. (2003). Quasi-private information and insider trading. *Financial Analysts Journal*, 59(3), 60-68.

Cheng, S., Nagar, V., and Rajan, M. (2007). Insider trades and private information: the case of delayed-disclosure trades. *Review of Financial Studies*, 20, 1833-1864.

Cline, B., Gokkaya, S., and Liu, X. (2017). The persistence of opportunistic insider trading. *Financial Management*, 46(4), 919-964.

Cline, B., and Houston, C. (2023). Insider filing violations and illegal informationdDelay. *Journal of Financial and Quantitative Analysis*, 58(5), 2262-2297.

Cline, B., and Posylnaya, V. (2019). Illegal insider trading: Commission and SEC detection. *Journal of Corporate Finance*, 58, 247-269.

Cohen, L., Malloy, C. and Pomorski, L. (2012). Decoding inside information. *The Journal of Finance*, 67: 1009–1043. doi:10.1111/j.1540-6261.2012.01740.x

Corman, H. and Mocan, N. (2005). Carrots, sticks, and broken windows. *Journal of Law and Economics 48 (1)*, 235–266.

Cumming, D., Groh, A., and Johan, S. (2018). Same rules, different enforcement: Market abuse in Europe. *Journal of International Financial Markets, Institutions and Money*, 54, 130-151.

Davidson, R., and Pirinsky, C. (2022). The Deterrent effect of insider trading enforcement actions. *The Accounting Review*, *97*(3), 227-247.

Del Guercio, D., Odders-White, E., and Ready, M. (2017). The Deterrent effect of the Securities and Exchange Commission's enforcement intensity on illegal insider trading: Evidence from run-up before news events," *The Journal of Law and Economics* 60, no. 2: 269-307.

Fishman, M., and Hagerty, K. (1992). Insider trading and the efficiency of stock prices. *The RAND Journal of Economics*, 106-122.

Frankel, R., and Li, X. (2004). Characteristics of a firm's information environment and the information asymmetry between insiders and outsiders. *Journal of Accounting and Economics*, *37*(2), 229-259.

Huddart, S., and Ke, B. (2007). Information asymmetry and cross-sectional variation in insider trading. *Contemporary Accounting Research*, *24*(1), 195-232.

Jeng, L. (1998). Corporate insiders and the window of opportunity. Working paper, Boston University, Boston.

Ke, B., Huddart, S., and Petroni, K. (2003). What insiders know about future earnings and how they use it: Evidence from insider trades. *Journal of Accounting and Economics*, *35*(3), 315-346.

Kelling, G. and Sousa, W. (2001) Do police matter? An analysis of the impact of New York City's policy reforms. *Manhattan Institute Center for Civic Innovation Civic Report 22*

Kelling, G. and Wilson, J. (1982). Broken windows. *Atlantic monthly*, *249*(3), 29-38.

Klein, O., Maug, E., and Schneider, C. (2017). Trading strategies of corporate insiders. *Journal of financial markets*, *34*, 48-68.

Krauss, C. (1996). The Bratton resignation: The legacy. *New York Times*, http://www.nytimes.com /1996/03/27/nyregion/bratton-resignation-legacy-bratton-hailed-pioneer-new-style-policing.html?ref=williamjbratton

Lakonishok, J., and Lee, I. (2001). Are insider trades informative? *The Review of Financial Studies*, (1), 79.

Langevoort, D. (2006). The SEC as a lawmaker: Choices about investor protection in the face of uncertainty. *Washington University Law Review 84,* 1591-1626.

Lee, I. (1997). Do firms knowingly sell overvalued equity?. *The Journal of Finance*, *52*(4), 1439-1466.

Lee, D., Mikkelson, W., and Partch, M. (1992). Managers' trading around stock repurchases. *The Journal of Finance*, *47*(5), 1947-1961.

Leland, H. (1992). Insider trading: Should it be prohibited?. *Journal of Political Economy*, *100*(4), 859-887.

Levitt, S. (2002). Using electoral cycles in police hiring to estimate the effects of police on crime: Reply. *American Economic Review*, *92*(4), 1244-1250.

Lin, M. (2009). More police, less crime: Evidence from US state data. *International Review of Law and Economics*, 29(2), 73-80.

Liu, H. and Swanson, E. (2016). Is price support a motive for increasing share repurchases?. *Journal of Corporate Finance*, 3877-91. doi:10.1016/j.jcorpfin.2016.03.011

Manne, H. (1966). *Insider Trading and the Stock Market*. New York: Free Press. Print.

Meulbroek, L. (1992). An empirical analysis of illegal insider trading. *Journal of Finance*, *47*(5), 1661-1699.

Newkirk, T. and Robertson, M. (1998, September). Insider trading – US perspective. In *Speech at the 16th International Symposium on Economic Crime, Jesus College, Cambridge, England, September* (Vol. 19, p. 1998).

