Blockholder Exit Threats and Financial Reporting Quality

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Abstract

Recent theoretical and empirical studies suggest that blockholders (shareholders with ownership ≥ 5%) exert governance through the *threat* of exit. These shareholders have strong incentives to gather private information and sell their shares when managers are perceived to underperform. To prevent blockholders from selling their shares and the firm from suffering a stock price decline, managers align their actions with the interests of shareholders. As a result, these managers are expected to have fewer incentives to conceal their activities and are less likely to manage earnings. Consistent with these predictions from economic theory, we find evidence that as exit threat increases, firms have higher financial reporting quality. Furthermore, the impact of blockholders' exit threat on financial reporting quality increases as the manager's wealth is tied more closely to the stock price. Our study contributes to the research on the impact of shareholders on financial reporting quality and to an emerging literature on the impact of blockholders in financial markets. Blockholders play an important role in managers' reporting outcomes through their actions as informed investors.

Key words: Blockholders, exit theory, financial reporting quality, liquidity, wealth-performance sensitivity, exogenous shocks

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I. INTRODUCTION

Motivated by recent theories and empirical findings in finance, this study explores the impact of blockholders' exit threat on firms' financial reporting quality (FRQ).[1] Previous theories argue that blockholders govern managerial behavior through intervention or "voice" (Shleifer and Vishny 1986; Admati, Pfleiderer, and Zechner 1994). Intervention theories rely on the willingness of shareholders to incur costly activities to improve firm value, such as advising management of strategic opportunities, preventing value-destroying actions (e.g., blocking wasteful mergers), or removing underperforming managers. Blockholders are willing to incur these intervention costs on behalf of all shareholders because unlike small shareholders, their proportional gains from increasing firm value are more likely to outweigh the costs. By intervening, blockholders limit managers' opportunistic activities, align the interest of shareholders and managers, and consequently mitigate managers' incentives to manipulate earnings as they have little to conceal from shareholders (Dechow, Sloan, and Sweeny 1996; Farber 2005). Thus, the presence of blockholders is predicted to relate positively to FRQ.

In practice, however, blockholder intervention may be difficult to implement in many instances. Some blockholders (e.g., mutual funds or insurance companies) may view their role as selecting stocks rather than actively engaging management in strategic decisions or launching takeover bids (Klein and Zur 2009). Pension funds may be unwilling to oppose management if they risk losing their contract to manage the firm's pension (Davis and Kim 2007). Thus, it may not always be the case that blockholders are willing to incur direct intervention costs.

[1] Blockholders are shareholders with ownership equal to or greater than 5%.

In addition, when blockholders identify suboptimal operations, their ability to intervene by removing board members and therefore managers could be limited. For example, firms may preemptively stagger their boards. Staggered (or classified) boards allow only a small portion of members to be removed in any given year. Intervention may also be limited by the inability of blockholders to exercise effective control (i.e., win a proxy fight). Relatively few blockholders have ownership of more than 10%. La Porta, Lopez-de-Silanes, and Shleifer (1999) suggest that ownership of at least 20% is needed to result in effective control. Thus, while a blockholder represents a material stockholder, it is not warranted that her "voice" is always heard, rendering the relation between blockholdings and FRQ unclear.

In this study, we consider an alternative mechanism by which blockholders may affect FRQ. Based on economic theory, recent studies in finance predict and find evidence that blockholders exert governance by threatening to sell the firm's stock ("exit" or do the "Wall Street Walk") in the presence of underperforming executives (Admati and Pfleiderer 2009; Edmans 2009; Edmans and Manso 2011). To prevent blockholders from selling their stake and the firm from suffering a stock price decline, managers are willing to align their actions with the interests of blockholders. The greater shareholder-manager alignment results in managers being more concerned with value creation activities rather than extraction of private benefits. As a result, managers are expected to engage in fewer suboptimal activities and therefore have less need to manipulate reported performance. Based on the theory that exit threat increases manager-shareholder alignment, we predict that governance of blockholders through exit threats should have a positive effect on FRQ. As discussed further below, the true governance comes from the *threat* of blockholder exit, not actual exit. Even if few exits are observed in practice, blockholder exit threats should be sufficient for governance (i.e., exit threat reduces incentives for earnings

management ex ante). Our study extends Edmans' (2009) theory of blockholders' exit threat (as augmented by Edmans and Manso 2011) to the accounting literature (i.e., FRQ).[2]

As blockholders may exert governance through either intervention or exit threats, documenting a positive association between total blockholdings and FRQ does not solely implicate the exit threat channel. We develop several key features in our research design to isolate the effects of exit threat on FRQ. First, we consider competition for trading profits among blockholders using the concentration of outside blockholdings (Herfindahl Index multiplied by minus one). Under exit theory, competition among blockholders results in more information being impounded into prices and therefore improved governance (Edmans and Manso 2011). In contrast, under intervention theory, multiple blockholders generate free-rider problems, which would have the effect of worsening governance.

Second, liquidity is a necessary condition for exit threats to be credible. Edmans (2009) demonstrates that if market illiquidity precludes the blockholder to trade upon private information, exit threats lose governance power. Moreover, as liquidity increases, blockholders are able to trade more aggressively, and therefore they have greater incentives to seek private information (i.e., become informed) to generate higher profits. Given the arguments above, we focus on the *interaction* between blockholder competition and stock liquidity to capture the intensity of exit threat.

To measure liquidity, in our primary analyses we follow extant finance literature and use the exogenous shocks of the decimalization of U.S. stock exchanges, the Russian default crisis, and the Asian financial crisis. A large body of research indicates that the decimalization events for NYSE and AMEX (on January 29, 2001) and for NASDAQ (in March 12, 2001) increased

[2] Exit theory does not necessarily suggest that blockholders *demand* greater FRQ. Instead, the theory supports exit threat improving governance through greater manager-shareholder alignment, which in turn is expected to improve FRQ. This is the test in which we are interested.

liquidity and provide a useful exogenous shock to stock liquidity (Bessembinder 2003; Furfine 2003; Fang, Noe, and Tice 2009; Bharat, Jayaraman, and Nagar 2013; Edmans, Fang, and Zur 2013). Similarly, several studies conclude that the two foreign crises significantly decreased liquidity in the U.S. stock market (e.g., Acharya and Pedersen 2005; Chordia, Sarkar, and Subrahmanyam 2005).

