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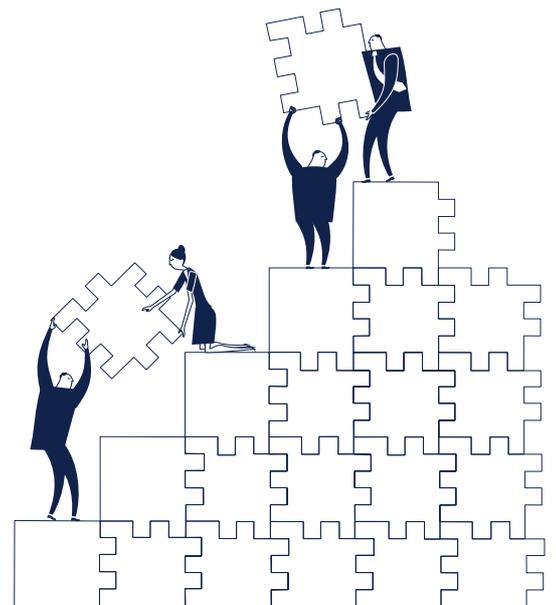
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# Are All Insider Sales Created Equal? New Evidence from Form 4 Footnote Disclosures

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

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# **Are All Insider Sales Created Equal?**

## **New Evidence from Form 4 Footnote Disclosures**

### **Abstract**

We provide new evidence on the information content of insider sales using SEC Form 4 footnote disclosures. Extracting and analysing the descriptions about the nature of the insider sale contained in Form 4 footnotes, we are able to distinguish discretionary from nondiscretionary insider sales. We find that discretionary insider sales are informative to investors and produce significantly lower abnormal returns to the trade filing than nondiscretionary sales. Consistent with investors not fully reacting to the information in these footnotes we find that discretionary insider sales are highly predictive of future negative stock returns and are associated with a higher propensity of analyst downgrades, larger negative earnings surprises and a higher likelihood of future litigation. Our findings suggest that insiders strategically use footnote disclosures describing liquidity-motivated sales to disguise information-based sales.

JEL classification: G12, G14, G30, M41

Keywords: Insider sales, Form 4 filings, disclosure, textual analysis

## 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 reason often mentioned in the academic literature 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 (Cohen, Malloy, and Pomorski 2012).

On the one hand, insiders might sell shares for liquidity reasons such as to cover taxes, for personal reasons or as part of automated trades. This is particularly relevant for executives and directors as they often own large stakes of their firms as part of their compensation packages. 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 sales are often unobservable to outside investors complicating any efforts to disentangle the true nature of an insider's selling activity and to identify those sales that are informative.<sup>1</sup>

Identifying information-based insider sales is particularly important to outside investors as managers generally delay disclosing bad news (Kothari, Shu and Wysocki 2009; Graham,

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<sup>1</sup> 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.

Harvey, and Rajgopal 2005) and there are few other capital market mechanisms that reveal negative information about a firm.<sup>2</sup> 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 earnings news that immediately follow stock sales (Noe 1999; Cheng and Kin 2006; Ke, Huddart and Petroni 2003).<sup>3</sup> 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 the SEC Form 4. In doing so, we exploit the hitherto neglected phenomenon that insiders often voluntarily disclose the nature of the stock sale in a footnote on the Form 4. These footnote disclosures might mention personal reasons for the sale of stock such as to cover tax liabilities, tuition fees for children, private consumption, etc. or that the sale was part of a 10b5-1 plan.

Hutton, Miller and Skinner (2003) show that supplementary disclosures to earnings forecasts support the credibility of these forecasts and are informative to investors. In a similar vein, the purpose of footnote disclosures by insiders during stock sales might be to

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<sup>2</sup> 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).

<sup>3</sup> 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.

credibly convey that these sales are for liquidity or diversification reasons and have no information value. Particularly, in the case of insider trades the non-disclosure of the motives for the sale might likely 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 particularly when there is a lack of disclosure regarding their reasons. In such cases, sales are likely interpreted by investors 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 might have difficulties distinguishing insider sales that are genuinely for 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/or the amount of liquidity-based trades (Jagolinzer 2009), might bundle liquidity-based and information-based sales (Jeng et al. 2003), or might disguise information-based sales as trades for liquidity reasons.<sup>4</sup> On the other hand, outside investors might not pay enough attention to footnote disclosures that accompany insider sales and falsely discount all sales as information-based.

The research question we address in this study is therefore whether Form 4 footnote disclosures that accompany insiders' sales are informative to investors; and whether these voluntary disclosures enable investors to distinguish discretionary liquidity sales that contain information value from nondiscretionary, i.e. genuine and uninformative liquidity sales. Specifically, based on the mere fact whether or not a Form 4 contains a footnote and based on the textual analysis of the content of these footnotes we are able to classify each insider sale

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<sup>4</sup> There are, 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).

into discretionary trades and nondiscretionary trades.<sup>5</sup> In particular, the key distinguishing factor of discretionary versus nondiscretionary footnotes is, whether, based on the disclosed nature of the trade, the insider has discretion over timing and amount of the sale.

For example, a discretionary insider sale might contain a footnote with a sentence such as: “[...] *shares sold to diversify investments.*” or “[...] *sale pursuant to distribution of marital assets in divorce settlement.*”, whereas a nondiscretionary insider sale might contain footnotes 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 former instances 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. The latter instances describe shares that were sold after options exercises to cover the tax liability incurred due to the exercise and shares that were sold by the company on behalf of the insider as part of a deferred compensation plan. In these 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.<sup>6</sup> This classification scheme allows us to distinguish the nature of insider sales using publicly available information to investors at the time of the filing of the SEC Form 4 in order to test cross-sectional variation in their information content.

Our findings are as follows. We show that discretionary sales are informative to investors. Three-day cumulative abnormal Form 4 filing returns to discretionary insider sales are 32-36 basis points lower than returns to nondiscretionary insider sales. This differential is

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<sup>5</sup> We explain our classification methodology in detail in section 2 and 3. In short, discretionary trades are all insider sales that do not contain a footnote disclosure or contain footnotes that, based on the textual description, suggest these are for discretionary reasons. We also examine separately only sales that contain footnote disclosures, distinguishing between discretionary footnotes and nondiscretionary footnotes.

<sup>6</sup> We provide a full list of examples of the footnote disclosures we classify as discretionary and nondiscretionary in the appendix.

even higher when we only focus on sales that contain a footnote (that is, disregard sales without a footnote description on the Form 4) 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 et al. 2012). To assess whether investors fully impound the information in discretionary footnotes 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 suggesting that sales classified as discretionary are powerful predictors for future negative stock returns and that investors tend to underreact to the information in these footnotes. 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 analyst recommendation downgrades, negative earnings surprises and other negative news such as litigation initiations. We find evidence confirming all.

Our findings demonstrate that footnotes in SEC Form 4 disclosures that contain descriptions of the nature of an insider's sale are highly informative to investors. Based on the mere fact whether Form 4 filings contain a footnote and based on the content of these footnotes – whether describing a discretionary or nondiscretionary sale – we are able to distinguish informative from uninformative insider sales and show that insiders strategically use these footnote disclosures to disguise information-based sales.

Prior research tries to infer the information content of insider trades from the insider's (past) trading behaviour (Cohen, Malloy and Pomorski 2012; Karamanou, Pownall and Prakash 2014) or from ex-post identified negative information events that occur subsequent to the insider sale (Seyhun and Bradley 1997; Beneish 1999; Beneish, Press, Vargus 2004).

