

Are All Insider Sales Created Equal?
Evidence from Form 4 Footnote Disclosures

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Abstract

This paper is the first to examine the information contained in executives' voluntary supplementary disclosures in footnotes on SEC Form 4 filings that accompany stock sales. Analysing these supplementary disclosures we are able to distinguish between discretionary sales, for which insiders have discretion over the amount and timing of the sale, and nondiscretionary sales. We find that discretionary sales involve significantly larger trades and produce significantly lower abnormal announcement returns than nondiscretionary sales, particularly when internal controls are perceived to be weak. Our findings suggests that discretionary sales reveal negative information to investors who do not seem to fully impound the information into stock prices in a timely manner as these sales are predictive of negative future stock returns. Investigating the type of bad news that these insider sales predict, we find a positive association with the likelihood of future analyst downgrades, negative earnings surprises and future litigation.

Keywords: Insider sales; Form 4 filings; voluntary disclosure; footnotes; information content

JEL Classification: G12, G14, G30, M41

Data Availability: Data are available from the public sources cited in the text.

1. Introduction

Insiders trade for a variety of reasons. While there has been empirical evidence consistent with the notion that insiders buy their own firm's shares ahead of good news (Lakonishok and Lee, 2001; Jeng, Metrick and Zeckhauser, 2003), evidence on the information content of insider sales is more mixed (Seyhun, 1986; Lakonishok and Lee, 2001; Brochet 2010; Jagolinzer, Larcker and Taylor 2011). One frequently mentioned reason why prior studies on the information content of insider sales produce mixed results is the difficulty to distinguish genuine liquidity-motivated sales from information-based trades.

On the one hand, insiders might sell shares for liquidity reasons such as to cover taxes, for personal reasons, or due to diversification needs. This is particularly relevant for executives and directors as their wealth is often highly concentrated in their firm. On the other hand, given the insider's preferential access to firm-specific information, a sale might signal an insider's private information of future bad news about the firm (Seyhun and Bradley 1997; Beneish, Press and Vargus 2004). However, the true motives for an insider's stock sale are often unobservable by outside investors, complicating any efforts to disentangle the true nature of an insider's selling activity and to identify those sales that are informative.¹

Identifying information-based insider sales is particularly important to outside investors as managers generally delay disclosing bad news (Graham, Harvey and Rajgopal 2005; Kothari, Shu and Wysocki 2009) and there are few other capital market mechanisms that reveal

¹ Anecdotal examples from the press illustrate the difficulty in identifying informative insider sales. In one case the Chief Accounting Officer of American Realty Capital Properties sold a considerable amount of stock prior to news of an accounting scandal at the company. According to SEC filings, the sale related to restricted stock that had to be forfeited and was sold at a price of 0 because the officer was dismissed. Another case discusses executives at Body Central Corp that sold stock as part of a pre-planned 10b5-1 set up in prior years. The sales were executed just one day prior to an earnings warning, which resulted in a 48% stock price decline. The former case, a priori, might have seemed like an information-based trade and the fact that the latter was part of a pre-planned trade made it seem like a liquidity trade. See for example, "Not All Insider Trading is Created Equally", *Forbes*, October 31, 2014; "Executives' Good Luck in Trading Own Stock," *Wall Street Journal*, November 27, 2012; "When Insiders Sell," *Forbes*, May 5, 2009.

negative information about a firm.² Moreover, managers might have incentives to “pump and dump” their shares (Bar-Gill and Bebchuk 2002; Bolton, Scheinkman and Xiong 2006); and there is ample empirical evidence that managers exploit their information advantage strategically when disclosing material non-public information (Aboody and Kasznik 2000; Lang and Lundholm 2000; Nagar, Nanda and Wysocki 2003; Brockman, Khurana and Martin 2008). However, likely because of the higher scrutiny and legal restrictions insiders face when selling shares and the increased litigation risk associated with insider sales, researchers have failed to establish strong links between insiders’ disclosure of positive news that precede stock sales or the revelation of negative news immediately following stock sales (Noe 1999; Cheng and Lo 2006; Ke, Huddart and Petroni 2003).³ If at all, managers thus seem to exploit their information advantage in more subtle ways when engaging in insider trades.

In this paper, we directly examine the information insiders disclose about the reasons for their trades on filings with the SEC. In doing so, our paper is the first to extract and analyse insiders’ voluntary supplementary disclosures in footnotes on SEC Form 4. Although these footnotes often contain generic boilerplate disclosures, they also mention the reasons for the stock sale such as personal (liquidity) needs to cover tax liabilities, tuition fees for children, divorce settlements, etc., or that the sale was part of a 10b5-1 plan under safe harbour provisions.

Prior research suggests that managers voluntarily disclose information to reduce information asymmetries (Verrecchia 1983; Brown, Hillegeist and Lo 2004) and to avoid litigation costs (Skinner 1994), but are reluctant to disclose if it reduces their private benefits (Nagar, Nanda and Wysocki 2003). Hutton, Miller and Skinner (2003) show that

² There are often significant constraints to short sales (Diamond and Verrecchia 1987; Beneish, Lee and Nichols 2015) and information intermediaries, such as analysts, are generally reluctant to cover underperforming firms or issue downgrades (McNichols and O’Brien 1997; O’Brien, McNichols and Lin 2005).

³ Consistent with the litigation avoidance hypothesis Ke, Huddart and Petroni (2003), for example, show that insiders increase their selling of shares up to two years prior to a break in a string of consecutive earnings growth, but not in the two quarters immediately prior to the break.

supplementary disclosures to earnings forecasts support the credibility of these forecasts and are informative to investors. In a similar vein, the purpose of supplementary footnote disclosures by insiders during stock sales might be to credibly convey that these sales are made for liquidity or diversification reasons and have no information value. Particularly in the case of insider sales, not disclosing the motives for the sale might lead market participants to pool information-based and liquidity-based sales and to interpret all sales as negative news for a given stock. Moreover, Narayanam (2000) argues that insiders are more likely to sell while they delay the disclosure of bad news. Hence insider sales of stock might be regarded as bad news especially when there is a lack of disclosure regarding their reasons. In such cases, investors may interpret sales as occurring for any reason other than liquidity needs.

Yet, even when disclosing the reasons for the sale, insiders might exploit the fact that outside investors have difficulties distinguishing insider sales that are genuinely made due to liquidity needs or for diversification reasons from those that, while potentially serving liquidity needs, may also contain information value. This is because insiders might have considerable discretion over the timing and the amount of liquidity-based trades (Jagolinzer 2009), might bundle liquidity-based and information-based sales (Jeng, Metrick and Zeckhauser 2003), or might disguise information-based sales as trades for liquidity reasons.⁴ Alternatively, it is also possible that outside investors do not pay enough attention to footnote disclosures that accompany insider sales and falsely assume all sales to be information-based.

The research question we address in this study is therefore whether supplementary disclosures in Form 4 footnotes that accompany insiders' stock sales are informative to investors; and whether these disclosures enable investors to distinguish sales that contain information value from genuine liquidity-motivated and uninformative sales. Specifically,

⁴ There is, however, a large number of firms that voluntarily implement insider trading policies that might limit the extent of the discretion over the timing of sales, e.g., by limiting trading windows to within a certain amount of days after earnings announcements (Bettis, Coles and Lemmon 2000).

based on whether a footnote is disclosed and based on the textual content of these footnotes, we classify each insider sale into what we label *Discretionary* and *Nondiscretionary*. In particular, the key distinguishing factor of *Discretionary* versus *Nondiscretionary Footnote* is whether, based on the disclosed nature of the trade in the footnotes to Form 4, the insider has discretion over timing and amount of the sale.⁵

We begin by identifying *Nondiscretionary Footnotes*. These are footnote disclosures that describe stock sales for which the insider has no discretion over the amount or timing. Such footnotes might contain explanations such as: “[...] *sale of additional shares to cover personal federal income tax obligation.*” or “[...] *shares automatically sold by company on behalf of employee in conjunction with company's deferred compensation plan.*” The first example describes stocks sold to cover the tax liability of restricted stock grants. The US tax code requires executives to pay income tax on restricted stock at the time of the grant or vesting dates, both of which are decided by the company. To cover the tax due insiders usually sell stock or instruct the company to withhold and sell part of their restricted stock on behalf of them on these dates.⁶ The second example refers to stock sales by the company on behalf of the insider as part of their deferred compensation plan. In both cases, the insider either has no control over the amount or the timing of the trade (or both). We follow the same criteria when interpreting other Form 4 footnotes.⁷

On the other hand, an insider sale with a *Discretionary Footnote* might contain a footnote explanation such as: “[...] *shares sold to diversify investments.*” or “[...] *sale pursuant to*

⁵ We explain our classification methodology in detail in section 2 and the parsing methodology of the footnotes in section 3.

⁶ Insiders could of course choose to pay the income tax of restricted stock grants with cash instead of giving up part of the restricted stock when they believe the value will rise in the future. In contrast they will more likely choose to sell stock if they believe the stock will decline in value, e.g., if they possess negative non-public information about the future prospects of their firm. If this was the case, however, it would bias against us finding that nondiscretionary sales have no information value.

⁷ We provide a full list of examples of the footnote disclosures we classify as *Discretionary* and *Nondiscretionary* in the appendix.

distribution of marital assets in divorce settlement.” These footnote examples describe shares sold by the insider with the intent to diversify their investment or to cover the costs of a divorce settlement. In both cases, the insider has discretion over the timing and the amount of the sale. Given the abovementioned incentives to disclose, we separately also include sales that omit any supplementary disclosures in the discretionary category and label the combined category *Discretionary Trade*.⁸

This classification scheme allows us to distinguish the nature of insider sales using information publicly available to investors at the time of the filing of the SEC Form 4. The key is that our classification scheme only relies on the descriptions in Form 4 footnotes that objectively identify *nondiscretionary* insider sales, i.e., those sales for which (for technical or other reasons) the insider had no discretion over the amount or timing of the trade. All other sales are classified as *discretionary*. Using this classification scheme we analyse over two million available insider transactions filed with the SEC in 2003-2011 and collapse them to over 180,000 firm-day insider sales observations.

Our findings are as follows: Insider sales which contain a *Discretionary Footnote* are on average almost nine times the size of sales with a *Nondiscretionary Footnote* measured in percentage of shares outstanding. In dollar terms, discretionary insider trades on average amount to US \$6.7 million compared to US \$1.2 million for nondiscretionary sales. Furthermore, insider sales without any explanatory footnote are also on average almost twice the size of those with a nondiscretionary footnote.

We find that there is a significant difference in cumulative abnormal returns between trade filings that include footnotes and those that do not, and between those with footnotes that describe discretionary and nondiscretionary sales. Three-day cumulative abnormal Form 4

⁸ Specifically, we label as *Discretionary Trade* all insider sales that do not contain a footnote or that contain a discretionary footnote, i.e., a footnote that, based on the textual description, suggests the sale occurred for discretionary reasons.

filing returns to *Discretionary Trades* are 32-36 basis points lower than returns to nondiscretionary insider sales. This differential is even higher when we omit sales that contain no supplementary information from the discretionary category and becomes even larger at -1.31% for discretionary sales executed by the top two executives, the CEO and CFO, who most likely have the largest information advantage (Ravina and Sapienza 2010; Wang, Shin and Francis 2012). We further find the differential market reaction to be higher for firms that are exempt from SOX reporting requirements and are perceived to have weaker internal controls.

To assess whether investors fully impound the information contained in discretionary insider sales into stock prices, we examine their predictive power for long-term stock returns. We find monotonically decreasing abnormal returns (and monotonically increasing divergence in returns from nondiscretionary trades) over longer-term holding horizons from the month after the insider trade. For example, the difference in abnormal returns between discretionary and nondiscretionary trades in the month following the insider sale is almost 1.4% suggesting that sales classified as discretionary are powerful predictors of future negative stock returns and that investors tend to underreact to the information in these footnotes. A trading strategy that each month buys a portfolio of stocks with nondiscretionary insider sales and sells a portfolio of stocks with discretionary insider sales earns a 16% risk-adjusted return per year.

