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Insider trading and the legal expertise of corporate executives ☆

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ABSTRACT

We investigate if prior professional legal education either restrains or increases the extent to which the insider trades of company executives and directors are informed. We show that executives and directors with legal expertise (lawyer-insiders) earn significantly lower abnormal returns than non-lawyer-insiders when they purchase their own company's shares. Purchases by lawyer-insiders are associated with lower future earnings surprises and firm profitability than those made by non-lawyer-insiders, and are more muted following months with high levels of SEC enforcement activity. Our results suggest that insiders with legal education may be more conservative in exploiting private information when making insider trades.

1. Introduction

A significant amount of empirical research examines the association between aspects of corporate governance (such as board structure) and firm outcomes (e.g., profitability or firm value) or corporate policy choices (e.g., earnings management or tax aggressiveness). A common assumption, often implicit, is that all corporate executives have a clear and thorough understanding of governance rules and regulations as well as the potential risks and/or consequences of violating these rules. Coupled with this is the assumption that, the extent to which executives understand these rules is uniform across firms. These assumptions, of a high and uniform level of facility in governance rules among all corporate executives, is unlikely to be true in practice. Corporate regulation and compliance is becoming ever more complex. For example, the first two decades of the 21st century produced two monumental pieces of corporate regulation – the Sarbanes-Oxley Act of 2002 and the Dodd-Frank Act of 2010 – both of which together run into several hundred pages and require significant legal acumen to understand the details. In addition, enforcement of these and other longer-standing regulations often rely on extensive additional rules written by regulatory agencies (e.g., the SEC), as well as legal precedents from judicial rulings, which require significant legal expertise to interpret. As such, there is likely to be significant cross-sectional variation in the extent to which executives are fully cognizant of governance and compliance rules.

In this paper, we examine the internal governance and compliance implications of different levels of legal expertise among executives. We do so in the context of insider trading. We view this as a particularly powerful context since it represents an individual and deliberate action on the part of the executive that has an immediate impact on the executive's wealth. Insider trading laws are ambiguous and complex, which may result in divergent beliefs about the legality of specific trading behavior. While insiders in the U.S. are legally allowed to buy and sell their own company stocks, congressional statutes and SEC rules explicitly forbid them from doing so when such trades exploit material non-public information. However, the line that divides legal from illegal insider trading has never been a bright one. Since 1934, when Congress

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passed the first statutes that could be used to define illegal insider trading, the intensity of enforcement has varied. Over the same period, Congress and the Securities Exchange Commission (SEC) have passed additional statues in an attempt to clarify what constitutes illegal insider trading, and a broad and complicated body of case law has developed around the civil and criminal prosecution of illegal insider trading.[1]

In addition to this, the legal ambiguity of insider trading regulation is set against the backdrop of extensive academic research that suggests that insider trades, especially purchases, may be informed.[2] However, despite this appearance of widespread informed insider trading, the overwhelming majority of insider trades do not attract any enforcement action. This suggests that from the perspective of enforcement authorities, there is significant legal space between what constitutes legal and illegal insider trading behavior, even if the extent of such space is often uncertain. The upshot of all this is that individual insiders may face significant challenges in understanding the full legal ramifications of their trading behavior, while simultaneously having significant latitude in how they choose to exploit private information when they trade.

Our study compares the performance of trades from lawyer-insiders (i.e., corporate insiders with prior academic or professional legal education) and non-lawyer-insiders.[3] When faced with ambiguity or complexity, managers make decisions using inputs, rubrics and ethical considerations that are processed and filtered based on their knowledge, beliefs, assumptions, and values (Bagley, 2008; Cyert and March, 1963; March and Simon, 1958; Hambrick and Mason, 1984). A lawyer's training, experience, and the judgements or beliefs formed along with this training, could potentially affect his/her behavior when he/she trades his/her own company's stock.

There are at least two competing hypotheses for how legal training or a prior legal background could potentially influence insider trading behavior. On one hand, with a better understanding of regulations, executives with extensive legal training are more aware of litigation risks associated with their behavior. This could make these insiders hesitant to make use of inside information. Bagley, Clarkson, and Power (2010) find that knowledge of the law (acquired through formal legal training) leads to a higher likelihood of ethical and legally compliant behavior among managers. Furthermore, behavioral experiments suggest that even salient reminders of rules and laws in general – something that is more likely if one is associated with the legal profession – make participants less likely to engage in behavior that may be considered unethical (e.g., Mazar, Amir, and Ariely, 2008). Taken together, we might thus expect lawyer-insiders to be more conservative in their use of private information and thus earn lower abnormal returns on their insider trades than non-lawyer-insiders. We refer to this conjecture as the *restraint effect*.

On the other hand, legal training might help lawyer-insiders to obtain higher returns than non-lawyer-insiders by enabling them to come as close as possible to the line between legal and illegal use of information without crossing that line. Well equipped with legal knowledge, lawyer-insiders know how to defend themselves as long as they do not step beyond the gray area. In this case, lawyer-insiders may be more aggressive than the average insider when they make insider trades. Therefore, we would find that lawyer-insiders would be less conservative in their use of private information and thus earn higher abnormal returns on their insider trades than non-lawyer-insiders. We refer to this alternative conjecture as the *enabling effect*.

Our analysis suggests that the *restraint effect* appears to be dominant. In a broad sample covering the sixteen-year period from 1997-2012, we find that insider purchases made by lawyer-insiders earn lower future average abnormal stock returns than those made by non-lawyer-insiders. Specifically, insider purchases made by lawyer-insiders earn monthly returns that are between 0.5% and 0.8% *less* than those made by non-lawyer-insiders. The under-performance of insider purchases made by lawyer-insiders is more pronounced when the intensity of insider trading is higher (i.e., when insiders buy more shares).

One potential alternative explanation for our findings is that lawyer-insiders simply do not have access to the same private value-relevant information as other executives, or are simply less capable of recognizing when their firms' stocks are undervalued, rather than having a greater reluctance to use private information. This may be the case if, say, lawyer-insiders are more likely to be outside directors, especially if outside directors are generally less informed. However, additional analyses suggest this alternative does not explain our findings. We find that lawyer-insider purchases remain less informed even after we account for whether or not the insider is an independent director. Even when we exclude independent directors from our sample, we find that lawyer-insider purchases continue to be less informed. In addition, we find that, while lawyer insiders trade about as much as other insiders after earnings announcements, they are less likely than other insiders to do so in the 15-day window immediately prior to earnings announcements. This suggests that they are less likely to exploit their private information to trade during a period in which their private information would be especially valuable.

Furthermore, we find that lawyer-insider purchases have lower predictive power for future earnings surprises and future profitability than those by non-lawyer-insiders. We also find that compared with non-lawyer-insiders, lawyer-insiders make fewer purchases in months following high levels of public disclosure of SEC enforcement actions. This is in line with the idea that legal expertise may make the risks of aggressive use of inside information more salient at times when such risks are highly publicized, while it is at odds with the alternative explanation of lawyer-insiders' inability to identify undervalued stocks or their having less access to firm information.

We also explore and attempt to rule the possibility of *firm-selection*. For example, firms with a more conservative culture may be more likely to hire lawyer-insiders, and such firms may be less likely to have insiders who make informed trades in general. However, our analysis and empirical specification casts doubt on this potential explanation. We include firm fixed effects in all our cross-sectional tests. This means that, even *within* firms, lawyer-insider purchases remain less informed than those of other insiders. This suggests that our findings are unlikely to be driven by unobserved firm characteristics that just happen to coincide with the presence of lawyer-insiders.

We further explore the alternative explanation of *self-selection*, which can arise from the possibility that inherently restrained individuals may be more likely to pursue a legal degree, and that it is this characteristic, rather than their legal education, that explains their reluctance to exploit private information. We address this self-selection issue by using potentially exogenous variations in the likelihood that any particular insider is a lawyer-insider. An individual's decision to pursue a law degree is likely to be correlated with the availability and popularity of such graduate study programs. Thus, our first source of exogenous variation is the ratio of law degrees to MBAs in a birth cohort. Bouwman (2011) and

[1] See Seitzinger (2016) for a recent overview of the rules and legal precedents associated with insider trading.

[2] Recent examples include Akbas, Jiang, and Koch, 2020; Ali and Hirshleifer, 2017; Cohen, Malloy, and Pomorski, 2012; Jeng, Metrick, and Zeckhauser, 2003; Lakonishok and Lee, 2001; Ravina and Sapienza, 2010, among others.

[3] We use the term "lawyer-insiders" throughout the paper as shorthand for corporate executives who happen to have had prior academic and/or professional legal training. We do not mean that these individuals are practicing attorneys or solicitors. In general, "lawyer-insiders" are simply executives and insiders (e.g., CEO, CFO, CMOs, etc.) with law degrees, and they are not their firms' general counsels.

Knyazeva, Knyazeva, and Masulis (2013) suggest that firms tend to choose executives and directors that are within close geographical proximity, so the likelihood that firms choose a lawyer-insider might be correlated with the availability of executives holding law degrees. We thus use the number of lawyer-insiders in a state where a firm is located as our second source of exogenous variation. Using these sources of exogenous variation, we carry out two-stage sample selection regressions where we first select for the probability that an insider is a lawyer-insider and then account for such selection in the second stage. Our broad inference remains unchanged suggesting that *self-selection* does not appear to explain our results.

Our study advances the literature by testing how the legal expertise of corporate insiders affects their trading behavior and performance. Prior literature has generally focused on firm-level or trade-level characteristics rather than the background or individual characteristics of executives. One exception, Davidson, Dey, and Smith (2016), which is in the same spirit as ours, finds that the profitability and probability of strategic timing of insider trades are higher for executives with criminal records. We differ from them by focusing on understanding how the legal backgrounds of corporate insiders affect their use of private information. Another paper that is close in spirit to ours is that by Jagolinzer, Larcker, and Taylor (2011) which finds that insider trades made with explicit approval or clearance by the General Counsel (GC) are less informed than other trades. Our study differs from theirs by showing that the legal expertise of the corporate executive herself serves as a restraint on informed insider trading *independent* of the role of the GC.

Our findings have potential implications for investors, companies and regulators. For investors who rely, at least in part, on insider trading behavior as a signal with which to assess firm value, our results suggest that insider characteristics may be important in the interpretation of this signal. Our results are also consistent with one of the implications from the theoretical model of DeMarzo, Fishman, and Hagerty (1998), which shows that one of the key elements for an optimal enforcement policy is the clarity of conditions that trigger regulatory investigations. While public discourse often focuses on more restrictions and harsher punishments for illegal insider trading, our results provide a different perspective. Improving the awareness of insider trading laws among corporate insiders may help regulate and restrain illegal insider trading.

2. Background and Hypothesis Development

Insider trading rules and laws that define what constitute illegal insider trading are ambiguous and complex. Even when the broad facts of a specific case are publicized, it is often unclear, even among well-educated and informed individuals, if that particular individual trade tends toward illegality.[4]

Modern insider trading regulation has its origin in section 10b-5 of the Securities and Exchange Act of 1934, which makes it: "…unlawful for any person, directly or indirectly, by the use of any means or instrumentality of interstate commerce, or of the mails or of any facility of any national securities exchange, (a) to employ any device, scheme, or artifice to defraud, (b) to make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading, or (c) to engage in any act, practice, or course of business which operates or would operate as a fraud or deceit upon any person, in connection with the purchase or sale of any security…" While the rule does not explicitly use the term "insider trading," it started, especially from the 1960s, to be used as the basis for SEC enforcement action in insider trading cases.[5] However, the breadth of the rule itself meant that as enforcement actions started to move into law courts, a broad body of case law developed alongside SEC actions to define what constituted illegal insider trading. In subsequent attempts to further clarify the definition of illegal trading, Congress passed the Insider Trading Sanctions Act of 1984 and the Insider Trading and Securities Fraud Enforcement Act of 1988. In 2000, the SEC adopted rule 10b5-1, which explicitly prohibits insider trading based on "material non-public information" (while allowing some affirmative defenses such as pre-planned trades). At the same time, the SEC also adopted rule 10b5-2, which provides guidance on the duty of confidence or trust that insiders have with respect to non-public information, as well as Regulation FD, which prohibits selective public disclosure by insiders of all material non-public information.[6]

In spite of the SEC rules and congressional statutes that have attempted to clarify what constitutes illegal insider trading, the line between legal and illegal insider trading remain murky. Indeed, a recent high profile Supreme Court ruling (*United States vs. Newman*) that overturned a lower court's conviction of individuals found guilty of insider trading suggests that, even among legal experts, there is still substantial debate as to what constitutes illegal insider trading.[7]

Alongside the legal ambiguity in insider trading laws, there is significant research alluding to widespread informed insider trading.[8] Studies look at stock prices following insider trades with the idea that an abnormal price increase (decrease) after insider purchases (sales) suggests the trade was likely to be informed. With respect to insider purchases, the evidence that this is the case has been overwhelming (see, for example, Jaffe, 1974; Seyhun, 1988; Lakonishok and Lee, 2001; Jeng, Metrick, and Zeckhauser, 2003, among others). On the other hand, the evidence with respect to insider sales has been mixed, probably due at least in part to the fact that insiders receive stock as founders or as part of their compensation, and sell stocks for liquidity or diversification purposes.[9]

The literature suggests that the superior performance of stocks following insider purchases may be due to their actual use of private information and not just a general ability to understand when their firms' shares are undervalued. Thus, prior studies investigate insiders' strategic timing of their trades around firm events. For example, Cheng and Lo (2006) find that insiders strategically choose disclosure policies and the timing of trades to maximize profits. Lee, Mikkelson, and Partch (1992) document that managers increase their frequency of purchasing and decrease their frequency

[4] While our paper obviously holds no position as to the merit of the particular case, a recent anecdotal example of the ambiguity with respect to defining illegal insider trading arose in April 2014, when William A. Ackman, founder and CEO of the hedge fund Pershing Square Capital, reaped a profit of more than $1 billion on Allergan stocks and options. Press reports suggest that Mr. Ackman had secretly purchased these over the two months before his hedge fund and Valeant Pharmaceuticals International made an offer for Allergan at a substantial premium. It seems that he used material non-public information to make these profits. Such behavior would, at first blush, appear to constitute illegal insider trading. However, Mr. Ackman asserted that his trade was not illegal as the trade was not based on information received from an individual who had breached a fiduciary duty or duty of confidentiality; indeed Mr. Ackman claimed that he made the deal after prior consultation with an attorney who was a former head of enforcement at the SEC.