We contribute to and differ from the prior literature by discriminating between informative and uninformative insider sales based on Form 4 footnote disclosures that contain information provided by the insider about the nature of the stock sale. To our knowledge, our study is the first to investigate the information content of voluntary disclosures in Form 4 footnotes. Analysing whether and what information is disclosed in the Form 4 footnote allows us to identify insider sales made for discretionary reasons, which are likely to be informative, and liquidity-based sales, which are likely to be uninformative to investors. Moreover, we show that our distinction into discretionary and nondiscretionary sales based on footnote disclosures by insiders is more informative than identifying opportunistic trades based on the insiders' past trading behaviour as in Cohen et al. (2012).

Additionally, the prior literature on strategic disclosure shows that insider trading activities are correlated with the disclosure timing and manipulation of earnings numbers (e.g., Beneish and Vargus 2002; Cheng and Lo 2006; Bergstresser and Philippon 2006). More recent evidence by Jagolinzer (2009) extends this line of research focusing directly on insider trade filings. 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 the qualitative content in footnote disclosures on SEC Form 4 filings is used strategically to pool with non-information based trades and that this strategic behaviour is successful in affecting the market's perception about the insider's sales in the short-term.

The remainder of the paper is organised as follows. Section 2 provides a brief background of the institutional setting and discusses the related literature. 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. The Setting and Related Literature**

### *2.1. 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 may also contain footnotes below the main table alongside the quantitative transaction details that provide further textual explanations to the nature of the transaction. These footnotes contain clarifying information with respect to the trade and often also state the reason for the sale of common stock by the insider. These footnote disclosures are voluntary. The explanations in these footnotes are the main subject of interest in this paper. Figure 1 shows a Form 4 that contains such a footnote as an example.

For example, the footnote description might contain an explanation that the sale of shares was pursuant to a 10b5-1 plan, in which 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; or the plan transfers trade execution to an uninformed party such as a broker who trades on behalf of the insider based on a specified rule. Rule 10b5-1 trades fall under the safe harbour provisions of the SEC and provide the insider with a legal defence against potential penalties. 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). Jagolinzer (2009) finds that 10b5-1 sales tend to follow periods of stock prices increases and tend to be followed by periods of stock price declines suggesting that they do not entirely reflect uninformed trading.

Other examples include footnotes stating that shares were sold to distribute assets in a divorce settlement or sold on behalf of other family members. There is some evidence that such trades also include valuable information to outside investors. Berkman, Koch and Westerholm (2014) report a number of insider trading cases (in their internet appendix) in which guardians traded through accounts of their children in an informed manner.

Footnotes may also contain explanations that share sales occurred for tax purposes or are part of automatic stock sales by the company under a deferred compensation plan.

On the one hand, insiders might disclose the nature of the sale in a footnote, when they sell stock for 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 strategically 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.<sup>7</sup>

The research question we address in this study is whether investors find these footnotes informative and interpret the content of the footnote. In other words, we examine whether there are cross-sectional differences in the short-term and long-term capital market consequences of insider sales given the decision by the insider to disclose an accompanying footnote. Specifically, we classify each insider sale into discretionary and nondiscretionary

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<sup>7</sup> The 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.

sales based on whether the insider sales are accompanied by a footnote and if they are, based on the textual description in these footnote disclosures about the nature of the trade. Our key distinguishing factor of discretionary versus nondiscretionary footnotes 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 discretionary insider sales those that are done as a gift, for liquidity reasons such as divorce settlements and tuition payments, as part of a retirement plan, on behalf of family members, as part of option exercises and 10b5-1 trades, because insiders have considerable discretion over the timing and/or amount of these trades (e.g., Jagolinzer 2009; Berkman et al. 2014). We call this category *Discretionary Footnote*. In separate analyses, we also add trades that do not include any footnote to the discretionary category calling the comprehensive discretionary category *Discretionary Trade*. We classify as nondiscretionary sales those that are executed to cover tax obligations related to stock option exercises or the vesting of restricted stock, to correct previous errors and as part of automatic trades other than 10b5-1 trades. Insiders have less discretion over the amount and timing of their taxes due, of automated trades, or when they are required to correct errors made in prior trades or trade disclosures.

This classification allows us to distinguish the nature, and thus the information content, of insider sales using publicly available information on the Form 4; information that is available to investors at the time of the insider trade filing.

## 2.2. *Related Literature*

Early research on the information content of insider sales 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 stock 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 to be uninformative to outside investors. Similarly, Jeng et al. (2003) report that insider purchases earn abnormal returns, but not insider sales.

Two strands of the literature have emerged that attempt 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 insider sales driven by liquidity needs 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. 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 are 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.

In this study we contribute to the 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 expect discretionary sales to be relatively more informative to investors than nondiscretionary sales and predictive of future negative stock returns and news. 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's trade (Noe 1999; Cheng and Lo 2006), but does not examine disclosure choices that directly accompany an insider trade.<sup>8</sup>

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<sup>8</sup> 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

### 3. Data and Sample Selection

#### 3.1. Sample

We obtain Form 4 filings filed electronically with the SEC on EDGAR from 2003 to 2011.<sup>9</sup> Table 1 provides an overview of the sample selection process. We are able to identify 2,087,830 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. 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). 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 transactions-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. Finally, we remove observations that cannot unambiguously be identified as discretionary or non-discretionary trades according to our classification scheme discussed above. Our final sample of firm officer and director net sales transactions comprises 141,968 transactions-days from 4,196 firms.

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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.

<sup>9</sup> Our sample begins in June 2003 when the SEC first mandated electronic filings of Form 4.

### 3.2. Parsing Form 4 Footnotes

We 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, trade size, 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*, *liquidity needs such as divorce or children's tuition*, *retirement plan*, *trade on behalf of family*, *options 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 our classification rationale discussed above we create an indicator variable, *Discretionary Footnote*, that is equal to one if the footnote mentions that the sale occurred as a gift, for liquidity reasons, as part of a retirement plan, on behalf of family members and as part of options exercises, and zero otherwise.<sup>10</sup> We further create another indicator variable, *Discretionary Trade*, adding trades that do not contain any footnote disclosure to the *Discretionary Footnote* indicator. The two indicator variables are our main variables of interest.

### 3.3. Summary Statistics

Table 2 Panel A shows the number of observations and firms per footnote category. The majority of insider sales in our sample do 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 that contain a discretionary reason for the sale and about 1,500 footnotes that can be classified as nondiscretionary. Panel B shows the trade size per footnote category. The average net sale

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<sup>10</sup> We do not include trades that, on the same form, also include footnotes that refer to nondiscretionary trading reasons.

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.

Table 3, Panel A presents distributional statistics for the regression variables. Panel A reveals that the mean market value of our sample firms is 7.1 (measured in the natural log of market capitalization) with a standard deviation of 1.7. The mean natural log of the book-to-market ratio is -1.05, with a standard deviation of 0.72. The Panel further reveals that the average daily cumulative abnormal return (CAR) over the (0,1) window is -0.10% with a standard deviation of 2.9% and over the (0,2) window is -0.13% with a standard deviation of 3.5%. The average monthly abnormal return (t+1) and buy-and-hold abnormal return (BHAR(t+1,t+3)) are zero and -0.4%, with a standard deviation of 10% and 19%, respectively. On average 27% of the sales have been made by the CEO or CFO of the company.