To assess whether the negative stock return performance after discretionary insider sales is due to the revelation of negative news subsequent to the sale, we examine the predictive power of discretionary sales for future negative news events such as analyst recommendation downgrades, negative earnings surprises and litigation initiations. We find supporting evidence for all three.

Lastly, we test the robustness of our results by classifying insider sales into opportunistic sales based on the insiders' past trading record as in Cohen, Malloy and Pomorski (2012). Our classification into discretionary and nondiscretionary sales based on supplementary disclosures

by insiders remains highly predictive and is more informative for future negative stock returns than the classification based on the insider's past trading record. We identify over 23,400 insider trade months as discretionary that are not classified as opportunistic using Cohen et al.'s (2012) classification.

Our findings demonstrate that executives' supplementary disclosure on the SEC Form 4 that contain descriptions of the nature of an insider's stock sale are highly informative to investors. Based on the mere fact whether Form 4 filings contain such supplementary footnotes and based on the content of these footnotes, we are able to distinguish informative from uninformative insider sales and show that even though insiders describe liquidity reasons for the sale of stock these sales in fact contain information value. To our knowledge, our study is the first to investigate executives' supplementary disclosures in Form 4 footnotes. Analysing whether and what information is disclosed in these footnotes allows us to identify insider sales made for discretionary reasons, which are informative, and nondiscretionary sales, which are uninformative to investors.

The remainder of the paper is organised as follows. Section 2 discusses our contribution to the related literature and describes our classification setting. Section 3 describes the data. Section 4 and 5 present the main findings on the information content and predictive power of Form 4 footnote disclosures. Section 6 discusses robustness tests and section 7 concludes.

2. Contribution and Setting

2.1. Contribution to the Related Literature

Prior research on voluntary disclosure and insider sales examines the relationship between insider trading and management's disclosure behaviour *prior* to or *after* the insider trade (Noe 1999; Cheng and Lo 2006), but does not examine disclosure choices that directly accompany the insider's transaction. For example, Noe (1999) finds that insiders tend to sell their firm's

stock after the disclosure of good news and tend to purchase their firm's shares after the disclosure of bad news. Cheng and Lo (2006) show that corporate insiders endogenously decide their trading and disclosure timing to maximize private gains, taking into account the risk of potential civil litigation. Their study finds a positive association of bad news forecasts with expected insider purchases. They find no such relationship for good news forecasts and insider sales and attribute this to the higher litigation risk associated with insider sales.

The prior literature on strategic disclosure finds that insider trading is correlated with the disclosure timing and management of earnings numbers (e.g., Beneish and Vargus 2002; Bergstresser and Philippon 2006; Cheng and Lo 2006). More recent evidence in Jagolinzer (2009) extends this line of research focusing on pre-planned trades under the safe harbour provisions of SEC rule 10b5-1. Jagolinzer (2009) shows that 10b5-1 plans are used strategically to hide private rent extraction through insider trades.

We contribute to this stream of the literature by finding that supplementary disclosures by insiders on SEC Form 4 filings, despite describing liquidity-motivated sales, in fact are highly informative about future negative news on the stock, and that investors only partially impound that information into stock prices in a timely manner.

Early research on the information content of insider trading finds that insiders trade on their information advantage and, on average, earn abnormal returns subsequent to stock purchases (Jaffe 1974; Finnerty 1976; Rozeff and Zaman 1988). Research on the information content of insider sales, however, has produced mixed results due to the fact that insiders might sell stocks for a variety of liquidity and institutional reasons masking any average effect of information-based sales (Seyhun, 1986; Lakonishok and Lee, 2001; Jeng, Metrick and Zeckhauser, 2003). Lakonishok and Lee (2001), for example, do not find abnormal event study returns around the reporting date of insider trades suggesting these trades are uninformative to

outside investors. Similarly, Jeng, Metrick and Zeckhauser (2003) report that insider purchases, but not insider sales, earn abnormal returns.

Two strands of the literature have emerged attempting to discriminate between informative insider sales and liquidity/diversification-driven sales based on observable trade or firm characteristics. One strand of the literature examines the information content of insider sales and their predictive power for future stock returns by identifying bad news events ex post. The other strand aims to distinguish liquidity-driven insider sales from information-based sales through the insiders' trading behaviour ex ante.

Among the former, Seyhun and Bradley (1997) document that insiders are more likely to sell shares ahead of bankruptcy filings generating private trading gains. Similarly, Beneish (1999) examines the association between earnings overstatements and insider sales and finds a higher propensity of managers selling shares during the period of earnings manipulation. The study suggests that insiders gain from selling shares at inflated prices before the detection of the earnings overstatement and the accompanying stock price correction. On the other hand, Beneish, Press and Vargus (2004) document a higher likelihood of insiders selling stock before they engage in earnings management in order to delay the revelation of bad earnings news. Their results suggest that managers attempt to avoid litigation that could arise from selling shares just ahead of bad earnings news. They do not find evidence of a higher propensity of earnings management before stock sales. Consistent with the litigation avoidance hypothesis Ke, Huddart and Petroni (2003) show that insiders increase their selling of shares up to two years prior to a break in a string of consecutive earnings growth, but not in the two quarters immediately prior to the break.⁹

⁹ The gains to insider trading before bad earnings news are not confined to the firm's executives as shown in Ravina and Sapienza (2010). Their study finds that independent directors equally gain from insider sales in particular ahead of bad earnings news and earnings restatements, events that the authors use to distinguish information-based insider sales from liquidity-based sales.

Among the other strand of the literature, Cohen, Malloy and Pomorski (2012) identify information-based insider trades by classifying insiders into routine and opportunistic traders according to the timing of their trades in relation to their past trading behaviour. Insiders that execute their trades in the same calendar month every year for three years are classified as routine and their trades are predicted to be uninformative. Their study finds that opportunistic trades are predictive of future stock returns and news. In a similar vein, Karamanou, Pownall and Prakash (2016) classify insider trades by the insider's concurrent trading behaviour. Their study shows that stock sales in one firm by insiders to multiple firms that occur simultaneously with stock purchases in the other affiliated firms are informative and associated with future firm performance.

We contribute to this literature by examining voluntary footnote disclosures by insiders that are filed on the Form 4; and we use the description about the nature of the insider trades in these footnotes to distinguish discretionary from nondiscretionary sales. We differ from the prior literature by discriminating between informative and uninformative insider sales based on insiders' own voluntary supplementary disclosures on the SEC Form 4. These disclosures are observable by investors at time of the trade filing and arguably easier to process as information signals than disentangling the insiders' past trading patterns. We find that our distinction into discretionary and nondiscretionary sales based on footnote disclosures by insiders identifies substantially more trades as informative than, for example, distinguishing by the opportunistic timing of the trades as in Cohen et al. (2012). Additionally, our classification has incremental explanatory power for future stock returns after controlling for the opportunistic timing.

2.2. The Setting: Form 4 Footnote Disclosures

With the enactment of the Sarbanes-Oxley Act (SOX) in 2002 insider trade reporting underwent significant changes. Provisions in SOX require insiders to report trades (changes in

ownership) to the SEC on the Form 4 within 2 business days following the transaction date instead of the 10-day period allowed prior to SOX. Since 2003, the SEC also requires Form 4 to be filed electronically. Form 4 contains identifying information of the firm and the insider as well as transaction information. The form also allows for supplementary information to be added in footnotes below the main table alongside the quantitative transaction details. These footnotes generally contain textual explanations regarding the nature of the transaction and clarifying information with respect to the trade. Insiders often voluntarily state the reasons for the sale of common stock in them. The explanations in these footnotes are the main subject of interest in this paper. Figure 1 shows an example of a Form 4 that contains such a footnote.

On the one hand, insiders might disclose the nature of the sale in a footnote, when they sell stock for genuine diversification or liquidity reasons, to reduce information asymmetries with outside investors as non-disclosure might be interpreted by investors as information-based trading ahead of bad news (Verrecchia 1983; Dye 1985); or they might disclose information about the nature of the trade to protect themselves against potential allegations of insider dealing on material non-public information.

On the other hand, insiders might disclose footnote information to decrease the likelihood that their sales of stock might be perceived as being for reasons other than liquidity needs and diversification. Insiders might sell stock for a variety of discretionary and nondiscretionary reasons and by pooling these sales into a group that contains qualifying information about the nature of the trade, they might attempt to impede the market's ability to distinguish liquidity from information-based trades.¹⁰

To distinguish genuine liquidity from information-based sales we therefore classify each insider sale into discretionary and nondiscretionary sales, first, based on whether any

¹⁰ Insiders might, however, be reluctant to disclose materially false information on the Form 4, even in a voluntarily provided footnote, to avoid higher litigation risk.

supplementary information is provided in a footnote on the Form 4 filing and, second, based on the textual description in these footnotes. Our key distinguishing factor of discretionary versus nondiscretionary sales is, whether, based on the disclosed nature of the trade, the insider has discretion over *timing* and *amount* of the sale.

Using these two characteristics, we classify as *Nondiscretionary Footnote* those that describe sales to cover tax obligations related to restricted stock or stock option grants, to correct previous errors, and as part of automatic trades other than 10b5-1 trades. Insiders have to declare restricted stock as ordinary income and thus become liable for income tax. The US tax code allows insiders to elect whether to pay income tax on the vesting date or on the grant date. Insiders usually cover the tax due by selling stock or by having the company withhold and sell part of their restricted stock on behalf of them on these dates. That is, insiders have no control over the amount of taxes due related to the restricted stock and very little discretion over the timing.¹¹ Similarly, insiders have no discretion over automated trades that are executed by the company for retirement planning purposes, or when they are required to correct errors made in prior trades or trade disclosures. We thus argue that these nondiscretionary stock sales are likely not informative.

We classify all other footnotes as *Discretionary Footnote*. These include footnotes that describe the sale as being part of options exercises, a gift, for divorce settlements, tuition payments, as part of a retirement plan, or on behalf of family members. There is some evidence that such trades include valuable information to outside investors. Berkman, Koch and Westerholm (2014), for example, report a number of insider trading cases (in their internet appendix) in which guardians traded through accounts of their children in an informed manner.

¹¹ Insiders do however have discretion over whether they cover the taxes by selling stock or using cash. That is, insiders might choose to settle the income tax liability with cash instead of selling stock if they believe the value of their stock will rise. In contrast, they will more likely choose to sell stock if they believe the stock will likely decline in value. If the tax-related selling is occurring based on material non-public information it would bias against our hypothesis that nondiscretionary sales have no information value.

We further classify as *Discretionary Footnote* insider sales executed under 10b5-1 plans. In 10b5-1 trades insiders enter into a trading plan, often over multiple years, that pre-plans trades for specific dates in the future at a time when the insider possesses no material non-public information. Rule 10b5-1 trades fall under the safe harbour provisions of the SEC and provide the insider with a legal defence against potential penalties. However, despite the fact that these trades are pre-planned the insider still possesses considerable discretion about the timing and execution of the trades (Jagolinzer 2009).¹²

In separate analyses, we also include trades that are not accompanied by any supplementary disclosures in footnotes to the discretionary category calling the comprehensive discretionary category *Discretionary Trade*. We expect investors to view these trades as discretionary due to a lack of contrary evidence in the footnotes. We provide examples for each footnote disclosure assigned to our classification in the appendix.

Classifying insider sales according to the supplementary information disclosed in footnotes on the Form 4 (or lack thereof) allows us to distinguish the nature of these sales and thus their information content using information that is available to investors at the time of the insider trade filing.

3. Data and Sample Selection

3.1. Sample

We obtain all Form 4s filed electronically with the SEC on EDGAR from 2003 to 2011.¹³ Table 1 provides an overview of the sample selection process. We are able to identify 2,087,830

¹² Although these plans usually transfer trade execution to an uninformed party such as a broker who trades on behalf of the insider based on a pre-specified rule, insiders still retain discretion over the trades in so far as they can cancel the trades at any time before the execution date. Jagolinzer (2009), for example, finds that 10b5-1 sales tend to follow periods of stock price increases and tend to be followed by periods of stock price declines suggesting that they do not entirely reflect uninformed trading.

