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Reprint of Director discretion and insider trading profitability

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ABSTRACT

Using a machine-learning algorithm, we classify over 60,000 director transactions into discretionary and non-discretionary purchases and sales based on the trading motive provided by the insider. We find that discretionary trades by company insiders are more informed than non-discretionary trades. Further, discretionary purchases generate higher abnormal returns (1) for larger purchases, or when the purchase is for (2) the stock of a smaller firm, or (3) a firm with greater information asymmetry.

1. Introduction

Corporate insiders trade in their company's stock for many reasons, including for diversification or liquidity needs, to take advantage of discount plans, or to cash in vested options (see Cohen et al., 2012). Moreover, insiders have private information and can profit by trading prior to takeover announcements (Meulbroek, 1992; Acharya and Johnson, 2010; Heitzman and Klasa, 2015), earnings news (Piotroski and Roulstone, 2005; Huddart et al., 2007), dividend announcements (John and Lang, 1991), or significant accounting disclosures (Ke et al., 2003). These differences in motivation are typically difficult to differentiate. Additionally, insiders may simply be better market timers (Lakonishok and Lee, 2001).

In this study, we analyse the profitability of directors' trades using a new dataset that identifies the directors' trading motives. Uniquely, we are able to classify directors' transactions into discretionary and non-discretionary trades. Similar to U.S. markets where corporate insiders are required to file monthly reports to the SEC on open market trades, the Australian stock exchange (ASX) requires directors to disclose any changes to director interests within 5 business days of the transaction. However, in contrast to the U.S., the ASX also requires that the director specify the reason for the trade. We use the additional granularity in our data to provide deeper insights into the profitability of insider trading.

Deciphering the reasons provided in director filings is not straightforward. With over 85,000 director filings submitted to the ASX between January 2005 and December 2014, hand classifying the reasons provided by the director is not feasible. Drawing from the computer science literature, we use recent developments in machine-learning algorithms, which can be applied to many areas of financial research, to classify the trading motive provided in each filing into 12 broad categories. We find that directors change their holdings for a large variety of reasons. For example, directors may participate in a rights offering or dividend reinvestment plan. Similarly, insiders may increase their shareholdings as part of a performance bonus or remuneration package. Importantly, we find that in approximately 65% of the filings, the nature of the change in holdings is given as either 'on-market' or 'off-market.' Our initial analysis indicates that these trades without a clear motive are more predictive of future returns than trades for which a specific reason is provided.

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Based on our 12 categories, we further categorise transactions into discretionary and non-discretionary buys and sells and find that discretionary transactions are more profitable. Our results show that insider discretionary purchases have a cumulative abnormal return of 4.6% in the 200 trading days after the trade while non-discretionary purchases return −4.7%. Similarly, abnormal returns are on average 15% lower in the 200 trading days after a discretionary sell while abnormal returns following non-discretionary sell transactions are not statistically different from zero. For discretionary purchases, abnormal returns are also larger (1) the bigger the size of the purchase, (2) when the purchase is for the stock of a smaller firm, and (3) when the purchase is for the stock of a firm in an industry with greater information asymmetry.

Our study contributes to the large body of academic literature on insider trading. The early literature concludes that insiders can earn significant abnormal profits by trading in their own firms (Rogoff, 1964; Lorie and Niederhoffer, 1968; Jaffe, 1974; Finnerty, 1976; Seyhun, 1986, 1988; Rozeff and Zaman, 1988; Lin and Howe, 1990; Lakonishok and Lee, 2001, and Marin and Olivier, 2008). These findings have been largely supported by studies using data for the U.K. (Pope et al., 1990 and Friederich et al., 2002), Sweden (Kallunki et al., 2009), Australia (Aspris et al., 2014, Chang and Watson, 2015), and New Zealand (Etebari et al., 2004). On the other hand, Eckbo and Smith's (1998) study of the Oslo Stock Exchange and Chiang et al.'s (2004) study of the Taiwan Stock Exchange find no abnormal performance for insider trades.