Panel B of Table 3 presents the correlations for the regression variables. Pearson correlations are presented below the diagonal and Spearman above the diagonal. Panel B reveals that our *Discretionary Footnote* indicator and *Discretionary Trade* indicator are positively correlated (Pearson and Spearman Correlation = 0.089). *Discretionary Footnote* is negatively correlated with prior month returns (Pearson and Spearman Correlations = -0.03), while *Discretionary Trade* is positively correlated with prior month returns (0.02 and 0.08, respectively). This indicates that insider sales without any footnote disclosure are more likely to follow months of stock price increases. The Pearson and Spearman Correlations of *Discretionary Footnote* and *Discretionary Trade* with CAR(0,1) and CAR(0,2) are statistically insignificantly different from zero, except for the Pearson Correlation between *Discretionary Footnote* and CAR(0,1), which is significantly positive (0.01).

## **4. Information Content of Form 4 Footnotes and Long-Term Returns**

### *4.1. Information Content of Form 4 Footnotes*

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 to assess the information content of footnote disclosures. We estimate mean CARs for the entire sample and conditional on footnote disclosures and by footnote classification. Table 4 reports the results of univariate means and differences in means. Panel A in Table 4 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). The market reaction to 10b5-1 footnotes and other discretionary footnotes is also significantly negative at -0.10% and -0.17%, respectively. The CARs for insider sales with nondiscretionary footnotes are not different from zero (p-value=0.95).

Table 4, Panel B reports differences in means between the footnote categories. The difference in means between insider sales with a 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 equation (1) to assess the information content of footnote disclosures in a multivariate setting controlling for cross-sectional differences in firm and trade characteristics. We do so by implementing our classification of insider trades into

discretionary and nondiscretionary. As discussed above we classify as discretionary trades those insider sales that do not disclose a footnote or that contain a discretionary footnote. We also separately examine discretionary versus nondiscretionary footnotes only (disregarding trades that do not disclose a footnote). Equation (1) is as follows:

$$CAR_{i,t} = \beta_0 + \beta_1 Discretionary_{i,t} + \beta_2 X_{i,t} + \gamma_i + \delta_t + \varepsilon_{i,t} \quad (1)$$

where  $CAR_{i,t}$  is the three-day cumulative abnormal event-study return using the size-adjusted market return as benchmark,  $Discretionary_{i,t}$  represents a placeholder for our indicator variables of interest *Discretionary Footnote* and *Discretionary Trade* as described above. We also implement a version allowing *Discretionary Footnote* and *Nondiscretionary Footnote* to overlap in the regression with zero representing trades without a footnote as a trade by a given firm might contain both types of footnotes. We then discard those cases and only use trades that can be uniquely identified as one or the other.

$X_{i,t}$  is a vector of control variables,  $\gamma_i$  and  $\delta_t$  are firm and year fixed effects, respectively. 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  $\beta_1$  to be negative.

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).

The evidence in several studies implicitly suggests that trades by CEOs and CFOs are the most informative among insiders (Jeng et al. 2003, Wang, Shin and Francis 2012). We therefore estimate equation (1) also separately for these two groups of executive insiders to provide direct evidence on this conjecture.

Table 5 presents the regression results from estimations of equation (1). First, we implement equation (1) allowing the two indicator variables *Discretionary Footnote* and *Nondiscretionary Footnote* to overlap (with zero representing no footnote disclosure) as discussed above. The dependent variable is the three day CAR(0,2) around the insider trade filing.<sup>11</sup> The first column shows the results for the full sample. Abnormal returns are significantly higher by 36 basis points for sales that contain a nondiscretionary footnote than those with discretionary footnotes. Discretionary footnote sales elicit negative, but not significantly different abnormal returns compared to sales without footnote disclosures. 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 subsequent tests.

The next two columns show results for the full sample using *Discretionary Trade* and *Discretionary Footnote* as the variable of interest, respectively. The results 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

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<sup>11</sup> Our inferences remain the same if we use the two day window CAR(0,1).

alternatively stated, investors find nondiscretionary footnote disclosures with insider sales informative 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, respectively). 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.

We investigate whether there is a larger negative market reaction to discretionary sales by CEOs and CFOs in columns (4) to (6) in Table 5. The regression results in column (4) confirm a more negative and statistically significant coefficient on both *Discretionary Footnote* and *Nondiscretionary Footnote* in the specification where we allow 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 5 columns (5) and (6) 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 that come with 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 footnotes if the insiders are the CEO or the CFO of the company.

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 they come from 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).

#### 4.2. Long-Term Returns

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 are discretionary trades or 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 returns around the filing date, we expect a negative association of insider trade disclosure with long-term returns. Equation (2) summarizes the estimating equation of long-term returns on footnote disclosures controlling for cross-sectional differences in firm and trade characteristics:

$$BHAR_{i,t+k} = \beta_0 + \beta_1 Discretionary_{i,t} + \beta_2 X_{i,t} + \gamma_i + \delta_t + \varepsilon_{i,t} \quad (2)$$

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.  $Discretionary_{i,t}$  represents a placeholder for our two variables of interest *Discretionary Trade* and *Discretionary Footnote*.

As before we first implement a version allowing both *Discretionary Trade/Footnote* and *Nondiscretionary Trade/Footnote* to enter the regression simultaneously. In this specification *Discretionary Trade* is equal to one if there has been at least one discretionary trade and *Nondiscretionary Trade* is equal to one if there has been at least one nondiscretionary trade 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,  $\gamma_i$  and  $\delta_t$  are firm and month fixed effects, respectively. In addition to the control variables above 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 on one month buy-and-hold abnormal returns is significantly negative at -0.22% (p-value<0.05), decreasing -0.43% (p-value<0.1) over three months to -2.14% (p-value<0.01) over 12 months. In contrast, the coefficient on *Nondiscretionary Trade* in the regression on 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 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. The coefficients of *Net Discretionary Trade 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.

Overall, the results in this section demonstrate that insider sales that are classified as discretionary trades or contain discretionary footnotes 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 investors find the disclosure of discretionary footnotes or the absence of any footnote informative, but fail to impound all of the negative news immediately into stock prices leading to a long-term underperformance of these firms.

## **5. Do Discretionary Insider Sales Predict Bad News?**

In this section we analyse whether discretionary insider sales are predictive of future bad 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, the firm missing its quarterly earnings target, and announcements of class action lawsuits against the company.

### 5.1. Analyst Recommendation Downgrades

We start by examining the association of discretionary insider sales with future analyst recommendation downgrades. Table 7, Panel A presents results of logit regressions on an indicator variable *Consensus Downgrade* 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. That is, the indicator captures whether the insider sale preceded a general lowering of recommendations of the firm by analysts. Panel B presents results of tobit regressions on a continuous variable, *Weighted Downgrade*, bounded between zero and four. *Weighted Downgrade* is measured as the weighted average analyst downgrade indicator, weighted by the magnitude of the downgrade. 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 discretionary trades in month  $t$  and one plus the net number of insider sales with discretionary footnotes, respectively. 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 7, Panel A largely confirm our expectations. The coefficients of *Discretionary Footnote* are positive and monotonically increasing with the length of the

measurement period from 0.021 at six month to 0.026 at 12 months and 0.34 at 18 months, all of which are statistically significant (p-value<0.01). Insider sales with a discretionary footnote are associated with a 3.4% increase in the propensity to experience a consensus recommendation downgrade within the next 18 months of the trade. We do not find such an increase in the downgrade likelihood for sales with nondiscretionary footnotes. If anything, the coefficients on *Nondiscretionary Footnote* are negative, albeit statistically insignificant.