¹³ Our sample begins in June 2003 when the SEC first mandated electronic filings of Form 4. We thank Andy Leone for making his Perl code for SEC filings downloads publicly available.

individual open market sales and purchases of common stock (non-derivative transactions with code S and P on SEC Form 4) by 6,970 firms that refer to sales or purchases of more than 100 shares and less than 20% of shares outstanding. As an insider may record multiple transactions on one Form 4 and multiple insiders can trade on the same day, we collapse the transaction-level sample at the firm-day level. That is, we aggregate all trades in firm i on day t and calculate the firm's daily net trading position (sales minus purchases). Consequently, our initial firm-day-level dataset contains 388,521 observations.

We then match firm observations with data from CRSP, Compustat, and IBES. We follow Lakonishok and Lee (2001) and remove observations for which the share price reported on the Form 4 deviates from the closing share price on CRSP by more than 20% and further remove firms with a stock price at the beginning of the year of less than \$2. Our sample on the firm-day level comprises 265,161 insider trading days of 6,372 firms. For our main analyses we further drop transaction-days that are net purchases of common stock, that are not trades by or on behalf of directors or executives, or that contain missing values in any of the transaction data on the Form 4. This leaves us with 184,742 transaction-days. In separate analyses, we further remove observations that cannot unambiguously be identified as discretionary or non-discretionary trades according to our classification scheme and restrict the sample to non-overlapping trades of one or the other category. The restricted sample of firm officer and director net sales transactions comprises 141,968 transaction-days of 4,196 firms and 35,391 insiders.

3.2. Parsing Form 4 Footnotes

We use a Python script to parse each Form 4 and collect identifying information and transaction details such as name and position of the insider, name and ticker of the company, number of shares traded, and share price at sale. We then identify whether the Form contains a footnote.

We electronically parse the words in the footnotes and summarize them under keywords according to their frequency of occurrence. We then manually inspect the list of keywords and, based on the keyword frequencies, assign each insider sale filing into one of the following groups: *contains no footnote*, *10b5-1 footnote*, *gift*, *discretionary liquidity needs such as divorce or children's tuition*, *retirement plan*, *trade on behalf of family*, *option exercise*, *tax settlement*, *error correction*, and *automatic trade*. The appendix provides examples for each footnote disclosure on the Form 4 assigned to our classification.

Based on the footnote groups and following our classification rationale discussed in Section 2 we create an indicator variable, *Nondiscretionary Footnote*, that is equal to one if the insider sale falls into either one of the categories *tax settlement*, *error correction* or *automatic trade*. We create an indicator variable, *Discretionary Footnote*, that is equal to one if the footnote mentions that the sale occurred as a *gift*, for *discretionary liquidity* reasons, as part of a *retirement plan*, *on behalf of family members* and as part of *option exercises*, and zero otherwise.¹⁴ We further create another indicator variable, *Discretionary Trade*, that combines trades that do not contain any footnote disclosure with trades that contain *Discretionary Footnotes*. These indicator variables are our main variables of interest.

3.3. Trade Statistics

Table 2 Panel A shows the number of observations, number of firms, and number of insiders per insider trade category. The majority of insider sales in our sample does not contain any footnote disclosures and about a little more than a third relate to 10b5-1 trades. We further have about 8,500 footnotes (by 1,400 firms and 4,600 insiders) that contain a discretionary reason for the sale and about 1,500 footnotes (by 380 firms and 1,300 insiders) that can be classified as nondiscretionary. Panel B shows the average trade size per trade category as a

¹⁴ In the restricted sample we exclude trades from these two classifications if the same form includes footnotes that refer to both discretionary and nondiscretionary trading reasons or if the footnote description does not allow classification into any of the above categories (e.g., if the footnote refers to information not related to the sale).

fraction of common shares outstanding and Panel C shows the average trade size in U.S. Dollars. Panel B reveals that the average net sale transaction amounts to about 0.085 percent of common shares outstanding. Net sales for discretionary reasons involve the largest trade size of about 0.35 percent. Sales for nondiscretionary reasons are significantly smaller in size at about 0.042 percent of common shares outstanding on average.

Panel C shows that insiders, on average, sell shares worth \$1.4 million, but that net insider sales for discretionary reasons (excluding 10b5-1 trades) are significantly larger netting, on average, \$6.7 million. All other insider sales are significantly smaller at between \$1-1.2 million. Panel C also shows that insider purchases are, on average, much smaller than insider sales. We show results of two-sided tests of differences in mean size (in % of common shares outstanding) between the four insider sale categories in Table 2, Panel D. The univariate tests confirm that discretionary sales (excluding 10b5-1 trades) are significantly larger than all other sales and that nondiscretionary sales are significantly smaller than all other sales.¹⁵ These preliminary results suggest that the motivations for discretionary trades might be very different compared to the motivations for nondiscretionary trades. To isolate the information signal of the disclosed content in the footnotes from the information content of the trade size all subsequent regressions control for trade size. We now turn to our main analyses.

4. Information Content of Form 4 Footnotes

4.1. Baseline results

We begin by estimating cumulative abnormal returns (CAR) during the (0,2)-window around the Form 4 filing date in a standard event study using a size-adjusted market benchmark

¹⁵ We further investigate the cross-sectional differences in trade size in multivariate regressions that include control variables as well as firm and year fixed effects. Untabulated regression results confirm the results of the univariate tests. Insider sales with discretionary footnotes (excluding 10b5-1 trades) are 61% larger in dollar value than insider sales without footnotes (p-value < 0.01). Coefficient tests further reveal that these sales are also significantly larger than all other trade types. In contrast, insider sales with nondiscretionary footnotes are, on average, 70% smaller in dollar value than insider sales without footnotes.

to assess the information content of footnote disclosures. We estimate mean CARs for the entire sample, conditional on footnote disclosures, and by footnote classification. Table 3 reports the results of univariate means and differences in means. Panel A in Table 3 reveals that, on average, net insider transactions elicit a significantly negative market response around the filing date of the Form 4. The mean CAR for the total sample is -0.13% (p-value <0.01). Insider sales that contain no footnote in the Form 4 have a negative CAR of -0.15% (p-value <0.01), while insider sales with a footnote experience a CAR of -0.11% (p-value <0.01). Insider sales with discretionary footnotes (excluding 10b5-1 footnotes) experience the largest negative market reaction of -0.17% , while abnormal returns to 10b5-1 footnotes are also significantly negative at -0.10% . The CARs for insider sales with nondiscretionary footnotes are not different from zero (p-value = 0.95).

Table 3, Panel B reports differences in means between the footnote categories. The difference in means between insider sales with disclosure of a footnote and sales without is statistically significant (p-value <0.05). The difference is larger between sales with a 10b5-1 footnote and sales without a footnote (p-value <0.05) and smaller between other discretionary footnotes and no footnotes, but not statistically significant. The difference in mean CARs of sales with nondiscretionary footnotes and those without any footnote is significantly larger at 0.15% (p-value <0.1). The difference in mean CARs of other discretionary footnotes and nondiscretionary footnotes is significantly negative at -0.17% (p-value <0.1).

We next estimate equations (1a) and (1b) to assess the market reaction to footnote disclosures in a multivariate setting controlling for cross-sectional differences in firm and trade characteristics.

$$\begin{aligned}
 CAR_{i,t} = & \beta_0 + \beta_1 \text{Discretionary FN}_{i,t} + \beta_2 \text{Nondiscretionary FN}_{i,t} \\
 & + \beta_3 X_{i,t} + \gamma_i + \delta_t + \varepsilon_{i,t}
 \end{aligned} \tag{1a}$$

$$CAR_{i,t} = \beta_0 + \beta_1 \text{Discretionary Trade (or FN)}_{i,t} + \beta_2 X_{i,t} + \gamma_i + \delta_t + \varepsilon_{i,t} \quad (1b)$$

where $CAR_{i,t}$ is the three-day (0,2) cumulative abnormal event-study return starting from the insider trade filing day using the size-adjusted market return as the benchmark.¹⁶ In equation (1a) we allow the classification of insider trades into discretionary and nondiscretionary to overlap using two separate indicators equal to 1 representing each category (with trades without footnote disclosures or footnotes that cannot be classified into either category being zero) as a trade by a given firm might contain both types of footnotes. In equation (1b) we exclude all trades that contain both a discretionary and nondiscretionary footnote at the same time. We then classify with an indicator variable *Discretionary Trade* those insider sales that do not disclose a footnote or that contain a *Discretionary Footnote*. We also separately examine *Discretionary* versus *Nondiscretionary Footnotes* (disregarding trades that do not disclose a footnote). $X_{i,t}$ is a vector of control variables, γ_i and δ_t are firm and year fixed effects, respectively. In additional tests we separately control for manager and firm-manager fixed effects.

We run pooled regressions with standard errors clustered at the firm-level. The goal is to examine whether investors find footnote disclosures in Form 4 filings informative and, in particular, if they distinguish between discretionary trades/footnotes and nondiscretionary footnotes. If outside investors interpret insider sales without a footnote or with a discretionary footnote as a signal for an information-based rather than a liquidity-based sale, i.e., as a negative signal, we expect β_1 to be negative or insignificantly different from zero and β_2 to be positive (as the omitted category in these tests are trades without a footnote) in equation (1a)

¹⁶ Our inferences remain the same if we use the two-day window $CAR(0,1)$. We do not include the day prior to the filing day to avoid capturing the price impact of the sale in cases in which the Form 4 is filed within 24 hours of the trade.

and in equation (1b) β_1 to be negative (as the omitted category in these tests are trades with nondiscretionary footnotes).

We control for variables identified in the prior literature to be associated with insider trading and for commonly known determinants of stock returns. Insiders of large firms and firms that have performed well (Lakonishok and Lee 2001) and insiders of growth firms (Rozeff and Zaman 1998) tend to sell more shares. We control for firm size (measured as the natural logarithm of market value), prior month return (measured as the raw return in the month prior to the insider filing), and for growth firms (measured as the natural logarithm of the book-to-market ratio) (Fama and French 1993, Cohen et al. 2012). In addition, we control for leverage (measured as the debt-to-asset ratio), trade size (measured as number of shares sold divided by number of shares outstanding at the beginning of the fiscal year), whether the trade was the result of a direct ownership by the insider, and whether the trade is made by the CEO or CFO (or on behalf of them) (Seyhun 1986, 1998).

Table 4 presents the regression results of estimations of equation (1a) in columns (1) and of estimations of equation (1b) in columns (2)-(3). The results in column (1) reveal that insider sales with a discretionary footnote experience negative, but not significantly different abnormal returns compared to sales without footnote disclosures. Abnormal returns are 30 basis points lower for these two types of insider sales than for those with a nondiscretionary footnote. This suggests that discretionary footnote sales are interpreted as information-based sales by investors similar to sales that are not accompanied by any disclosure. We therefore combine the two into one indicator *Discretionary Trade* in column (2).

The results in column (2) confirm that investors find discretionary insider sales (those that contain no footnote disclosure and discretionary footnote disclosures) informative and interpret these as negative news. Or alternatively stated, investors interpret insider sales with nondiscretionary footnote disclosures as less likely to be information-based sales in that they

react less negatively to the information that insiders have sold shares. The coefficient on *Discretionary Trade* is -0.32 with a standard error of 0.13 (p-value <0.05), respectively. Over the three-day filing window *Discretionary Trades* earn abnormal returns that are 32 basis points lower than trades that we classified as nondiscretionary.

The coefficient is higher in magnitude if we condition on footnote disclosure. Column (3) shows that the coefficient on *Discretionary Footnote* is also significantly negative at -0.36 (p-value <0.05). That is, investors react to insider sales that contain a discretionary footnote significantly more negatively by 36 basis points in cumulative abnormal returns over three days than to insider sales that contain a nondiscretionary footnote. This difference is economically large. Column (2) and (3) further reveal that sales of insiders of larger firms, growth firms, and firms with high leverage also have lower CARs. Additionally, there is some evidence that sales by the CEO and CFO earn more negative CARs.