A third feature of our research design is measuring the sensitivity of managers' wealth to firm value. According to exit threat theory, the actions of blockholders represent those of an informed investor. Their exit from the firm sends a credible signal to the market of lower firm value, and the stock price declines. The decline is meaningful to the manager only to the extent his wealth is tied to the value of the firm's shares. It is this tie to personal wealth that incentivizes equity-aligned managers to act in the best interest of blockholders to dissuade them from exiting. Therefore, we predict that the effect of blockholder exit threats on FRQ will be greater when the manager's personal wealth is tied more closely to firm value. Intervention theory does not provide such a prediction.

To conduct our empirical analyses, we combine the sample of all S&P 1500 non-managerial blockholders used by Dlugosz, Fahlenbrach, Gompers, and Metrick (2006) for the time period 1996–2001 with our self-collected dataset covering 2002–2009. Thus, we have a large and representative sample (12,591 firm-year observations) to test our hypotheses. To measure FRQ, we rely on a comprehensive proxy that combines two measures of accrual quality (Kothari, Leone, and Wasley 2005; Dechow and Dichev 2002) and two real earnings management measures (Roychowdhury 2006; Cohen and Zarowin 2010; Zang 2012) into an aggregate FRQ score. Based on the discussion above, we predict a positive effect of blockholder exit threats on FRQ.

Consistent with predictions, we find strong evidence supporting the idea that FRQ is greater when blockholders' threat of exit increases, and this relation becomes stronger when managers' wealth is more sensitive to the stock price. These findings provide support for the theory of blockholder exit in firm governance. Our findings are robust to the inclusion of an extensive set of control variables motivated by prior research and to the use of individual FRQ proxies. Further, while our primary liquidity measures have been used in several recent finance papers (and represent exogenous shocks), we also employ alternative firm-level liquidity proxies used in prior literature (turnover and bid-ask spreads).

Although the theory models we rely on do not distinguish among different types of blockholders, in additional analyses we remove blockholders who are less likely to exercise their exit options (individuals and corporations). Consistent with our predictions, the statistical significance of our findings increases. Moreover, we find that FRQ increases around Schedule 13G filings, consistent with the idea that an increase in the intensity of blockholder exit threat improves firms' FRQ.[3] We also use alternative proxies for blockholder concentration and for managers' equity alignment. Finally, we employ a battery of robustness analyses including tests using narrow windows and a constant sample of firms around liquidity events. We find that conclusions are unaffected.

Our study provides several contributions. First, we investigate the impact of large shareholders on FRQ. Most U.S. firms (96%) contain at least one blockholder, and this is true in most other countries as well (Holderness 2009). Thus, the prominence of blockholders and their effect on FRQ should be of direct interest to accounting researchers. Edmans (2013) offers the conclusion that the issue of whether blockholders affect firm value remains unanswered. To the

[3] As discussed in more detail later, blockholders who file Schedule 13G intend to remain passive investors (i.e., they do *not* plan to engage in intervention). Thus, 13G filers can exert governance only through exit.

extent firms' FRQ relates to firm value, we offer evidence on this point. Firms' FRQ has been linked to important outcomes such as firms' investment efficiency (Biddle and Hilary 2006) and cost of capital (Lambert, Leuz, and Verrecchia 2007), both of which have a direct impact on firm value.

Second, we offer evidence on an emerging issue in the finance literature on the role of blockholders in financial markets. While blockholders represent material shareholders, their individual ownership stakes rarely exceed 20%, giving them little actual control or voice. Thus, absent recent research, one may question the existence and role of these "small" blockholders in firm governance. We add to research in finance by demonstrating that blockholders exert governance through the treat of exit. Our evidence is consistent with blockholders becoming informed investors who base their trades on managers' actions that enhance firm value rather than reported accounting numbers. As a result, prices are more likely to reflect fundamental value rather than current earnings, reducing managers' incentives to engage in earnings management to conceal suboptimal activities.

Third, our study adds to the accounting literature by presenting further evidence on how blockholders can influence firms' financial reporting practice by acting as "informed investors" rather than "controlling owners." The literature most often views shareholders' intervention role in affecting reporting outcomes. Our results suggest that blockholders play an important role through their actions as informed investors. Their potential trading sends an informed signal to the market on managerial performance and therefore likely affects managers' reporting outcomes.

Finally, although not the focus of our study, our research also adds to the literature on the desirability of stock versus cash compensation. Specifically, our results highlight another advantage of equity-based compensation for executives. While researchers have commonly

recognized that stock ownership aligns managers with shareholders, our study provides further support for the idea that such compensation-related alignment can also enhance the effectiveness of other governance mechanisms (exit threat).

The next section reviews related literature on large shareholders and in particular discusses recent research on exit threats. Section III explains our research design. Section IV provides details of sample selection and descriptive statistics. Empirical results are presented in Section V. Finally, Section VI concludes.

II. RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

Large Shareholders and Governance

The Capital Asset Pricing Model assumes that investors will hold diversified portfolios. In practice, however, we observe quite concentrated portfolios, even among the largest investors (e.g., Holderness 2003, 2009). This suggests that there are also benefits of concentrated ownership. The literature has mostly focused on how large-block ownership can result in improved monitoring of management (i.e., reduced agency costs).[4] That is, while all shareholders have the responsibility to monitor managerial activities, the benefits of doing so by any individual shareholder are proportional to the percentage of shares owned (Jensen and Meckling 1976; Shleifer and Vishny 1997). Put another way, when ownership is widely dispersed, it is economically less desirable for any individual shareholder to incur significant monitoring costs, because she will receive only a small portion of the benefits. Moreover, when ownership is dispersed, it is harder for shareholders to monitor managerial actions due to the free rider problem (Grossman and Hart 1980).

[4] An alternative view of blockholders (which is likely more relevant in low investor protection environments) is they have incentives to use their voting power to the detriment of minority shareholders.

Most of the prior literature has focused on how blockholders can influence firm behavior through intervention (or "voice"). Intervention includes activities such as obtaining board positions through proxy solicitations, private communication with management, class action lawsuits, and other forms of activism (e.g., public criticism or takeover bids). There is empirical evidence that intervention can positively impact firm value (Holderness 2003, 2009; Edmans 2013).[5]

Blockholders and Threat of Exit

A recent literature has emerged that emphasizes an alternative governance mechanism of large shareholders: their "exit option" and its effects on firm behavior.[6] In an influential study, Edmans (2009) analyzes how blockholders can induce managers to undertake efficient real investments through their informed trading of the firm's shares. The key points of his theoretical study are as follows.