We find a similar pattern using *Net Discretionary Footnote Count* as reported in Panel A, Columns (4)-(6). The coefficients are also positive and increase monotonically over the length of the measurement period from 0.012 at 6 months to 0.029 at 12 months and 0.035 at 18 months. All coefficients are statistically significant (p-values <0.1, <0.01 and <0.01, respectively). The results suggest that a one unit increase in the log number of discretionary footnotes in one month is associated with a 1.2% increase in the propensity to experience a consensus recommendation downgrade within the next 6 months, a larger 2.9% increase in the propensity to experience a consensus recommendation downgrade within the next 12 months, and an even larger increase of 3.5% in the propensity within the next 18 months.

Table 7, Panel B present the results for the weighted downgrades. Similar to the unweighted consensus downgrade indicator the results are increasing with the length of the measurement period. The coefficients of *Discretionary Footnote* are 0.025 (p-value>0.01), 0.022 (p-value<0.05) and 0.03 (p-value<0.01) over the 6, 12 and 18 months horizon, respectively. 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.

The results are again 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 month 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 with a discretionary footnote are predictive of a higher propensity of analyst downgrades in the following 6 to 18 months as well as predictive of downgrades of larger magnitude. In other words, discretionary insider sales precede future negative news in form of analyst downgrades.

## 5.2. *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 run logit regressions on an 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). We also run tobit regressions using the indicator above 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*. 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 presents the results. Panel A reports results of the logit regressions and Panel B the results of the tobit regressions on the weighted indicator. Panel A 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 footnote, 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 in the future. The coefficient on *Net Discretionary Footnote Count* is positive and weakly statistically significant in the regressions on the next fiscal year end (0.11, p-value < 0.1) and four quarters ahead earnings announcement (0.02, p-value < 0.1). The results suggest 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% and for four quarters ahead by 2.1%.

These effects increase in magnitude for the regressions on *Weighted Earnings Miss*. Panel B reports the results. As before the results are insignificant when we use both indicator variables *Discretionary and Nondiscretionary Footnote*. The coefficient on *Net Discretionary Footnote Count* in the regressions on *Weighted Negative Earnings Surprise* is 0.10 (p-value < 0.1) for fiscal year earnings and 0.16 (p-value < 0.05) for four quarter ahead earnings. 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%.

The results in this section suggest that months during which insiders more often sell shares accompanied with 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 weak at best. Nevertheless, taken together with the results of the previous section the findings suggest that discretionary insider sales precede future negative earnings news.

### 5.3. *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 law suit initiations within the subsequent two years of an insider trade. We do not investigate the reasons for the law suits, 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 on 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 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. We further repeat the analysis with our net count variables.

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. We find similar results limiting the analysis to discretionary footnotes or using the net count of discretionary trades/footnotes in a given month.

The results are consistent with the findings in the previous sub-sections on a positive association of discretionary insider sales with future bad news.

## **6. Robustness tests**

Prior attempts in the literature to distinguish information-based insider trades from uninformative liquidity-based trades use insiders' trading patterns as 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 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. 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). In other words, we test whether our results 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 to the inclusion of a Cohen et al. (2012) opportunistic indicator variable.

Table 10 summarizes the results. Panel A 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*. Panel B shows the results using the net count equivalents. 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.<sup>12</sup>

Table 10 Panel A 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 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). 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.

Table 10, Panel B confirms the previous results also when we use net count variables instead of indicators. In these specifications *Net Opportunistic Trade Count* has no

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<sup>12</sup> Differences 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.

explanatory power. 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.

## **7. Conclusions**

In this paper we examine the information content of SEC Form 4 footnote disclosures that accompany insider 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 amounts.

We find that discretionary insider sales are informative to investors and produce significantly lower abnormal returns to the trade filing than nondiscretionary sales. Consistent with investors not fully reacting to the information in these footnotes we find that discretionary insider sales are highly predictive of future negative stock returns and are associated with a higher propensity of analyst downgrades, larger negative earnings surprises, and a higher likelihood of future litigation. The results are robust to the inclusion of several controls as well as to using the insider's prior trading behaviour as a selection criterion to distinguish 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 disclosure behaviour and that insiders strategically use these footnote disclosures describing liquidity-motivated sales to disguise information-based sales. 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 content of these trades.

Our findings allow investors, market 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.

## APPENDIX – 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 December 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 November 2008*

#### Liquidity

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

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

“sale pursuant to distribution of marital assets in divorce settlement.” *cusip: 75991610; date: 22feb2008*

#### 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 December 2010*

“the reporting person indirectly owns 1,120.973 shares under the black & decker retirement plan.”  
*cusip: 09179710; date: 12 November 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 January 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 November 2004*

#### 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 October 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 January 2011*

## **Nondiscretionary Footnotes**

### **Tax**

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

“shares sold to cover cost of exercise and taxes” *cusip: 36955010; date: 05 September 2003*

### **Error**

“dummy entry as required by software error.” *cusip: 03062T10; date: 30 September 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 December 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 – Variable Definitions

| <b>Firm-level</b>                       |   |
|---|---|
| Abn. Ret(t+1)                           | Abnormal return one month after the insider filing month; calculated as raw monthly return minus value weighted CRSP-return; raw returns are winsorized at the top and bottom 1% (in %)         |
| BHAR(-2,-12)                            | 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) |
| BHAR(t+1;t+3)/ BHAR(t+1;t+12)/...       | 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)                                 |
| CAR(0,2)                                | Cumulative Abnormal Return around insider trading filing event (in %). Raw returns are winsorized at the top and bottom 1%  |
| Debt-to-Assets                          | Quarterly liabilities / quarterly assets  |
| Litigation                              | Indicator equal to one if a class action lawsuit is filed within t+1 to t+24 months following an insider sale   |
| ln(Book-to-market)                      | natural logarithm of book-to-market value   |
| ln(Market Cap)                          | natural logarithm of market capitalisation  |
| Prior Month Return                      | Raw Return in month prior to insider filing (in %)  |
| Return(t+1; t+2) / Return(t+1; t+3)     | Cumulated Raw Return from month after insider filing (t=1) to two / three months (t=2)/(t=3) after filing (in %)  |
| ROA                                     | Return on Assets  |
| <b>Trade-level</b>                      |   |
| CEO/CFO Indicator                       | Indicator equal to 1 if at least one of the trades on a day is made by the CEO or CFO   |
| Direct Ownership                        | Equal to 1 if transaction is the result of direct (as opposed to indirect) ownership (i.e., executive/director directly and not for relatives etc.)   |
| Discretionary FN vs Nondiscretionary FN | Indicator equal to 1 if insider filing has a discretionary footnote and zero if the filing has a nondiscretionary footnote  |
| Discretionary Footnote                  | Indicator equal to 1 if insider filing has a discretionary footnote and zero if the filing has no footnote  |
| Discretionary Trade                     | Indicator equal to 1 if insider filing has no footnote or a discretionary footnote, zero otherwise  |
| Nondiscretionary Trade/Footnote         | Indicator equal to 1 if insider filing has a nondiscretionary footnote and zero if the filing has no footnote   |
| Tradesize                               | Number of shares sold divided by number of shares outstanding   |

at the beginning of the fiscal year (in %). At monthly level: this variable is the average tradesize per month (with tradesize defined as above).