Otto, C. (2014). CEO optimism and incentive compensation. *Journal of Financial Economics*, 114(2), 366-404. doi:10.1016/j.jfineco.2014.06.006

Piotroski, J. and Roulstone, D. (2005). Do insider trades reflect both contrarian beliefs and superior knowledge about future cash flow realizations?. *Journal of Accounting and Economics*, *39*(1), 55-81.

Piwowar, M. (2014). *Remarks at the Securities Enforcement Forum*. Speech. Retrieved February 2, 2022, from https://www.sec.gov/news/speech/2014-spch101414msp

Piwowar, M. (2017). *Remarks at FINRA and Columbia University Market Structure Conference*. Speech. Retrieved April 7, 2022, from https://www.sec.gov/news/speech/speech-piwowar-2017-10-26

Roulstone, D. (2003). The relation between insider-trading restrictions and executive compensation. *Journal of Accounting Research*, *41*(3), 525-551.

SEC Rule 10b-5: 17 CFR 240.10b-5 Employment of manipulative and deceptive devices. Retrieved on August 16, 2024, from https://www.ecfr.gov/current/title-17/chapter-II/part-240/subpart-A/subject-group-ECFRbda83517ce4377f/section-240.10b-5

Seyhun, H. (1986). Insiders' profits, costs of trading, and market efficiency. *Journal of Financial Economics*, 16(2), 189-212.

Seyhun, H. (1990). Do bidder managers knowingly pay too much for target firms? *Journal of Business*, 439-464.

Seyhun, H. (2000). *Investment intelligence from insider trading*. MIT press.

U.S. Securities and Exchange Commission. (2014a). *Fiscal Year 2014 Agency Financial Report* [Annual report]. Retrieved August 2, 2017, from https://www.sec.gov/about/secpar/secafr2014.pdf

U.S. Securities and Exchange Commission. (2014b). *SEC Announces Charges Against Corporate Insiders for Violating Laws Requiring Prompt Reporting of Transactions and Holdings* [Press release]. Release number 2014-190. Retrieved August 2, 2017, from https://www.sec.gov/news/press-release/2014-190

U.S. Securities and Exchange Commission. (2015). *Initial Decision Release No. 870* [Administrative Proceeding]. File number 3-16094. Retrieved August 2, 2017, from https://www.sec.gov/files/alj/aljdec/2015/id870jeg.pdf

U.S. Securities and Exchange Commission. (2023). *SEC Charges Corporate Insiders for Failing to Timely Report Transactions and Holdings* [Press release]. Release number 2023-201. Retrieved February 12, 2024, from https://www.sec.gov/news/press-release/2023-201

White, M. (2013). *Remarks at the Securities Enforcement Forum*. Speech. Retrieved August 2, 2017, from https://www.sec.gov/news/speech/spch100913mjw

Appendix A: Data Description

Variable	Description
Primary Variables:	
Filing Violation	Indicator for insider transaction reported after the legally required date. Determination of a violation depends on the regulation in place at the time of the trade. For example, for the January 1988 to August 2002 portion of the sample period (pre-SOX), the filing deadline was the 10th day of the month after the trade. Post-SOX, the filing deadline is two business days following the trade.
Insider Ratio	Total number of violations per insider in the five years prior to the transaction scaled by the total number of trades for that insider over the same period.
Firm Ratio	Total number of violations per firm in the five years prior to the transaction scaled by the total number of trades at that firm over the same period.
Days Late	The number of business days the violating trade's filing was delayed past the required deadline, scaled by the number of business days between the transaction and reporting date.
Blackout Trades	A transaction made in the month preceding an earnings announcement, at a firm classified as restricting insider trading to the one-month following earnings announcements.
Stealth Trades	A series of trades made by the same individual in the same direction, with all trades jointly reported at the end of the series of trades.
Opportunistic Trades	A trade made at an inconsistent time of the year compared to the transactions the insider carried out over previous years.
Negative Insider Behavior	A trade categorized as either blackout trade, stealth trade, or opportunistic trade.
Trade After Enforce	An indicator for an insider transaction occurring after the SEC enforcement date.
Top Violator	An indicator for trades made by insiders who have a pre-enforcement filing violation ratio that exceeds the mean violation ratio.
Controls:	
Corporate Suite	Indicator variable set to one for transactions made by members of the corporate suite, defined as CEO, CFO, CI, CO, and CT.
Directors	Indicator variable set to one for transactions made by a member of the board of directors.
Officers	Indicator variable set to one for transactions made by officers that rank lower than members of the Corporate Suite and higher than the Other Insiders categorization.
Beneficial Owner	Indicator variable set to one for transactions made by a beneficial owner.
Other Insider	Indicator variable set to one for transactions made by a low-level insider that holds a committee, affiliate, or other position at the firm as classified by Thomson Reuters.
Trade Value	The dollar amount of a transaction, scaled by the market capitalization of the firm.
Trade after 2014	Marks all trades after the 2014 enforcement action as one, and all trades prior as zero.
ROA	Return on Assets, defined as year-end net income divided by total assets, lagged and winsorized at the 1st and 99th percentile.
Leverage	Year-end total liabilities divided by total assets, lagged and winsorized at the 1st and 99th percentile.
Ln (Size)	The log adjusted market capitalization of the firm at fiscal year-end, lagged and winsorized at the 1st and 99th percentile.
Book to Market	Year-end book value divided by year-end market capitalization, lagged and winsorized at the 1st and 99th percentile.