[5] http://www.sechistorical.org/

[6] https://www.sec.gov/rules/final/33-7881.htm

[7] http://www.scotusblog.com/wp-content/uploads/2015/08/15-137-op-below.pdf

[8] Previous papers argue that insider trading is a form of executive compensation (e.g., Manne, 1966). Roulstone (2003) and Denis and Xu (2013) show that restrictions on insider trading are associated with higher executive compensation.

[9] A few papers find that insider sales are informative in certain circumstances. For example, see Akbas et al. (2020), Ali and Hirshleifer (2017), Biggerstaff, Cicero, and Wintoki (2020), Chiang, Chung, and Louis (2017), Cohen et al. (2012), Dechow, Lawrence and Ryans (2016), and Goldie, Jiang, Koch and Wintoki (2020).

of selling shares before repurchase announcements. Huddart, Ke, and Shi (2007) find that insiders sell (buy) *after* good (bad) news earnings announcements; however, they avoid profitable trades *before* earnings announcements due to high litigation risk. To circumvent regulations, insiders may hide their informed trades in their children's account (Berkman, Koch, and Westerholm, 2014). However, despite what may seem like significant evidence of informed trading, most insider trades are legal and attract no enforcement scrutiny. This suggests that even from the perspective of regulatory and enforcement authorities, there is significant legal space between what constitutes legal and illegal insider trading behavior, even if this legal space is ambiguous to otherwise well informed observers.

Prior research also shows that the performance of insider trades varies with firm characteristics and the information environment.[10] In contrast, there has been much less work on the effects of personal characteristics and insider trading behavior. Hillier, Korczak, and Korczak (2014) find that insider fixed effects explain a large portion of the stock returns following insider trades but observe that "it is surprising that we still know very little about whether and to what extent personal characteristics of corporate insiders affect returns following their trades" (Hillier et al., 2014, page 150). One notable exception is a study by Davidson et al. (2016), which finds that less frugal executives, and executives with criminal records, make more profits when they trade, and they are more likely to strategically time their trades. They argue that executives with criminal records could have relatively low respect for rules and self-control.

However, in a broader context, many studies link personal attributes to financial decision-making and investment performance in other specific situations, providing us some initial motivation for the conjecture that there are potential links between personal attributes and insider trading behavior. Barber and Odean (2001) find that men are more overconfident than women are, leading to higher turnover and worse performance for male investors. Barnea, Cronqvist, and Siegel (2010) and Cesarini et al. (2010) find that genetic factors affect stock market participation, asset allocation, and portfolio risk. Grinblatt, Keloharju, and Linnainmaa (2012) document how investor IQ affects stock market participation and performance. Corporate finance literature also finds that personal characteristics of managers play an important role in determining firm policies. Bertrand and Schoar (2003) find that managerial styles affect a firm's investment and compensation policies, firm value, and risk taking. Cronqvist, Makhija, and Yonker (2012) show that personal leverage choice can explain the leverage of the firms that executives manage.

The legal ambiguity of insider trading laws, coupled with evidence suggesting that some managers may be exploiting private information in their trades, provides further motivation for the conjecture that the background and characteristics of individual managers may affect insider trading behavior. Individual managers generally choose the nature and timing of their insider trades, and they may very well choose the extent to which they exploit non-public information. However, managers' expertise, beliefs, and values can affect the way they interpret and process information and make decisions in ambiguous and complex environments (Bagley, 2008; Cyert and March, 1963; March and Simon, 1958; Hambrick and Mason, 1984). Hambrick and Mason (1984), for example, argue that a firm's strategies and performance can partially be explained by manager characteristics. In their model, managerial perceptions are formed through a "managerial cognitive base" and values, and then affected by "limited field of vision," "selective perception," and "interpretation" (page 195). Given that formal education forms part of what makes up a "managerial cognitive base," it can be expected that a professional legal education will form part of the underlying mental framework with which managers, who have such an education, make professional and managerial decisions. Along these lines, Bagley (2008) argues that a legally astute management team can incorporate both legal and social considerations into their firm operations.

Consistent with this view, a number of recent studies find evidence that having a legal background affects managerial behavior and has a distinct impact on how individual corporate executives approach corporate policy. Bamber, Jiang, and Wang (2010) find that managers promoted from accounting and legal corporate career tracks exhibit more conservative voluntary disclosure styles. Litov, Sepe, and Whitehead (2014) find that firms with lawyer directors have fewer cases of misconduct and higher firm value. Krishnan, Wen, and Zhao (2011) document that firms with legal experts on their audit committee have higher financial reporting quality. Taken together, these findings suggest that legal expertise may influence insider trading behavior.

As we note in the Introduction, there are at least two different and competing ways by which legal training or a prior legal background could directly influence insider trading behavior. These effects have opposite predictions with respect to the use of private information by lawyer-insiders. On one hand, with a better understanding of regulations, lawyers are more aware of the effects and risk of litigation associated with their behavior. Indeed, executives who are also lawyers may face more censure than non-lawyer-insiders if they end up being convicted for insider trading. They could, for example, be disbarred – a form of censure that cannot be imposed on non-lawyer-insiders. It is even possible that law enforcement is harsher on lawyers when they break laws. For example, Matthew Kluger, who was a lawyer on M&As, was sentenced to twelve years in prison for insider trading in 2013, one of the lengthiest sentences for insider trading in U.S. history. The judge at his sentencing noted that: "…his actions were particularly egregious because he was a lawyer who had taken oaths of integrity. Kluger fully deserved 12 years in prison…"[11]

Furthermore, behavioral experiments suggest that exposure to legal training, or even salient reminders of rules and laws in general, may make individual participants less likely to engage in behavior that may be considered unethical. Bagley et al. (2010) survey 112 second-year MBA students at the Harvard Business School (who had at least two years of pre-MBA management experience) before and after they enrolled in a law class entitled "Legal Aspects of Management." They find that following the conclusion of the class, there were statistically significant changes in the perception of participants in a manner that strongly suggests that the exposure to legal training can prompt managers to become more legally compliant and socially responsible. Along similar lines, Mazar et al. (2008) find in a series of experiments that

[10] Lakonishok and Lee (2001) note that the predictive power of insider trading pertains mainly to the stock returns of small firms. Insider trading profitability and the number of insider purchases decrease with analyst coverage (Frankel and Li, 2004). Aboody and Lev (2000) and Huddart and Ke (2007) show that insider gains are larger in R&D-intensive firms, while Joseph and Wintoki (2013) find a similar result for advertising-intensive firms. Piotroski and Roulstone (2005) document that insider trades are positively related to the book-to-market ratio and negatively related to past stock returns. Corporate governance and firm internal controls also appear to be associated with insider trading behavior (Cziraki, De Goeij, and Renneboog, 2013; Jagolinzer, Larcker, and Taylor, 2011; Lee, Lemmon, Li, and Sequeira, 2012; and Skaife, Veenman, and Wangerin, 2013). Rogers, Skinner, and Zechman (2016) find that the speed of media dissemination of insider trading filings affects the stock market reaction to the filings.

[11] http://www.bloomberg.com/news/2012-07-31/how-wall-street-lawyer-turned-insider-trader-eluded-fbi.html; http://www.forbes.com/sites/walterpavlo/2013/07/09/inside-trader-matthew-klugers-12-year-prison-term-affirmed/

priming students to think of legal rules before a test completely eliminated cheating on the test.[12]

After considering the increased risks due to complex regulations, potential reputation costs of breaking the law, and their own professional judgment that comes with their training, lawyer insiders may thus tend to be *more* conservative when it comes to their own insider trading behavior and use of private information, and will thus earn lower abnormal returns on their insider trades. We refer to this conjecture as the *restraint effect* hypothesis and state it formally as:

H1a: Insiders with legal training are less likely to use private material information when they trade their own firms' stocks than insiders without legal training.

On the other hand, legal training might help insiders to obtain higher returns by enabling them to come as close as possible to the line between legal and illegal use of information without crossing that line. The regulatory system is often "contested and riddled with loopholes" (Edelman and Suchman, 1997, page 487), and this is certainly the case with respect to the insider trading regulatory regime. Executives with extensive training in the law may be better at understanding the technicalities of insider trading regulation, and consequently exploiting potential loopholes in insider trading rules. Indeed, this understanding may lead lawyer-insiders to feel more confident than non-lawyer insiders in their ability to defend themselves should their insider trades face enforcement scrutiny. Under such a scenario, we would find that lawyers will be *less* conservative in their use of private information and earn higher abnormal returns on their insider trades. We refer to this alternative conjecture as the *enabling effect* hypothesis and state it formally as

H1b: Insiders with legal training are more likely to use private material information when they trade their own firms' stocks than insiders without legal training.

3. Data and Methodology

We obtain insider transaction information from the Thomson Reuters Insider Filing. Corporate insiders include officers, directors, and any beneficial owners of more than ten percent of a company's stock. We limit our sample to open market purchases and sales of common stocks by insiders. In any given month, we aggregate all of the trades by an insider. We then classify that month as a net sale month or net purchase month for that particular insider based on his/her transactions. We obtain additional firm financial statement information from Compustat and stock returns data from CRSP.

Our primary source for insiders' education or professional legal background is the BoardEx database. An insider with legal expertise (*LEGALEXP* = 1 for such an insider, zero otherwise) is defined as an insider who is listed as having obtained a law degree. To be included in the sample, an insider's education background must be available in the BoardEx education file. The sample period spans the period between January 1997 and December 2012.[13] The sample also requires a firm to have positive book-to-market ratio and stock price above one dollar. Following previous literature, we also exclude small trades where the dollar value of trades is less than $10,000.[14]

General Counsels (GCs), who are ubiquitous in publicly traded firms, can obviously be considered as insiders with legal expertise because they are explicitly practicing lawyers. However, prior literature suggests that management teams often treat the firm's GC as a "necessary evil" (Nelson and Nielsen, 2000, page 474). The communication between the management team and the GC often takes the form of reaction and counter-reaction, leading to lack of broader business context in such communication (Linowitz and Mayer, 1994). Therefore, compared to other lawyer-insiders, GCs have different roles and access to information. Thus, the executives and directors we define as having legal expertise do not include GCs. In our sample, lawyer-insiders are executives and directors who have law degrees or a legal background but hold other positions in the firm, and we exclude legal counsels from our sample altogether. However, in robustness tests, we find that including GCs as lawyer-insiders has no material effect on any inference from our analysis.

We start our analysis with both a portfolio approach and a regression approach. For the regression approach, we regress returns in the month following the insider trade month on the indicator variable for lawyer-insider (*LEGALEXP*), and other control variables as follows:

$$\mathrm{AR}_{\mathrm{i,\ t+1}} = \beta \mathrm{LEGALEXP}_{\mathrm{i,\ t}} + \gamma \mathrm{CONTROLS}_{\mathrm{i,\ t}} + \eta_i + \mathrm{t} + \varepsilon_{\mathrm{i,\ t}} \quad (1)$$

where AR_{t+1} is the risk adjusted abnormal return for firm (i) in the month ($t+1$), calculated based on Fama-French four-factor model following Brennan, Chordia, and Subrahmanyam (1998).[15] Month t is the month when insiders trade. Although the dependent variable is risk-adjusted abnormal stock return, to be conservative, we follow Cohen et al. (2012) and include market capitalization (*SIZE*), book-to-market (*B/M*), lagged one month stock return (*RET(−1)*), and cumulative stock return in the past year (*RET(−2, −13)*, the cumulative return from month −2 to −13) as control variables. The inclusion of firm fixed effects, η, in our specification in Eq. (1) is important and a crucial part of identification in our cross-sectional analyses. A major potential source of endogeneity in our inference arises from unobservable heterogeneity. Firm fixed effects allow us to account for potential *firm selection* among lawyer-insiders, i.e., the possibility that there are unobserved time-invariant factors that determine both the likelihood that a firm chooses executives with law degrees and the extent to which insiders at that firm make informed trades in general.

We winsorize continuous independent variables at the 1% and 99% levels to mitigate the influence of outliers. In Table 1, we provide further details regarding the construction of all the main variables used in this paper. Following Cohen et al. (2012), we also include month fixed effects (t) and cluster standard errors at the firm level.