First, blockholders gather private information about the firm and help impound this information into the stock price by trading. The literature provides clear evidence to support the private information acquisition of blockholders (e.g., Parrino, Sias, and Starks 2003; Bushman et al. 2004; Chen, Harford, and Li 2007; Bushee and Goodman 2007; Brockman and Yan 2009). Moreover, a large body of finance studies demonstrates that a significant negative impact of block selling on stock prices (Kraus and Stoll 1972; Scholes 1972; Mikkelson and Partch 1985; Holthausen, Leftwich, and Mayers 1990; Sias, Starks, and Titman 2006). The decline in firm

[5] Dou, Hope, Thomas, and Zou (2013) employ a Bertrand and Schoar (2003) – type fixed effects methodology to examine the importance of individual blockholders in affecting financial reporting quality. The find that adding individual blockholders to a model that includes firm fixed effects, year fixed effects, and time-varying firm characteristics, adds significantly to the explanatory power of the model. They also show that the market's reaction to earnings announcement suggests that investors recognize the heterogeneity in blockholders' influence on financial reporting quality.

[6] Edmans (2013) provides a useful review of literature in this area.

value occurs not because of an increased supply of the firm's shares in the market but because sales by blockholders send a signal to the market that an informed investor views firm value to be lower.

By becoming informed investors, blockholders encourage managers to undertake actions that enhance the fundamental value even if these actions reduce reported earnings in the short term. Blockholders' influence on managers is important because Graham, Harvey, and Rajgopal's (2005) survey finds that 78% of executives would sacrifice long-term value to meet short-term earnings targets. Edmans (2009) argues that blockholders can see through reported numbers and will sell if earnings are not backed up by strong fundamentals.[7] In this way, blockholders' actions cause stock prices to discipline managers' behavior.[8]

Extending Edmans' (2009) single-blockholder model, Edmans and Manso (2011) recognize that firms tend to have multiple blockholders. For example, Dlugosz et al. (2006) illustrate that 70% of firms have multiple blockholders. Similarly, Holderness (2009) shows that 74% of his sample firms have multiple blockholders and 26% have at least four blockholders. Edmans and Manso (2011) demonstrate analytically that a multiple blockholder structure can be efficient in that it increases the power of trading as a governance mechanism. This happens because it is difficult for multiple blockholders to coordinate to maximize combined trading profits. The competition among the blockholders impounds more information into prices and therefore *enhances* the threat of disciplinary trading. In contrast, voice theory suggests that the

[7] In Edmans' (2009) model, "investment" encompasses any action that enhances firm value (but worsens outsiders' perception in the short run). He further points out that earnings management can be viewed as "low investment" (or negative investment) in his model.

[8] The notion that stock prices play a role in monitoring managers is also developed in Holmström and Tirole (1993).

existence of multiple blockholders is suboptimal for governance through intervention due to free-rider problems.[9]

The second key point of Edmans' (2009) model is that under exit theory, liquidity is a positive contributor to governance. In an illiquid market, blockholders are compelled always to hold. They have no effect on stock prices and management decisions. In contrast, a liquid market allows blockholders to trade on private information, causing prices to reflect fundamental value. This in turn encourages managers to make decisions based on fundamentals rather than short-term profits. As a result, the *threat* of exit becomes credible and effective. While the literature refers to this governance mechanism as "exit," blockholder trading in both directions increase price informativeness (Edmans 2013). For example, if a blockholder retains her stake despite disappointing earnings, this is in fact a positive signal if liquidity exists so that the stake could have been sold easily. In addition, as liquidity increases, blockholders are more willing to acquire private information because they will be able to trade to earn profits. This action further enhances the exit mechanism to discipline managers.[10]

The expected positive relation between liquidity and governance under exit theory is in contrast to a body of prior research under the intervention theory that views liquidity's influence on governance as unclear. For example, some advocate that liquidity reduces governance by easing the ability of the blockholder to sell her shares, as opposed to staying to exercise her voice

[9] Another interesting aspect of exit threat is that the size of the blockholding may become a limiting factor. If the blockholder size becomes too large, liquidity becomes constrained because blockholders cannot sell their shares easily upon the acquisition of negative information due to price impact. Thus, the optimal block size may be relatively small, consistent with the prevalence of small blockholders in the U.S. In contrast, voice theory suggests that larger blockholdings offer greater voice and therefore greater governance.

[10] Admati and Pfleiderer (2009) use different modeling assumptions but generally reach the same conclusions as Edmans (2009). They show that the ability of large shareholders to exit on the basis of private information often helps in reducing agency costs and in aligning managerial decisions with shareholders' preferences. While some prior research argued that liquidity impairs governance, similar to Edmans, Admati and Pfleiderer show that the threat of exit can be a form of shareholder activism, and this mechanism depends on market liquidity. Further, they find that the effect of actual or implied selling of holdings by shareholders will be especially pronounced when the manager's compensation is more strongly tied to the stock price.

(Coffee 1991; Bhide 1993; Aghion, Bolton, and Tirole 2004). Other researchers contend that liquidity could have a positive effect on governance even under voice theory (e.g., Maug 1998). Maug shows that when block size is endogenous, liquidity is beneficial because it encourages a larger block to form in the first place and therefore promotes monitoring.

Overall, Edmans' models and results are important because they provide a role for value enhancement even when direct intervention is not feasible or too costly (as discussed above). His theoretical findings are consistent with the survey evidence of McCahery, Sautner, and Starks (2011) which shows that large shareholders use "exit" more frequently than any other governance mechanism. The theoretical results are also borne out in empirical research.

Edmans, Fang, and Zur (2013) provide empirical support for some of the theoretical predictions in the afore-mentioned studies. Blockholders are required to file Schedule 13 with the SEC upon acquiring at least 5% ownership. Those blockholders intending to engage in intervention file Schedule 13D.[11] Those blockholders intending to remain passive file Schedule 13G. Thus, 13G filers can exert governance only through exit. Consistent with the benefits of exit theory, the authors find that an increase in liquidity increases the likelihood of filing 13G instead of 13D. As further evidence of the governance effect of exit theory, 13G filings lead to a positive market reaction and an improvement in future performance, and these effects are stronger for firms with greater liquidity and when the manager's wealth is tied more closely to stock price.

Additional empirical evidence for exit theory is found in Bharath, Jayaraman, and Nagar (2013). To the extent exit threat increases governance, Bharath et al. (2013) predict and find evidence that firms with larger blockholdings experienced increases (declines) in firm value as

[11] Intentions filed in a 13D include changing the CEO or board, changing capital structure, selling assets, opposing or inducing a merger, proposing a spin-off, increasing the dividend, and cutting executive pay (Edmans et al. 2013).

liquidity increases (declines), particularly if the manager's wealth is sensitive to the stock price. We extend tests of exit theory to the accounting literature by examining the relation between exit threat and FRQ.