The estimations in columns (4) and (5) further control for manager and manager-firm fixed effects, respectively, with standard errors clustered at the manager or manager-firm level. The latter allows us to hold manager-firm pairings fixed and assess whether the effect can be explained by manager characteristics. The results in column (4) reveal that the market reaction to discretionary insider sales is significantly more negative than to nondiscretionary sales by the same manager by about 44 basis points (p-value <0.01) and column (5) shows that this difference is larger at 48 basis points within manager-firm pairings (p-value <0.01).¹⁷ The results suggest that the market interprets discretionary insider sales as containing negative information about the future prospects of the firm and that this cannot be explained by manager types.¹⁸

¹⁷ As different managers might trade on the same day our sample observations increase slightly in the tests with manager and manager-firm fixed effects taking into account multiple trades per firm (by different managers) on the same day.

¹⁸ In additional analyses we further control for 10b5-1 trades separately instead of including them in our *Discretionary Footnote* category. Untabulated findings reveal that our results are not driven by the inclusion of 10b5-1 trades.

4.2. Are trades by CEOs and CFOs more informative?

The evidence in several studies implicitly suggests that trades by CEOs and CFOs are the most informative among insider trades as these executives most likely have the greatest information advantage (Jeng, Metrick and Zeckhauser 2003; Wang, Shin and Francis 2012). We therefore estimate equations (1a) and (1b) also separately for these two groups of executive insiders to provide direct evidence on this conjecture.

If the CEO and CFO have the greatest information advantage we expect to find a larger negative market reaction to discretionary sales by CEOs and CFOs. Table 4 columns (6) to (10) summarize the results. The regression results in column (6) confirm a more negative and statistically significant coefficient on both *Discretionary Footnote* and *Nondiscretionary Footnote* in the specification where we allow for overlap. The coefficient on *Discretionary Footnote* is -0.15% (p-value <0.1) and the coefficient on *Nondiscretionary Footnote* is 0.66% (p-value <0.01). That is, abnormal returns on trades by CEOs or CFOs are significantly higher by around 80 basis points for sales that contain a nondiscretionary footnote compared to those with discretionary footnotes.

Further disentangling the results, Table 4 columns (7) and (8) report coefficients on *Discretionary Trade* and *Discretionary Footnote* for the CEO/CFO subsample at -0.95% and -1.31% (p-values <0.01), respectively. CEO and CFO insider sales accompanied by a discretionary footnote earn an economically large -1.31% cumulative abnormal return over the three-day filing window. That is, there is a more than 95 basis point relative difference in the negative reaction to discretionary sales compared to nondiscretionary sales if the insiders are the CEO or the CFO of the company. The results in column (9) and (10) again confirm that our findings are robust to controlling for manager characteristics and estimations within manager-firm pairings.

Overall, our results on short-term returns demonstrate that there is significant information value in discretionary insider sales (whether defined as *Discretionary Trade* or as *Discretionary Footnote*), particularly if the sales are made by the CEO or CFO of the company. This stands in contrast to much of the prior literature that fails to find insider sales to have any information content (Seyhun, 1986; Lakonishok and Lee, 2001; Jeng, Metrick and Zeckhauser, 2003).

4.3. Do Perceived Differences in Internal Controls Matter?

The Sarbanes-Oxley Act (SOX) of 2002 not only requires more timely disclosures of insider trade filings (Section 403 of SOX), but also includes other far-reaching corporate governance and reporting requirements for U.S. publicly listed companies. Among these, Section 302 mandates internal controls and procedures for accurate disclosure and Section 404(b) requires the company's management and auditors to report on the effectiveness of internal controls. Section 404(b) was highly contentious due to its perceived high compliance burden particularly on small companies. This led to a temporary exemption for companies with a market capitalization of less than \$75 million, so-called nonaccelerated filers, which was subsequently made permanent in the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. At the same time, it was initially discussed to also alleviate the compliance burden for companies with a market capitalization of \$75-\$250 million, which culminated in a study published by the SEC in 2011.¹⁹ The exemption from SOX Section 404(b) was later expanded to and introduced for companies with a market cap of \$75-\$700 million.²⁰

The exemption of selected SOX requirements for small companies during our sample period potentially led investors to perceive these companies as being afforded laxer disclosure

¹⁹ See SEC, Study and Recommendations on Section 404(b) of the Sarbanes-Oxley Act of 2002 For Issuers With Public Float Between \$75 and \$250 Million, April 2011, available at <https://www.sec.gov/news/studies/2011/404bfloat-study.pdf> (last accessed 30 March 2018).

²⁰ See SEC final rule 17 CFR Parts 201, 229 and 249 available at <https://www.sec.gov/rules/final/2010/33-9142.pdf> (last accessed 30 March 2018).

and internal control requirements. We therefore test whether the differential market reaction to trades with discretionary footnotes compared to nondiscretionary footnotes is more pronounced for firms with less than \$75 million and \$75-\$250million in market capitalization. Table 5 summarizes the results for the full sample and for trades by CEOs and CFOs only.

The results in Table 5 show that the difference in CARs between discretionary and nondiscretionary trades monotonically increases with a decreasing size threshold. For example, the difference in CARs is 2.1% (p-value <0.05) for firms with a market cap smaller than \$75 million compared to 0.7% (p-value <0.1) for firms in the size bracket \$75-250 million and 0.22% (p-value <0.05) for firms with a market cap larger than \$250 million. These differences are even higher for trades by CEOs and CFOs at 6.5% (p-value <0.01), 1.91% (p-value <0.05) and 0.46% (p-value <0.01), respectively. These findings suggest that investors consider discretionary trades more likely to be informative if internal controls and disclosure requirements (and potentially their enforcement) are perceived to be weaker.

5. Long-Term Returns

5.1. Baseline results

We next estimate the association of insider trade disclosure with long-term returns measured over one month, three months, and 12 months. If insider sales that contain discretionary footnote disclosures are informative of future negative performance of the firm and if investors do not fully impound that information immediately into short-term prices around the filing date, we expect a negative association of insider trade disclosure with long-term returns. Equations (2), the long-term equivalent of equation (1a), summarizes the estimating equation of long-term returns on our discretionary and nondiscretionary insider sale categories controlling for cross-sectional differences in firm and trade characteristics:

$$BHAR_{i,t+k} = \beta_0 + \beta_1 Discretionary Trade (or FN)_{i,t} + \beta_2 Nondiscretionary Trade (or FN)_{i,t} + \beta_3 X_{i,t} + \gamma_i + \delta_t + \varepsilon_{i,t} \quad (2)$$

where $BHAR_{i,t+k}$ is the one month buy-and-hold abnormal return in the calendar month after the insider trade using the size-adjusted market return as benchmark or the three months and twelve months buy-and-hold abnormal return starting from the calendar month after the month of the insider trade. Returns are measured monthly. As in equation (1a) we allow both *Discretionary Trade (Footnote)* and *Nondiscretionary Trade (Footnote)* to enter the regression simultaneously. In this specification, *Discretionary Trade (Footnote)* is equal to one if there has been at least one discretionary trade (footnote) and *Nondiscretionary Trade (Footnote)* is equal to one if there has been at least one nondiscretionary trade (footnote) during the calendar month.

As an alternative specification at the monthly level, we calculate our variables of interest as the natural logarithm of one plus the net number of discretionary trades in month t and one plus the net number of insider sales with discretionary footnotes, respectively. $X_{i,t}$ is a vector of control variables, γ_i and δ_t are firm and month fixed effects, respectively. In addition to the control variables used in equation (1) we also include the prior year buy-and-hold returns.

Table 6 summarizes the regression results. Panel A shows results using the indicator variables allowing for overlap and Panel B shows the results using the net count variables. Panel A reveals monotonically decreasing coefficients on the *Discretionary Trade* and *Discretionary Footnote* indicators and monotonically increasing coefficients on the *Nondiscretionary Trade* and *Nondiscretionary Footnote* indicators the longer the holding period of measurement for the buy-and-hold abnormal returns. The coefficient on *Discretionary Trade* in the regression of one month buy-and-hold abnormal returns is significantly negative at -0.22% (p-value <0.05), decreasing to -0.43% (p-value <0.1) over three months, and to -2.14% (p-value <0.01) over 12 months. In contrast, the coefficient on

Nondiscretionary Trade in the regression of one month buy-and-hold abnormal returns is significantly positive at 1.13% (p-value <0.01), increasing to 1.74% over three months (p-value <0.05), and to 1.93% over 12 months (the latter albeit statistically insignificant). The one-month abnormal return differential between *Discretionary* and *Nondiscretionary Trade* results in an economically significant 17.5% annualised return difference. A similar pattern emerges when limiting the analysis to *Discretionary* and *Nondiscretionary Footnote*. Insider sales with discretionary footnote disclosures are associated with significantly lower returns compared with insider sales that are accompanied with nondiscretionary footnote disclosures.

Table 6 Panel B shows results using the net count variables instead. The results are similar to those in Panel A. The coefficient on *Net Discretionary Trade Count* over one month is -0.73% (p-value <0.01), decreasing to -1.4% (p-value <0.01) over three months, and further decreasing to -2.56% (p-value <0.01) over 12 months. The results suggest that discretionary insider sales are associated with 2.56% lower future returns than nondiscretionary insider sales.²¹ Overall, the results in this section demonstrate that discretionary insider sales are associated with significantly negative abnormal long-term returns. Together with the results on short-term filing returns in the previous section, the results suggest that although investors interpret the disclosure of discretionary footnotes or the absence of any footnote as bad news, they fail to fully impound the negative information immediately into stock prices leading to a long-term underperformance of these firms. We next examine whether sophisticated investors could potentially exploit the market's under-reaction to discretionary insider sales in a long-short trading strategy.

²¹ The coefficients of *Net Discretionary Footnote Count* display a similar monotonic pattern declining from a significantly negative -0.72% (p-value <0.01) when regressed on one-month abnormal returns, to -1.61% (p-value <0.01) in the regression on 3 months buy-and-hold abnormal returns, to -2.27% (p-value <0.01) in the regression on 12-months buy-and-hold abnormal returns.

5.2. *Portfolio Returns*

Table 6 Panel C presents results of calendar-time portfolio regressions. In each month the investment strategy creates an equally-weighted long portfolio of stocks with nondiscretionary insider sales and a short portfolio of stocks with discretionary insider sales. It then holds the portfolios over the next month following the insider trades and rebalances at the end of the month based on the new insider trades of that month. The panel shows average returns as well as excess returns of the Fama-French three-factor model and of the Cahart-four-factor model for the full sample and only using trades by CEOs and CFOs. The results show that going long a portfolio of nondiscretionary insider sales and short a portfolio of discretionary insider sales earns an average return of 0.86 (p-value <0.05), or 1.25% (p-value <0.05) focusing on CEO/CFO trades, per month before transaction costs. After controlling for Fama-French and Cahart factors, the strategy earns monthly excess returns of 0.78% (p-value <0.05) and 0.81% (p-value <0.05), respectively, that increase to 1.15% and 1.23% if the strategy only uses trades by CEOs and CFOs. This translates into an economically meaningful 16% risk-adjusted return per year. The portfolio results provide further evidence of the predictive ability of our classification into discretionary and nondiscretionary insider sales.

5.3. *Repeated Discretionary Trades*

In this section we examine whether firms whose executives engage in relatively more discretionary insider sales compared to nondiscretionary sales perform worse. That is, we ask the question whether there are executives that more often claim to trade for liquidity and other discretionary reasons than others and whether this trading and disclosure behaviour further contains information. To investigate this question, we cross-sectionally divide the sample into quartiles based on each executive's frequency of discretionary sales to total insider sales and re-run our BHAR regression tests over the 1-month holding period. Table 7 reports the results for executives with less than 25% discretionary sales (column 1), between 25-75%

discretionary sales (column 2) and more than 75% discretionary sales (column 3). The regressions use the same *Discretionary Trade (Footnote)* and *Nondiscretionary Trade (Footnote)* indicators and controls as in the baseline regressions.