In Table 2, we present the summary statistics for the main sample used in this paper. There are a total of 40,834 purchase months and 172,614 sale months. Of the 40,834 purchases, 4,888 were by lawyer-insiders. For the purchase sample, 11% (1,795/[1,795+14,555]) of the insiders are lawyer insiders. Lawyer-insiders are less likely to be CEO, CFO, or Chair of the Board. In addition, they are more likely to work in large companies. There

[12] In this case, students were primed by being asked to recall as many of "The Ten Commandments" as possible, a list of laws from the Christian Bible.

[13] BoardEx starts to collect most of its data from 2000. However, the education information exists before 2000, allowing this research to use data before 2000. To be conservative, we use data from 1997 to avoid biasing the sample towards executives and directors who have longer experience as insiders. Using 1997 instead of 2000 as the starting point significantly increases the sample size by 25%. In the robustness tests in Appendix Table IA3, we use both 2000 and 1986 (when the insider trading data starts) as cutoffs. The results are unaffected.

[14] Previous literature (e.g., Marin and Olivier, 2008) excludes small trades where less than 100 shares of stocks were traded. However, due to the large variation in stock prices, we use dollar value of the transaction to exclude small trades. Transaction value is calculated as the net transaction shares times the month-end stock price. The robustness tests in Appendix Table IA3 show that including all trades or excluding trades with less than 100 shares of stocks has little impact on the findings of this paper.

[15] In the robustness tests in Appendix Table IA3, we also use raw stock return as the dependent variable, and the findings remain.

Table 1
Main Variable Descriptions and Construction

Variable Name	Description & Construction
AR(+1)	AR(+1) is the leading one month (*t+1*) risk-adjusted abnormal stock return (i.e., FF4 Alpha). The risk-adjustment is based on the Fama-French three-factor model (Fama and French, 1993) augmented with a momentum factor. The adjustment procedure closely follows Brennan et al. (1998). For each firm in a given month, $AR = RET - (r_f + \beta_1 \times MKT\_RF + \beta_2 \times SMB + \beta_3 \times HML + \beta_4 \times UMD)$ where RET is the raw monthly stock return in the current month; r_f is the risk-free rate; MKT_RF, SMB, and HML are the Fama-French three factors; UMD is the momentum factor. $\beta_1, \beta_2, \beta_3, \beta_4$ are the factor loadings estimated using monthly data over the previous 60 months based on the Fama-French three-factor model augmented with the momentum factor. We require at least 24 months of non-missing data for the estimation.
BM	The natural log of the book-to-market ratio.
LEGALEXP	A dummy variable that takes the value of one if an insider has a law degree and zero elsewhere.
RET(+1)	RET(+1) is the leading one month (*t+1*) stock raw return.
RET(-13, -2)	RET(-13, -2) is the cumulative stock return from month *t-13* to *t-2*.
RET(-1)	RET(-1) is the stock return from month *t-1*.
SIZE	Market capitalization (SIZE) is the number of shares (SHROUT) times price per share (abs(PRC)) in month *t*. We take the natural log of market capitalization in the analysis.

is little difference in book-to-market ratio, past month stock return, and cumulative returns from month −13 to month −2 between firms of lawyer-insiders and non-lawyer-insiders. The number of purchases by lawyer-insiders (2.7 purchases per insider) is similar to those made by non-lawyer-insiders (2.5 purchases per insider). For the 172,614 sales in Panel B, lawyer insiders make 9% (15,759). For the sales sample, lawyer insiders are from companies with larger market capitalization and higher book-to-market ratio. Consistent with prior literature, the number of sales per insider is twice that of purchases since executives often get their shares as company founders or as a part of their compensation in the form of options and/or grants.

4. Legal Expertise and Insider Trading: Results

4.1. Portfolio Approach

We begin our analysis with the portfolio approach in which we assign stocks to four portfolios based on the direction of their trades, and whether or not a lawyer-insider makes the trade. In each month *t*, we first group the stocks into two portfolios: a sales portfolio and a purchases portfolio. We then further divide each of these two portfolios into two groups consisting of trades made by lawyer-insiders and non-lawyer-insiders.

We present the monthly returns from these four portfolios in Table 3. We show average (raw) returns as well as the alpha (α) from a Fama-French four-factor model for the month following portfolio formation. The results show that stock returns are significantly higher in the month following insider purchases for both lawyer-insiders (*LEGALEXP*) and non-lawyer-insiders (*NONLEGALEXP*). However, the returns are significantly *lower* for lawyer-insiders than they are for non-lawyer-insiders. For example, the

Table 2
Sample Composition and Summary Statistics
This table presents a summary of the core sample used in this paper. The sample includes publically disclosed trades of common stocks from Thomson Reuters Insider Filing. The trades made by one insider are aggregated on a monthly level. For a certain insider, a month is defined as a net purchases (sale) month if her purchases (sales) exceed sales (purchases) in that month. The stock return data and financial statement data are from CRSP and Compustat, respectively. This table provides summary statistics of market capitalization (SIZE), book-to-market ratio (B/M), lagged one-month stock return (RET(-1)), and cumulative stock return from month -13 to month -2 (RET(-13, -2)). The summary statistics (except trade months per insider, which is based on the pooled sample) are time series averages of the monthly cross-sectional summary statistics. All variables are described in Table 1. Continuous variables are winsorized at the 1% and 99% levels to mitigate the influence of outliers. The sample period covers January 1997 through December 2012. The t-statistics (except trade months per insider) are based on Newey-West robust standard errors. * indicates significance at the .10 level; ** at the .05 level; and *** at the .01 level.

Panel A. Net Purchases by Insiders

	Insiders With Legal Expertise (LEGALEXP)			Insiders Without Legal Expertise (NONLEGALEXP)			
Sample Composition							*Total*
Number of Firms	1,544			4,169			
Number of Insiders	1,795			14,555			
CEO, CFO, Chair	259			4,041			
Number of Trade Months	4,888			35,946			40,834
Summary Statistics	*Mean*	*Std Dev*	*Median*	*Mean*	*Std Dev*	*Median*	*Mean Diff t-statistic*
Market Capitalization ($mils)	6,250	15,375	856	4,197	14,476	426	3.2***
Book-to-Market (B/M)	0.72	0.58	0.57	0.71	0.60	0.55	0.7
RET(-1)	-1.4%	12.7%	-1.8%	-1.2%	13.9%	-1.9%	-0.7
RET(-13, -2)	10.5%	48.0%	2.1%	10.6%	54.3%	1.0%	-0.1
Trade Months/Insider(pooled)	2.7	3.3	2.0	2.5	3.0	2.0	3.3***

Panel B. Net Sales by Insiders

	Insiders With Legal Expertise (LEGALEXP)			Insiders Without Legal Expertise (NONLEGALEXP)			
Sample Composition							*Total*
Number of Firms	1,977			4,328			
Number of Insiders	3,019			27,441			
CEO, CFO, Chair	403			6,596			
Number of Trade Months	15,759			156,855			172,614
Summary Statistics	*Mean*	*Std Dev*	*Median*	*Mean*	*Std Dev*	*Median*	*Mean Diff t-statistic*
Market Capitalization ($mils)	10,787	23,940	2,116	9,394	23,898	1,673	3.9***
Book-to-Market (B/M)	0.54	0.50	0.41	0.45	0.43	0.33	9.9***
RET(-1)	4.4%	11.4%	3.2%	4.5%	12.4%	3.4%	-1.1
RET(-13, -2)	35.8%	57.5%	22.3%	37.9%	61.4%	24.0%	-1.4
Trade Months/Insider(pooled)	5.2	6.5	3.0	5.7	7.1	3.0	-3.7***

Table 3
Legal Expertise and Insider Trades: Portfolio Analysis
This table presents the results of portfolio analysis of returns following insider trades. For each month *t*, the stocks are first grouped into two portfolios: a sales portfolio and a purchases portfolio. Then, we further divide the sales portfolio and the purchases portfolio based on whether the trades are made by lawyer-insiders or non-lawyer-insiders, resulting in four portfolios. We then hold each portfolio during month *t+1*. We report the average monthly results (average raw return in the upper panel and average Fama-French four-factor alpha in the bottom panel) based on equally-weighted portfolio returns. All variables are described in Table 1. The sample period covers January 1997 through December 2012. The t-statistics (in parentheses) are based on Newey-West robust standard errors. * indicates significance at the .10 level; ** at the .05 level; and *** at the .01 level.

	NONLEGALEXP	LEGALEXP	**L-N**
Average Return			
SALES	0.74	0.80	0.06
(t)	(1.51)	(1.73)	(0.37)
PURCHASES	2.78	2.17	-0.61***
(t)	(4.58)	(4.41)	(-3.14)
Fama-French 4-Factor			
SALES	-0.10	-0.06	0.04
(t)	(-0.67)	(-0.29)	(0.27)
PURCHASES	1.98	1.44	-0.54***
(t)	(4.59)	(4.25)	(-2.66)

average raw returns are 2.78% and 2.17% for non-lawyer insiders and lawyer insiders, respectively, and the difference is 0.61% (*t*-statistic = 3.14). Similarly, the Fama-French four-factor αs are 1.98% and 1.44% for non-lawyer insiders and lawyer insiders, respectively, and the difference is 0.54% ($t = 2.66$). Using the Fama-French four-factor model, a portfolio that takes long positions in the purchases made by non-lawyer-insiders, and takes short positions in those by lawyer-insiders earns an annualized return of 6.5%. These findings provide support to our restraint (*H1a*) hypothesis, while casting doubt on the enabling (*H1b*) hypothesis.

We also note, however, that there is no significant difference across insider sales made by either lawyer- or non-lawyer-insiders. This finding is in line with much of the literature that insider sales are less likely to be followed by any significant returns.

4.2. Regression Approach

In the regression analysis, we regress monthly risk-adjusted returns from the month following the trade month on the binary variable for lawyer-insider (*LEGALEXP*) while controlling for other factors as specified in Eq. (1). We perform the analysis separately for insider purchases and sales. The left (right) panel of Table 4 presents the regression results for purchases (sales). To establish a baseline, we run the regressions with and without firm-level controls. We also run the regression with and without firm fixed effects.

The results in Table 4 show that insider purchases by lawyer-insiders are followed by significantly lower returns than those by non-lawyer-insiders. For example, when we include firm fixed effects, the estimated coefficient on LEGALEXP is –0.75% ($t = -2.87$) without firm-level controls (column 3), and –0.63% ($t = -2.42$) with firm-level controls (column 4). These results show that purchases by lawyer-insiders earn between 0.6% and 0.8% less in the month following their purchase than those made by non-lawyer insiders. This difference is of a similar order of magnitude as that obtained from the portfolio analysis above. As with the portfolio analysis, we find no significant difference between returns following insider sales by lawyer-insiders and those by non-lawyer-insiders.

Taken together, these results clearly indicate that purchases made by lawyer-insiders are less informed than those made by non-lawyer-insiders. The results provide support for the hypothesis that legal expertise restrains the extent to which insiders use non-public information when making insider trades (*H1a*).

4.3. Controlling for the Insider's Position in the Firm and Potential Access to Information

The position an insider holds in the firm and the role one plays directly affects his/her access to material information about the firm. If legal expertise is directly related to certain roles, our findings may simply be a reflection of lawyer-insiders' access to information rather than their use of information. For example, it is possible that independent directors are less likely to make informed trades perhaps due to having less value-relevant information. In contrast, CEOs, CFOs, and Chairmen of the Board are more likely to possess more value-related private information about their firms than are independent directors. Table 2 shows that lawyer insiders are less likely to be CEOs, CFOs, or Chairmen of the Board. Therefore, it is possible that our finding that lawyer-insiders' purchases are less informative simply reflects the difference in access to value-relevant information compared to other executives. We explore this alternative explanation in this section.

We start by replicating the regression analysis presented in Table 4 while accounting whether or not the insider is an independent director. We present these results in Table 5. In column (1), we include a binary variable, INDP, that equals one if the insider is an independent director, and zero otherwise, as well as the interaction of that binary variable with a binary indicator for legal expertise, LEGALEXP. As reported by Ravina and Sapienza (2010), we find that purchases by independent directors have slightly lower subsequent returns than those by executives. However, accounting for whether the insider is an independent director does not affect our inference, and the coefficient on LEGALEXP remains significantly negative. Our inference remains unchanged when we include additional firm controls in column 2. We also find that the coefficient on the interaction LEGALEXP × INDP is insignificant suggesting that the lower average return associated with lawyer insider purchases is not significantly different across executives and independent directors.

In addition to explicitly controlling for whether or not an insider is an independent director, we carry out subsample analyses. We divide our full sample into two groups, with one consisting of insiders who are independent directors (reported in columns 3 and 4 of Table 5, Panel A), and the other one of insiders who are not independent directors (reported in columns 5 and 6). The results show that, in the subsample of executives who are not independent directors, lawyer-insider trades are significantly less informed than those of other insiders. Taken together, the results in Panel A of Table 5 suggest that lawyer-insider trades cannot be explained by the fact that they may likely to be non-executive independent directors.