Table 1: SEC Enforcement Actions for Delinquent Insider Filings

For the 1988 through 2023 period, this table reports insider filing violations and enforcement action against delinquent filings, aggregated on a yearly basis. *Filing Violations* is the number of delinquent trades in a given year. *Enforced Violations (by Transaction Date)* is the total number of filing violations mentioned in an SEC enforcement case, aggregated by the year of the transaction. *Enforced Percentage (by Transaction Date)* is the number of late filings identified in enforcement cases as a percentage of the total number of filing violations per year. *Enforced Violations (by Enforcement Date)* is the total number of filing violations mentioned in an SEC enforcement case, aggregated by the year of the enforcement. *Penalty Amount* is the aggregated penalty amount per year.

Year	Filing Violations	Enforced Violations (by Transaction Date)	Enforced Percentage (by Transaction Date)	Enforced Violations (by Enforcement Date)	Penalty Amount
(1)	(2)	(3)	(4)	(5)	(6)
1988	10,140	93	0.92%	0	.
1989	9,100	5	0.05%	64	.
1990	12,159	30	0.25%	0	.
1991	11,672	79	0.68%	0	.
1992	6,935	69	0.99%	8	.
1993	5,606	53	0.95%	146	$15,000
1994	8,319	33	0.40%	22	$75,000
1995	12,894	73	0.57%	16	$25,000
1996	13,376	55	0.41%	45	$25,000
1997	12,068	54	0.45%	123	$100,000
1998	13,810	27	0.20%	22	$125,000
1999	12,586	49	0.39%	63	$68,000
2000	15,609	99	0.63%	0	.
2001	14,081	0	0.00%	210	$20,000
2002	10,984	0	0.00%	0	.
2003	6,177	0	0.00%	0	.
2004	4,259	0	0.00%	0	.
2005	3,600	0	0.00%	0	.
2006	3,104	3	0.10%	0	.
2007	3,350	0	0.00%	0	.
2008	3,875	0	0.00%	0	.
2009	2,821	0	0.00%	0	.
2010	2,200	83	3.77%	0	.
2011	2,103	72	3.42%	0	.
2012	2,136	134	6.27%	0	.
2013	1,944	12	0.62%	0	.
2014	1,822	0	0.00%	304	$2,600,000
2015	1,905	0	0.00%	0	.
2016	1,746	0	0.00%	0	.
2017	1,606	0	0.00%	0	.
2018	752	0	0.00%	0	.
2019	1,928	0	0.00%	0	.
2020	1,236	0	0.00%	0	.
2021	2,783	59	2.12%	0	.
2022	2,485	21	0.85%	0	.
2023	1,442	0	0.00%	80	$1,569,000
Total	222,613	1,103	0.49%	1,103	$4,622,000

Table 2: Summary Statistics for Filing Violations

This table reports descriptive statistics for insider filing violations included in SEC enforcement cases and compares them to insider filing violations where no SEC action was taken for the 1988 through 2023 period. *Insider (Firm) Ratio* is the total number of violations per insider (firm), scaled by the total number of trades per insider (firm) in the five years prior to the transaction. *Days Late* is the number of business days the violating insider delayed filing past the required deadline, scaled by the number of business days between the transaction and reporting date. *Blackout Trades, Stealth Trades,* and *Opportunistic Trades* are dichotomous variables that equal one when the transaction involves one of these respective trade classifications; otherwise, blackout trade, stealth trade, and opportunistic trade are set to zero. *Negative Insider Behavior* is an indicator variable that equals one if a delinquent trade can be categorized as a blackout, stealth, or opportunistic trade. *Corporate Suite, Directors, Officers, Beneficial Owner*, and *Other Insider* indicate the classification of the insider. *Trade Value* is the dollar amount of a trade scaled by the market capitalization of the firm. *ROA, Leverage, Ln(Size)* and *Book to Market* are year-end firm measures that are lagged and winsorized at the 1st and 99th percentile. Asterisks indicate the significant difference between groups. ***, **, and * denoted at 1%, 5%, and 10%, respectively.