The results reveal that the return differential between discretionary and nondiscretionary sales increases monotonically with the increasing frequency of discretionary insider sales of an executive. For example, the coefficient on *Discretionary Footnote* in column (1) is -0.002 (p-value <0.05) decreasing to -0.016 (p-value <0.01) in column (3), while the coefficient on *Nondiscretionary Footnote* is not statistically different from zero in column (1) and increases to 0.147 (p-value <0.01) in column (3).

The findings in this section suggest that insider sales of executives that more frequently trade for discretionary reasons are more likely to predict negative stock returns. We next examine whether discretionary insider sales predict fundamental negative information as the underlying source of the negative long-term stock return performance.

6. What Bad News Do Discretionary Insider Sales Predict?

In this section we analyse whether discretionary insider sales are predictive of future negative fundamental news. That is, we examine whether insiders that sell shares and disclose a discretionary footnote or do not disclose any footnote are more likely than other insiders that sell shares to trade preceding important negative information events of the firm. We define as negative information events future analyst recommendation downgrades, negative earnings surprises, and announcements of class action lawsuits against the company.

6.1. Analyst Recommendation Downgrades

We start by examining the association of discretionary insider sales with future analyst recommendation downgrades. Table 8, Panel A presents results of tobit regressions on a continuous variable, *Weighted Downgrade*, bounded between zero and four. *Weighted*

Downgrade is measured as an indicator variable that is equal to one if analyst consensus recommendations in the 6, 12, and 18 months prior to the month of the insider sale filing were higher than in the same period after the filing month, weighted by the magnitude of the downgrade. That is, the dependent variable captures whether the insider sale preceded a general lowering of recommendations for the firm by analysts and by how much.²² For example, a downgrade by one notch from hold to sell is weighted by one, whereas a downgrade from buy to sell by two notches is weighted by two. The maximum weight is four, which reflects a downgrade from Strong Buy to Strong Sell.

As before, we show results using the indicator variables *Discretionary* and *Nondiscretionary Footnote* as well as *Net Discretionary Footnote Count*, the latter of which is measured as the natural logarithm of one plus the net number of insider sales with discretionary footnotes in month t . The regressions include the same control variables as before as well as month fixed effects. If *Discretionary Footnote* and *Net Discretionary Footnote Count* are associated with a higher propensity of analysts downgrading the company, we expect the coefficient on the two variables to be significantly positive.

The results in Table 8, Panel A confirm our expectations. The coefficients of *Discretionary Footnote* are positive and increasing with the length of the measurement period from 0.025 (p-value <0.05) at six months to 0.022 (p-value <0.05) at 12 months, and 0.030 (p-value <0.01) at 18 months. The results demonstrate that *Discretionary Footnote* is positively associated with a downgrade of larger magnitude than insider sales with *Nondiscretionary Footnotes*. For example, over the 18 months horizon, a one unit increase in the log number of discretionary trades in a month is associated with a 3% higher average downgrade magnitude. We do not find such an increase in the downgrade likelihood and severity for sales with

²² We find similar results using an unweighted indicator for a consensus downgrade as the dependent variable.

nondiscretionary footnotes. If anything, the coefficients on *Nondiscretionary Footnote* are negative, albeit statistically insignificant.²³

The results are similar when using *Net Discretionary Footnote Count*. For the 6, 12, and 18 months horizon, the coefficients are 0.028 (p-value <0.05), 0.039 (p-value <0.01), and 0.034 (p-value <0.01), respectively. For example, over the 18 months horizon, a one unit increase in the log number of insider sales with discretionary footnotes in a month is associated with a 3.4% higher average downgrade magnitude.

Overall, the results suggest that months during which insiders more often sell shares accompanied by a discretionary footnote are predictive of a higher propensity of analyst downgrades in the following 6 to 18 months and predictive of downgrades of larger magnitude.

6.2. Negative Earnings Surprises

To further establish whether discretionary insider sales are informative for upcoming bad news about the firm, we next examine the relationship of discretionary insider sales and the propensity and magnitude of earnings misses on the next fiscal year end earnings announcement and on the four quarters ahead quarterly earnings announcement. To do so, we again run tobit regressions on a weighted indicator, *Earnings Miss*, equal to one if the company fails to meet or beat its analyst earnings per share consensus forecast for the closest fiscal year end (irrespective of whether the fiscal year end is one or four quarters away from the month of the insider trade) and for the fiscal quarter four quarters ahead (i.e., keeping the distance between the insider trade-month and the earnings announcement always at four quarters), weighted by the magnitude of the negative earnings surprise.

As in the previous subsection, we run the regressions using the indicator variables *Discretionary* and *Nondiscretionary Footnote* as well as *Net Discretionary Footnote Count*.

²³ Untabulated results using unweighted indicators suggest that discretionary insider sales are associated with a 3.4% increase in the analyst consensus downgrade likelihood over the coming 18 months.

The regressions include the same control variables as before as well as month fixed effects, except when using *Earnings Miss* at fiscal year-end, in which case we additionally control for the time between the insider trade and the next fiscal year end. If *Discretionary Footnote* and *Net Discretionary Footnote Count* are associated with a higher propensity of earnings misses and larger negative earnings surprises we expect the coefficient of the two variables to be significantly positive.

Table 8 Panel B presents the results. Column (1) in Panel B shows that we do not find statistically significant coefficients when using both indicators simultaneously, i.e., allowing for a trade-month to be classified as having trades with discretionary as well as nondiscretionary footnotes, although the coefficient on *Nondiscretionary Footnote* has the expected negative sign. However, we find some weak evidence of a positive association of discretionary insider sales with the likelihood of negative earnings surprises of higher magnitude in the future. The coefficient on *Net Discretionary Footnote Count* is positive and statistically significant in the regressions on the next fiscal year end (0.10, p-value <0.1) and four quarters ahead earnings announcement (0.16, p-value <0.05). The latter suggests a one unit increase in the log number of discretionary footnotes in a month increases the magnitude of a negative earnings surprise of a company at the quarterly earnings announcement four quarters ahead by 16%.²⁴

The results in this section suggest that months during which insiders more often sell shares accompanied by a discretionary footnote are predictive of a higher propensity of negative earnings surprises at the next quarterly earnings announcement as well as predictive of negative earnings surprises of larger magnitude. We acknowledge, however, that the evidence in this subset of the results is somewhat weak. Nevertheless, taken together with the

²⁴ We find similar results when using an unweighted indicator as the dependent variable. For example, untabulated results reveal that a one unit increase in the log net number of discretionary footnotes in a month increases the propensity of a company missing its earnings consensus forecast for the fiscal year by 11.1% and for four quarters ahead by 2.1%.

results of the previous section, the findings suggest that discretionary insider sales precede future negative earnings news.

6.3. *Future Litigation*

While the previous tests focus on financial bad news such as recommendation downgrades and negative earnings surprises, in the last test of this section we investigate the association of discretionary insider sales with another proxy for bad news not directly related to financial metrics: class action lawsuits. Specifically, we examine the association of discretionary insider sales with the propensity of lawsuit initiations within the subsequent two years of an insider trade. We do not investigate the reasons for the lawsuits but consider the mere fact that a suit is brought against the company as a proxy for some underlying governance issues, business problems, or other negative news generally to the detriment of shareholders. If insiders possess inside information of potential pending litigation initiations that might have negative consequences for shareholder value, they might attempt to sell well ahead of revelation of the news.

For this analysis we match litigation cases from the Stanford Law School Securities Class Action Clearinghouse with our sample of insider trade months. We define an indicator variable *litigation* equal to one if a lawsuit is filed against the company within one month of the insider sale and up to 24 months after. If discretionary insider sales are associated with a higher propensity of future litigation we expect the coefficients on our variables of interest *Discretionary Trade* and *Discretionary Footnote* to be significantly positive. The regressions include the same control variables as before as well as month fixed effects. We further repeat the analysis with our net count variables *Net Discretionary Trade/Footnote Count*.

Table 9 presents the results. The results in Column (1) reveal that the coefficient on *Discretionary Trade* is significantly positive (0.006, p-value <0.01), while the coefficient on *Nondiscretionary Trade* is significantly negative (-0.014, p-value <0.05). The difference in

coefficients is a significant 0.02. That is, discretionary insider sales experience a 2% increase in the propensity of litigation initiations subsequent to the insider trade compared to nondiscretionary insider sales. This increase is economically large compared to the unconditional litigation likelihood of 1.51% in our sample.

The results in Column (2) are similar when limiting the analysis to discretionary footnotes. The coefficient on *Discretionary Footnote* is significantly positive (0.005, p-value <0.01), while the coefficient on *Nondiscretionary Footnote* is significantly negative (-0.015, p-value <0.01). Column (3) presents the results when using the net count of discretionary footnotes in a given month. The coefficients on *Net Discretionary Trade/Footnote Count* are also significantly positive (0.004, p-values <0.05 and 0.1, respectively). The results are consistent with the findings in the previous sub-section that discretionary insider sales precede future bad news.

7. Robustness tests

Prior attempts in the literature to distinguish information-based insider trades from uninformative liquidity-based trades use insiders' trading patterns as an identifying criterion. Cohen, Malloy and Pomorski (2012), for example, identify information-based insider trades by classifying insiders into routine and opportunistic traders according to the timing of their trading each year compared to their past trading record. Insiders that execute their trades in the same calendar month every year for three years are classified as routine and their trades are predicted to be uninformative. Those that show no discernible pattern are classified as opportunistic. Cohen et al. (2012) show that opportunistic sales are associated with significantly negative returns one month ahead.

As a robustness test we therefore assess to what extent insider sales that we identify as discretionary overlap with opportunistic sales as defined by Cohen et al (2012). Table 10, Panel

A shows that we identify 23,454 insider trade months in our sample as discretionary that are not classified as opportunistic using Cohen et al.'s (2012) classification, whereas our classification fails to classify 303 insider trade months as discretionary that we identify as opportunistic according to Cohen et al. (2012). In other words, for our sample we are able to identify an additional set of insider trades as informative using the insiders' own disclosures that we would have missed by simply using their past trading behaviour.

In addition, we test whether our results on long-run returns are robust to the inclusion of a classifier that identifies opportunistic sales based on the insider's prior trading behaviour. If footnote disclosures in the Form 4 are incrementally informative for future negative stock returns our results should remain robust and have incremental explanatory power to the inclusion of an indicator variable that follows Cohen et al.'s (2012) classification into opportunistic trades.

Table 10, Panel B summarizes the results. Panel B shows the results of the regressions on buy-and-hold abnormal returns over one, three, and 12 months using our indicator variables *Discretionary Trade* and *Discretionary Footnote*. The table replicates our regressions on long-term abnormal buy-and-hold returns presented in Table 6 and includes an additional indicator variable *Opportunistic Trade (Count)* defined as in Cohen et al. (2012) as all trades of the same firm that have no obvious discernible pattern in relation to the previous three years.²⁵

Table 10 Panel B shows that the coefficient on *Opportunistic Trade* loads negatively and is statistically significant, consistent with Cohen et al. (2012). However, our *Discretionary Trade* and *Discretionary Footnote* indicators retain their explanatory power for future negative stock returns and their monotonically increasing relationship with holding period length. Importantly, the coefficients on *Discretionary Trade* and *Discretionary Footnote* are

²⁵ A key difference between our implementation and Cohen et al. (2012) is that we aggregate our trade data on the firm-month level and include firm fixed effects in addition to month fixed effects. We also create a net count variable of net opportunistic sells for comparison with our net count variables in Table 10, Panel B.

significantly larger in magnitude than *Opportunistic Trade*. Over the 12-months period the coefficient on *Discretionary Trade* is -4.21% (p-value <0.05) compared to the coefficient on *Opportunistic Trade*, that is -1.81% (p-value <0.05). An F-Test confirms that this difference is statistically significant ($F = 7.67$, p-value <0.01). The results suggest that classifying insider sales by footnote disclosures is incrementally informative to investors and significantly more potent as a signal of negative future returns than the insider's previous trading patterns. Overall, the robustness test in this section confirms that the insider's Form 4 footnote disclosures contain incremental information value over and above what investors might be able to discern from the insider's past trading patterns.