In Panel B of Table 5, we control for other executive positions that an insider may hold. In column (1), we include binary indicators (that equal one, zero otherwise) for each case in which the insider is the CEO, CFO, or Chair of the Board. As reported by Wang, Shin, and Francis (2012), we find that CFOs earn higher returns following their purchases than CEOs; however, we find that accounting for any of these insider roles has no effect on our inference that lawyer-insider trades are less informed than those of others. In column (2), we include an indicator that equals one (zero otherwise) if the insider is another type of senior executive besides the CEO, CFO, and Chair of the Board (Chief Investment Officer, Chief Operating Officer, Chief Technology Officer, President, Senior Vice President, or Executive Vice President). In column (3), we include binary indicators (that equal one, zero otherwise) for each case in which the insider is on the board's audit, compensation,

Table 4
Legal Expertise and Insider Trades: Regression Analysis
This table reports regressions of risk-adjusted abnormal returns on indicators of lawyer-insiders (LEGALEXP) and other control variables. The regression analyses are performed for purchases and sales separately. The dependent variable is the future one-month stock return (AR(+1)) that is adjusted for risks based on Fama-French three-factor model augmented by the momentum factor. B/M is the natural log of book-to-market ratio. SIZE is the natural log of market capitalization. RET(-1) is the lagged one-month stock return. RET(-13, -2) is the cumulative stock return from month -13 to month -2. All variables are described in Table 1. All continuous independent variables are winsorized at the 1% and 99% levels to mitigate the influence of outliers. The sample period covers January 1997 through December 2012. Month F.E. and Firm F.E. denote month and firm fixed effects, respectively. Standard errors are clustered at the firm level. t-statistics are shown in parentheses. *, **, and *** indicate statistical significance at the .10, .05, and .01 levels, respectively.

	Purchases				Sales			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LEGALEXP	-0.0085***	-0.0079***	-0.0075***	-0.0063**	0.0006	0.0007	-0.0009	-0.0004
	(-3.38)	(-3.13)	(-2.87)	(-2.42)	(0.63)	(0.68)	(-0.96)	(-0.42)
B/M		-0.2264		-0.3776		0.0782		-0.1225
		(-1.37)		(-1.27)		(1.09)		(-0.73)
SIZE		-0.4069***		-3.9150***		-0.0762***		-3.0095***
		(-7.06)		(-13.23)		(-2.60)		(-16.41)
RET(-1)		-0.0320***		-0.0139		0.0006		0.0056
		(-2.95)		(-1.31)		(0.09)		(0.96)
RET(-13,-2)		-0.0045*		0.0014		0.0013		0.0029*
		(-1.75)		(0.47)		(1.03)		(1.93)
Month F.E.	Y	Y	Y	Y	Y	Y	Y	Y
Firm F.E.	N	N	Y	Y	N	N	Y	Y
N	40,834	40,834	40,229	40,229	172,614	172,614	172,242	172,242

governance, nomination or executive committee. Again, we find in both columns (2) and (3) that accounting for any of these insider roles has no effect on our inference; the coefficient on *LEGALEXP* remains significantly negative, suggesting that insider purchases by lawyer-insiders are less informed than those by non-lawyer-insiders.

4.4. Controlling for Additional Insider and Firm Level Characteristics

In the previous subsection, we control for various insider characteristics. In Table 6, we further control for a battery of insider and firm-level characteristics that might affect insider trading behavior, but may also be related to the presence of lawyer insiders. In column (1) we control for two personal characteristics: gender and age. We include a binary variable, *GENDER* that equals one if the executive is female, and zero otherwise. While we find that purchases made by older executives are followed by lower subsequent returns, we again find that the inclusion of these personal characteristics has no effect on our inference.

In column (2), we attempt to account for the possibility that prior trading styles that have been found to be correlated with returns following insider trades may reveal personal characteristics that may coincide with being a lawyer-insider. First, we create a variable, *NON-ROUTINE*, that equals one (zero otherwise) if an insider is classified as a non-routine (opportunistic) trader. Cohen et al. (2012) categorize an insider as a routine trader if he or she trades in the same month for a certain number of years, and find that trades by non-routine insiders are informative, while those made by routine insiders are not. Second, we create a variable, *PO*, that captures whether or not an insider has been persistently opportunistic in their past insider trades. Cline, Gokkaya, and Liu (2016) classify insiders as persistently opportunistic traders if more than half of their prior trades have been followed by significant abnormal returns, and suggest that these persistently opportunistic insiders continue to make informed trades. The results in column (2) show that, even after accounting for these individual "trading style" characteristics, the relation between legal expertise and informed trading remains significantly negative.

In column (3), we include measures of board structure including board size, board independence, and CEO duality as proxies for the quality of governance. Column (4) controls for the firm's information environment using R&D expenditure. Aboody and Lev (2000) argue that firms with higher levels of information asymmetry (e.g., R&D intensive firms) offer more scope for insider gains; however, R&D intensity may also affect the likelihood of having a lawyer-insider. In column (5), we include the number of analysts following the firm as an alternative proxy for the firm's information environment. In column (6), we include measures of firm insider ownership and institutional ownership as these may affect both insider trading behavior and the type of executives a firm has. In column (7), we include several other financial statement variables that have been shown to directly affect future stock returns that may also affect the likelihood of having a lawyer-insider. These include gross profit (Novy-Marx, 2013; Fama and French, 2015), asset growth (Cooper, Gulen, and Schill, 2008), composite measure of the firm's financial strength (Piotroski, 2000), and accruals (Sloan, 1996). We also control for turnover and return volatility.

Across all our specifications, we find that the legal expertise variable remains negative and statistically significant. Taken together with the results in Section 4.3, these findings suggest that the restraint effect of a legal background or education on informed trading is unlikely to be explained by insider characteristics that may proxy for insider access to information or by firm characteristics that may be related to the likelihood of having a lawyer-insider.

4.5. Legal Expertise, Insider Trading, and Trading Intensity

In this subsection, we investigate whether the different trading performance between lawyer- and non-lawyer-insiders varies with trading intensity. If lawyer-insiders are reluctant to use private information, we expect that they would be even more conservative in doing so when making large purchases than non-lawyer-insiders. We create two variables to measure insider purchase intensity or strength: *STR_VOL* or *STR_SHROUT*. To get *STR_VOL* (*STR_SHROUT*), we first scale net shares purchased by insider i in month t by the total trading volume by all investors in month t (shares outstanding at the end of month t). Then, we rank the scaled insider purchases into quintiles across all insiders in month t. *STR_VOL* and *STR_SHROUT* are the ranks of scaled monthly insider purchases. A larger value of insider purchase intensity essentially indicates a higher level of insider trading activity by that insider.

Table 5
Legal Expertise and Insider Purchases: The Role of Positions Held by Insiders
This table reports regressions of risk-adjusted returns on indicators of lawyer-insiders (LEGALEXP) and other control variables. Panel A examines the differential performance of lawyer versus non-lawyer insiders conditional on whether the insider is an independent director. The dependent variable is the future one-month stock return (AR(+1)) that is adjusted for risks based on Fama-French three-factor model augmented by the momentum factor. INDP is an indicator for independent director. Panel B extends analyses in Table 4 by further controlling for positions held by insiders. CEO (CFO) is an indicator for CEO (CFO). CHAIR is an indicator for Chair of the Board. OTHER_SENIOR_EXE is an indicator for other senior executives, including Chief Investment Officer, Chief Operating Officer, Chief Technology Officer, President, Senior Vice President, and Executive Vice President. COMMIT_AUDIT, COMMIT_COMPEN, COMMIT_GOV, COMMIT_NOMINAT, and COMMIT_EXECUTIVE are indicators for the audit committee, compensation committee, governance committee, nomination committee, and executive committee, respectively. All other variables are described in Table 1. All continuous independent variables are winsorized at the 1% and 99% levels to mitigate the influence of outliers. The sample period covers January 1997 through December 2012. Firm and month fixed effects are included. Standard errors are clustered at the firm level. t-statistics are shown in parentheses. *, **, and *** indicate statistical significance at the .10, .05, and .01 levels, respectively.

Panel A. Insider Trading Performance Conditional on Being Independent Directors

	(1)	(2)	(3) Subsample: INDP=1	(4)	(5) Subsample: INDP=0	(6)
LEGALEXP	-0.0111**	-0.0103**	-0.0047	-0.0040	-0.0107*	-0.0099*
	(-2.25)	(-2.07)	(-1.45)	(-1.25)	(-1.89)	(-1.77)
INDP	-0.0049**	-0.0019				
	(-2.23)	(-0.88)				
LEGALEXP× INDP	0.0062	0.0061				
	(1.03)	(1.01)				
B/M		-0.3770		-0.5117		-0.4258
		(-1.27)		(-1.40)		(-1.00)
SIZE		-3.9095***		-4.4118***		-3.6280***
		(-13.20)		(-11.92)		(-8.51)
RET(-1)		-0.0138		0.0029		-0.0274*
		(-1.30)		(0.22)		(-1.80)
RET(-13,-2)		0.0014		0.0041		-0.0010
		(0.48)		(1.12)		(-0.22)
Month F.E.	Y	Y	Y	Y	Y	Y
Firm F.E.	Y	Y	Y	Y	Y	Y
N	40,229	40,229	22,130	22,130	17,197	17,197

Panel B. Controlling for Other Executive Positions Held by Insiders

	(1)	(2)	(3)
LEGALEXP	-0.0059**	-0.0064**	-0.0065**
	(-2.27)	(-2.47)	(-2.48)
B/M	-0.3779	-0.3775	-0.3958
	(-1.27)	(-1.27)	(-1.32)
SIZE	-3.9153***	-3.9193***	-3.9429***
	(-13.22)	(-13.24)	(-13.32)
RET(-1)	-0.0139	-0.0140	-0.0134
	(-1.31)	(-1.32)	(-1.26)
RET(-13,-2)	0.0014	0.0014	0.0007
	(0.47)	(0.46)	(0.25)
CEO	-0.0010		
	(-0.33)		
CFO	0.0057*		
	(1.67)		
CHAIR	0.0026		
	(0.68)		
OTHER_SENIOR_EXE		-0.0020	
		(-0.88)	
COMMIT_AUDIT			-0.0001
			(-0.07)
COMMIT_COMPEN			-0.0028
			(-1.35)
COMMIT_GOV			-0.0052
			(-1.38)
COMMIT_NOMINAT			0.0078*
			(1.93)
COMMIT_EXECUTIVE			0.0017
			(0.56)
Month F.E.	Y	Y	Y
Firm F.E.	Y	Y	Y
N	40,229	40,229	39,415

Table 6
Legal Expertise and Insider Purchases: Controlling for Additional Insider and Firm Attributes
This table reports regressions of risk-adjusted returns on indicators of lawyer-insiders (LEGALEXP) and other control variables. GENDER is a dummy variable that takes a value of one if an insider is female and zero if an insider is male. AGE is the age of an insider. NON_ROUTINE is an indicator variable for opportunistic insiders following Cohen et al. (2012). PO is an indicator variable for persistently opportunistic insiders defined as in Cline et al. (2016). BOARDSIZE is the natural log of the total number of board directors. PCT_INDPT is the proportion of the board that is independent. CEO-CHAIR takes a value of one if the CEO is the Chair of the Board and zero otherwise. R&D is firm R&D scaled by total assets. NANALYST is the number of analysts. INSIDER_OWN is the proportion of shares owned by insiders. IO is the institutional ownership. GP is gross profit ((revenue-cost of goods sold)/total assets). ATGTH is asset growth. PT is the composite measure of the firm's financial strength. See Piotroski (2000) and Fama and French (2006, p. 516) for details. Following Sloan (1996), the firm's accounting measure of accruals (ACCRUAL) equals the change in non-cash current assets, less the change in current liabilities (exclusive of short term debt and taxes payable), less depreciation expense, all divided by total assets. TURNOVER is defined as trading volume (i.e., the number of shares traded) divided by the total number of shares outstanding. We take the natural log of TURNOVER. STDRET is the firm's volatility of daily stock returns during month *t*.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
LEGALEXP	-0.0057**	-0.0063**	-0.0060**	-0.0063**	-0.0062**	-0.0063**	-0.0084***
	(-2.21)	(-2.42)	(-2.30)	(-2.42)	(-2.38)	(-2.44)	(-2.83)
B/M	-0.3710	-0.3717	-0.3940	-0.4059	-0.3602	-0.4009	-0.3755
	(-1.24)	(-1.25)	(-1.31)	(-1.36)	(-1.21)	(-1.35)	(-1.04)
SIZE	-3.9272***	-3.9179***	-3.9613***	-3.9431***	-4.1076***	-3.7153***	-4.4413***
	(-13.20)	(-13.25)	(-13.42)	(-13.19)	(-12.03)	(-12.05)	(-11.99)
RET(-1)	-0.0149	-0.0139	-0.0131	-0.0136	-0.0119	-0.0166	-0.0067
	(-1.40)	(-1.31)	(-1.24)	(-1.28)	(-1.12)	(-1.57)	(-0.59)
RET(-13,-2)	0.0013	0.0014	0.0014	0.0015	0.0023	0.0002	0.0018
	(0.44)	(0.46)	(0.46)	(0.49)	(0.77)	(0.07)	(0.56)
	GENDER	NON-ROUTINE	BOARD SIZE	R&D	NANALYST	INSIDER _OWN	GP
	-0.0044	-0.0020	0.0014	-0.0205	0.0053	-0.0040	-0.0192
	(-1.54)	(-0.37)	(0.18)	(-0.44)	(1.39)	(-0.30)	(-1.34)
	AGE	PO	PCT_ INDPT			IO	ATGTH
	-0.0003***	0.0013	0.0039			-0.0257**	0.0057
	(-2.70)	(0.53)	(0.19)			(-2.23)	(1.27)
			CEO-CHAIR				PT
			0.0210				0.0024**
			(0.53)				(2.51)
							ACCRUAL
							0.0195
							(0.96)
							TURNOVER
							0.0089***
							(3.49)
							STDRET
							-0.1180
							(-1.03)
Month F.E.	Y	Y	Y	Y	Y	Y	Y
Firm F.E.	Y	Y	Y	Y	Y	Y	Y
N	40,037	40,229	40,042	40,229	40,229	40,229	32,662

We then regress the return in the month following the purchase month on the binary legal expertise dummy (*LEGALEXP*), our measure of insider purchase strength (STR), their interactions, and other control variables, as follows:

$$AR_{i,\ t+1} = \beta_1 \text{LEGALEXP}_{i,\ t} + \beta_2 STR_{i,\ t} + \beta_3 \text{LEGALEXP}_{i,\ t} \times STR_{i,\ t} + \gamma \text{CONTROLS}_{i,\ t} + \eta_i + t + \varepsilon_{i,\ t} \quad (2)$$

where $AR_{i,t+1}$ is the risk adjusted abnormal return for firm i in month $t+1$. We use the same control variables as in Eq. (1), including capitalization (*SIZE*), book-to-market (*B/M*), lagged one-month stock return (*RET(−1)*), and cumulative stock return in the past year (*RET(−2, −13)*, the cumulative return from month −2 to −13). We carry out the analysis both with and without the control variables. As before, we include firm fixed effects (η).