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**Analysts**

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|   |   |
|---|---|
| Downgrade Indicator 6 / 12 / 18 Months          | Equal to one if analyst consensus recommendations in 6 /12 /18 months prior to the insider filing was higher than in the same period after the filing |
| Downgrade Indicator 6 / 12 / 18 Months Weighted | Downgrade Indicator weighted by the severity of the downgrade measured by the change in consensus estimates   |
| EA Missed                                       | Indicator equal to one if firm missed the analyst forecast at the closest subsequent earnings announcement date and zero otherwise                    |
| EA Missed Weighted                              | EA Missed Indicator weighted by the amount of the earnings surprise; bounded at lower end by zero   |

## REFERENCES

- Aboody, D. and B. Lev (2000), Information Asymmetry, R&D, and Insider Gains, *Journal of Finance* 55, no. 6, 2747-2766.
- Aboody, D., and R. Kasznik (2000), CEO stock option awards and the timing of corporate voluntary disclosures, *Journal of Accounting and Economics* 29, 73-100.
- Bar-Gill O., and L.A. Bebchuk (2002), Misreporting Corporate Performance, Harvard Law School Discussion Paper.
- Beneish M.D., C.M.C. Lee and D.C. Nichols (2015), In short supply: Short-sellers and stock returns, *Journal of Accounting and Economics* 60, 33-57.
- Beneish, M.D., E. Press, and M.E. Vargus (2004), Insider Trading and Incentives to Manage Earnings. Indiana University, Kelley School of Business Working Paper.
- Berkman, H., P.D. Koch and P.J. Westerholm (2014), Informed Trading through the Accounts of Children, *Journal of Finance* 69, 363-404.
- Bettis, J.C., J.L. Coles, and M.L. Lemmon (2000), Corporate policies restricting trading by insiders, *Journal of Financial Economics* 57: 191-220.
- Bolton, P., J. Scheinkman, and W. Xiong (2006), Executive Compensation and Short-Termist Behaviour in Speculative Markets, *Review of Economic Studies* 73, 577-610.
- Brochet, F. (2010), Information Content of Insider Trades Before and After the Sarbanes-Oxley Act, *The Accounting Review* 85, 419-446.
- Brockman, P., I. Khurana, and X. Martin (2008), Voluntary disclosures around share repurchases, *Journal of Financial Economics* 89, 175-191.
- Cheng, Q., and K. Lo (2006), Insider Trading and Voluntary Disclosure. *Journal of Accounting Research* 44, no. 5, 815-848.
- Cohen, L., C. Malloy, and L. Pomorski (2012) Decoding Inside Information, *Journal of Finance* 67, 1009-1043.
- Diamond D. and R. Verrecchia (1987), Constraints on short-selling and asset price adjustment to private information, *Journal of Financial Economics* 18, 277-311.
- Dye, R.A. (1985), Disclosure of nonproprietary information. *Journal of Accounting Research* 23, 123-145.
- Fama, E. F. and K. R. French (1993), Common risk factors in the returns on stocks and bonds, *Journal of Financial Economics* 33, 3-56.
- Finnerty, J.E. (1976), Insiders and Market Efficiency, *Journal of Finance* 31, 1141-1148.

- Graham J R, C.R Harvey, and S. Rajgopal (2005), The economic implications of corporate financial reporting, *Journal of Accounting and Economics* 40, 3-73
- Hutton, A.P., G.S. Miller, and D.J. Skinner (2003), The role of supplementary statements with management earnings forecasts, *Journal of Accounting Research* 41, 867-890.
- Jaffe, J.F. (1974), Special information and insider trading, *Journal of Business* 47, 410-428.
- Jagolinzer A.D., D.F. Larker, and D.J. Taylor (2011), Corporate Governance and the Information Content of Insider Trades, *Journal of Accounting Research* 49, 1249-1274.
- Jagolinzer, A. D. (2009), SEC Rule 10b5-1 and insiders' strategic trade, *Management Science* 55, 224-239.
- Jeng L.A., A. Metrick, and R. Zeckhuaser (2003). Estimating the Returns to Insider Trading: A Performance Evaluation Perspective. *Review of Economics and Statistics* 85, 453-471.
- Karamanou, I., G Pownall and R. Prakash (2014), Asymmetric Information Consolidation and Price Discovery: Inferring Bad News from Insider Sales. Emory University Working Paper.
- Ke, B., S. Huddart, and K. Petroni (2003). What Insiders Know About Future Earnings and How They Use It: Evidence from Insider Trades. *Journal of Accounting & Economics* 35: 315-46.
- Kothari S.P., S. Shu, and P.D. Wysocki (2009), Do managers withhold bad news?, *Journal of Accounting Research* 47, 241-276
- Lakonishok, J., and I. Lee (2001), Are Insider Trades Informative?, *Review of Financial Studies* 14, 79-111.
- Lang, M. and R. Lundholm (2000), Voluntary Disclosure and Equity Offerings: Reducing Information Asymmetry or Hying the Stock? *Contemporary Accounting Research* 17, 623-662.
- McNichols, M. and P. O'Brien (1997), Self-Selection and Analyst Coverage, *Journal of Accounting Research* 35, 167-199.
- Nagar, V., D. Nanda, P. Wysocki (2003), Discretionary disclosure and stock-based incentives, *Journal of Accounting and Economics*, 51-90.
- Narayanam, R. (2000), Insider trading and the voluntary disclosure of information by firms, *Journal of Banking and Finance* 24, 395-425.
- Noe, C. (1999), "Voluntary disclosure and insider transactions." *Journal of Accounting and Economics* 27, 305-326.
- O'Brien, P., M.F. McNichols and H.W. Lin (2005), Analyst Impartiality and Investment Banking Relationships, *Journal of Accounting Research* 43, 623-650.

- Ravina, E. and P. Sapienza (2010), What do independent directors know? Evidence from their trading, *Review of Financial Studies* 23, 962-1003.
- Rozeff, M. and M.A. Zaman (1988), Market Efficiency and Insider Trading: New Evidence. *Journal of Business* 61, 25-44.
- Rozeff, M., and M.A. Zaman (1998), Overreaction and Insider Trading: Evidence from Growth and Value Portfolios, *Journal of Finance* 53, 701-716.
- Seyhun, H. N. (1986) Insider's Profits, Cost of Trading, and Market Efficiency. *Journal of Financial Economics* 16, 189-212.
- Seyhun, H. N., and M. Bradley (1997), Corporate Bankruptcy and Insider Trading, *Journal of Business* 70, 189-216.
- Verrecchia, R.E. (1983), Discretionary disclosure, *Journal of Accounting and Economics* 5, 365-380.
- Wang, W., Y. Shin, and B. Francis (2012), Are CFOs' Trades More Informative Than CEOs' Trades? *Journal of Financial and Quantitative Analysis* 47, 743-762.

# 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       |

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

**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

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

**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 <sup>(1)</sup>    | 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 16 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 5 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**

|  | <b>Observations</b> | <b>Firms</b> |
|--|---------------------|--------------|
| 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-Netsale transactions   | (55,192)            |              |
| - Observations from non-Directors and non-officers                 | (12,497)            |              |
| - Not unambiguously classified as discretionary & nondiscretionary | (42,784)            |              |
| = <b>Final Sample</b>  | <b>141,968</b>      | <b>4,196</b> |

**Table 2: Sample Descriptives**

| <b>Panel A: Observations by Footnote Category</b> |                |                |  |
|---|----------------|----------------|--|
|   | <b>N</b>       | <b># Firms</b> |  |
| Nondiscretionary Footnote                         | 1,515          | 380            |  |
| Discretionary Footnote (excl. 10b5-1)             | 8,464          | 1,418          |  |
| 10b5-1 Footnote                                   | 51,556         | 1,890          |  |
| No Footnote                                       | 80,433         | 3,923          |  |
| <b>Total</b>                                      | <b>141,968</b> | <b>4,196</b>   |  |

| <b>Panel B: Trade Size (in US\$ thousands)</b> |                  |                      |                      |
|--|------------------|----------------------|----------------------|
|  | <b>Sale Size</b> | <b>Purchase Size</b> | <b>Net Sale Size</b> |
| Nondiscretionary Footnote                      | 0.042            | 0.002                | 0.040                |
| Discretionary Footnote (excl. 10b5-1)          | 0.352            | 0.002                | 0.349                |
| 10b5-1 Footnote                                | 0.053            | 0.00                 | 0.053                |
| No Footnote                                    | 0.079            | 0.001                | 0.078                |
| <b>Total</b>                                   | <b>0.085</b>     | <b>0.000</b>         | <b>0.085</b>         |

This Table presents sub-sample characteristics and descriptive statistics of the final sample of observations.