8. Conclusions

Our paper is the first to examine the information contained in executives' supplementary disclosures in footnotes on SEC Form 4 that accompany their stock sales. By extracting and analysing the textual descriptions about the nature of the insider sale contained in these footnotes, we are able to distinguish discretionary from nondiscretionary insider sales. We identify as discretionary insider sales those that do not come with footnote disclosures and those that, while describing liquidity motivated sales, refer to sales for which the insider has considerable discretion over their timing and amount. Classifying insider sales according to the supplementary information disclosed in footnotes on the Form 4 (or lack thereof) allows us to distinguish the nature of these sales and thus their information content using information that is available to investors at the time of the insider trade filing.

We find that discretionary insider sales are significantly larger than other insider sales and are informative to investors producing significantly lower abnormal returns to the trade filing than nondiscretionary sales. We further find the differential market reaction to discretionary versus nondiscretionary insider sales to be higher for trades by the CEO and CFO

and for firms with perceived weaker internal controls. Our evidence on long-run returns suggest that investors under-react to the information in these footnote as we find that discretionary insider sales are highly predictive of future negative stock returns. Investigating the sources of the stock return underperformance of firms with discretionary insider sales we find these sales to be associated with a higher propensity of future analyst downgrades, larger negative earnings surprises, and a higher likelihood of future litigation. The results are robust to the inclusion of several controls, within manager-firm estimations and show that the insider's disclosure choice is more informative than using the insider's past trading pattern as signal for distinguishing informative from uninformative sales.

Collectively, our findings suggest that investors are able to identify particular insider sales that are informative based on the insider's footnote disclosures on the trade filing. Even though insiders describe liquidity reasons for the sale of stock in these footnotes, these sales in fact contain information value. Although investors seem to be able to discern the information in footnotes to distinguish between discretionary and nondiscretionary insider sales, they do not seem to fully grasp the negative information contained in these trades.

Our findings are important as they allow investors, regulators, and other market participants to assess the information content of insider sales and identify those sales that are potentially based on material non-public information directly from information disclosed on (or withheld from) insider trade filings. They potentially also suggest that these supplementary disclosures on mandatory trade filings should be scrutinized more closely by regulators.

Appendix A

Examples of Form 4 Footnotes Excerpts

Discretionary Footnotes

Gift

“this transaction involved a gift of securities by the reporting person to a charity that operates on land and in a building owned by the reporting person. the charity subsequently sold these securities. the reporting person disclaims beneficial ownership of the shares held by the charity, except to the extent of his pecuniary interest therein.” (*cusip: 69318J10; date: 02 Dec. 2011*)

“on september 18, 2008 mr. dodson gifted 150 shares. this gift of shares will be reported on a form 5 for the year ending 2008.” (*cusip: 66765510; date: 12 Nov. 2008*)

Liquidity

“shares sold to diversify investments.” (*cusip: 89011010; date: 28 Feb. 2007*)

“reporting person diversifying his portfolio as part of estate planning.” (*cusip: G3223R10; date: 29 Oct. 2008*)

“sale pursuant to distribution of marital assets in divorce settlement.” (*cusip: 75991610; date: 22 Feb. 2008*)

Retirement

“reflects sale of shares held by the johnson outdoors 401(k) retirement and savings plan (the "401(k) plan"). sale of shares occurred due to the administrative procedures of the 401(k) plan, which would require a portion of future administrative sales of class a common stock by the 401(k) plan to be allocated to ms. johnson-leipold as a result of her holdings in the 401(k) plan.” (*cusip: 47916710; date: 16 Dec. 2010*)

“the reporting person indirectly owns 1,120.973 shares under the black & decker retirement plan.” (*cusip: 09179710; date: 12 Nov. 2003*)

“includes 4,950 shares deferred until reporting person's retirement.” (*cusip: 65339F10; date: 10 Sept. 2010*)

Family

“held jointly with spouse.” (*cusip: 00103110; date: 31 Jan. 2005*)

“in addition, there are 428,520 shares owned by reporting person's spouse. the reporting person disclaims beneficial ownership of these securities, and this report shall not be deemed an admission that the reporting person is the beneficial owner of the securities for purpose of section 16 or for any other purposes.” (*cusip: 59491810; date: 22 Nov. 2004*)

Appendix A (continued)

Options

“same day sale of shares exercised pursuant to the canyon resources corporation incentive and non-qualified stock option plans.” (cusip: 13886930; date: 19 November 2003)

“exercised stock options were scheduled to expire on january 31, 2012.” (cusip: 90781810; date: 28 Oct. 2011)

10b5

“sale of shares pursuant to rule 10b5-1 plan adopted on january 31, 2006.” (cusip: 68389X10; date: 20 March 2006)

“shares were sold pursuant to a rule 10b5-1 plan.” (cusip: 72913210; date: 04 Jan. 2011)

Nondiscretionary Footnotes

Tax

“sale of additional shares to cover personal federal income tax obligation.” (cusip: 94106L10; date: 29 Jan. 2008)

“shares sold to cover cost of exercise and taxes” (cusip: 36955010; date: 05 Sept. 2003)

Error

“dummy entry as required by software error.” (cusip: 03062T10; date: 30 Sept. 2003)

“due to an administrative error, adjustment of total shares by 1.933 based upon the dividend reinvestment of the september 21 stock dividend payment.” (cusip: 33791510; date: 02 Dec. 2009)

Automatic

“vested rsu shares automatically sold by company on behalf of employee in conjunction with company's deferred compensation plan.” (cusip: 25454310; date: 29 May 2009)

“automatic sale pursuant to 1065-1 plan.” (cusip: 71271430; date: 06 July 2006)

APPENDIX B

Variable Definitions

Variable Name	Definition
Firm-level	
<i>CAR(0,2)</i>	Cumulative Abnormal Return around insider trading filing event (in %). Raw returns are winsorized at the top and bottom 1% (source: <i>CRSP</i>)
<i>Abn. Ret(t+1)</i>	Abnormal return one month after the insider filing month; calculated as raw monthly return minus value weighted <i>CRSP</i> -return; raw returns are winsorized at the top and bottom 1% (in %) (source: <i>CRSP</i>)
<i>BHAR(-2,-12)</i>	Buy-and-Hold-Abnormal Return from 2 months prior to insider filing ($t=-2$) to 12 months prior to the filing (where abnormal returns are based on size portfolios) (in %) (see Cohen et al. 2012) (source: <i>CRSP</i>)
<i>BHAR(t+1;t+3)/BHAR(t+1;t+12)/..</i>	Buy-and-Hold-Abnormal Return from month after insider filing ($t=1$) to three / 12 months after filing in % (where abnormal returns are based on size portfolios) (source: <i>CRSP</i>)
<i>Prior Month Return</i>	Raw Return in month prior to insider filing (in %) (source: <i>CRSP</i>)
<i>Return(t+1; t+2) / Return(t+1; t+3)</i>	Cumulated Raw Return from month after insider filing ($t=1$) to two / three months ($t=2$)/($t=3$) after filing (in %) (source: <i>CRSP</i>)
<i>Debt-to-Assets</i>	Quarterly liabilities / quarterly assets (source: <i>Compustat</i>)
<i>Litigation</i>	Indicator equal to one if a class action lawsuit is filed within $t+1$ to $t+24$ months following an insider sale (source: <i>Stanford Securities Class Action Clearing House</i>)
<i>Book-to-Market</i>	Natural logarithm of book-to-market value (source: <i>Compustat</i>)
<i>Size</i>	Natural logarithm of market capitalization (source: <i>Compustat</i>)
<i>ROA</i>	Return on Assets (source: <i>Compustat</i>)
Trade-level	
<i>CEO/CFO Indicator</i>	Indicator equal to one if at least one of the trades on a day is made by the CEO or CFO (source: <i>EDGAR</i>)
<i>Direct Ownership</i>	Indicator equal to one if transaction is the result of direct (as opposed to indirect) ownership (i.e., executive/director directly and not for relatives etc.) (source: <i>EDGAR</i>)
<i>Discretionary FN vs Nondiscretionary FN</i>	Indicator equal to one if insider filing has a discretionary footnote and zero if the filing has a nondiscretionary footnote (source: <i>EDGAR</i>)

(Continued on next page)

Appendix B

(continued)

Variable Name	Definition
Trade-level	
<i>Discretionary Footnote</i>	Indicator equal to one if insider filing has a discretionary footnote and zero if the filing has no footnote (source: <i>EDGAR</i>)
<i>Discretionary Trade</i>	Indicator equal to one if insider filing has no footnote or a discretionary footnote, zero otherwise (source: <i>EDGAR</i>)
<i>Nondiscretionary Trade / Footnote</i>	Indicator equal to one if insider filing has a nondiscretionary footnote and zero if the filing has no footnote (source: <i>EDGAR</i>)
<i>Net Discretionary Trade Count</i>	Natural logarithm of the net number of discretionary trades within one month plus one (i.e., $\ln(\text{net number of discretionary trades} + 1)$)
<i>Net Discretionary Footnote Count</i>	Natural logarithm of the net number of discretionary trades within one month plus one (i.e., $\ln(\text{net number of discretionary footnotes} + 1)$)
<i>Trade Size</i>	Number of shares sold divided by number of shares outstanding at the beginning of the fiscal year (in %). At <u>monthly level</u> ; this variable is the average trade size per month (with trade size defined as above) (source: <i>EDGAR</i>)
Analysts	
<i>Downgrade Indicator 6 / 12 / 18 Months</i>	Equal to one if analyst consensus recommendations in six/12 /18 months prior to the insider filing was higher than in the same period after the filing (source: <i>I/B/E/S</i>)
<i>Downgrade Indicator Weighted 6 / 12 / 18 Months</i>	Downgrade Indicator weighted by the severity of the downgrade measured by the change in consensus estimates (source: <i>I/B/E/S</i>)
<i>EA Missed</i>	Indicator equal to one if firm missed the analyst forecast at the closest subsequent earnings announcement date and zero otherwise (source: <i>I/B/E/S</i>)
<i>EA Missed Weighted</i>	EA Missed Indicator weighted by the amount of the earnings surprise; bounded at lower end by zero (source: <i>I/B/E/S</i>)

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Figure 1

SEC Form 4 Example

SEC Form 4

FORM 4

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

OMB APPROVAL	
OMB Number:	3235-0287
Estimated average burden hours per response:	0.5

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

1. Name and Address of Reporting Person* TARANTO JOSEPH V (Last) (First) (Middle) EVEREST REINSURANCE CO 477 MARTINSVILLE ROAD (Street) LIBERTY CORNER NJ 07938-0830 (City) (State) (Zip)	2. Issuer Name and Ticker or Trading Symbol EVEREST RE GROUP LTD [RE] 3. Date of Earliest Transaction (Month/Day/Year) 10/29/2008 4. If Amendment, Date of Original Filed (Month/Day/Year)	5. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input checked="" type="checkbox"/> Director 10% Owner <input checked="" type="checkbox"/> Officer (give title below) Other (specify below) <p style="text-align: center;">Chairman and CEO</p> 6. Individual or Joint/Group Filing (Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person <input type="checkbox"/> Form filed by More than One Reporting Person
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Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
Common Shares ⁽¹⁾	10/29/2008	10/29/2008	S		55,777	D	\$74.4217	239,688	D	

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)		5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)		6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4)	8. Price of Derivative Security (Instr. 5)	9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4)	10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)
				Code	V	(A)	(D)	Date Exercisable	Expiration Date					

Explanation of Responses:

1. Reporting person diversifying his portfolio as part of estate planning.

Sanjoy Mukherjee (Attorney-in-Fact) 10/30/2008

** Signature of Reporting Person Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

* If the form is filed by more than one reporting person, see Instruction 4 (b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.