We present the results in Table 7. Across all specifications, we find that the interaction between the legal expertise variable and our measures of insider trading strength are negative and significant. This result suggests that the difference in subsequent returns between purchases made by lawyer-insiders and those by non-lawyer-insiders increases with the strength or intensity of insider trading. This finding is consistent with the conjecture that lawyer insiders are even more cautious when they make large purchases.

4.6. Earnings Surprises and Firm Profitability Following Insider Purchases

Our analysis thus far shows that lawyer-insiders' purchases of their own firms' stocks earn lower subsequent returns than those by non-lawyer-insiders. While this finding suggests lawyer-insiders are less likely to use private information than other insiders, an alternative explanation of our finding is that executives with legal expertise are simply less able to assess when their firms are undervalued. In this section, we carry out further tests to assess whether our finding is indeed related to the use of private information. Specifically, we analyze future earnings and profitability following insider purchases. Future earnings and profitability are among the most important information that could affect future stock prices. Insiders are privy to continuous information on the effectiveness of internal investments that have a direct impact on short and long-term profitability, while outsiders often only get this information at discrete intervals such as earnings announcements. If insiders with legal expertise are more conservative at exploiting their informational advantage because of their knowledge of law and legal astuteness, we should expect them to be less likely to trade on future unexpected earnings and future profitability information.

For the unexpected earnings tests, we measure earnings surprise (*ES*) as the difference between the earnings in quarter q and the median analyst forecast for that quarter, scaled by price. Quar-

Table 7
Legal Expertise and Insider Purchase Strength
This table reports regressions of risk-adjusted returns on indicators of lawyer-insiders (LEGALEXP), insider purchase strength (STR_VOL or STR_SHROUT), their interaction, and other control variables. Insider purchase strength measures the size of insider purchase and is calculated in two steps. First, to obtain STR_VOL (STR_SHROUT), we scale monthly insider purchase by total trading volume by all investors in the same month (shares outstanding). Then, we rank them into quintiles. STR_VOL and STR_SHROUT are the ranks of scaled monthly insider purchases. All other variables are described in Table 1. All continuous independent variables are winsorized at the 1% and 99% levels to mitigate the influence of outliers. The sample period covers January 1997 through December 2012. Month and firm fixed effects are included. Standard errors are clustered at the firm level. t-statistics are shown in parentheses. *, **, and *** indicate statistical significance at the .10, .05, and .01 levels, respectively.

	(1)	(2)	(3)	(4)
LEGALEXP	0.0029	0.0040	0.0035	0.0045
	(0.70)	(0.98)	(0.93)	(1.20)
STR_VOL	0.0093***	0.0011		
	(7.70)	(0.91)		
LEGALEXP×STR_VOL	-0.0056***	-0.0056***		
	(-2.96)	(-2.96)		
STR_SHROUT			0.0098***	0.0033***
			(8.86)	(2.93)
LEGALEXP×STR_SHROUT			-0.0060***	-0.0060***
			(-3.18)	(-3.15)
B/M		-0.3775		-0.3750
		(-1.27)		(-1.26)
SIZE		-3.8960***		-3.7933***
		(-12.78)		(-12.50)
RET(-1)		-0.0139		-0.0139
		(-1.32)		(-1.31)
RET(-13,-2)		0.0015		0.0015
		(0.49)		(0.51)
Month F.E.	Y	Y	Y	Y
Firm F.E.	Y	Y	Y	Y
N	40,229	40,229	40,229	40,229

ter q is the quarter with earnings announcements following insider purchases in month t. For the profitability test, we measure abnormal profitability in quarter q as the difference between a firm's gross profit in quarter q and the average gross profit among firms in the same 2-digit SIC industry in quarter q.

We present the results in Table 8. In columns (1) and (2) the dependent variable is the earnings surprise *ES* and the key explanatory variable is our binary variable for legal expertise (*LEGALEXP*); in column (2) the control variables are the same as in Table 4. In columns (3) and (4) the dependent variable is PROFIT, and the explanatory variables are the same as columns (1) and (2) respectively. The results across the specifications show that, compared with other insider purchases, lawyer-insiders' purchases are less likely to be associated with future earnings surprises, and future abnormal profitability. Taken together, the results indicate that lawyer-insiders appear to be less likely than other insiders to trade on non-public future positive earnings information.

5. SEC Investigation Activities and Insider Trading

The evidence in prior sections suggests that having legal training appears to restrain rather than enable informed insider trading. As we note in the literature review, this restraint may arise from the fact that lawyer-insiders are more acutely aware of the risk of litigation associated with informed insider trading, which raises the possibility that lawyer-insiders may be especially restrained when the salience of legal censure is particularly high. Announcements of SEC (or other legal) actions against insider trading may raise such salience. If legal training makes insiders more concerned about litigation risk, we might expect legal insiders to make fewer trades following periods when the SEC announces more illegal insider trading enforcement cases. On the other hand, it is also possible that non-lawyer insiders are more sensitive to SEC investiga-

Table 8
Insider Purchases, Earnings Surprises, and Firm Profitability
This table presents results from analyses of insider trading and future earnings surprises as well as firm profitability. The dependent variable in columns (1) and (2) is the earnings surprise (ES). ES is constructed as the difference between the earnings in quarter q and the median analyst earnings forecast (scaled by price). For columns (3) and (4), the dependent variable is future firm abnormal profitability in quarter q. It is measured by the difference between a firm's gross profit ((revenue-cost of goods sold)/assets) and the average gross profit among firms in the same 2-digit SIC industry in quarter q. Quarter q is the quarter with earnings announced following insider purchases in month t. All other independent variables are described in Table 1. All continuous variables are winsorized at the 1% and 99% levels. The sample period covers January 1997 through December 2012. Month and firm fixed effects are included. Standard errors are clustered at the firm level. t-statistics are shown in parentheses. *, **, and *** indicate statistical significance at the .10, .05, and .01 levels, respectively.

	(1) ES	(2) ES	(3) PROFIT	(4) PROFIT
LEGALEXP	-0.0006**	-0.0006**	-0.0040**	-0.0042**
	(-2.11)	(-2.17)	(-2.24)	(-2.37)
B/M		-0.0042		-0.4344*
		(-0.10)		(-1.83)
SIZE		0.0501		0.1194
		(1.08)		(0.45)
RET(-1)		0.0020		0.0238***
		(1.54)		(4.03)
RET(-13,-2)		0.0007**		0.0075***
		(2.37)		(3.41)
Month F.E.	Y	Y	Y	Y
Firm F.E.	Y	Y	Y	Y
N	22,552	22,552	38,883	38,883

Table 9
SEC Investigations and Insider Purchases
This table relates insider trading behavior to SEC investigation activities. The dependent variable is the proportion of insider purchases made by insiders with legal expertise in month *t*. The independent variable of interest is SEC_INSIDER_PCT, which is the number of SEC releases regarding litigation cases against illegal insider trading scaled by the total number of SEC litigation cases. $SEC\_INSIDER\_PCT_{t-1,\ t-3}$ is the monthly average of SEC_INSIDER_PCT from month *t-3* to month *t-1*. The control variables include lagged one-month market return ($MKTRET_{t-1}$) and the twelve-month cumulative market return from month *t-13* to month *t-2* ($MKTRET_{t-2,\ t-13}$). The sample period covers 1997 through 2012. t-statistics based on robust standard errors are shown in parentheses.

	(1)	(2)	(3)	(4)
$SEC\_INSIDER\_PCT_{t-1}$	-0.0397			
	(-0.92)			
$SEC\_INSIDER\_PCT_{t-2}$		-0.1058**		
		(-2.60)		
$SEC\_INSIDER\_PCT_{t-3}$			-0.0825**	
			(-2.01)	
$SEC\_INSIDER\_PCT_{t-1,\ t-3}$				-0.1199**
				(-2.17)
$MKTRET_{t-1}$	0.1057**	0.1077***	0.1061**	0.1048**
	(2.54)	(2.62)	(2.56)	(2.54)
$MKTRET_{t-2,\ t-13}$	0.0093	0.0085	0.0087	0.0086
	(0.93)	(0.83)	(0.85)	(0.85)
N	189	188	187	187

tion actions because they are less aware of or less concerned about the consequences of illegal insider trading. As such, we view the impact of SEC investigations on insider trading behavior of lawyer versus non-lawyer insiders as an empirical question.

To answer this question, we follow the methodology used by Cohen et al. (2012), who find a negative association between opportunistic trading intensity and SEC investigation activities. We report the results in Table 9. The dependent variable in each specification is the fraction of all insider purchases made by lawyer-insiders in each month *t* (lawyer-insider trading intensity). We measure the intensity of SEC investigations associated with insider trading using both the proportion of all announced SEC enforcement actions within a particular month that are against insider trading, as well as the average proportion of investigation announcements against illegal insider trading in the past three months.

The results in Table 9 show that lawyer-insider trading intensity is lower in the three months following periods with a larger number of announcements of SEC actions associated with insider trading, especially two and three months after such periods of intense SEC enforcement activity. This finding is consistent with the idea that insiders with legal expertise restrain their trading when their perception of litigation risk becomes especially high.[16]

6. Self-selection by Lawyer-Insiders

A possible explanation of our finding is that the restraint effect arises from the intrinsic characteristics of a person who chooses to pursue legal education. We refer to this potential alternative explanation as *self-selection*. For example, it is possible that individuals who choose to attend law school and who subsequently find themselves serving as corporate insiders tend to be more honest, righteous, and concerned with ethics and laws, in comparison with the average corporate insider. It is thus possible that the observed lower returns following these lawyer-insiders' purchases may thus reflect this innate personal conservatism.

We try to address this potential explanation in this subsection, but admit that it is difficult to analyze empirically. We have no observable measures of the intrinsic factors that lead individuals to opt for an education in law. We thus explicitly acknowledge that our ability to observe the innate characteristics that may be particular to lawyer-insiders is an important caveat to the inference drawn from our results throughout the paper. Nevertheless, we believe it is possible to examine the potential impact of this form of self-selection on our inference.

We start by noting that every individual who is a lawyer-insider shares two common markers. They have all: (1) chosen to study law, usually early in life, and (2) been selected as an executive or director by their firms. The first marker would have been influenced by the availability of alternatives to studying law in order to acquire (or signal) the expertise needed to ultimately become a successful business executive (such as the availability of graduate business education or the MBA degree) at the time the individual chooses to attend law school. It may have also reflected the popularity of law as a career option (relative to other careers) in that individual's birth cohort. The second marker would clearly depend on the number of people with law degrees that are in the pool from which firms select executives and directors, such as those within geographical proximity of the firm (e.g., Knyazeva et al., 2013). Most importantly, these factors are unlikely to be directly related to any individual's innate restraint, and potentially offer sources of exogenous variation that enable us to examine the effect of self-selection on our inference. Because an individual's own innate restraint is unlikely to determine the total number of individuals within a particular cohort with a law degree, we can consider cohort composition effect to be exogenous to individual restraint. We thus argue that the number of individuals with legal expertise within the cohort from which firms select their executives is a significant and exogenous determinant of whether any individual executive is a lawyer-insider.

To account for selection using these potential sources of exogenous variation, we estimate a two-stage selection model (Heckman, 1979). In the *selection* stage, we obtain the probit estimates of $\hat{\delta}$, $\hat{\gamma}$ from the model:

$$P(LEGALEXP_{i,t} = 1 | \mathbf{X_{i,t}}, w_{i,t}) = \mathbf{\Phi}(\mathbf{X_{i,t}}'\ \boldsymbol{\delta}, \boldsymbol{\gamma}\ w_{i,t}),$$
$$i = 1, 2, \ldots, N,\ t = 1, 2, \ldots, T \quad (3)$$

where LEGALEXP = 1 (or 0, otherwise) if the insider is a lawyer-insider, **X** includes a vector of firm characteristics, and *w* is the sample selection "instrument" for identifying if the executive is a lawyer-insider, based on factors discussed in the preceding paragraph. Then, using the probit estimates from Equation (3), we calculate the estimated "inverse Mills" ratio, $\hat{\lambda}_{i,t} \equiv \lambda(\mathbf{X_{i,t}}'\boldsymbol{\delta}, \gamma w_{i,t})$. This first stage estimates the probability that an individual is a lawyer-insider. In the *outcome* stage, we estimate an OLS regression of insider trading returns on firm characteristics and the "inverse Mills" ratio estimated from the selection stage.