Variable	Enforced Filing Violations			Non-Enforced Filing Violations			
	N	Mean	Std Dev	N	Mean	Std Dev	Diff
Insider Ratio	1,103	0.76	0.28	221,510	0.45	0.40	0.31***
Firm Ratio	1,103	0.61	0.29	221,510	0.42	0.30	0.19***
Days Late	1,103	0.70	0.28	221,510	0.42	0.33	0.28***
Blackout Trades	1,103	0.01	0.11	221,510	0.03	0.17	-0.02***
Stealth Trades	1,103	0.94	0.24	221,510	0.62	0.49	0.32***
Opportunistic Trades	216	0.88	0.32	37,579	0.71	0.46	0.17***
Negative Insider Behavior	1,103	0.96	0.20	221,510	0.68	0.46	0.28***
Corporate Suite	1,103	0.10	0.31	221,510	0.10	0.30	0.00
Directors	1,103	0.32	0.47	221,510	0.43	0.49	-0.11***
Officers	1,103	0.11	0.31	221,510	0.24	0.43	-0.13***
Beneficial Owner	1,103	0.45	0.50	221,510	0.18	0.38	0.27***
Other Insider	1,103	0.02	0.13	221,510	0.05	0.22	-0.03***
Trade Value	1,103	0.01	0.14	221,510	0.00	0.03	0.01
ROA	1,103	-0.03	0.19	221,510	-0.04	0.31	0.01
Leverage	1,103	0.54	0.26	221,510	0.53	0.26	0.01
Ln(Size)	1,103	4.41	1.25	221,510	5.14	1.93	-0.73***
Book to Market	1,103	0.95	0.85	221,510	0.7	0.66	0.25***

Table 3: Determinates of SEC Enforcement on Insider Filing Violations

This table presents linear probability fixed effect regression results for the 1988 through 2023 sample of insider filing violations. The dependent variable is an indicator that equals one if the trade reported late experiences enforcement by the SEC; otherwise it equals zero. The *Insider (Firm) Ratio* is the total number of violations per insider (firm), scaled by the total number of trades per insider (firm) in the five years prior to the transaction. *Days Late* is the number of business days the violating insider delayed filing past the required deadline, scaled by the number of business days between the transaction and reporting date. *Negative Insider Behavior* is an indicator variable that equals one if a delinquent trade can be categorized as a blackout, stealth, or opportunistic trade. *Corporate Suite, Directors, Officers*, and *Beneficial Owner* indicate the classification of the insider. *Trade Value* is the dollar amount of a trade scaled by the market capitalization of the firm. *Trade after 2014* marks transactions taking place after the SEC enforcement action in September 2014. *ROA, Leverage, Ln(Size)* and *Book to Market* are year-end firm measures that are lagged and winsorized at the 1st and 99th percentile. All models contain firm and year fixed effects. Firm clustered robust standard errors are reported in parentheses. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dep. Var: Enforced Violation	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Insider Ratio	0.004***					0.003***	
	(0.001)					(0.001)	
Firm Ratio		0.005**					0.004*
		(0.002)					(0.002)
Days Late			0.007***			0.007***	0.007***
			(0.002)			(0.002)	(0.002)
Negative Insider Behavior				0.002***		0.001	0.001***
				(0.001)		(0.001)	(0.000)
Corporate Suite					-0.001	-0.001	-0.001
					(0.003)	(0.003)	(0.003)
Directors					0.001	0.001	0.001
					(0.002)	(0.002)	(0.002)
Officers					-0.000	0.000	-0.000
					(0.002)	(0.002)	(0.002)
Beneficial Owner					0.006**	0.006**	0.006**
					(0.003)	(0.003)	(0.003)
Trade Value	0.020	0.020	0.019	0.021	0.016	0.017	0.017
	(0.020)	(0.020)	(0.020)	(0.020)	(0.021)	(0.021)	(0.021)
Trade after 2014	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
ROA	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Leverage	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
(Ln)Size	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Book-to-Market	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Observations	222,613	222,613	222,613	222,613	222,613	222,613	222,613
R-square	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 4: SEC Enforcement Effects on Other Insiders' Filing Violations: Univariate

This table provides a comparison of filing violation rates pre- and post-enforcement for the 1988 through 2019 period. Panel A reports pre- and post-enforcement means and differences in means for insiders connected and insiders not connected to enforcement. Panel B reports pre- and post-enforcement means and differences in means for the three levels of insiders connected to the enforcement. Connected insiders are defined as any insider having a Level 1, Level 2, or Level 3 connection to the enforcement. Level 1 are insiders directly involved in the SEC enforcement. Level 2 are indirectly affected insiders who did not experience the enforcement themselves but were at the firm where a fellow insider was indicted. Level 3 are loosely connected insiders at firms where an enforcement did not take place, but who are associated with an enforced firm through an indirectly affected insider employed at both firms. Non-Connected insiders are any insider not classified as having a Level 1, Level 2, or Level 3 connection to the enforcement. *Propensity to Violate* is an indicator variable for a delinquent trade. *Firm Ratio* is the number of violations per firm, scaled by the total number of trades per firm in the five years prior to the transaction. ***, **, and * denote significance of the difference in means at 1%, 5%, and 10%, respectively.