Hypotheses

The above theoretical and empirical studies provide evidence consistent with blockholders' threat of exit positively affecting managerial behavior. Blockholders have incentives to gather private information and exit the firm (i.e., sell shares) in the presence of underperforming managers. Such an exit by these informed investors sends a credible signal to the market of lower firm value. To the extent the manager's wealth is tied to the stock price, the manager has incentives to align his actions with the interest of blockholders to prevent their exit. As a result of greater shareholder-manager alignment through exit threat, managers engage in fewer suboptimal activities and therefore have less to conceal from shareholders, naturally reducing the need to manipulate reported performance (e.g., managing earnings upward to meet short-term benchmarks or managing earnings downward for "cookie jar" reserves). Based on these arguments, we provide the following prediction:

Hypothesis 1: Blockholders' threat of exit increases financial reporting quality.

The extant literature concludes that the impact of blockholders' threat of exit increases as the manager's wealth is more sensitive to the firm's stock price. The link between management's personal wealth and firm value is most often measured using the link between compensation and stock returns. Our second hypothesis is as follows:

Hypothesis 2: The effect of blockholders' threat of exit on financial reporting quality is stronger in firms with higher managerial wealth sensitivity to stock price.

III. RESEARCH DESIGN

Threat of Exit Measure

As discussed above, the potency of blockholder exit threats increases with both the competition among blockholders and stock liquidity. Consequently we focus on the interaction between these two constructs to capture the intensity of exit threats.

Blockholder Competition Measure

Motivated by prior theory and empirical studies (Laeven and Levine 2008; Edmans 2009; Admati and Pfleiderer 2009; Edmans and Manso 2011), we use the Herfindahl Index of block ownership, multiplied by minus one, to capture the dispersion (or competition) of blockholders:

$$BHCOMP_{i,t} = -1 \times \sum_{k=1}^{N} \left(\frac{Block_{k,i,t}}{Block_{i,t}} \right)^2$$

Where $Block_{k,i,t}$ is the number of shares held by blockholder k in firm i for year t, $Block_{i,t}$ is the total shares held by all blockholders of firm i in year t, and N is the total number of blockholders in firm i. As the typical Herfindahl Index captures concentration, we multiply the index by minus one. A higher value of *BHCOMP* indicates more competition in trading.[12]

[12] Akins, Ng, and Verdi (2012) adopt a similar measure but they only focus on institutional investors. A recent study by Agarwal et al. (2013) documents that a considerable portion of institutional holdings receives confidential treatment. In contrast, there is no confidential treatment for blockholdings via proxy statements.

Blockholdings are calculated based on *non-management* holdings because we focus on the disciplinary role of exit threats. Management holdings are not expected to affect FRQ through exit threats. We follow Dlugosz et al.'s (2006) classifications to identify outside blockholders. In the robustness section, we use the number of outside blockholders as a second measure of blockholder competition. Using the Herfindahl Index or number of blockholders (as opposed to a simple indicator variable for the presence of blockholding) also provides the advantage of allowing greater cross-sectional variation. Nearly all firms have at least one blockholder, so the presence of blockholding does not provide a distinguishing characteristic across most firms.

Stock Liquidity Measures

To avoid issues related to potential endogeneity of liquidity (and for consistency with extant finance literature), in our primary analyses we use three exogenous events that significantly affect stock liquidity. In the first event, we use an indicator for post-decimalization to measure its effect of liquidity (*DEC*). As discussed in several recent finance studies, the NYSE and AMEX decimalization events on January 29, 2001, and for NASDAQ on March 12, 2001, provide an exogenous shock to stock liquidity (Bessembinder 2003; Furfine 2003; Fang et al. 2009; Bharat et al. 2013; Edmans et al. 2013), and thus to exit threats (Bharath et al. 2013). We define an indicator variable *DEC* and assign the value of one to fiscal year ends after January, 2001, for NYSE and AMEX stocks and after March, 2001, for NASDAQ stocks.

For the other two events, we focus on the Asian financial crisis (*ASIAN*) and the Russian default crisis (*RUSSIAN*).[13] Following prior research, we denote fiscal-year ends between July

[13] The Asian crisis began in July 1997 following the financial collapse of the Thai baht. On August 17, 1998, the Russian government and the Central Bank of Russia announced that Russia was forced to default on some of its

1997 and December 1997 as the Asian crisis period, and between August 1998 and December 1998 as the Russian crisis period. Given the foreign nature of the crises, their impact on the U.S. stock market was primarily through stock liquidity. We compare firms with year ends during the crises to those with year ends outside of the crises.

An important research design feature of ours is that whereas the decimalization of U.S. stock exchanges *increased* liquidity, the two foreign crises *decreased* liquidity, thus allowing for stronger identification of causal effects related to liquidity. In additional analyses reported later, we employ two cross-sectional firm-level liquidity measures: turnover ratio and bid-ask spreads.

Financial Reporting Quality Measures

The literature offers many types of FRQ measures, and even within each type, considerable variation in variable measurement and estimation exists. We do not attempt to test each variation, but instead construct a comprehensive measure using proxies commonly employed in the literature (all estimated within industry): (1) absolute value of discretionary accruals from the modified Jones model controlling for current return on assets (Kothari, Leone, and Wasley 2005) (*ABSKLW*); (2) absolute value of discretionary accruals from the Dechow-Dichev (2002) model as modified by Ball and Shivakumar (2006) (*ABSBSDD*); (3) real earnings management related to abnormal discretionary expenses and abnormal production costs (*RM1*); and (4) real earnings management pertaining to abnormal discretionary expenses and abnormal operating cash flows (*RM2*).[14] Each variable is ranked from 0 to 9, and scaled by 9 to range from

short-term sovereign debt and devalue its currency. The Russian government declared a suspension of payments to foreign creditors by commercial banks. Prior studies document a significant drop in U.S. stock market liquidity during these two crisis periods (Acharya and Pedersen 2005; Chordia, Sarkar, and Subrahmanyam 2005). These two events were unexpected foreign events and the duration was unknown at the time.

[14] Prior studies that employ these real earnings management measures include (among others) Roychowdhury (2006), Cohen and Zarowin (2010), and Zang (2012).

0 to 1. The average rank is multiplied by minus one so that higher values represent higher quality. Please see the Appendix for variable definitions and more details.