Our first selection instrument in Equation (3) is the ratio of holders of law degrees to holders of MBAs in an executive's birth cohort. Our argument here is that firms are more likely to choose an executive with a legal background if the number of individuals in that cohort with a law degree is high relative to the number of MBAs. As Fig. 1 shows, the ratio of law degrees received in the United States to the number of MBAs has varied significantly over time. This pattern is in line with the relative popularity of the degrees as well as the supply of schools and faculty to teach

[16] It is possible that, in addition to making fewer purchases following periods of intense regulatory scrutiny, the purchases made by lawyer-insiders are more (or less) informed than those of other insiders. We explore this possibility (see Appendix Table IA4), and find no significant difference in returns following purchases by lawyer-insiders and other insiders. We do find that SEC investigations are negatively related to future stock returns for purchases by both lawyer-insiders and non-lawyer-insiders.

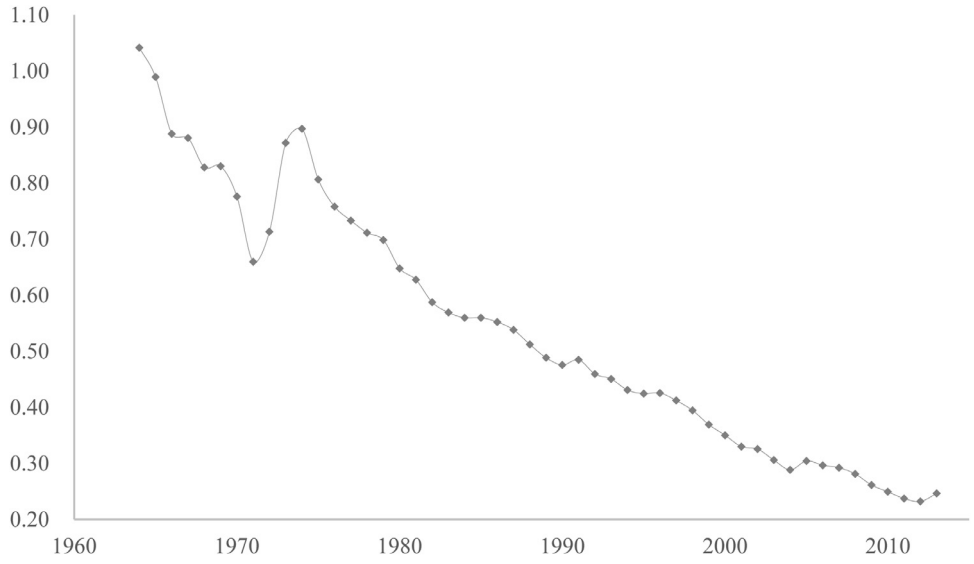

Fig. 1. Ratio of Law Degree Graduates and MBA Graduates over Time
This figure presents the ratio of law degree graduates and MBA graduates over time in the U.S. from 1964 to 2013.

these courses.[17] This exogenous variation in the potential supply of lawyer-insiders is unrelated to an individual's innate characteristics. To calculate the ratio of law degrees to MBAs, we obtain data on the number of MBAs conferred in the U.S. between 1964 and 2003 from the National Center for Education Statistics (NCES), and the number of law degrees from both the American Bar Association (ABA) and the NCES.[18]

The second selection instrument we use is the number of lawyer-insiders in the state in which a firm has its headquarters. Our argument here is straightforward; Bouwman (2011) and Knyazeva et al. (2013) suggest that firms tend to choose executives and directors that are within close geographical proximity of where the firms are located. We thus expect a positive relation between the likelihood that an individual is a lawyer-insider and the number of lawyer-insiders in the firms' state.

We report the results of our two-stage selection analysis in Table 10. In columns (1) and (3), we report the results from the first stage in which we use the ratio of law degrees to MBAs in a birth cohort (*LAWSCHOOLPOP*) as the selection instrument, either by itself, or in conjunction with the number of lawyer-insiders in a state (*LEGALEXPSTATE*), respectively. As predicted, our instruments are strong predictors of the probability that an insider has a legal background. In columns (1) and (3) the estimated coefficient on *LAWSCHOOLPOP* are 0.6275 (t = 4.98) and 0.6701 (t = 5.24), respectively. Similarly, in column (3), the coefficient estimate on *LEGALEXPSTATE* is 0.0888 (t = 2.12). More importantly, columns (2) and (4) show that after we account for the selection of lawyer-insiders in the second stage, we continue to observe lower returns following insider purchases by lawyer-insiders compared to those of other insiders. The estimated coefficients for the binary variable lawyer-insider (*LEGALEXP*) are –0.0361 (t = –2.13) and –0.0388 (t = –2.21) in columns (2) and (4), respectively. To the extent that we are able to account for self-selection into choosing to study law and becoming a lawyer insider, this selection does not explain our finding lawyer-insider make less informed trades than other insiders.

Table 10
Legal Expertise and Insider Purchases: Self-selection Analysis
This table reports two-step endogenous treatment effect regressions of risk-adjusted abnormal returns on indicators of lawyer-insiders (LEGALEXP) and other control variables. In the first stage, we predict the lawyer insider dummy variable using all the independent variables in our main model in Eq. (1) and two new variables: LAWSCHOOLPOP and LEGALEXPSTATE. LAWSCHOOLPOP is a time series measure of law school popularity. It is calculated as the number of law school graduates scaled by the number of business school graduates. We assume that law school students graduate at an age of 28. LEGALEXPSTATE measures the depth of the pool of possible lawyer insiders in each state where firms are headquartered. Specifically, it is calculated as the number of total lawyer insiders scaled by the number of firms in each state. All other variables are described in Table 1. All continuous independent variables are winsorized at the 1% and 99% levels to mitigate the influence of outliers. The sample period covers January 1997 through December 2012. Month and firm fixed effects are included. Standard errors are clustered at the firm level. t-statistics are shown in parentheses. *, **, and *** indicate statistical significance at the .10, .05, and .01 levels, respectively.

	(1) Model 1	(2)	(3) Model 2	(4)
	1st Stage	2nd Stage	1st Stage	2nd Stage
LEGALEXP		-0.0361**		-0.0388**
		(-2.13)		(-2.21)
B/M	1.5395	-0.3714	0.7999	-0.3709
	(0.63)	(-1.29)	(0.32)	(-1.29)
SIZE	0.7965	-3.6275***	0.2915	-3.5987***
	(0.65)	(-12.67)	(0.23)	(-12.48)
RET(-1)	0.0924	-0.0043	0.1024*	-0.0053
	(1.57)	(-0.42)	(1.72)	(-0.51)
RET(-13,-2)	0.0387*	0.0007	0.0398*	0.0005
	(1.85)	(0.22)	(1.88)	(0.18)
LAWSCHOOLPOP	0.6275***		0.6701***	
	(4.98)		(5.24)	
LEGALEXPSTATE			0.0888**	
			(2.12)	
		0.016		0.018
Month F.E.		Y		Y
Firm F.E.		Y		Y
N		34,157		33,646

[17] Our use of birth cohort as an instrument is motivated, in part, by a similar application with respect to the likelihood of a CEO having served in the military, as applied in Benmelech and Frydman (2015).

[18] We start from 1964 because that is the earliest year for which we are able to obtain an accurate annual count of the number of law degrees conferred in the U.S. In cases where there is a discrepancy between the number of law degrees reported by the ABA or NCES, we use the larger of the two numbers. To determine the ratio of law degrees to MBAs in any individual birth cohort, we assume that executives received either of these degrees at the age of 28. In unreported analyses, we vary the age we use to be anywhere between 25 and 27, and find that our results are neither qualitatively nor quantitatively changed.

Table 11
Legal Expertise and Insider Purchases: Six-Month Stock Returns
This table presents the results of portfolio analysis of returns following insider trades. For each month *t*, the stocks are first grouped into two portfolios: a sales portfolio and a purchases portfolio. Then, we further divide the sales portfolio and the purchases portfolio based on whether the trades are made by lawyer-insiders or non-lawyer-insiders, resulting in four portfolios. We then hold each portfolio during month *t+1* to *t+6*. We report the average six-month returns (average raw return in the upper panel and average Fama-French four-factor alpha in the bottom panel) based on equally-weighted portfolio returns. The sample period covers January 1997 through December 2012. The t-statistics (in parentheses) are based on Newey-West robust standard errors. * indicates significance at the .10 level; ** at the .05 level; and *** at the .01 level.

	NONLEGALEXP	LEGALEXP	L-N
Average Return			
SALES	6.06	5.88	-0.18
(t)	(2.16)	(2.46)	(-0.22)
PURCHASES	10.32	8.94	**-1.38****
(t)	(3.57)	(3.26)	**(-2.17)**
Fama-French 4-Factor			
SALES	0.96	0.72	-0.24
(t)	(1.18)	(0.95)	(-0.47)
PURCHASES	5.64	4.20	**-1.44****
(t)	(3.96)	(3.66)	**(-2.37)**

7. Further Analyses and Additional Robustness Tests

7.1. Longer Horizon Returns

We start our additional analysis by examining if our results are robust to longer horizon returns. To do this we replicate our main result in Table 3 using six-month returns. As we do in Table 3, we divide our overall sample into two portfolios: a sales portfolio and a purchases portfolio. Then, we further divide each of these portfolios into two portfolios – one consisting of trades made by lawyer-insiders, and the other one consisting of trades by other insiders. We then hold each portfolio for six months, and measure average (raw) returns as well the Fama-French four-factor alpha. We report the results in Table 11.

We find that over a six-month horizon, purchases by made by lawyer-insiders earn about 1.4% less than those made by other insiders. We find no differences between lawyer-insiders and other insiders following insider sales. These findings are similar to those in Table 3.

7.2. Alternative Definitions of Legal Expertise Based on Prior Work Experience

Our analysis thus far has been based on identifying legal expertise as having a degree or formal training in the law. While we think this identification is simple, unambiguous, and allows us to identify the broadest set of lawyer-insiders, there are other potential definitions of legal expertise. In this section, we consider another definition based on prior work experience of an insider. We separately consider three types of prior work experience that is likely to be correlated to both having legal training and legal expertise – work in a regulatory agency, work in a law firm, or prior experience as corporate attorney.

To do this we identify, from our data set, insiders who have prior experience at: (i) the Securities and Exchange Commission (SEC); (ii) a top 100 law firm (from the 2021 Vault Law 100 List); (iii) have previously worked as a Counsel before starting the current position. For each of these work-experience identification variables, we create binary variables that equal one (zero, otherwise) for insiders who meet each of the identification criteria (SEC, LAWFIRM, COUNSEL for prior work experience at the SEC, at a top law firm, or a Counsel, respectively). In addition, for each of the prior experience identification variable we create variables that measure tenure of the executive at each of the previous positions (SEC_TIME, LAWFIRM_TIME, COUNSEL_TIME for the number of years spent working at the SEC, the top law firms, or as a Counsel, respectively). We then regress the returns following insider purchases on each of these variables and other firm characteristics. We report the results in Table 12.

We find that returns following purchases by insiders who have previously worked at the SEC, a top law firm, or as a Counsel are lower than those by other insiders. We also find a negative association between the number of years spent working at the SEC, or as a Counsel, and returns following insider purchases. Taken together, these results show that, in general, purchases by lawyer-insiders are less informed than those of other insiders even when we use alternative definitions of legal expertise.

7.3. Trading Before and After Earnings Announcements

Our inference thus far has been predicated on the hypothesis that lawyer-insiders, i.e., insider who just happen to have legal training, have the same information as other insiders but are more restrained in their use of this information to make trading profits. We explore this further in this section by focusing on insider trades around earnings announcements. Earnings announcements are especially unique as they represent a regular informational event around which there is significant information asymmetry between insiders and outsiders. Insiders generally know the informational impact of upcoming announcements and these announcements represent an opportunity for insiders to trade profitably if they choose to exploit this private information. There is significant evidence that insiders do make opportunistic trades in the window right before earnings announcements even though companies often have explicit policies discouraging trading during this window, and during which there may be increased regulatory scrutiny (Ali and Hirshleifer, 2017).

If, as we expect, lawyer-insiders are more likely to be more restrained in their use of private information, we predict that lawyer-insiders would be *less* likely to trade in the restricted window immediately *before* an earnings announcement but expect no such difference in the unrestricted window *after* an earnings announcement. We test this prediction explicitly and report the results in Table 13. The results show that in the period right before an earnings announcement (from 17 days before through to 3 days before the announcement) lawyer-insiders are less likely to make a purchase than are other insiders. In contrast, in the period after the announcement (from 3 days to 12 days after the announcement), there is no difference between lawyer-insiders and other insiders in the probability of making a purchase.[19] The results suggest that lawyer-insiders are more restrained from making purchases during a period in which there may be increased internal scrutiny of their trades, despite the possibility that they may be able to make profitable trades in this window.

7.4. Legal Expertise, Routine Trading, and Internal Scrutiny of Insider Trading

In this section, we examine the possibility that our inference is driven by lawyer-insiders being more disposed to be routine traders than other insiders. Cohen, Malloy and Pomorski (2012) find that routine trades are followed by lower returns than other insider trades. If lawyer insiders are more likely

[19] We thank the referee for this suggestion. We also find similar results when using the 15-day window (+3, +17) after earnings announcements and the results are available upon request.