**Table 3: Summary Statistics & Correlations**

| <b>Panel A: Summary Statistics</b> |             |             |                      |            |            |
|------------------------------------|-------------|-------------|----------------------|------------|------------|
|                                    | <b>Obs.</b> | <b>Mean</b> | <b>Std.<br/>Dev.</b> | <b>Min</b> | <b>Max</b> |
| Size                               | 141,968     | 7.141       | 1.664                | 0.795      | 13.134     |
| ln(Book-to-Market)                 | 141,968     | -1.051      | 0.722                | -9.390     | 3.057      |
| Debt-to-Assets                     | 141,968     | 0.480       | 0.243                | 0.002      | 1.000      |
| Prior Month Return                 | 141,968     | 0.037       | 0.115                | -0.370     | 0.486      |
| CAR(0,2)                           | 141,968     | -0.130      | 3.513                | -26.613    | 28.695     |
| CEO/CFO-Indicator                  | 141,968     | 0.268       | 0.443                | 0.000      | 1.000      |
| Direct Ownership                   | 141,968     | 0.915       | 0.279                | 0.000      | 1.000      |
| BHAR(t+1)                          | 65,585      | 0.000       | 0.100                | -0.462     | 0.584      |
| BHAR(t+1, t+3)                     | 65,585      | -0.004      | 0.192                | -0.760     | 2.067      |
| BHAR(t+1, t+12)                    | 63,517      | -0.027      | 0.377                | -0.956     | 3.882      |
| Consensus Downgrade (6 m)          | 48,180      | 0.484       | 0.500                | 0.000      | 1.000      |
| Consensus Downgrade (12 m)         | 48,180      | 0.526       | 0.499                | 0.000      | 1.000      |
| Consensus Downgrade (18 m)         | 48,180      | 0.553       | 0.497                | 0.000      | 1.000      |
| Weighted Downgrade (6 m)           | 48,180      | 0.320       | 0.479                | 0.000      | 4.000      |
| Weighted Downgrade (12 m)          | 48,180      | 0.257       | 0.375                | 0.000      | 4.000      |
| Weighted Downgrade (18 m)          | 48,180      | 0.235       | 0.329                | 0.000      | 4.000      |
| EA Missed Indicator                | 90,319      | 0.337       | 0.473                | 0.000      | 1.000      |
| EA Missed weighted                 | 90,135      | 0.109       | 0.915                | 0.000      | 69.000     |

**Table 3 - Continued**

| <b>Panel B: Correlations</b> |         |         |         |         |         |         |         |         |         |         |
|------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                              | (1)     | (2)     | (3)     | (4)     | (5)     | (6)     | (7)     | (8)     | (9)     | (10)    |
| (1) Size                     |         | -0.240* | 0.170*  | 0.031*  | 0.032*  | -0.030* | 0.046*  | 0.040*  | -0.028* | -0.392* |
| (2) ln(Book-to-market)       | -0.231* |         | 0.160*  | -0.101* | -0.037* | -0.081* | -0.050* | -0.153* | -0.025* | -0.025* |
| (3) Debt-to-Assets           | 0.145*  | 0.075*  |         | -0.021* | 0.008*  | -0.063* | 0.009*  | -0.145* | -0.031* | -0.131* |
| (4) Prior Month Return       | 0.001   | -0.107* | -0.034* |         | 0.000   | 0.006*  | 0.022*  | -0.034* | 0.018*  | 0.078*  |
| (5) CAR(0,2)                 | 0.024*  | -0.043* | 0.002   | 0.002   |         | -0.005  | 0.000   | 0.004   | -0.001  | -0.009* |
| (6) CEO/CFO Indicator        | -0.032* | -0.086* | -0.056* | 0.010*  | -0.002  |         | 0.053*  | 0.173*  | -0.027* | 0.213*  |
| (7) Direct Ownership         | 0.048*  | -0.030* | 0.022*  | 0.019*  | -0.001  | 0.056*  |         | -0.108* | 0.006*  | -0.011* |
| (8) Discretionary Footnote   | 0.043*  | -0.149* | -0.147* | -0.031* | 0.004   | 0.173*  | -0.108* |         | 0.089*  | -0.011* |
| (9) Discretionary Trade      | -0.030* | -0.024* | -0.030* | 0.018*  | -0.004  | -0.027* | 0.006*  | 0.089*  |         | 0.050*  |
| (10) Tradesize               | -0.035* | -0.010* | 0.000   | 0.011*  | 0.006*  | 0.011*  | -0.028* | 0.012*  | 0.006*  |         |

This table provides summary statistics and correlations for the control variables and main dependent variables. The top half of Panel A presents variables measured on a daily level and the bottom half of Panel A presents variables measured on a monthly level. Panel B provides Pearson (below the diagonal) and Spearman correlations (above the diagonal). \* denotes statistical significance on the 1%-level based on two-tailed tests. Variable Descriptions are provided in Appendix A.

**Table 4: Univariate Tests**

| Panel A: Mean CAR(0,2)                  |             |             |                |
|---|-------------|-------------|----------------|
|   | <b>Obs.</b> | <b>Mean</b> | <b>P-Value</b> |
| 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      | 0.9558         |
| Panel B: Differences in Means           |             |             |                |
|   |             | <b>Diff</b> | <b>P-Value</b> |
| 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     | 0.2324         |
| Other Discretionary - Nondiscr Footnote |             | -0.1742     | 0.070*         |

This table provides results for univariate tests of means (Panel A) and differences in means (Panel B) for the different insider sale categories. \*\*\*, \*\*, \* denotes statistical significance on the 1%, 5%, and 10%-level, respectively, based on two-tailed tests.