Panel A: Propensity to Violate: Connected and Not Connected Insiders

	Insiders Connected to Enforcement					
		Pre-enforcement		Post-enforcement		Post minus Pre
	Total Obs.	**N**	**Mean**	**N**	**Mean**	**Diff**
Propensity to Violate	61,776	33,631	23.8%	28,145	18.6%	-5.2%***
Firm Ratio	61,776	33,631	27.5%	28,145	20.7%	-6.8%***

	Insiders Not Connected to Enforcement					
		Pre-enforcement		Post-enforcement		Post minus Pre
	Total Obs.	**N**	**Mean**	**N**	**Mean**	**Diff**
Propensity to Violate	1,061,611	572,175	18.7%	489,436	17.7%	-1.0%***
Firm Ratio	1,061,611	572,175	22.1%	489,436	19.5%	-2.6%***

Panel B: Propensity to Violate: Level 1, Level 2, and Level 3 Insiders

	Level 1 Insiders Connected to Enforcement					
		Pre-enforcement		Post-enforcement		Post minus Pre
	Total Obs.	**N**	**Mean**	**N**	**Mean**	**Diff**
Propensity to Violate	2,355	1,856	61.7%	499	18.6%	-43.1%***
Firm Ratio	2,355	1,856	53.4%	499	30.0%	-23.4%***

	Level 2 Insiders Connected to Enforcement					
		Pre-enforcement		Post-enforcement		Post minus Pre
	Total Obs.	**N**	**Mean**	**N**	**Mean**	**Diff**
Propensity to Violate	7,226	3,863	29.6%	3,363	14.7%	-14.9%***
Firm Ratio	7,226	3,863	37.6%	3,363	21.9%	-15.8%***

	Level 3 Insiders Connected to Enforcement					
		Pre-enforcement		Post-enforcement		Post minus Pre
	Total Obs.	**N**	**Mean**	**N**	**Mean**	**Diff**
Propensity to Violate	52,195	27,912	20.5%	24,283	19.1%	-1.4%***
Firm Ratio	52,195	27,912	24.4%	24,283	20.4%	- 4.0%***

Table 5: SEC Enforcement Effects on Other Insiders' Filing Violations: Multivariate

Table 5 reports linear probability fixed effects regressions examining the effect of SEC filing violation enforcement on the propensity to file delinquent for the 1988 through 2019 period. The sample consists of all insider trades made within a five-year pre- and post-enforcement window. The dependent variable is a dichotomous variable that is equal to one when the transaction is a filing violation and is zero otherwise. *Trade After Enforce* is an indicator variable for the trades made after an enforcement action. *Top Violator* is an indicator for trades made by insiders who have a pre-enforcement filing violation ratio that exceeds the mean violation ratio. *Trade Value* is the dollar amount of a trade scaled by the market capitalization of the firm. *Trade after 2014* marks transactions taking place after the SEC enforcement action in September 2014. *ROA, Leverage, Ln(Size)* and *Book to Market* are year-end firm measures lagged and winsorized at the 1st and 99th percentile. All models contain firm and year fixed effects. Firm clustered robust standard errors are reported in parentheses. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dep. Var: Filing Violation	Level 1	Level 1	Level 2	Level 2	Level 3	Level 3	Not Connected	Not Connected
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Trade After Enforce	-0.280*	-0.089						
	(0.158)	(0.150)						
Top Violator		0.158*						
		(0.093)						
Trade After Enforce*Top Violator		-0.317**						
		(0.123)						
Trade After Enforce			-0.134**	0.049				
			(0.055)	(0.047)				
Top Violator				0.461***				
				(0.046)				
Trade After Enforce*Top Violator				-0.328***				
				(0.055)				
Trade After Enforce					-0.015	0.135***		
					(0.025)	(0.026)		
Top Violator						0.325***		
						(0.013)		
Trade After Enforce*Top Violator						-0.295***		
						(0.020)		
Trade After Enforce							-0.002	0.060***
							(0.003)	(0.003)
Top Violator								0.295***
								(0.003)
Trade After Enforce*Top Violator								-0.110***
								(0.004)
Trade Value	0.332	0.356	0.252***	0.210*	0.187	0.142	-0.010	-0.006
	(0.269)	(0.264)	(0.093)	(0.109)	(0.140)	(0.114)	(0.008)	(0.007)
Trade after 2014	0.337*	0.264	0.104	0.011	0.002	-0.121***	-0.009*	0.036***
	(0.184)	(0.160)	(0.086)	(0.071)	(0.027)	(0.028)	(0.006)	(0.005)
ROA	0.207	0.248	0.104	-0.004	-0.031	-0.009	0.001	-0.001
	(0.157)	(0.150)	(0.104)	(0.093)	(0.044)	(0.039)	(0.006)	(0.006)
Leverage	-0.108	-0.116	-0.040	-0.013	-0.103*	-0.044	0.010	0.007
	(0.399)	(0.387)	(0.128)	(0.112)	(0.053)	(0.048)	(0.013)	(0.012)
(Ln)Size	-0.032	-0.089	-0.024	-0.018	-0.012	-0.008	-0.006***	-0.005***
	(0.123)	(0.127)	(0.034)	(0.028)	(0.011)	(0.010)	(0.002)	(0.002)
Book-to-Market	-0.105	-0.158	-0.051	-0.048*	-0.014	-0.012	-0.005	-0.005*
	(0.228)	(0.229)	(0.042)	(0.029)	(0.011)	(0.011)	(0.003)	(0.003)
Observations	2,355	2,355	7,226	7,226	52,195	52,195	1,061,611	1,061,611
R-square	0.45	0.46	0.25	0.35	0.22	0.27	0.24	0.30
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6: Other Questionable Trading Behavior Relative to Filing Violations