Table 1
Sample Selection

	Observations	Firms
Open market firm-insider transactions (transaction level)	2,236,307	6,980
- Large trades of > 20% of shares outstanding	(599)	
- Small transactions (<100 shares)	(147,878)	
=	2,087,830	6,970
After collapsing at firm-day-level	388,521	6,970
- Observations without CRSP-data available	(79,335)	
- Observations without Compustat-data available	(10,801)	
- Observations without IBES-data available	(33,224)	
=	265,161	6,372
- Missing transaction data	(12,720)	
- Non-net sale transactions	(55,192)	
- Observations from non-directors and non-officers	(12,497)	
= Sample allowing for overlapping classifications	184,742	
- Not unambiguously classified	(42,774)	
= Final Sample	141,968	4,196

Notes: This table presents the sample selection process starting with all downloaded SEC Form 4 filings collapsed to the firm-day-level. The table presents both the total number of observations as well as the number of unique firms at each step of the process.

Table 2*Insider Trade Summary Statistics*

Panel A: Observations by Footnote Category			
	N	# Firms	# Insiders
Nondiscretionary Footnote	1,515	380	1,318
Discretionary Footnote (excl. 10b5-1)	8,464	1,418	4,618
10b5-1 Footnote	51,556	1,890	9,507
No Footnote	80,433	3,923	28,168
Total	141,968	4,196	35,391

Panel B: Average Trade Size in % of Common Shares Outstanding			
	Sale Size	Purchase Size	Net Sale Size
Nondiscretionary Footnote	0.042	0.031	0.040
Discretionary Footnote (excl. 10b5-1)	0.352	0.131	0.349
10b5-1 Footnote	0.053	0.012	0.053
No Footnote	0.079	0.039	0.078
Average	0.085	0.045	0.085

Panel C: Average Trades Size in US Dollar			
	Sale Size	Purchase Size	Net Sale Size
Nondiscretionary Footnote	1,254,403	242,056	1,241,940
Discretionary Footnote (excl. 10b5-1)	6,712,684	164,366	6,682,238
10b5-1 Footnote	1,093,091	95,902	1,092,738
No Footnote	1,002,318	131,992	1,000,438
Average	1,378,419	283,933	1,375,277

Panel D: Differences in Average Trade Size (% of Common Shares)			
	Nondiscretionary Footnote	Discretionary Footnote (excl. 10b5-1)	10b5-1 Footnote
Nondiscretionary Footnote			
Discretionary Footnote (excl. 10b5-1)	0.3088***		
10b5-1 Footnote	0.0129**	-0.2959***	
No Footnote	0.0375***	-0.2713***	0.0246***

Notes: This table presents sub-sample characteristics and descriptive statistics of the final sample of observations. Panel A shows the number of observations by footnote category. Panel B shows the average trade size as % of common shares outstanding. Panel C shows the average trade size in U.S. Dollar. Panel D shows the difference in average trade size (as % of common shares) between footnote categories (rows minus columns). ***, **, * denotes statistical significance on the 1%, 5%, and 10%-level, respectively, based on two-tailed tests. Please refer to Appendix B for a full description of all variables.

Table 3*Differences in Means in Filing Date Abnormal Returns*

Panel A: Mean CAR(0,2)			
	Obs.	Mean	P-Value
All	141,968	-0.1299	0.000***
No Footnote	80,433	-0.1460	0.000***
Footnote	61,535	-0.1089	0.000***
Discretionary Footnote	60,020	-0.1117	0.000***
10b5-1 Footnote	51,556	-0.1024	0.000***
Other Discretionary	8,464	-0.1688	0.000***
Nondiscretionary Footnote	1,515	0.0054	0.956
Panel B: Differences in Means			
		Diff	P-Value
Footnote - No Footnote		0.0372	0.048**
Discretionary Footnote - No Footnote		0.0343	0.070*
10b5-1 Footnote - No Footnote		0.0436	0.028**
Other Discretionary - No Footnote		-0.0227	0.548
Nondiscretionary Footnote - No Footnote		0.1514	0.078*
Discr. Footnote - Nondiscr. Footnote		-0.1171	0.232
Other Discretionary - Nondiscr Footnote		-0.1742	0.070*

Notes: This table provides results for univariate tests of means (Panel A) and differences in means (Panel B) for the different insider sale categories. ***, **, * denote statistical significance on the 1%, 5%, and 10%-level, respectively, based on two-tailed tests. Please refer to Appendix B for a full description of all variables.

Table 4
Short-Term Filing Abnormal Returns

	Full Sample					CEO/CFO				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Discretionary Footnote</i>	-0.065 (0.043)			-0.055 (0.064)	-0.072 (0.065)	-0.148* (0.082)			-0.068 (0.123)	-0.044 (0.123)
<i>Nondiscretionary Footnote</i>	0.299*** (0.086)			0.438*** (0.086)	0.483*** (0.088)	0.657*** (0.158)			0.679*** (0.174)	0.701*** (0.178)
<i>Discretionary Trade</i>		-0.321** (0.133)						-0.952*** (0.239)		
<i>Discretionary FN vs. Nondiscretionary FN</i>			-0.358** (0.177)					-1.310*** (0.35)		
<i>Book-to-market</i>	-0.604*** (0.049)	-0.642*** (0.056)	-0.719*** (0.089)	-0.703*** (0.044)	-0.755*** (0.055)	-0.834*** (0.095)	-0.860*** (0.117)	-0.868*** (0.158)	-0.861*** (0.100)	-0.873*** (0.105)
<i>Size</i>	0.186*** (0.041)	0.162*** (0.048)	0.176** (0.074)	0.174*** (0.033)	0.240*** (0.050)	0.150* (0.082)	0.178* (-0.105)	0.403*** (0.153)	0.282*** (0.090)	0.306*** (0.099)
<i>Debt-to-Assets</i>	-0.565*** (0.172)	-0.689*** (0.196)	-0.933*** (0.305)	-0.664*** (0.163)	-0.771*** (0.198)	-0.936*** (0.333)	-0.793* (0.409)	-0.994* (0.579)	-1.130*** (0.384)	-1.170*** (0.400)
<i>Direct Ownership</i>	-0.076** (0.036)	-0.106** (0.043)	-0.230*** (0.070)	-0.084 (0.056)	-0.091 (0.058)	-0.077 (0.092)	-0.078 (0.123)	-0.128 (0.199)	-0.146 (0.132)	-0.133 (0.133)
<i>CEO/CFO-Indicator</i>	-0.064*** (0.021)	-0.059** (0.025)	-0.015 (0.040)	-0.007 (0.060)	0.007 (0.065)					
<i>Tradesize</i>	0.014** (0.006)	0.000 (0.000)	0.000 (0.000)	0.000** (0.000)	0.000* (0.000)	0.000 (0.016)	-0.036* (0.021)	-0.044 (0.027)	0.000 (0.000)	0.000 (0.000)
<i>Prior Month Return</i>	-0.004*** (0.001)	-0.004*** (0.001)	-0.006*** (0.002)	-0.754*** (0.108)	-0.794*** (0.109)	-0.008*** (0.002)	-0.007*** (0.002)	-0.008*** (0.003)	-1.024*** (0.221)	-1.019*** (0.221)

(Continued on next page)

Table 4
(continued)

<u>Fixed Effects</u>										
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm	Yes	Yes	Yes			Yes	Yes	Yes		
Manager				Yes					Yes	
Firm-Manager					Yes					Yes
N	184,742	141,968	61,535	204,806	204,806	49,450	38,057	22,047	47,900	47,900
Adj. R ²	0.005	0.005	0.005	0.005	0.006	0.007	0.007	0.008	0.007	0.007

Notes: This table summarizes pooled OLS regression results for the relation between insider sales and cumulative abnormal announcement returns CAR(0,2). Discretionary Footnote is an indicator equal to one if the footnote on Form 4 relates to gift, retirement, family, 10b5-1 or options exercise trades. The variable is equal zero if a trade does not contain a footnote. Nondiscretionary Footnote is an indicator variable equal to one if the footnote on Form 4 relates to tax, error corrections, or automatic trades and equal zero if a trade does not contain a footnote. Discretionary Trade is an indicator equal to one if Discretionary Footnote is 1 or no footnote exists and equal to zero if a trade contained a Nondiscretionary Footnote. Discretionary FN vs. Nondiscretionary FN is an indicator equal to one if the footnote on Form 4 relates to gift, retirement, family, 10b5-1 or options exercise trades and zero if the footnote on Form 4 relates to tax, error corrections, or automatic trades. ***, **, * denotes statistical significance on the 1%, 5%, and 10% -level, respectively, based on two-tailed tests. Reported statistics are based on standard errors that are clustered by firm in columns (1)-(3) and (6)-(8), clustered by manager in columns (4) and (9) and clustered by firm-managers in columns (5) and (10). Please refer to Appendix B for a full description of all variables.

Table 5
SOX Firm Size Thresholds

	Full Sample			CEO/CFO		
	<75m	75-250m	>250m	<75m	75-250m	>250m
<i>Discretionary Footnote</i> (<i>ex 10b5-1</i>)	-0.382 (0.540)	-0.281 (0.174)	-0.071 (0.047)	-0.910 (0.993)	-0.450 (0.427)	-0.155* (0.088)
<i>Nondiscretionary Footnote</i>	2.100** (1.014)	0.703* (0.409)	0.217** (0.095)	6.503*** (1.384)	1.909** (0.761)	0.459*** (0.173)
<i>10b5-1</i>	-0.290 (0.334)	-0.112 (0.143)	0.047 (0.033)	0.689 (0.921)	-0.052 (0.234)	0.091 (0.074)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year and Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
N	4,645	17,976	127,989	1,042	4,951	36,160
Adj. R ²	0.007	0.005	0.004	0.034	0.013	0.005

Notes: This table summarizes pooled OLS regression results for the relation between insider sales and cumulative abnormal announcement returns CAR(0,2). *Discretionary Footnote* is an indicator equal to one if the footnote on Form 4 relates to gift, retirement, family, options exercise trades. The variable is equal to zero if a trade does not contain a footnote. *Nondiscretionary Footnote* is an indicator variable equal to one if the footnote on Form 4 relates to tax, error corrections, or automatic trades and equal to zero if a trade does not contain a footnote. *10b5-1* is an indicator equal to one if the footnote on Form 4 refers to a 10b5-1 trade and equal to zero if a trade does not contain a footnote. ***, **, * denotes statistical significance on the 1%, 5%, and 10%-level, respectively, based on two-tailed tests. Reported statistics are based on standard errors that are clustered by firm.