Table 12
Prior Legal Work Experience and Insider Trades
This table reports regressions of abnormal returns on measures of prior SEC experience and legal work experience as well as control variables. The dependent variable is the future one-month stock return (AR(+1)) that is adjusted for risks based on Fama-French three-factor model augmented by the momentum factor. SEC, LAWFIRM, and COUNSEL are indicators of prior work experiences at the SEC, top law firms (on the 2021 Vault Law 100 List), and prior work experiences as counsels or legal officers in *other* firms, respectively. SEC_TIME, LAWFIRM_TIME, and COUNSEL_TIME measure the length of respective experiences in term of years. All other variables are described in Table 1. All continuous independent variables are winsorized at the 1% and 99% levels. The sample period covers January 1997 through December 2012. Month and firm fixed effects are included. Standard errors are clustered at the firm level. t-statistics are shown in parentheses. *, **, and *** indicate statistical significance at the .10, .05, and .01 levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Dep Var:	AR(+1)	AR(+1)	AR(+1)	AR(+1)	AR(+1)	AR(+1)
	SEC	LAWFIRM	COUNSEL	SEC_TIME	LAWFIRM_TIME	COUNSEL_TIME
	-0.0351**	-0.0154**	-0.0094*	-0.0050***	-0.0004	-0.0014**
	(-2.27)	(-2.03)	(-1.72)	(-3.29)	(-0.84)	(-2.30)
B/M	-0.3752	-0.3740	-0.3780	-0.3750	-0.3754	-0.3801
	(-1.26)	(-1.26)	(-1.27)	(-1.26)	(-1.26)	(-1.28)
SIZE	-3.9234***	-3.9173***	-3.9182***	-3.9206***	-3.9196***	-3.9187***
	(-13.26)	(-13.24)	(-13.24)	(-13.25)	(-13.25)	(-13.24)
RET(-1)	-0.0140	-0.0140	-0.0139	-0.0140	-0.0140	-0.0139
	(-1.32)	(-1.33)	(-1.32)	(-1.32)	(-1.33)	(-1.31)
RET(-13,-2)	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
	(0.47)	(0.47)	(0.47)	(0.47)	(0.47)	(0.48)
Month F.E.	Y	Y	Y	Y	Y	Y
Firm F.E.	Y	Y	Y	Y	Y	Y
N	40,229	40,229	40,229	40,229	40,229	40,229

Table 13
Legal Expertise and Insider Purchases Before and After Earnings Announcements
This table examines insider purchases before and after earnings announcements using linear probability models. In columns (1) and (2), the dependent variable is a dummy variable that takes a value of one if the insider purchase is made in the 15-day window (*d-17, d-3*) *before* an earnings announcement and zero otherwise, where day *d* is the earnings announcement day. In columns (3) and (4), the dependent variable is a dummy variable that takes a value of one if the insider purchase is made in the 10-day window (*d+3, d+12*) *after* an earnings announcement and zero otherwise All other variables are described in Table 1. All continuous independent variables are winsorized at the 1% and 99% levels to mitigate the influence of outliers. The sample period covers January 1997 through December 2012. Month and firm fixed effects are included. Standard errors are clustered at the firm level. t-statistics are shown in parentheses. *, **, and *** indicate statistical significance at the .10, .05, and .01 levels, respectively.

	Before Earning Announcement		***After*** Earning Announcement	
	(1)	(2)	(3)	(4)
LEGALEXP	-0.0068*	-0.0066*	-0.0034	-0.0031
	(-1.87)	(-1.83)	(-0.43)	(-0.40)
B/M		-0.1385		0.2258
		(-0.48)		(0.39)
SIZE		-0.7705***		0.6157
		(-2.84)		(1.02)
RET(-1)		0.0327***		-0.1247***
		(3.37)		(-6.47)
RET(-13,-2)		-0.0004		-0.0108*
		(-0.15)		(-1.84)
Month F.E.	Y	Y	Y	Y
Firm F.E.	Y	Y	Y	Y
N	39,605	39,605	39,605	39,605

to be routine traders than other insiders, then the lower returns that we measure following insider purchases may be due to their routine trades rather than restraint associated with legal expertise. However, the results presented in Appendix Table A1 suggest that this is not likely to be the case. We find that non-routine traders are not more likely to be lawyer-insiders than they are to be any other kind of insiders.

We also examine another possibility: that lawyer-insiders, given their professional orientation, may be more likely to submit their trades to internal scrutiny and this scrutiny ultimately leads them to make less informed trades. Jagolinzer, Larcker and Taylor (2011) find that trades approved by the General Counsel are less likely to be informed than other trades. If lawyer-insiders are more likely to submit their trades to the General Counsel for approval, it may be this additional scrutiny that explains their trading restraint.

To examine this possibility, we hand-collect signature information from all insider trade filings (Form 4's) available via Edgar from January 2004 to December 2012. We comb through this signature information to identify filings that were explicitly signed by the firm's General Counsel or any of the firm's corporate attorneys; our assumption is that these filings represent trades that were submitted to the General Counsel for approval. We create a binary variable that equals one (zero, otherwise) when the filings are signed by the General Counsel and we carry out a linear probability regression of this variable on our lawyer-insider indicator (LEGALEXP).[20] The results, which we present in the Appendix Table A2 show that lawyer-insiders are actually *less* likely to have General Counsel approve their trades than other insiders. This finding suggests that lawyer-insider trades are not more restrained simply because they are more likely to seek internal approval for their trades.

7.5. Additional Robustness Tests

In Appendix Table A3, we present a battery of additional tests to assess the robustness of our inference. In column (1), instead of excluding small trades where less than $10,000 of stocks were traded, we follow the literature and exclude small trades where less than 100 shares of stocks were bought (e.g., Marin and Olivier, 2008). In column (2), we drop all restrictions on trade size and include all trades in the analysis. The results from both column (1) and column (2) confirm that the inclusion or exclusion of small trades does not affect our inference.

[20] Specifically, given that we aggregate insider trades in the same month, we assign a value of one (zero otherwise) to a given trading month *t* for an insider if over three quarters of the trades are signed by any of the company's attorneys or Counsels.

BoardEx, which is our primary data source for insider education and professional background, started to collect most of the education information for executives and directors in 2000. However, there are many cases where insiders' education experience happened long before 2000 and they traded before 2000. Consequently, the sample period can be extended to before 2000 to obtain a larger sample size (which is the main reason why our base sample starts from 1997). However, the extension means that both lawyer-insiders and non-lawyer-insiders who were present at the start of the sample have been executives and/or directors for an undetermined length compared to those who come in to the sample after 2000. This long tenure could affect insider trading behavior. To ensure that incorporation of data before 2000 (as we do in our main sample) does not affect the main findings, in column (3), we restrict the sample to the period from 2000 to 2012. On the other hand, our insider trading data date back to 1986 and we are able to identify the education and background of many of our insiders all the way back to 1986. To fully utilize all the information available, we extend the starting point of our sample back to 1986 in column (4). The results in columns (3) and (4) show that our inference is unaffected by changes to the start date of our sample.

In creating our main sample (as described in Section 3), we exclude GCs who by definition could be considered as lawyer-insiders because they may have significantly different types of access to operating information from that of other executives. In column (5), we relax this assumption and allow firms' GCs to be classified as lawyer-insiders. The result suggests that this inclusion does not affect our inference; even if we include legal counsels as lawyer-insiders, we find that their trades are still less informed than those of other insiders.

Additionally, in the initial creation of our main sample, we only included insiders whose educational and professional background could be verified by BoardEx, and all other insiders were dropped. It is worth noting that this classification is conservative because insiders who have a legal background that is not covered by BoardEx would thus be inadvertently classified as non-lawyer-insiders. This misclassification has the potential effect of making it harder to differentiate between the subsequent returns following purchases of lawyer-insiders and non-lawyer-insiders. In column (6), we drop this filter by including all insiders, whether or not their educational background information is available on BoardEx, and assume that all insiders for whom we have no verifiable education information are non-lawyer-insiders. As shown, even with this "noisier" classification, our inference remains unchanged. In column (7), we use raw returns rather than risk-adjusted returns as the dependent variable. Again, our inference remains unchanged, and we find that purchases by lawyer-insiders are less informed than those by non-lawyer-insiders.

8. Summary and Conclusion

We investigate whether or not, and how, insider trades by executives and directors with legal education differ from those by other insiders. We find that purchases by insiders with legal expertise are followed by lower stock returns than those by insiders without legal expertise. This result holds even after we account for potential access to information that may result from the insider's position in the firm. We further investigate to what extent this pattern is driven by the use of private information, and we find that lawyer-insider purchases are associated with lower future earnings surprises and future firm profitability than those of other insiders. Furthermore, we show that, compared with other insiders, lawyer-insiders make fewer purchases of their own company stock following months with more announced SEC investigations against illegal insider trading. This finding is consistent with the idea that legal education predisposes insiders with legal expertise to further restrain their potentially informed trading when the litigation risk is especially salient. Taken together, our findings suggest that insiders with legal expertise are less likely to exploit private information when they buy their own company's stocks. Our additional analysis also discounts the relevance of various alternative explanations (e.g., self-selection).

Our study has several implications for investors, regulators, and other parties in the firm's "nexus of contracts." Our findings suggest that the nature of a manager's education may affect managerial behavior and the attitude of the manager towards litigation risk and regulatory compliance. While our study has been within the context of insider trading, our results also suggest that clarity in the communication and enforcement of regulatory rules may improve compliance with regulatory rules in general.

Appendix

Table A1-A4

Table A1
Are Lawyer-Insiders More Likely to be Non-Routine Insiders?
This table examines whether lawyer-insiders are more likely to be non-routine (opportunistic) insiders using linear probability models. The dependent variable, NON_ROUTINE, is an indicator variable for opportunistic insiders following Cohen et al. (2012). All other variables are described in Table 1. All continuous independent variables are winsorized at the 1% and 99% levels to mitigate the influence of outliers. The sample period covers January 1997 through December 2012. Month and firm fixed effects are included. Standard errors are clustered at the firm level. t-statistics are shown in parentheses. *, **, and *** indicate statistical significance at the .10, .05, and .01 levels, respectively.

	(1)	(2)
LEGALEXP	-0.0034	-0.0031
	(-0.43)	(-0.40)
B/M		0.2258
		(0.39)
SIZE		0.6157
		(1.02)
RET(-1)		-0.1247***
		(-6.47)
RET(-13,-2)		-0.0108*
		(-1.84)
Month F.E.	Y	Y
Firm F.E.	Y	Y
N	39,605	39,605

Table A2
Insiders with Legal Expertise and Form 4's Signed by Corporate Attorneys.
This table examines whether insiders with legal expertise are more (or less) likely to request signature from a corporate attorney when they file Form 4's. The dependent variable in this linear probability model is a dummy variable that takes a value of one if over three quarters of the Form 4's in a given month are signed by the General Counsel or any of the company's attorneys, and zero otherwise. All other variables are described in Table 1. All continuous independent variables are winsorized at the 1% and 99% levels. We hand collect the signature information that is widely available after 2004 on Edgar. Therefore, the sample period covers January 2004 (instead of 1997) through December 2012. Standard errors are clustered at the firm level. t-statistics are shown in parentheses. *, **, and *** indicate statistical significance at the .10, .05, and .01 levels, respectively.

	(1)	(2)	(3)
LEGALEXP	-0.0486**	-0.0543***	-0.0203*
	(-2.30)	(-2.63)	(-1.65)
B/M		1.7703*	0.6851
		(1.66)	(0.87)
SIZE		5.0750***	2.0257*
		(7.85)	(1.90)
RET(-1)		-0.0438	-0.0157
		(-1.24)	(-0.76)
RET(-13,-2)		-0.0389***	-0.0053
		(-3.09)	(-0.74)
Month F.E.	Y	Y	Y
Firm F.E.	N	N	Y
N	21,682	21,682	21,113

Table A4
SEC Investigations and Profitability of Insider Purchases Made by Lawyer-Insiders
This table relates insider trading behavior to SEC investigation activities. The dependent variable is the future one-month stock return (AR(+1)) that is adjusted for risks based on Fama-French three-factor model augmented by the momentum factor. SEC_INSIDER_PCT is the number of SEC releases regarding litigation cases against illegal insider trading scaled by the total number of SEC litigation cases. Firm fixed effects are included. Standard errors are clustered at the firm level. The sample period covers 1997 through 2012. t-statistics based on robust standard errors are shown in parentheses. *, **, and *** indicate statistical significance at the .10, .05, and .01 levels, respectively.