The following table measures the propensity for insiders engaged in other questionable trading practices to violate insider filing requirements. In Panel A, comparisons are made for blackout trades. In Panel B, comparisons are made for stealth trades. In Panel C, comparisons are made for opportunistic trades. Differences in means between the groups are reported in the last column. ***, **, and * denote significance of the difference in means at 1%, 5%, and 10%, respectively.

Panel A: Blackout Trades

| | | Insiders Connected to Enforcement | | | | |
| | | Blackout Trade | | Non-Blackout Trade | | |
	Total Observations	N	Mean	N	Mean	Diff
Propensity to Violate	61,776	1,341	27.8%	60,435	21.3%	6.5%***
Firm Ratio	61,776	1,341	26.6%	60,435	24.4%	2.2%***

| | | Insiders not Connected to Enforcement | | | | |
| | | Blackout Trade | | Non-Blackout Trade | | |
	Total Observations	N	Mean	N	Mean	Diff
Propensity to Violate	1,061,611	24,966	21.4%	1,036,645	18.1%	3.3%***
Firm Ratio	1,061,611	24,966	19.9%	1,036,645	20.9%	-1.0%***

Panel B: Stealth Trades

| | | Insiders Connected to Enforcement | | | | |
| | | Stealth Trade | | Non-Stealth Trade | | |
	Total Observations	N	Mean	N	Mean	Diff
Propensity to Violate	61,776	33,101	27.3%	28,675	14.6%	12.7%***
Firm Ratio	61,776	33,101	28.6%	28,675	19.6%	9.0%***

| | | Insiders not Connected to Enforcement | | | | |
| | | Stealth Trade | | Non-Stealth Trade | | |
	Total Observations	N	Mean	N	Mean	Diff
Propensity to Violate	1,061,611	491,664	24.4%	569,947	12.9%	11.5%***
Firm Ratio	1,061,611	491,664	25.2%	569,947	17.2%	8.0%***

Panel C: Opportunistic Trades

| | | Insiders Connected to Enforcement | | | | |
| | | Opportunistic | | Routine Trade | | |
	Total Observations	N	Mean	N	Mean	Diff
Propensity to Violate	15,995	12,226	15.3%	3,769	14.8%	0.5%
Firm Ratio	15,995	12,226	20.7%	3,769	17.9%	2.8%***

| | | Insiders not Connected to Enforcement | | | | |
| | | Opportunistic | | Routine Trade | | |
	Total Observations	N	Mean	N	Mean	Diff
Propensity to Violate	270,726	188,573	11.9%	82,153	11.0%	0.9%***
Firm Ratio	270,726	188,573	15.9%	82,153	13.7%	2.2%***