Table 6
Long-Term Abnormal Returns

Panel A: Discretionary Footnote and Trade Indicator						
	Dependent Variable = <i>BHAR</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
	1 Month	3 Months	12 Months	1 Month	3 Months	12 Months
<i>Discretionary Trade</i>	-0.221** (0.107)	-0.426* (0.230)	-2.141*** (0.507)			
<i>Nondiscretionary Trade</i>	1.132*** (0.347)	1.742** (0.739)	1.927 (0.507)			
<i>Discretionary Footnote</i>				-0.287*** (0.102)	-0.633*** (0.230)	-0.690 (0.563)
<i>Nondiscretionary Footnote</i>				1.172*** (0.347)	1.804** (0.730)	2.727* (1.558)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Month FE	Yes	Yes	Yes	Yes	Yes	Yes
N	79,356	79,356	76,936	79,356	79,356	76,936
Adj. R ²	0.012	0.030	0.190	0.012	0.030	0.190
Panel B: Net Discretionary Footnote and Trade Count						
	Dependent Variable = <i>BHAR</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
	1 Month	3 Months	12 Months	1 Month	3 Months	12 Months
<i>Net Discretionary Trade Count</i>	-0.734*** (0.100)	-1.375*** (0.215)	-2.555*** (0.481)			
<i>Net Discretionary Footnote Count</i>				-0.720*** (0.164)	-1.610*** (0.361)	-2.273*** (0.824)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Month FE	Yes	Yes	Yes	Yes	Yes	Yes
N	65,585	65,585	63,517	28,832	28,832	27,687
Adj. R ²	0.013	0.031	0.189	0.016	0.025	0.182

Table 6
(continued)

Panel C: Monthly Calendar-Time Portfolio Returns		
	<i>Nondiscretionary (long) - Discretionary (short)</i>	
	Full Sample	CEO/CFO
<i>Avg. Return</i>	0.86**	1.25**
<i>Fama-French Alpha</i>	0.78**	1.15*
<i>Carhart Alpha</i>	0.81**	1.23**
N	101	101

Notes: Panel A and B in this table summarize pooled OLS regression results for the relation between insider sales and buy-and-hold abnormal returns over different holding periods. *Discretionary Trade* is equal to one if a given month contains at least one discretionary trade (i.e., a sale for which the footnote on Form 4 relates to gift, retirement, family, 10b5-1 or options exercise trades or for which the Form does not contain a footnote). *Nondiscretionary Trade* is equal to one if a given month contains at least one nondiscretionary trade (i.e., a sale for which the footnote on Form 4 relates to tax, error corrections, or automatic trades). *Discretionary Footnote* is equal to one if a given month contains at least one insider sale with a footnote on Form 4 that relates to gift, retirement, family, 10b5-1 or options exercise trades. *Nondiscretionary Footnote* is equal to one if a given month contains at least one insider sale with a footnote on Form 4 that relates to tax, error corrections, or automatic trades. *Net Discretionary Trade/Footnote Count* is equal to the natural logarithm of one plus the net number of discretionary trades/footnotes. All footnote indicators should be interpreted relative to the benchmark of no footnote disclosure. Panel C summarizes calendar-time portfolio average monthly (excess) returns of a trading strategy that in each month during the sample period buys stocks that have had insider sales with nondiscretionary footnotes and sells stocks that have had insider sales with discretionary footnotes and holds the portfolio over the next month. All regressions in Panel A and Panel B include control variables as in Table 4 as well as firm- and month-fixed effects. Additionally, we also included the prior year buy-and-hold return. ***, **, * denotes statistical significance on the 1%, 5%, and 10% -level, respectively, based on two-tailed tests. Reported statistics are based on standard errors that are clustered by firm. Please refer to Appendix B for a full description of all variables.

Table 7
Repeated Discretionary Trades

	Dependent Variable = <i>BHAR</i>					
	(1)		(2)		(3)	
	<25%		25-75%		>75%	
<i>Discretionary Trade</i>	0.000		-0.001		-0.005	
	(0.001)		(0.002)		(0.004)	
<i>Nondiscretionary Trade</i>	0.010		0.060*		0.147***	
	(0.006)		(0.031)		(0.055)	
<i>Discretionary Footnote</i>		-0.002**		-0.014***		-0.016***
		(0.001)		(0.003)		(0.006)
<i>Nondiscretionary Footnote</i>		0.009		0.055*		0.147***
		(0.006)		(0.032)		(0.055)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Manager & Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	157,297	157,297	153,618	153,618	146,954	146,954
Adj. R ²	0.015	0.015	0.025	0.026	0.138	0.136

Notes: This Table summarizes the results of the pooled OLS regression for the relation between insider sales and buy-and-hold abnormal returns partitioned by the percentage of a manager's stock sales that contained a discretionary footnote of all the manager's trades. *Discretionary Trade* is equal to one if a given month contains at least one discretionary trade (i.e., a sale for which the footnote on Form 4 relates to gift, retirement, family, 10b5-1 or options exercise trades or for which the Form does not contain a footnote). *Nondiscretionary Trade* is equal to one if a given month contains at least one nondiscretionary trade (i.e., a sale for which the footnote on Form 4 relates to tax, error corrections, or automatic trades). *Discretionary Footnote* is equal to one if a given month contains at least one insider sale with a footnote on Form 4 that relates to gift, retirement, family, 10b5-1 or options exercise trades. *Nondiscretionary Footnote* is equal to one if a given month contains at least one insider sale with a footnote on Form 4 that relates to tax, error corrections, or automatic trades. All footnote indicators should be interpreted relative to the benchmark of no footnote disclosure. All regressions include control variables as in Table 4 as well as manager and month-fixed effects. Additionally, we also included the prior year buy-and-hold return. ***, **, * denotes statistical significance on the 1%, 5%, and 10%-level, respectively, based on two-tailed tests. Reported statistics are based on standard errors that are clustered by firm. Please refer to Appendix B for a full description of all variables.

Table 8*Analyst Recommendation Downgrades and Negative Earnings Surprises*

	Dependent Variable = <i>Weighted Consensus Downgrade</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
	6 Months	12 Months	18 Months	6 Months	12 Months	18 Months
<i>Discretionary Footnote</i>	0.025** (0.010)	0.022** (0.010)	0.030*** (0.010)			
<i>Nondiscretionary Footnote</i>	-0.007 (0.034)	-0.016 (0.029)	-0.018 (0.028)			
<i>Net Discretionary Footnote Count</i>				0.028** (0.014)	0.039*** (0.013)	0.034*** (0.011)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
N	58,559	65,954	68,179	22,440	24,731	25,294
Pseudo R ²	0.006	0.008	0.011	0.007	0.010	0.012

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Table 8
(continued)

	Dependent Variable = <i>EA Missed Weighted</i>			
	Fiscal Year		4 Quarters Ahead	
	(1)	(2)	(3)	(4)
<i>Discretionary Footnote</i>	-0.021 (0.036)		0.063 (0.050)	
<i>Nondiscretionary Footnote</i>	-0.143 (0.104)		-0.095 (0.120)	
<i>Net Discretionary Footnote Count</i>		0.101* (0.057)		0.161** (0.080)
Controls	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
N	77,988	27,811	41,075	14,813
Pseudo R ²	0.018	0.021	0.013	0.012

Notes: This table provides logit regression results for the relation between insider sales and analyst consensus recommendation downgrades (Panel A) and negative earnings surprises (Panel B). The dependent variable in Panel A is an indicator equal to one if the consensus recommendation for the firm in the 6, 12, and 18 months after the insider trade month is lower than the consensus recommendation in the equivalent time period before the insider trade month weighted by the magnitude of the downgrade. The dependent variable in Panel B is an indicator equal to one if the firm missed its analyst consensus earnings forecast for the closest fiscal year end and for the four quarters after the insider trade month weighted by the magnitude of the earnings miss. *Discretionary Footnote* is equal to 1 if a given month contains at least one insider sale with a footnote on the Form 4 that relates to gift, retirement, family, 10b5-1 or options exercise trades. *Nondiscretionary Footnote* is equal to 1 if a given month contains at least one insider sale with a footnote on the Form 4 that relates to tax, error corrections, or automatic trades. *Net Discretionary Trade/Footnote Count* is equal to the natural logarithm of one plus the net number of discretionary trades/footnotes. All regressions include Direct Ownership, Tradesize, Debt-to-Assets, Size, ROA, ln(Book-to-Market), Prior Month Return, BHAR(-2,-12) and a CEO/CFO-Indicator as well as month fixed effects as control variables. ***, **, * denotes statistical significance on the 1%, 5%, and 10%-level, respectively, based on two-tailed tests. Reported statistics are based on standard errors that are clustered by firm. Please refer to Appendix B for a full description of all variables.

Table 9
Future Litigation

	Dependent Variable = <i>Litigation</i>			
	(1)	(2)	(3)	(4)
<i>Discretionary Trade</i>	0.006*** (0.002)			
<i>Nondiscretionary Trade</i>	-0.014** (0.006)			
<i>Discretionary Footnote</i>		0.005*** (0.002)		
<i>Nondiscretionary Footnote</i>		-0.015*** (0.006)		
<i>Net Discretionary Trade Count</i>			0.004** (0.002)	
<i>Net Discretionary Footnote Count</i>				0.004* (0.002)
Controls	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
N	79,356	79,356	65,870	28,411
Pseudo R ²	0.076	0.078	0.080	0.061

Notes: This table presents logit regression results for the relation between insider sales and future class action lawsuits. The dependent variable *Litigation* is equal to one if litigation is initiated between one and 24 months after the insider trading month. *Discretionary Trade* is equal to one if a given month contains at least one discretionary trade (i.e., a sale for which the footnote on Form 4 relates to gift, retirement, family, 10b5-1 or options exercise trades or for which the Form does not contain a footnote). *Nondiscretionary Trade* is equal to one if a given month contains at least one nondiscretionary trade (i.e., a sale for which the footnote on Form 4 relates to tax, error corrections, or automatic trades). *Discretionary Footnote* is equal to one if a given month contains at least one insider sale with a footnote on Form 4 that relates to gift, retirement, family, 10b5-1 or options exercise trades. *Nondiscretionary Footnote* is equal to one if a given month contains at least one insider sale with a footnote on Form 4 that relates to tax, error corrections, or automatic trades. *Net Discretionary Trade/Footnote Count* is equal to the natural logarithm of one plus the net number of discretionary trades/footnotes. All regressions include Direct Ownership, Tradesize, Debt-to-Assets, Size, ln(Book-to-Market), BHAR(-2,-12), a CEO/CFO-Indicator and month-fixed effects as control variables. ***, **, * denotes statistical significance on the 1%, 5%, and 10%-level, respectively, based on two-tailed tests. Reported statistics are based on standard errors that are clustered by firm. Please refer to Appendix B for a full description of all variables.

Table 10
Robustness Tests

Panel A: Discretionary vs Opportunistic Classification			
<i>Opportunistic</i>	<i>Discretionary</i>		
	0	1	
0	741	23,454	24,195
1	303	7,699	8,002
Total	1,044	31,153	32,197

Panel B: Discretionary versus Opportunistic BHAR						
	Dependent Variable = <i>BHAR</i>					
	(1) 1 Month	(2) 3 Months	(3) 12 Months	(4) 1 Month	(5) 3 Months	(6) 12 Months
<i>Discretionary Trade</i>	-1.376*** (0.431)	-1.838** (0.907)	-4.207** (1.899)			
<i>Discretionary Footnote</i>				1.684*** (0.492)	-2.432** (1.130)	-3.680 (2.500)
<i>Opportunistic Trade</i>	-0.433*** (0.107)	-1.691*** (0.289)	-1.806** (0.756)	-0.305* (0.171)	-1.275*** (0.489)	0.450 (1.261)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Month FE	Yes	Yes	Yes	Yes	Yes	Yes
N	67,583	67,583	65,422	30,541	30,541	29,314
Adj. R ²	0.013	0.031	0.189	0.016	0.023	0.179
Difference Discretionary - Opportunistic						
F	4.41	0.02	1.37	6.88	0.84	2.10
P-value	0.036	0.878	0.242	0.009	0.359	0.147

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Table 10

(continued)

Notes: Panel A in this table presents the frequency of insider sales per firm-month classified as opportunistic according to Cohen et al. (2012) classification and discretionary according to the classification in this paper. Panel B presents pooled OLS regression results for the relation between insider sales and buy-and-hold abnormal returns over different holding periods. *Discretionary Footnote* is equal to one if a given month contains at least one insider sale with a Form 4 footnote that relates to gift, retirement, family, 10b5-1 or options exercise trades. *Discretionary Trade* is equal to one if a given month contains at least one Discretionary Footnote trade or a trade without a Form 4 footnote. Opportunistic Trade is defined similar to Cohen et al. (2012) and is equal to one if the month of the insider trade is preceded by insider trades in the past two years during the same month by the same firm. Net Discretionary Opportunistic Trade Count is equal to the natural logarithm of one plus the net number of opportunistic trades in any given month. All regressions include control variables as in Table 8. ***, **, * denotes statistical significance on the 1%, 5%, and 10%-level, respectively, based on two-tailed tests. Reported statistics are based on standard errors that are clustered by firm. Please refer to Appendix B for a full description of all variables.