	(1)	(2)	(3)
	AR(+1)	AR(+1)	AR(+1)
LEGALEXP	-0.0071**	-0.0076**	-0.0041
	(-2.22)	(-2.44)	(-1.28)
$SEC\_INSIDER\_PCT_{t-1}$	-0.0828***		
	(-3.39)		
LEGALEXP×	0.0230		
$SEC\_INSIDER\_PCT_{t-1}$	(0.50)		
$SEC\_INSIDER\_PCT_{t-2}$		-0.0661***	
		(-2.72)	
LEGALEXP×		0.0355	
$SEC\_INSIDER\_PCT_{t-2}$		(0.75)	
$SEC\_INSIDER\_PCT_{t-3}$			-0.0696**
			(-2.45)
LEGALEXP×			-0.0704
$SEC\_INSIDER\_PCT_{t-3}$			(-1.22)
B/M	0.0479	0.0062	-0.0137
	(0.17)	(0.02)	(-0.05)
SIZE	-3.6264***	-3.6843***	-3.7434***
	(-13.89)	(-13.89)	(-14.13)
RET(-1)	-0.0157	-0.0168	-0.0171*
	(-1.54)	(-1.64)	(-1.67)
RET(-13,-2)	-0.0012	-0.0012	-0.0009
	(-0.43)	(-0.44)	(-0.34)
Firm F.E.	Y	Y	Y
N	39,867	39,730	39,536

Table A3
Legal Expertise and Insider Purchases: Robustness Tests
This table reports regressions of risk-adjusted returns on indicators of lawyer-insiders (LEGALEXP) and other control variables. It extends analyses in Table 4 in a series of robustness tests. Following previous literature, column 1 excludes small trades where less than 100 shares of stocks were traded. Column 2 does not exclude any small trades. Column 3 (column 4) uses data starting from 2000 (1986 due to availability of the insider trading data). Column 5 includes a firm's general counsel as legal insiders. In column 6, we treat all insiders with missing education data as non-legal insiders. Column 7 repeats the baseline model (column 4 in Table 4) using future one-month stock raw return rather than the risk-adjusted abnormal return as the dependent variable. All variables are described in Table 1. All continuous independent variables are winsorized at the 1% and 99% levels to mitigate the influence of outliers. Month and firm fixed effects are included. Standard errors are clustered at the firm level. t-statistics are shown in parentheses. *, **, and *** indicate statistical significance at the .10, .05, and .01 levels, respectively.

	(1) Shares >=100	(2) All Trades	(3) Restricted Period	(4) Extended Period	(5) General Counsel	(6) Re-Define LEGALEXP	(7) Raw Return
LEGALEXP	-0.0063**	-0.0040*	-0.0069**	-0.0042*	-0.0045*	-0.0067***	-0.0046*
	(-2.43)	(-1.84)	(-2.25)	(-1.93)	(-1.86)	(-2.64)	(-1.87)
B/M	-0.3745	-0.5471*	-0.2538	-0.1967	-0.2959	-0.7581***	0.2268
	(-1.26)	(-1.88)	(-0.75)	(-0.79)	(-0.94)	(-2.64)	(0.79)
SIZE	-3.9111***	-3.8567***	-4.5943***	-3.1442***	-3.8842***	-3.9548***	-3.9727***
	(-13.22)	(-13.66)	(-12.56)	(-14.11)	(-12.87)	(-13.75)	(-13.23)
RET(-1)	-0.0141	-0.0004	-0.0197*	-0.0126	-0.0145	-0.0081	-0.0220**
	(-1.33)	(-0.04)	(-1.66)	(-1.32)	(-1.36)	(-0.82)	(-2.26)
RET(-13,-2)	0.0014	0.0002	0.0007	0.0003	0.0016	0.0024	0.0040
	(0.47)	(0.09)	(0.23)	(0.11)	(0.53)	(0.81)	(1.43)
Month F.E.	Y	Y	Y	Y	Y	Y	Y
Firm F.E.	Y	Y	Y	Y	Y	Y	Y
N	40,219	57,329	32,150	48,591	40,928	47,366	40,229
Sample Period	Jan. 1997 -Dec. 2012	Jan. 1997 -Dec. 2012	Jan. 2000 -Dec. 2012	Jan. 1986 -Dec. 2012	Jan. 1997 -Dec. 2012	Jan. 1997 -Dec. 2012	Jan. 1997 -Dec. 2012

References

Aboody, D., Lev, B., 2000. Information Asymmetry, R&D and Insider Gains. J. Finance 55, 2747–2766.

Akbas, F., Jiang, C., Koch, P., 2020. Insider Investment Horizon. J. Finance 75, 1579–1627 forthcoming doi:10.1111/jofi.12878.

Ali, U., Hirshleifer, D., 2017. Opportunism as a firm and managerial trait: predicting insider trading profits and misconduct. J. Financ. Econ. 62 (1), 1–23.

Bagley, C.E., 2008. Winning legally: the value of legal astuteness. Acad. Manage. Rev. 33 (2), 378–390.

Bagley, C.E., Clarkson, G., Power, R.M., 2010. Deep links: does knowledge of the law change managers' perceptions of the role of law and ethics in business? Houston Law Rev. 47 (2), 259.

Bamber, L.S., Jiang, J., Wang, I.Y., 2010. What's my style? the influence of top managers on voluntary corporate disclosure. Account. Rev. 85, 1131–1162.

Barber, B.M., Odean, T., 2001. Boys will be boys: gender, overconfidence, and common stock investment. Q. J. Econ. 116, 261–292.

Barnea, A., Cronqvist, H., Siegel, S., 2010. Nature or nurture: what determines investor behavior? J. Financ. Econ. 98, 583–604.

Benmelech, E., Frydman, C., 2015. Military CEOs. J. Financ. Econ. 117 (1), 43–59.

Berkman, H., Koch, P.D., Westerholm, P.J., 2014. Informed Trading through the Accounts of Children. J. Finance 69 (1), 363–404.

Bertrand, M., Schoar, A., 2003. Managing with Style: The Effect of Managers on Firm Policies. Q. J. Econ. 118, 1169–1208.

Biggerstaff, L., Cicero, D., Wintoki, M.B., 2020. Insider Trading Patterns. J. Corp. Finance 64.

Bouwman, C., 2011. Corporate governance propagation through overlapping directors. Rev. Financial Studies 24 (7), 2358–2394.

Brennan, M.J., Chordia, T., Subrahmanyam, A., 1998. Alternative factor specifications, security characteristics, and the cross-section of expected stock returns. J. Financ. Econ. 49 (3), 345–373.

Cesarini, D., Johannesson, M., Lichtenstein, P., Sandewall, O., Wallace, B., 2010. Genetic variation in financial decision-making. J. Finance 65 (5), 1725–1754.

Cheng, Q., Lo, K., 2006. Insider trading and voluntary disclosures. J. Account. Res. 44 (5), 815–848.

Chiang, C., Chung, S.G., Louis, H., 2017. Insider trading, stock return volatility, and the option market's pricing of the information content of insider trading. J. Bank. Finance 76, 65–73.

Cline, B., Gokkaya, S., Liu, X., 2016. The persistence of opportunistic insider trading. Financial Manag. 46 (4), 919–964.

Cohen, L., Malloy, C., Pomorski, L., 2012. Decoding inside information. J. Finance 67, 1009–1043.

Cooper, M.J., Gulen, H., Schill, M.J., 2008. Asset Growth and the Cross-Section of Stock Returns. J. Finance 63 (4), 1609–1651.

Cronqvist, H., Makhija, A.K., Yonker, S.E., 2012. Behavioral consistency in corporate finance: CEO personal and corporate leverage. J. Financ. Econ. 103 (1), 20–40.

Cyert, R.M., March, J.G., 1963. A Behavioral Theory of the Firm. Prentice-Hall, Cliffs, NJ *Englewood*.

Cziraki, P., De Goeij, P., Renneboog, L., 2013. Corporate governance rules and insider trading profits. Rev. Finance 18 (1), 67–108.

Davidson, R., Dey, A., Smith, A.J., 2016. Executives' legal records and insider trading activities. Chicago Booth Res. Paper No 16-12.

DeMarzo, P.M., Fishman, M.J., Hagerty, K.M., 1998. The optimal enforcement of insider trading regulations. J. Polit. Econ. 106 (3), 602–632 June 1998.

Dechow, P.M., Lawrence, A., Ryans, J.P., 2016. SEC Comment Letters and Insider Sales. Account. Rev. 18 (2), 401–439.

Denis, D.J., Xu, J., 2013. Insider trading restrictions and top executive compensation. J. Account. Econ. 56 (1), 91–112.

Edelman, L.B., Suchman, M.C., 1997. The legal environments of organizations. Annu. Rev. Sociol. 23, 479–515.

Fama, E.F., French, K.R., 1993. Common risk factors in the returns on stocks and bonds. J. Financ. Econ. 33, 3–56.

Fama, E.F., French, K.R., 2006. Profitability, investment and average returns. J. Financ. Econ. 82, 491–518.

Fama, E.F., French, K.R., 2015. A five-factor asset pricing model. J. Financ. Econ. 116 (1), 1–22.

Frankel, R., Li, X., 2004. Characteristics of a firm's information environment and the information asymmetry between insiders and outsiders. J. Account. Econ. 37, 229–259.

Goldie, B., Jiang, C., Koch, P., Wintoki, M.B., 2020. Indirect Insider Trading. Working Paper.

Grinblatt, M., Keloharju, M., Linnainmaa, J.T., 2012. IQ, Trading Behavior, and Performance. J. Financ. Econ. 104, 339–362.

Hambrick, D.C., Mason, P.A., 1984. Upper Echelons: The Organization as a Reflection of Its Top Managers. Acad. Manage. Rev. 9, 193–206.

Heckman, James J., 1979. Sample Selection Bias as a Specification Error. Econometrica 47, 153–161.

Hillier, D., Korczak, A., Korczak, P., 2014. The impact of personal attributes on corporate insider trading. J. Corp. Finance 30, 150–167.

Huddart, S., Ke, B., 2007. Information asymmetry and cross-sectional variation in insider trading. Contemp. Account. Res. 24, 195–232.

Huddart, S., Ke, B., Shi, C., 2007. Jeopardy, Non-Public Information, and Insider Trading Around SEC 10-K and 10-Q Filings. J. Account. Econ. 43, 3–36.

Jaffe, J.F., 1974. Special Information and Insider Trading. J. Bus. 47, 410–428.

Jagolinzer, A.D., Larcker, D.F., Taylor, D.J., 2011. Corporate Governance and the Information Content of Insider Trades. J. Account. Res. 49, 1249–1274.

Jeng, L., Metrick, A., Zeckhauser, R., 2003. Estimating the Returns to Insider Trading: A Performance-Evaluation Perspective. Rev. Econ. Stat. 85, 453–471.

Joseph, K., Wintoki, M.B., 2013. Advertising Investments, Information asymmetry, and Insider Gains. J. Empirical Finance 22, 1–15.

Knyazeva, A., Knyazeva, D., Masulis, R.W., 2013. The supply of corporate directors and board independence. Rev. Financial Studies 26 (6), 1561–1605.

Krishnan, J., Wen, Y., Zhao, W., 2011. Legal Expertise on Corporate Audit Committees and Financial Reporting Quality. Account. Rev. 86 (6), 2099–2130.

Lakonishok, J., Lee, I., 2001. Are Insider Trades Informative? Rev. Financial Studies 14, 79–111.

Lee, D., Mikkelson, W., Partch, M., 1992. Managers' Trading Around Stock Repurchases. J. Finance 47, 1947–1961.

Lee, I., Lemmon, M., Li, Y., Sequeira, J.M., 2012. Do Voluntary Corporate Restrictions on Insider Trading Eliminate Informed Insider Trading? Working Paper.

Linowitz, S.M., Mayer, M., 1994. The Betrayed Profession: Lawyering at the End of the Twentieth Century. Scribner, New York.

Litov, L.P., Sepe, S.M., Whitehead, C.K., 2014. Lawyers and Fools: Lawyer-Directors in Public Corporations. Georgetown Law. J. 102, 413–480.

Manne, H.G., 1966. Insider Trading and the Stock Market. Free Press, New York.

March, J.G., Simon, H.A., 1958. Organizations.

Marin, J.M., Olivier, J., 2008. The Dog That Did Not Bark: Insider Trading and Crashes. J. Finance 63 (5), 2429–2476.

Mazar, N., Amir, O., Ariely, D., 2008. The dishonesty of honest people: a theory of self-concept maintenance. J. Market. Res. 45 (6), 633–644 December 2008.

Nelson, R.L., Nielsen, L.B., 2000. Cops, Counsel, and Entrepreneurs: Constructing the Role of Inside Counsel in Large Corporations. Law. Soc. Rev. 34, 457–494.

Novy-Marx, R., 2013. The Other Side of Value: The Gross Profitability Premium. J. Financ. Econ. 108 (1), 1–28.

Piotroski, J.D., 2000. Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers. J. Account. Res. 38, 1–41 Supplement.

Piotroski, J.D., Roulstone, D.T., 2005. Do insider trades reflect both contrarian beliefs and superior knowledge about future cash flow realizations? J. Account. Econ. 39 (1), 55–81.

Ravina, E., Sapienza, P., 2010. What do independent directors know? evidence from their trading. Rev. Financial Studies 23, 962–1003.

Rogers, J.L., Skinner, D.J., Zechman, S.L.C., 2016. The role of the media in disseminating insider-trading news. Rev. Account. Stud. 21, 711–739.

Roulstone, D.T., 2003. The relation between insider trading restrictions and executive compensation. J. Account. Res. 41 (3), 525–551.

Seitzinger, M.V., 2016. Federal securities law: insider trading. Congressional Res. Serv. Report RS21127.

Seyhun, H.N., 1988. The information content of aggregate insider trading. J. Bus. 61, 1–24.

Skaife, H.A., Veenman, D., Wangerin, D., 2013. Internal control over financial reporting and managerial rent extraction: evidence from profitability of insider trading. J. Account. Econ. 55, 91–110.

Sloan, R.G., 1996. Do stock prices fully reflect information in accruals and cash flows about future earnings? Account. Rev. 71 (3), 289–315.

Wang, W., Shin, Y., Francis, B.B., 2012. Are CFOs' Trades More Informative than CEOs' Trades? J. Financ. Quant. Anal. 47, 743–762.