Table 7: SEC Enforcement Derivative Impact

The following table measures the effect of SEC filing violation enforcement actions on other forms of negative behavior of insiders: blackout trading, stealth trading, and opportunistic trading. All trades in Panel A and B are made by connected insiders, defined as any insider classified as having a Level 1, Level 2, or Level 3 connection to the enforcement. Level 1 are insiders directly involved in the SEC enforcement. Level 2 are indirectly affected insiders who did not experience the enforcement themselves but were at the firm where a fellow insider was indicted. Level 3 are loosely connected insiders at firms where an enforcement did not take place, but who are associated with an enforced firm through an indirectly affected insider employed at both firms. Pre-enforcement insider trades are those made within (-5) years of the SEC enforcement action. Post-enforcement are insider trades made within (+5) years of the SEC enforcement action. In Panel A, differences in means for the propensity to engage in blackout, stealth, or opportunistic are compared pre- and post-enforcement. In Panel B, differences in means for the propensity to engage in blackout trading, stealth trading, or opportunistic trading are compared pre- and post-enforcement by the level of connectedness the insider has to the enforcement action. ***, **, and * denote significance of the difference in means at 1%, 5%, and 10%, respectively.

Panel A: Propensity of Other Questionable Trading Behaviors Pre- and Post- Enforcement

	Total Observations	Pre-enforcement		Post-enforcement		Post minus Pre
		N	Mean	N	Mean	Diff
Propensity for Blackout Trade	61,776	33,631	2.3%	28,145	1.9%	-0.4%**
Propensity for Stealth Trade	61,776	33,631	54.0%	28,145	53.0%	-1.0%***
Propensity for Opportunistic Trade	15,995	7,782	77.5%	8,213	75.3%	-2.2%***

Panel B: Propensity of Other Questionable Trading Behaviors by Connection Level

	Total Observations	Pre-enforcement		Post-enforcement		Post minus Pre
		N	Mean	N	Mean	Diff
Level 1 and 2: Propensity for Blackout Trade	9,581	5,719	1.8%	3,862	1.1%	-0.7%***
Level 1 and 2: Propensity for Stealth Trade	9,581	5,719	71.1%	3,862	62.6%	-8.5%***
Level 1 and 2: Propensity for Opportunistic Trade	3,088	1,336	78.4%	1,752	72.5%	-5.9%***
Level 3: Propensity for Blackout Trade	52,195	27,912	2.5%	24,283	2.1%	-0.4%***
Level 3: Propensity for Stealth Trade	52,195	27,912	50.5%	24,283	51.5%	1.0%**
Level 3: Propensity for Opportunistic Trade	12,907	6,446	77.4%	6,461	76.2%	-1.2%*

Table 8: SEC Enforcement Effects on Insider Filing Violations

This table reports tests examining the effect of filing violation enforcement actions on other types of questionable insider trading behavior using all trades within (-5,+5) years of the SEC enforcement action. In Panel A, the dependent variable is equal to one when the transaction is made during a blackout period and zero otherwise. In Panel B, the dependent variable is equal to one when the transaction is a stealth trade and zero otherwise. In Panel C, the dependent variable is equal to one when the transaction is an opportunistic trade and zero otherwise. *Trade After Enforce* is an indicator variable for an insider trade taking place after enforcement has occurred. *Top Violator* is an indicator for trades made by insiders who have a pre-enforcement filing violation ratio that exceeds the mean violation ratio. *Trade Value* is the dollar amount of a trade scaled by the market capitalization of the firm. *Trade after 2014* marks transactions taking place after the SEC enforcement action in September 2014. *ROA, Leverage, Ln(Size)* and *Book to Market* are entered as controls. All models contain firm and year fixed effects. Firm clustered robust standard errors are reported in parentheses. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Panel A: Blackout Trading

Dep. Var: Blackout Trade	Level 1	Level 1	Level 2	Level 2	Level 3	Level 3
	(1)	(2)	(3)	(4)	(5)	(6)
Trade After Enforce	-0.024*	0.002				
	(0.012)	(0.012)				
Top Violator		0.003				
		(0.010)				
Trade After Enforce*Top Violator		-0.041**				
		(0.018)				
Trade After Enforce			-0.018*	-0.011		
			(0.010)	(0.010)		
Top Violator				0.014		
				(0.010)		
Trade After Enforce*Top Violator				-0.016*		
				(0.009)		
Trade After Enforce					-0.014*	-0.015**
					(0.007)	(0.008)
Top Violator						-0.000
						(0.004)
Trade After Enforce*Top Violator						0.002
						(0.005)
Trade Value	-0.001	-0.002	-0.089***	-0.090***	-0.036	-0.036
	(0.008)	(0.009)	(0.019)	(0.019)	(0.069)	(0.069)
Trade after 2014	0.029*	0.019	0.029	0.025	0.012	0.012
	(0.015)	(0.018)	(0.022)	(0.022)	(0.013)	(0.013)
Return on Assets	-0.025*	-0.020	0.017	0.013	0.009	0.009
	(0.015)	(0.014)	(0.017)	(0.017)	(0.008)	(0.008)
Leverage	-0.086	-0.088*	0.018	0.019	-0.017	-0.017
	(0.056)	(0.051)	(0.027)	(0.027)	(0.019)	(0.019)
(Ln)Size	0.017*	0.009	-0.016**	-0.016*	-0.000	-0.000
	(0.009)	(0.010)	(0.008)	(0.008)	(0.003)	(0.003)
Book-to-Market	0.018	0.010	0.000	0.000	-0.004	-0.004
	(0.013)	(0.013)	(0.005)	(0.005)	(0.003)	(0.003)
Observations	2,355	2,355	7,226	7,226	52,195	52,195
R-square	0.11	0.12	0.15	0.15	0.07	0.07
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Stealth Trading