**Table 5: Announcement CARs**

|   | Full Sample          |                      |                      | CEO/CFO only         |                      |                      |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|   | (1)                  | (2)                  | (3)                  | (4)                  | (5)                  | (6)                  |
| Discretionary Footnote                  | -0.065<br>(0.043)    |                      |                      | -0.148*<br>(0.082)   |                      |                      |
| Nondiscretionary Footnote               | 0.299***<br>(0.086)  |                      |                      | 0.657***<br>(0.158)  |                      |                      |
| Discretionary Trade                     |                      | -0.321**<br>(0.133)  |                      |                      | -0.952***<br>(0.239) |                      |
| Discretionary FN vs Nondiscretionary FN |                      |                      | -0.358**<br>(0.177)  |                      |                      | -1.310***<br>(0.35)  |
| ln(Book-to-market)                      | -0.604***<br>(0.049) | -0.642***<br>(0.056) | -0.719***<br>(0.089) | -0.834***<br>(0.095) | -0.860***<br>(0.117) | -0.868***<br>(0.158) |
| Size                                    | 0.186***<br>(0.041)  | 0.162***<br>(0.048)  | 0.176**<br>(0.074)   | 0.150*<br>(0.082)    | 0.178*<br>-0.105     | 0.403***<br>(0.153)  |
| Debt-to-Assets                          | -0.565***<br>(0.172) | -0.689***<br>(0.196) | -0.933***<br>(0.305) | -0.936***<br>(0.333) | -0.793*<br>(0.409)   | -0.994*<br>(0.579)   |
| Direct Ownership                        | -0.076**<br>(0.036)  | -0.106**<br>(0.043)  | -0.230***<br>(0.070) | -0.077<br>(0.092)    | -0.078<br>(0.123)    | -0.128<br>(0.199)    |
| CEO/CFO-Indicator                       | -0.064***<br>(0.021) | -0.059**<br>(0.025)  | -0.015<br>(0.040)    |                      |                      |                      |
| Tradesize                               | 0.014**<br>(0.006)   | 0.000<br>(0.000)     | 0.000<br>(0.000)     | 0.000<br>(0.016)     | -0.036*<br>(0.021)   | -0.044<br>(0.027)    |
| Prior Month Return                      | -0.004***<br>(0.001) | -0.004***<br>(0.001) | -0.006***<br>(0.002) | -0.008***<br>(0.002) | -0.007***<br>(0.002) | -0.008***<br>(0.003) |
| Firm & Year FE                          | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  |
| N                                       | 184,742              | 141,968              | 61,535               | 49,450               | 38,057               | 22,047               |
| Adj. R <sup>2</sup>                     | 0.005                | 0.005                | 0.005                | 0.007                | 0.007                | 0.008                |

This table provides 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 1 if the footnote on the Form 4 relates to gift, retirement, family, 10b5-1 or options exercise trades and zero otherwise. *Nondiscretionary Footnote* is an indicator variable equal to 1 if the footnote on the Form 4 relates to tax, error corrections, or automatic trades. *Discretionary Trade Only* is an indicator equal to 1 if *Discretionary Footnote* is 1 or no footnote exists. *Discretionary Footnote Only* is an indicator equal to 1 if the footnote on the Form 4 relates to gift, retirement, family, 10b5-1 or options exercise trades and zero if the footnote on the 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. Variable descriptions are provided in Appendix A.

**Table 6: Long-Term Abnormal Returns**

| <b>Panel A: Discretionary Footnote and Trade Indicator</b> |                     |                    |                      |                      |                      |                   |
|--|---------------------|--------------------|----------------------|----------------------|----------------------|-------------------|
|  | (1)                 | (2)                | (3)                  | (4)                  | (5)                  | (6)               |
|  | <b>1 Month</b>      | <b>3 Months</b>    | <b>12 Months</b>     | <b>1 Month</b>       | <b>3 Months</b>      | <b>12 Months</b>  |
| Discretionary Trade  | -0.221**<br>(0.107) | -0.426*<br>(0.230) | -2.141***<br>(0.507) |                      |                      |                   |
| Nondiscretionary Trade                                     | 1.132***<br>(0.347) | 1.742**<br>(0.739) | 1.927<br>(0.507)     |                      |                      |                   |
| Discretionary Footnote                                     |                     |                    |                      | -0.287***<br>(0.102) | -0.633***<br>(0.230) | -0.69<br>(0.563)  |
| Nondiscretionary Footnote                                  |                     |                    |                      | 1.172***<br>(0.347)  | 1.804**<br>(0.730)   | 2.727*<br>(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 <sup>2</sup>  | 0.012               | 0.030              | 0.190                | 0.012                | 0.030                | 0.190             |

**Table 6 - Continued**

| <b>Panel B: Net Discretionary Footnote and Trade Count</b> |                      |                      |                      |                      |                      |                      |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|  | (1)                  | (2)                  | (3)                  | (4)                  | (5)                  | (6)                  |
|  | <b>1 Month</b>       | <b>3 Months</b>      | <b>12 Months</b>     | <b>1 Month</b>       | <b>3 Months</b>      | <b>12 Months</b>     |
| Net Discretionary Trade Count                              | -0.734***<br>(0.100) | -1.375***<br>(0.215) | -2.555***<br>(0.481) |                      |                      |                      |
| Net Discretionary Footnote Count                           |                      |                      |                      | -0.720***<br>(0.164) | -1.610***<br>(0.361) | -2.273***<br>(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 <sup>2</sup>  | 0.013                | 0.031                | 0.189                | 0.016                | 0.025                | 0.182                |

This table provides 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 1 if a given month contains at least one discretionary trade (i.e., a sale for which the footnote on the 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 1 if a given month contains at least one nondiscretionary trade (i.e., a sale for which the footnote on the Form 4 relates to tax, error corrections, or automatic trades). *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 control variables as in Table 5. \*\*\*, \*\*, \* 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. Variable descriptions are provided in Appendix A.

**Table 7: Analyst Recommendation Downgrades**

|                                  | (1)                 | (2)                 | (3)                 | (4)               | (5)                 | (6)                 |
|----------------------------------|---------------------|---------------------|---------------------|-------------------|---------------------|---------------------|
|                                  | 6 Months            | 12 Months           | 18 Months           | 6 Months          | 12 Months           | 18 Months           |
| Discretionary Footnote           | 0.021***<br>(0.021) | 0.026***<br>(0.026) | 0.034***<br>(0.030) |                   |                     |                     |
| Nondiscretionary Footnote        | -0.009<br>(0.065)   | -0.019<br>(0.074)   | -0.019<br>(0.082)   |                   |                     |                     |
| Net Discretionary Footnote Count |                     |                     |                     | 0.012*<br>(0.007) | 0.029***<br>(0.008) | 0.035***<br>(0.009) |
| 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 <sup>2</sup>            | 0.004               | 0.002               | 0.005               | 0.004             | 0.003               | 0.004               |

**Table 7 – Continued**

| <b>Panel B: Weighted Downgrade (Tobit Regressions)</b> |                    |                    |                     |                    |                     |                     |
|--|--------------------|--------------------|---------------------|--------------------|---------------------|---------------------|
|  | (1)                | (2)                | (3)                 | (4)                | (5)                 | (6)                 |
|  | 6 Months           | 12 Months          | 18 Months           | 6 Months           | 12 Months           | 18 Months           |
| Discretionary Footnote                                 | 0.025**<br>(0.010) | 0.022**<br>(0.010) | 0.030***<br>(0.010) |                    |                     |                     |
| Nondiscretionary Footnote                              | -0.0074<br>(0.034) | -0.0162<br>(0.029) | -0.0175<br>(0.028)  |                    |                     |                     |
| Net Discretionary Footnote Count                       |                    |                    |                     | 0.028**<br>(0.014) | 0.039***<br>(0.013) | 0.034***<br>(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 <sup>2</sup>                                  | 0.006              | 0.008              | 0.011               | 0.007              | 0.010               | 0.012               |

This table provides Logit (Panel A) and Tobit (Panel B) regression results for the relation between insider sales and analyst consensus recommendation downgrades. 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 month after the insider trade month is lower than the consensus recommendation in the equivalent time period before the insider trade month. The dependent variable in Panel B is the same as in Panel A weighted by the magnitude of the downgrade. *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 control variables as in Table 5. \*\*\*, \*\*, \* 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. Variable descriptions are provided in Appendix A.