Empirical Model

To test our hypotheses, we estimate the following OLS equation. Standard errors are clustered by firm and year. Conclusions are unchanged if we instead cluster by firm, by year, or by industry.

$$FRQ_{i,t} = \alpha_0 + \beta_1 BHCOMP_{i,t} + \beta_2 LIQUIDITY_{i,t} + \beta_3 BHCOMP_{i,t} \times LIQUIDITY_{i,t} + \alpha_n Control_{n,i,t} + \varepsilon_{i,t.} \quad (1)$$

Financial reporting quality ($FRQ_{i,t}$) is the average ranking of individual measures used in several prior studies. $BHCOMP_{i,t}$ denotes blockholder competition, measured using the Herfindahl Index of outside blockholdings multiplied by minus one. $LIQUIDITY_{i,t}$ indicates one of the three liquidity events (*DEC*, *ASIAN*, and *RUSSIAN*). Exit threat theory predicts that governance is exerted through greater blockholder competition and greater stock liquidity. Thus, we focus on the *interaction* of *BHCOMP* and *LIQUIDITY* to measure the effect of exit threat on *FRQ*. Hypothesis 1 predicts β_3 to be positive.[15]

We control for variables identified by prior literature to influence $FRQ_{i,t}$, including log of total assets (*SIZE*), firm performance (*ROA*), revenue volatility (*REVVOL*), cash flow volatility (*OCFVOL*), leverage (*LEV*), book-to-market value (*BTM*), and analyst following (*ANALYST*). We also include year fixed effects to control for time trends.[16]

[15] Note that in the real world, governance via exit could potentially be concomitant with governance via intervention. As these two mechanisms yield opposite predictions on the main effect of *BHCOMP*, we do not form an expectation on sign of β_1. Similarly, the sign on β_2 is unclear ex ante.

[16] Following Bharath et al. (2013) and Edmans et al. (2013), we omit year fixed effects for 2001 and 2002 in the decimalization specification. If we exclude year fixed effects results are stronger than those reported for all tests.

Our second hypothesis examines the role of managerial wealth sensitivity to the stock price. In the intervention theories, managerial wealth sensitivity plays no direct role. In contrast, exit threat models predict that the threats will be more effective when managers' wealth is more sensitive to the stock price. We predict that β_3 is more positive in the high wealth-sensitivity subsample. We use the "scaled-wealth-performance sensitivity" measure (*WPS*) from Edmans, Gabaix, and Landier (2009). *WPS* is defined as the dollar change in CEO wealth for a one-percentage change in firm value, divided by annual pay. An advantage of *WPS* as an incentive measure is that, empirically, it is independent of firm size, and thus comparable across firms and over time (Edmans et al. 2009).[17] In an additional analysis, we partition the sample by the pay-performance-sensitivity (*PPS*) of managers' stock-based compensation.

IV. SAMPLE AND DESCRIPTIVE STATISTICS

Our sample spans 1996 to 2009. For the period 1996-2001, we use the blockholder data set of Dlugosz et al. (2006) for S&P 1500 firms. As Dlugosz et al. discuss in detail, annual proxy statements required by Regulation 14A provide the preferred data source of blockholding information.[18] Following their procedure, we additionally hand-collect blockholder data for S&P 1500 firms from their annual proxy statements for the years 2002-2009. Consistent with prior literature, we exclude financial industry firms, utility firms, and firms with dual class shares. Such data include blockholder names and addresses, percentage of holdings, and blockholder

[17] Please see http://faculty.london.edu/aedmans/data.html for more details on the construction of *WPS*.

[18] Blockholder information is also available from other sources, such as Compact Disclosure, ExecuComp, IRRC Directors, Thomson Reuters (13F), 13D/G filings, and insider trading filings (Forms 3, 4, and 5). However, these sources suffer from various problems: Compact Disclosure often double-counts blockholdings (Dlugosz et al. 2006); ExecuComp and IRRC Directors only provide the ownership of top managers and directors; Thomson Reuters (13F) only covers institutional investors and suffers from classification errors (Chen, Harford, and Li 2007); the 13D/G filing requirements do not apply to existing blockholders; and the reliance on aggregated insider trading may lead to incorrect inferences regarding the holdings of large shareholders (Anderson and Lee 1997; Jeng, Metrick, and Zeckhauser 2003).

affiliation. Following Dlugosz et al. (2006), we carefully adjust for biases and double-counts by using the information in the proxy notes on the ownership structure of jointly held blocks.

We combine Dlugosz et al.'s (2006) sample (1996-2001) with our sample (2002-2009) to form a very comprehensive block ownership dataset (excluding managerial holdings). The final sample consists of 12,591 firm-year observations. Panel A of Table 1 shows that the sample spans several industries, although there is some concentration in Business Equipment and Manufacturing. Panel B reveals that we have an increasing sample over time but with no major changes from year to year in the number of observations. Table 2 provides descriptive statistics.

V. EMPIRICAL RESULTS

Tests of Hypotheses

Our primary findings are reported in Tables 3 and 4. Specifically, results of tests of H1 are in Table 3. As discussed above, our focus is on the interaction between the blockholder competition variable (*BHCOMP*) and the external liquidity shocks (*DEC*, *ASIAN*, and *RUSSIAN*). As both Rajan and Zingales (1998) and Lang and Maffett (2011) emphasize, focusing on interaction terms makes it more difficult to envision a consistent theory in which causality is reversed yet the subsample results hold.

The interaction involving the U.S. stock exchange decimalization is positive and significant as expected (p-value < 0.10 using a two-sided test). Decimalization increased liquidity and therefore enhanced the ability of exit threat to affect FRQ. Furthermore, both interaction terms involving the foreign shocks are negative as predicted and highly statistically significant (p-value < 0.01 using two-sided tests). The crises led to lower stock liquidity, reducing the effect of exit threat on FRQ. In addition to being statistically significant, the

interaction effects (here and below) are also economically meaningful. We multiply the interquartile range of *BHCOMP* (see Table 2) times the coefficient on the interaction of *ASIAN* and *BHCOMP* ($0.283 \times -0.081 = -0.023$). Thus, firms in the first versus third quartile of *BHCOMP* have an increase in FRQ of 0.023 during the Asian crisis, which translates into 12.3% of the FRQ standard deviation. The results reported in Table 3 support the prediction of H1 of a positive relation between exit threat and FRQ. With greater exit threats, managers are less likely to manipulate performance.[19]

Table 4 shows the results for testing the prediction from exit theory that threats will be more effective when managers' wealth is more closely tied to the stock price (H2). Our findings strongly support this exit theory prediction. Specifically, the interaction terms are signed correctly and are highly statistically significant for all three liquidity proxies when the manager's wealth is strongly sensitive to the firm's stock price (high *WPS* subsamples). When we use *DEC*, the interaction term is not significant for the low *WPS* subsample. For the low *WPS* subsamples, the interaction terms for *ASIAN* and *RUSSIAN* are still statistically significant, but the magnitudes are much lower. In the far right column, we test the difference in coefficients between the two samples (using a pooled sample and interaction terms) and find significant differences for all three liquidity proxies (p-value < 0.01 using two-sided tests). These findings lend further support to the role of potential exit in affecting FRQ. The results also provide additional credibility to the findings reported for H1. That is, we find that the results are significantly more pronounced in the subsamples for which theory and prior research predict that the findings should be more relevant. These results cannot be explained by intervention theories.