While many previous studies find that insider purchases are highly informative, only weak evidence of the profitability of insider sales is reported. For example, Jeng et al. (2003) find that insider purchases earn abnormal returns of more than 6% per year while insider sales do not earn significant abnormal returns. Similarly, Lakonishok and Lee (2001) find that insider purchases predict future market movements whilst insider sales have no predictive ability.

To investigate the reasons driving these information differences more closely, recent studies develop methods to identify reasons behind the insiders' trading decision. Cohen et al. (2012) infer the nature of an insider trade based on historical patterns in director trading behaviour. Specifically, they conjecture that 'routine' insider trades (i.e., those that occur in the same month every year), likely represent trading for diversification or liquidity reasons while 'opportunistic' trades (i.e. those that are less predictable), are likely to be more informed. Using these trade classifications, these authors find that 'routine' trades contain less information than 'opportunistic' trades. Similarly, Tirapat and Visaltanachoti (2013) distinguish between opportunistic and liquidity trades by insiders on the Stock Exchange of Thailand based on the probability of informed trading and report higher average returns for opportunistic trades.

Other studies use incidences of delayed disclosure to infer the reason behind insiders' trading decisions. Cheng et al. (2007) exploit an exception to the SEC insider-trading-disclosure rules to distinguish between liquidity- and private-information-driven insider sales. Prior to the Sarbanes-Oxley Act of 2002, the SEC required the majority of open-market sales to be disclosed to the SEC by the tenth day of the next month. However, some sales are exempt from this requirement and can be reported within 45 days of the fiscal year end. These authors find that in large firms, late-disclosed insider sales, which are more likely to be information driven, are more predictive of negative future returns than liquidity driven, quickly disclosed sales. Betzer et al. (2015) extend this work and find that the delayed reporting of stealth trades (i.e., a trade that is followed by another trade before the first trade is reported) outperforms the returns of similar non-stealth trades. Etebari et al. (2004) distinguish between immediate disclosures and delayed disclosures by corporate insiders from companies listed on the New Zealand Stock Exchange and report similar findings. Specifically, transactions involving delayed disclosure earn large abnormal returns while transactions that are immediately disclosed to the market earn insignificant returns. Similarly, Chang and Watson (2015) show that delayed disclosures of insider transactions are more predictive of future firm performance than timely disclosures in Australian firms.

To reiterate, in contrast to previous work, because of the unique information in the ASX filings, we do not need to infer the reason behind insiders' trades. Using text recognition techniques, we generate a unique dataset containing detailed information on the motivations behind each insiders' trade.

2. Research Design

2.1. Data and Text Processing

Our data on the changes to directors' holdings are obtained from the Securities Industry Research Centre of Asia-Pacific Australian Company Announcement database. ASX listing rule 3.19A.2 requires an entity to notify the ASX when there is a 'change to a notifiable interest of a director of the entity' within 5 business days of the change. The rule requires the director to lodge with the ASX an Appendix 3Y 'Change in Director's Interest Notice' that includes the name of the entity and the director, the date of the change, the number of securities held prior to and after the change, and the number of shares acquired or disposed.[1] Additionally, the director is required to outline the nature of the change in holdings. While the required explanation for the change is unrestricted, the ASX also provides examples of common reasons for trading, including: on-market trade, off-market trade, exercise of options, issue of securities under a dividend reinvestment plan, or participation in a buy-back.

We download Appendix 3Y forms for all ASX listed companies from January 2005 to December 2014.[2] However, we are unable to analyse the raw data for two reasons. First, the forms are filed to the ASX as a pdf document containing embedded text (see Appendix 1) that needs to be converted to a machine readable format. Second, the motivations provided in the filings is at the

[1] Appendix 1 provides an example of the Appendix 3Y form.
[2] Prior to January 2005, Appendix 3Y forms were faxed and as such were not machine readable.

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