**Table 8: Negative Earnings Surprises**

|                                  | <b>Fiscal Year</b> |                   | <b>4 Quarters Ahead</b> |                   |
|----------------------------------|--------------------|-------------------|-------------------------|-------------------|
|                                  | <b>(1)</b>         | <b>(2)</b>        | <b>(3)</b>              | <b>(4)</b>        |
| Discretionary Footnote           | -0.006<br>(0.042)  |                   | 0.004<br>(0.008)        |                   |
| Nondiscretionary Footnote        | -0.034<br>(0.133)  |                   | -0.013<br>(0.022)       |                   |
| Net Discretionary Footnote Count |                    | 0.111*<br>(0.066) |                         | 0.021*<br>(0.012) |
| Controls                         | Yes                | Yes               | Yes                     | Yes               |
| Month FE                         | Yes                | Yes               | Yes                     | Yes               |
| N                                | 78,059             | 27,837            | 41,199                  | 14,858            |
| Pseudo R <sup>2</sup>            | 0.0304             | 0.0299            | 0.022                   | 0.0226            |

**Table 8 – Continued**

|                                  | <b>Panel B: Weighted Negative Earnings Surprise Tobit Regressions</b> |                   |                         |                    |
|----------------------------------|---|-------------------|-------------------------|--------------------|
|                                  | <b>Fiscal Year</b>  |                   | <b>4 Quarters Ahead</b> |                    |
|                                  | <b>(1)</b>  | <b>(2)</b>        | <b>(3)</b>              | <b>(4)</b>         |
| Discretionary Footnote           | -0.021<br>(0.036)   |                   | 0.063<br>(0.050)        |                    |
| Nondiscretionary Footnote        | -0.143<br>(0.104)   |                   | -0.095<br>(0.120)       |                    |
| Net Discretionary Footnote Count |   | 0.101*<br>(0.057) |                         | 0.161**<br>(0.080) |
| Controls                         | Yes   | Yes               | Yes                     | Yes                |
| Month FE                         | Yes   | Yes               | Yes                     | Yes                |
| N                                | 77,989  | 27,811            | 41,075                  | 14,813             |
| Pseudo R <sup>2</sup>            | 0.018   | 0.0205            | 0.0128                  | 0.0121             |

This table provides Logit (Panel A) and Tobit (Panel B) regression results for the relation between insider sales and negative earnings surprises. The dependent variable in Panel A 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. The dependent variable in Panel B is the same as in Panel A 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 control variables as in Table 5. \*\*\*, \*\*, \* 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. Variable descriptions are provided in Appendix A.

**Table 9: Future Litigation**

|                                  | (1)                 | (2)                  | (3)                | (4)               |
|----------------------------------|---------------------|----------------------|--------------------|-------------------|
| Discretionary Trade              | 0.006***<br>(0.002) |                      |                    |                   |
| Nondiscretionary Trade           | -0.014**<br>(0.006) |                      |                    |                   |
| Discretionary Footnote           |                     | 0.005***<br>(0.002)  |                    |                   |
| Nondiscretionary Footnote        |                     | -0.015***<br>(0.006) |                    |                   |
| Net Discretionary Trade Count    |                     |                      | 0.004**<br>(0.002) |                   |
| Net Discretionary Footnote Count |                     |                      |                    | 0.004*<br>(0.002) |
| Controls                         | Yes                 | Yes                  | Yes                | Yes               |
| Month FE                         | Yes                 | Yes                  | Yes                | Yes               |
| N                                | 79,356              | 79,356               | 65,870             | 28,411            |
| Pseudo R <sup>2</sup>            | 0.076               | 0.0775               | 0.0795             | 0.0606            |

This table provides Logit regression results for the relation between insider sales and future Class Action lawsuits. The dependent variable *Litigation* is equal to 1 if a litigation is initiated between one and 24 months after the insider trading month. *Discretionary Trade* is equal to 1 if a given month contains at least one discretionary trade (i.e., a sale for which the footnote on the 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 1 if a given month contains at least one nondiscretionary trade (i.e., a sale for which the footnote on the Form 4 relates to tax, error corrections, or automatic trades). *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 control variables as in Table 5. \*\*\*, \*\*, \* 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. Variable descriptions are provided in Appendix A.

**Table 10: Robustness Tests**

| <b>Panel A: Discretionary Trade/Footnote Indicator</b> |                      |                      |                     |                     |                      |                   |
|--|----------------------|----------------------|---------------------|---------------------|----------------------|-------------------|
|  | (1)                  | (2)                  | (3)                 | (4)                 | (5)                  | (6)               |
|  | <b>1 Month</b>       | <b>3 Months</b>      | <b>12 Months</b>    | <b>1 Month</b>      | <b>3 Months</b>      | <b>12 Months</b>  |
| Discretionary Trade                                    | -1.376***<br>(0.431) | -1.838**<br>(0.907)  | -4.207**<br>(1.899) |                     |                      |                   |
| Discretionary Footnote                                 |                      |                      |                     | 1.684***<br>(0.492) | -2.432**<br>(1.130)  | -3.68<br>( 2.500) |
| Opportunistic Trade                                    | -0.433***<br>(0.107) | -1.691***<br>(0.289) | -1.806**<br>(0.756) | -0.305*<br>(0.171)  | -1.275***<br>(0.489) | 0.450<br>(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 <sup>2</sup>                                    | 0.013                | 0.031                | 0.189               | 0.016               | 0.023                | 0.179             |
| Difference Discretionary - Opportunistic               |                      |                      |                     |                     |                      |                   |
| F  | 4.410                | 0.020                | 1.370               | 6.880               | 0.840                | 2.100             |
| p-value  | 0.036                | 0.878                | 0.242               | 0.009               | 0.359                | 0.147             |

**Table 10 – Continued**

| <b>Panel B: Net Discretionary Trade/Footnote Count</b> |                      |                      |                      |                      |                      |                   |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|-------------------|
|  | (1)                  | (2)                  | (3)                  | (4)                  | (5)                  | (6)               |
|  | <b>1 Month</b>       | <b>3 Months</b>      | <b>12<br/>Months</b> | <b>1 Month</b>       | <b>3 Months</b>      | <b>12 Months</b>  |
| Net Discretionary Trade Count                          | -0.571***<br>(0.167) | -1.129***<br>(0.373) | -1.916***<br>(0.727) |                      |                      |                   |
| Net Discretionary Footnote Count                       |                      |                      |                      | -0.682***<br>(0.238) | -1.536***<br>(0.566) | -1.776<br>(1.343) |
| Net Opportunistic Trade Count                          | 0.024<br>(0.123)     | -0.067<br>(0.388)    | 1.414<br>(0.959)     | 0.139<br>(0.158)     | 0.393<br>(0.480)     | 2.193*<br>(1.216) |
| Controls   | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes               |
| Firm & Month FE  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes               |
| N  | 19,606               | 19,606               | 19,106               | 10,757               | 10,757               | 10,390            |
| Adj. R <sup>2</sup>                                    | 0.018                | 0.034                | 0.182                | 0.023                | 0.042                | 0.177             |
| Difference Discretionary - Opportunistic               |                      |                      |                      |                      |                      |                   |
| F  | 7.670                | 3.540                | 6.870                | 7.630                | 5.850                | 4.050             |
| p-value  | 0.006                | 0.060                | 0.009                | 0.006                | 0.016                | 0.045             |

This table provides 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 1 if a given month contains at least one discretionary trade (i.e., a sale for which the footnote on the Form 4 relates to gift, retirement, family, 10b5-1 or options exercise trades or for which the Form does not contain a footnote). *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. *Opportunistic Trade* is defined similar to Cohen et al. (2012) and is equal to 1 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. *Net Discretionary Trade/Footnote Count* is equal to the natural logarithm of one plus the net number of discretionary trades/footnotes. All regressions include control variables as in Table 5. \*\*\*, \*\*, \* 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. Variable descriptions are provided in Appendix A.