[19] The estimated coefficients for *SIZE* are negative, which is counter to our predictions and most prior research. This finding can be explained by the correlation between *SIZE* and *ANALYST*. If we exclude *ANALYST* from the regression, *SIZE* is positive (but not significant). More importantly, no inferences are affected.

Additional Tests

We conduct a number of additional analyses related to alternative measures of our key variables, a change analysis, different sample composition, and time trend. For brevity we only tabulate the first four robustness tests.

Firm-level liquidity measures

For our primary tests, we measure liquidity using two financial crises (Asian and Russian) and decimalization of U.S. stock exchanges. These events offer the advantages of (1) having a clear effect on stock liquidity, as documented in several studies, (2) both decreasing (in the case of crises) and increasing (in the case of decimalization) liquidity, allowing more robust tests, and perhaps most importantly (3) being exogenous shocks to liquidity. Related to the last point, liquidity and FRQ may be jointly determined by firms' other (unobservable) governance characteristics, or causality may run from FRQ to liquidity. The use of exogenous events helps to dispel these possibilities.

Despite these advantages, in this section we explore two firm-level measures of liquidity that are widely used in the literature. We calculate stock turnover (*TURNOVER*) as the annual average of daily turnover (trading volume divided by shares outstanding). We also use the high-low spread (*SPREAD*) measure from Corwin and Schultz (2012) calculated using daily prices and volume data.[20] While firm-level measures potentially suffer from endogeneity concerns discussed above, they nevertheless provide a useful sensitivity test for our hypotheses. In addition, they offer the advantage of being measured at multiple points in time. The three exogenous liquidity events in our primary tests are potentially affected by time-varying factors,

[20] Corwin and Schultz (2012) develop this bid-ask spread estimator (from daily high and low prices) that is easy to calculate, can be applied in a variety of research areas, and generally outperforms other low-frequency estimators.

although we have no reason to suspect that this is the case. We cannot think of any factors which changed in one direction around the crises and then in the opposite direction around decimalization that would drive the relation between blockholders and FRQ. Recall further that we control for time trends through year fixed effects in all analyses.

The results using firm-level liquidity measures are reported in Table 5. They provide the same conclusions as those in Tables 3 and 4. For the full sample, the impact of blockholder concentration on FRQ is increasing in firm-level liquidity. Furthermore, this effect is more pronounced (and significant only) for firms in which the manager's wealth is tied more closely to the stock price. Finally, the differences between the high and low *WPS* subsamples are significant at the 0.05 level, providing additional support for our hypotheses.

Tests excluding individuals and corporations

In this study, we test the models of Edmans (2009) and Edmans and Manso (2011) as applied to financial reporting quality. Note that these models do not distinguish among different types of blockholders; correspondingly we include all (non-managerial) blockholders in our primary analyses. However, there exist certain blockholders who on an ex ante basis are less likely to exercise the exit option compared with other blockholders. In particular, individual blockholders are often family members with a long ownership horizon and corporate owners tend to have customer/supplier relationships with the firm in question.[21] For these reasons, for robustness we exclude both individuals and corporations from our sample and rerun the analyses using only the blockholders who are relatively more likely to engage in trading. We report the

[21] Consistent with these ex ante arguments, individuals and corporations have the longest mean holding periods in our sample.

results in Table 6. Consistent with our predictions, the findings are even stronger than those reported in Table 4 and thus lend additional support to our exit theory predictions.

Change in FRQ around 13G filings

To corroborate our main findings, we explore the change in FRQ around 13G filings. All blockholders are required to file Schedule 13 upon obtaining ownership of at least 5% in a public firm. Blockholders intending to engage in intervention have to file a Schedule 13D. Those who intend to remain passive file a Schedule 13G. As discussed in section II, Edmans et al. (2013) demonstrate that a 13G filing represents a governance mechanism via exit threat (rather than intervention). If blockholder exit threat mitigates incentives to manage earnings, a firm's FRQ should improve after 13G filings.

We obtain all 13G filings of our sample firms during 1996-2009 using the SEC EDGAR database. We focus on the first 13G filings and denote the first filing year as the event year. In addition, in order to isolate the effect of exit threat, we further require that no 13D is filed in year *t-1*, *t, or t+1*. The entry threat variable, denoted *FIRST_13G,* takes the value of 1 for *t* and *t+1*, and zero for *t-1*. To gauge the within-firm variation in FRQ, we require that each firm must have one observation for year *t-1* and at least one observation for year *t* or *t+1*. The sample consists of 732 firm-year observations for 247 firms. We then estimate an OLS regression of FRQ on *FIRST_13G*, controlling for time-varying firm characteristics (*ROA, SIZE, BTM, LEV, OCFVOL, REVVOL,* and *ANALYST*), year fixed effects, and (most importantly) firm fixed effects. As Table 7 shows, the coefficient on *FIRST_13G* is positive and statistically significant at the 5% level (using a directional test). This finding is consistent with the notion that an increase in the intensity of blockholder exit threat improves firms' FRQ.

Use of PPS instead of WPS

To assess the robustness of our findings to the use of *WPS* to proxy for equity-aligned managers, we further partition the sample by the pay-performance sensitivity (*PPS*) of managers' stock-based compensation. Following Core and Guay (2002), *PPS* is calculated as the change in the dollar value (in millions) of the CEO's stock and option holding for a one percent change in the stock price. We expect the coefficient on the interaction of liquidity and blockholder concentration (β_3 in equation 1) to be greater for the subsample with higher *PPS*. Consistent with predictions and with the use of *WPS*, Table 8 shows that the interaction terms are highly statistically significant for the high *PPS* subsamples and less significant for the low *PPS* subsamples. Furthermore, the differences across the two are significant at the one percent level for *ASIAN* liquidity proxy, and at the five percent level for *RUSSIAN* and *DEC*. These findings strengthen the inferences using *WPS*.