Dep. Var: Stealth Trade	Level 1	Level 1	Level 2	Level 2	Level 3	Level 3
	(1)	(2)	(3)	(4)	(5)	(6)
Trade After Enforce	-0.182*	-0.249**				
	(0.093)	(0.110)				
Top Violator		0.035				
		(0.060)				
Trade After Enforce*Top Violator		0.098				
		(0.064)				
Trade After Enforce			-0.113*	-0.051		
			(0.067)	(0.069)		
Top Violator				0.127***		
				(0.042)		
Trade After Enforce*Top Violator				-0.134***		
				(0.045)		
Trade After Enforce					-0.011	-0.015
					(0.020)	(0.022)
Top Violator						0.073***
						(0.017)
Trade After Enforce*Top Violator						0.038*
						(0.023)
Trade Value	-0.976***	-0.967***	-0.178	-0.187	-1.080***	-1.099***
	(0.301)	(0.297)	(0.281)	(0.272)	(0.236)	(0.238)
Trade after 2014	0.133	0.156	-0.094	-0.124	0.061	0.065*
	(0.144)	(0.147)	(0.163)	(0.161)	(0.038)	(0.039)
Return on Assets	0.016	0.004	-0.186**	-0.219**	0.022	0.027
	(0.074)	(0.073)	(0.093)	(0.092)	(0.038)	(0.037)
Leverage	-0.266	-0.256	0.113	0.123	-0.060	-0.046
	(0.189)	(0.188)	(0.170)	(0.168)	(0.063)	(0.063)
(Ln)Size	-0.138**	-0.118*	0.068**	0.068**	-0.005	-0.005
	(0.061)	(0.064)	(0.031)	(0.030)	(0.012)	(0.012)
Book-to-Market	-0.197**	-0.173**	0.058*	0.059*	0.003	0.003
	(0.074)	(0.076)	(0.035)	(0.034)	(0.016)	(0.016)
Observations	2,355	2,355	7,226	7,226	52,195	52,195
R-square	0.24	0.24	0.29	0.29	0.26	0.26
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel C: Opportunistic Trading

Dep. Var: Opportunistic Trade	Level 1	Level 1	Level 2	Level 2	Level 3	Level 3
	(1)	(2)	(3)	(4)	(5)	(6)
Trade After Enforce	0.039	0.078				
	(0.037)	(0.077)				
Top Violator		-0.475***				
		(0.039)				
Trade After Enforce*Top Violator		-0.045				
		(0.078)				
Trade After Enforce			0.009	-0.127		
			(0.065)	(0.094)		
Top Violator				-0.015		
				(0.182)		
Trade After Enforce*Top Violator				0.239		
				(0.170)		
Trade After Enforce					-0.040	-0.046
					(0.036)	(0.045)
Top Violator						0.010
						(0.046)
Trade After Enforce*Top Violator						0.013
						(0.043)
Trade Value	0.075	0.078	-0.145	-0.056	-0.492	-0.514
	(0.046)	(0.048)	(0.228)	(0.224)	(0.856)	(0.847)
Trade after 2014	-0.091	-0.077	-0.094	0.037	0.019	0.024
	(0.057)	(0.059)	(0.294)	(0.304)	(0.051)	(0.057)
Return on Assets	2.569**	2.661**	-0.026	-0.115	0.008	0.008
	(1.172)	(1.168)	(0.210)	(0.205)	(0.079)	(0.080)
Leverage	0.401	0.410	-0.054	-0.070	-0.066	-0.066
	(0.276)	(0.406)	(0.102)	(0.104)	(0.133)	(0.133)
(Ln)Size	-0.064	-0.087	0.044	0.038	-0.026	-0.026
	(0.046)	(0.088)	(0.062)	(0.064)	(0.025)	(0.024)
Book-to-Market	-0.049	-0.086	0.024	0.030	0.011	0.011
	(0.080)	(0.138)	(0.028)	(0.033)	(0.035)	(0.035)
Observations	880	880	2,208	2,208	12,907	12,907
R-square	0.55	0.64	0.48	0.50	0.48	0.48
Firm and Year FE	Yes	Yes	Yes	Yes	Yes	Yes