Journal of Accounting and Economics 62 (2016) 1–23

Contents lists available at ScienceDirect

Journal of Accounting and Economics

journal homepage: www.elsevier.com/locate/jae

Director networks and informed traders

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A R T I C L E I N F O

Article history:
Received 2 October 2014
Received in revised form
9 March 2016
Accepted 30 March 2016
Available online 14 April 2016

Jel Classification codes:
G14
G23
G34
G12
G11

Keywords:
Director networks
Short sellers
Short interest
Informed traders
Earnings announcements

A B S T R A C T

We provide evidence that sophisticated investors like short sellers, option traders, and financial institutions are more informed when trading stocks of companies with more connected board members. For firms with large director networks, the annualized return difference between the highest and lowest quintile of informed trading ranges from 4% to 7.2% compared to the same return difference in firms with less connected directors. Sophisticated investors better predict outcomes of upcoming earnings surprises and firm-specific news sentiment for companies with more connected directors. Changes in board connectedness are positively associated with changes in measures of adverse selection.

1. Introduction

Corporate directors have access to material non-public information, which makes them a potential information source for professional traders. Directors are, of course, required to keep sensitive material private: Delaware law recognizes a director's duty of confidentiality, and corporations have comprehensive policies in place to prevent leaks. Investors, too, face regulatory scrutiny and reputational costs if they use inside information in traceable manners, and these safeguards seem to be effective in some institutional settings (Griffin et al., 2012). However, sensitive information can travel through education networks from senior corporate officers to mutual fund managers and sell-side analysts (Cohen et al., 2008, 2010). This raises an important question: to what extent do director networks transmit information that sophisticated traders are able to exploit?

We investigate whether the breadth of directors' professional connections systematically affects the likelihood of information leakage to sophisticated traders. Well-connected directors interact with scores of people, and unguarded conversations can easily reveal sensitive facts. In addition, Larcker et al. (2013) show that firms benefit from more connected boards because board connections are a conduit of information exchange. Yet an important competitive advantage of connected directors stems from their ability to provide insights that would otherwise be inaccessible to less connected colleagues. Fulfilling this role might require some deliberate sharing of sensitive material. Sophisticated traders, who gather,

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http://dx.doi.org/10.1016/j.jacceco.2016.03.003
0165-4101/

analyze and interpret data from multiple sources, have a comparative advantage when piecing together information about firms with highly connected directors. We therefore study possible information transmission from corporate directors to sophisticated traders by examining the relation between board connectedness and the informativeness of trades made by short sellers, option traders, and institutional investors.

Our results indicate that these investor groups are indeed more informed when trading stocks of companies with more connected boards. We measure informed trading as the monthly level of short interest, the ratio of monthly option volume to stock volume, and weekly order imbalances of institutional traders. From BoardEx, we obtain the number of first-degree connections for each director, which includes links through educational institutions attended, current and previous employers, military service and civic institutions. To ensure that our measure of board connectedness is not driven by factors that have been documented to affect the firm's information environment, we first aggregate the connections of all board members and then orthogonalize them with respect to firm size, board size, firm age, the number of analysts and institutional ownership. We examine portfolios sorted by board connectedness and each of the three measures of informed trading and find that the annualized return difference between the highest and lowest quintile of informed trading in highly connected boards is significantly more pronounced compared to the same return difference in firms with less connected boards. The economic magnitude ranges from 4% for option volume and 5.4% for short interest, to 7.2% for institutional order imbalance.

Next, we examine whether the trades of sophisticated investors predict changes in firm fundamentals. Our results indicate that a higher fraction of negative earnings news is embedded in prices of highly connected firms ahead of the announcement, and that sophisticated traders better anticipate earning surprises in firms with highly connected boards. Indeed, their trades predict firm-specific news content more broadly, as our analysis of Thompson Reuters' public news data shows. Changes in board connectedness are also positively associated with changes in measures of adverse selection costs, such as the probability of informed trading (PIN), bid–ask spreads and the price impact measure of Amihud (2002). In a series of robustness checks we establish that neither family ownership, corporate governance quality, nor asset tangibility, drive our findings.

Our study contributes to several strands of the literature. First, we add novel insights to recent studies examining the role of director networks in financial markets. Among directors these networks contribute to higher firm performance (Larcker et al., 2013), the dissemination of CEO compensation practices (Wong et al., 2015), stock option backdating (Bizjak et al., 2009), and earnings management (Chiu et al., 2012). Board members and their social networks influence which companies become targets in change-of-control transactions (Stuart and Yim, 2010). Directors of Finnish firms earn sizable abnormal returns by trading stocks where they have information advantages through their board connections (Berkman et al., 2014). We build on these insights by documenting that board connections in general affect the external corporate information environment, increase the potential for informed trading, and facilitate the dissemination of information into stock prices. While prior research suggests that analysts, media outlets and managers have incentives to convey positive news (McNichols and O'Brien, 1997; Kothari et al., 2009), we show that negative news, in particular, flows through director networks.

Second, we contribute to research into the information sources of sophisticated traders. Short sellers predict the outcome of earnings surprises (Christophe et al., 2004), detect financial misconduct (Karpoff and Lou, 2010), and uncover hidden bad news in high levels of accruals (Hirshleifer et al., 2011). Short sellers excel in processing publicly available news (Engelberg et al., 2012) and receive tips ahead of analyst downgrades (Christophe et al., 2010). Option trades (Pan and Poteshman, 2006; Johnson and So, 2012) and institutional trades (Griffin et al., 2003; Campbell et al., 2009; Puckett and Yan, 2011) also predict future stock prices. Our findings suggest that more connected directors contribute, directly or inadvertently, to the information set of short sellers, option traders, and institutional investors. More generally, we advance an emergent literature that examines how a firm's organizational structure affects its information environment. Anderson et al. (2012) report that family ownership increases informed trading. We complement their findings by directly linking the governance structure of the firm to sophisticated trading in the firm's stock.

2. Identification strategy and hypotheses development

How does material non-public information flow from corporate insiders to sophisticated investors? What organizational characteristics restrain or exacerbate the magnitude of information transmission? How does this affect trading and security prices? These questions, while essential to understand, are difficult to answer. Insiders can be found on every level of the corporate hierarchy, the sophistication of traders is not readily apparent, both groups have incentives to keep their conversations about privileged information secret, and traders frequently disguise trades that could trigger regulatory attention. In light of these challenges, we develop a novel identification strategy that focuses on the possible information transmission between two important groups of people: we investigate whether patterns in trading behavior and securities prices suggest that privileged information flows from corporate directors to sophisticated traders.

By focusing on the board of directors, we study a group of clearly identifiable corporate insiders with privileged information about their firms. Unfettered access to material, non-public information is necessary to monitor and advise management, the social networks of directors are observable, and recent studies suggest that these networks are important conduits of information exchange. We argue that sophisticated traders can obtain privileged information from directors and trade profitably on that information before it becomes available to the broader market. If information is channeled towards