Alternative measures of FRQ

For FRQ, we separately examine the four individual measures (two for discretionary accruals and two for real earnings management) for each of the three liquidity events (*DEC*, *ASIAN*, and *RUSSIAN*). Across these 12 tests, we find that ten provide significant evidence consistent with H1.[22] Across all 12 tests, we find significant evidence to support H2. Evidence of the effect of exit threat on FRQ is more pronounced when managers' wealth is tied more closely to the stock price.

[22] The two specifications that do not provide statistical significance are (1) *ABSBSDD* using *DEC* and (2) *RM2* using *DEC*.

Alternative measure of blockholder concentration

As an alternative to measuring blockholder concentration using the Herfindahl Index, we test our hypotheses using a simple measure based on the raw number of blockholders. No inferences are affected with this alternative measure.[23]

Sample composition

We employ the full sample over the period 1996-2009 for our primary analyses. For decimalization (in 2001), this entails comparing the relation between blockholder concentration and FRQ before decimalization to the relation after decimalization. For the crises, firms with year ends during the crises are compared to those with year ends outside of the crises. For each of these tests, it is possible that some firms exist during one period but not the other. Thus, we potentially make time-period inferences based on different sample observations. We address this possibility two ways. First, we require that each firm exist both before and after the event. Results (untabulated) using this constant sample of firms are similar to those in our primary tests. The relation between blockholder concentration and FRQ increases with liquidity.

Our second approach is to narrow the window around each event. For decimalization, we use observations over the period 1996-2006 (i.e., five years before and after decimalization in 2001). For the crises, we combine *ASIAN* and *RUSSIAN* into a single *CRISES* variable that has a value of 1 during the Asian or Russian crisis period (July-December 1997 or August-December 1998). *CRISES* equals 0 in the period immediately before the Asian crisis (January 1996 to June 1997) and in the period immediately after the Russian (January 1999 to December 2000). Note that, to the extent that our tests using exogenous shocks may be confounded by the effects of

[23] We also rerun the analyses using *managerial* blockholdings only and find that the interaction term is *not* statistically significant. This finding provides further support for our hypothesis as there is no disciplinary role of exit threats associated with managerial ownership.

SOX on FRQ, this short-window analysis is entirely pre-SOX and thus unaffected by any such potential effects. We again find that our conclusions are unaffected by these alternative sample windows.[24]

Time trend effects

The observed results using liquidity shocks could simply be an artifact of a time trend (not fully captured by the inclusion of year fixed effects). To rule out this possibility, we conduct "pseudo shock" analyses during the 2002-2007 period (i.e., post decimalization, post SOX, and pre U.S. financial crisis). For our first test, we define the liquidity event period as 2004-2005. The pre period is 2002-2003 and the post period is 2006-2007. We do not find statistical significance when interacting this pseudo liquidity event with *BHCOMP*. Second, we do not find significance if we define 2002-2004 as the low liquidity period, and 2005-2007 as the high liquidity period (or vice versa).

VI. CONCLUSIONS

A recent literature has emerged that emphasizes that large shareholders exert governance by *threatening* to sell their shares ("exit") when managers underperform (Edmans 2013). Specifically, because of their relatively large ownership stake, blockholders (shareholders with ownership $\geq$ 5%) have incentives to gather costly private information and trade on that information to earn profits. By impounding their private information into security prices, blockholders encourage managers to align their actions with the interests of shareholders. As a

[24] We have also considered a broader definition of *CRISES* in which we also include the U.S. financial crisis in the second half of 2008. Inferences are not affected in this analysis. We choose not to focus on the U.S. financial crisis because, as discussed in Bharath et al. (2013) and Ivashina and Scharfstein (2010), the U.S. crisis likely affected firm fundamentals and hence FRQ directly, reducing its ability to serve as an exogenous shock.

result of the increased incentives for aligned actions, these managers are expected to engage in fewer suboptimal activities and therefore are less likely to need to manipulate reported performance to conceal true performance. We extend the literature on the governance role of blockholders' exit threat to the accounting literature by determining its impact on financial reporting quality.

We develop three key features of our research design to measure exit threat. First, we consider blockholder concentration. Edmans and Manso (2011) demonstrate that blockholder competition increases the search for private information and therefore increases the threat of disciplinary trading as a governance mechanism. We measure blockholder concentration using the Herfindahl Index.

Second, we predict that stock liquidity enhances the credibility of exit threat (Edmans 2009). Liquidity encourages blockholders to search for private information because they are more likely to be able to trade (with less price impact) on that information. In other words, liquidity validates the threat of exit. To measure liquidity, in our primary analyses we follow extant finance literature and use the time periods during the Asian financial crisis, the Russian default crisis, and the decimalization of U.S. stock exchanges. These events are useful in our setting because they are expected to have a clear effect on liquidity and they occur exogenously to the firm. At the firm level, it is possible that the relation between liquidity and financial reporting quality may be jointly determined by unobservable firm characteristics (i.e., endogeneity). Furthermore, the crises are expected to decrease liquidity while decimalization increases liquidity, reducing the possibility that other time-varying factors play a role. We predict that the interaction between blockholder competition and stock liquidity captures the

intensity of exit threat and therefore its ability to serve as a governance mechanism for financial reporting quality.

As a third feature of our research design, the predictions from exit theory are expected to be more prominent when the manager's wealth is tied more closely to the stock price. When blockholders sell their shares, they send an informed signal to the market that the firm's stock price is too high relative to its fundamental value. Perhaps not surprisingly, several studies document a decline in stock prices when blockholders sell (Holthausen et al. 1990; Sias et al. 2006). This decline is meaningful to the manager to the extent his wealth is tied to the stock price. To prevent blockholder exit (and a decrease in personal wealth), these managers are more likely to align their actions with the interests of shareholders, as the threat of exit is more meaningful to them.

Using a sample of all S&P 1500 non-managerial blockholders for the time period 1996-2009, we test the theory models of Edmans (2009) and Edmans and Manso (2011) in the context of financial reporting quality and find evidence consistent with the predictions above. Specifically, the interaction between blockholder competition and stock liquidity relates positively to financial reporting quality, where financial reporting quality is measured as an aggregate of two measures of accrual quality (Kothari et al. 2005; Dechow and Dichev 2002) and two real earnings management measures (Roychowdhury 2006; Cohen and Zarowin 2010; Zang 2012). Furthermore, using the wealth-performance sensitivity measure from Edmans et al. (2009), we find that the relation between exit threat and financial reporting quality increases as the manager's wealth is tied more closely to stock price performance. Our results are robust to using firm-level measures of liquidity, the number of blockholders to measure competition, individual measures of accrual quality and real earnings management to measure financial reporting quality,

a changes specification, removing blockholders who are less likely to exercise their exit option from the sample, a constant sample across liquidity events, short windows around liquidity events, and several firm-level controls. Overall, our findings demonstrate a specific mechanism by which (large) shareholders exert governance on firms' financial reporting outcomes – the threat of exit.

Presumably, blockholders' influence would extend to other aspects of financial reporting as well. For example, the threat of exit could improve the transparency of firms' financial disclosures, increase managers' willingness to issue (accurate) forecasts, possibly limit the demand for conditional conservatism in reported earnings, and reduce other forms of earnings management that occur through classification shifting. We suggest that these are interesting avenues for future research.

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Appendix
Variable Definitions

Financial Reporting Quality

FRQ The average rank of the following four financial reporting quality variables, multiplied by minus one so that higher values represent higher quality. Each variable is ranked from 0 to 9, and scaled by 9 to range from 0 to 1.

ABSKLW Discretionary accruals proxy #1, measured as the absolute value of residuals from the Kothari et al. (2005) model estimated for each two-digit SIC industry-year with more than 20 observations:

$$Accr_{i,t} = \alpha_0 + \alpha_1\left(\frac{1}{Assets_{i,t-1}}\right) + \alpha_2\Delta Rev_{i,t} + \alpha_3 PPE_{i,t} + \alpha_4 ROA_{i,t} + \varepsilon_{i,t}$$

$Accr_{i,t}$ is total accruals measured as income before extraordinary items (ib_t) minus operating activities net cash flow ($oancf_t$), then scaled by lagged total assets (at_{t-1}) for firm *i* in year *t*. $\Delta Rev_{i,t}$ is the annual change in revenues ($\Delta sale_t$) for firm *i* in year *t*, and $PPE_{i,t}$ is property, plant, and equipment for firm *i* in year *t* ($ppegt_t$), both scaled by lagged total assets (at_{t-1}). *ROA* is income before extraordinary items (ib_t) divided by lagged total assets (at_{t-1}).

ABSBSDD Discretionary accruals proxy #2, measured as the absolute value of residuals from Ball and Shivakumar's (2006) adjustment to the Dechow-Dichev model estimated for each three-digit SIC industry with at least 30 observations:

$$Accr_{i,t} = \alpha_0 + \alpha_1 OCF_{i,t-1} + \alpha_2 OCF_{i,t} + \alpha_3 OCF_{i,t+1} + \alpha_4 DOCF_{i,t} + \alpha_5 DOCF_{i,t} * OCF_{i,t} + \varepsilon_{i,t}.$$

$Accr_{i,t}$ is total accruals measured as income before extraordinary items (ib_t) minus operating activities net cash flow ($oancf_t$), then scaled by lagged total assets (at_{t-1}) for firm *i* in year *t*. $OCF_{i,t}$ is operating cash flows ($oancf_t$) scaled by lagged total assets (at_{t-1}). $DOCF_{i,t}$ is an indicator that is equal to one for periods of economic losses (negative $OCF_{i,t}$).

RM1 Real earnings management activity proxy #1, measured as the sum of abnormal discretionary expenses multiplied by minus one and abnormal product costs. Normal production costs are estimated for each two-digit SIC industry-year with more than 20 observations:

$$\frac{PROD_{i,t}}{Assets_{i,t-1}} = k_1\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{i,t}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{i,t}}{Assets_{i,t-1}} + k_4\frac{\Delta Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{i,t}$$

where $PROD_{i,t}$ is production costs measured as costs of goods sold ($cogs_t$) plus change in inventory ($\Delta invt_t$). $Assets_{i,t-1}$ is lagged total assets (at_{t-1}). $Sales_{i,t}$ is the annual revenues ($sale_t$) for firm *i* in year *t*. $\Delta Sales_{i,t}$ is the annual change in revenues ($\Delta sale_t$) for firm *i* in year *t*

Normal discretionary expenses are estimated for each two-digit SIC industry-year with more than 20 observations:

$$\frac{DISX_{i,t}}{Assets_{i,t-1}} = k_1\frac{1}{Assets_{i,t-1}} + k_2\frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{i,t}$$

where $DISX_{i,t}$ is discretionary expenses measured as the sum of advertising expenses (xad_t), R&D expenses (xrd_t), and selling, general, and administrative expenses ($xsga_t$). $Assets_{i,t-1}$ is lagged total assets (at_{t-1}). $Sales_{i,t-1}$ is the annual revenues ($sale_t$) for firm *i* in year *t-1*.

Appendix (continued)
Variable Definitions

RM2 — Real earnings management activity proxy #2, measured as the sum of abnormal discretionary expenses and abnormal *OCF*, then multiplied by minus one. Normal *OCF* is estimated for each two-digit SIC industry-year with more than 20 observations:

$$\frac{OCF_{i,t}}{Assets_{i,t-1}} = k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{Sales_{i,t}}{Assets_{i,t-1}} + k_3 \frac{\Delta Sales_{i,t}}{Assets_{i,t-1}} + \varepsilon_{i,t}$$

where $OCF_{i,t}$ is operating cash flows ($oancf_t$) scaled by lagged total assets (at_{t-1}). $Assets_{i,t-1}$ is lagged total assets (at_{t-1}). $Sales_{i,t}$ is the annual revenues ($sale_t$) for firm *i* in year *t*. $\Delta Sales_{i,t}$ is the annual change in revenues ($\Delta sale_t$) for firm *i* in year *t*

Liquidity

DEC — Indicator variable denoting the decimalization period, taking the value one for firm-years with fiscal year-ends after January 31,2001, if traded on the NYSE/AMEX, or after April 9, 2001, if traded on NASDAQ.

ASIAN — Indicator variable denoting the Asian financial crisis, taking the value one for firms with fiscal year-ends between July 1997 and December 1997.

RUSSIAN — Indicator variable denoting the Russian financial crisis, taking the value one for firms with fiscal year-ends between August 1998 and December 1998.

Blockholder Competition

BHCOMP — The Herfindahl Index, defined as $BHCOMP_{i,t} = -1 \times \sum_{k=1}^{N} \left(\frac{Block_{k,i,t}}{Block_{i,t}} \right)^2$

where $Block_{k,i,t}$ is the number of shares held by blockholder *k* in firm *i* for year *t*, $Block_{i,t}$ is the total shares held by all blockholders of firm *i* in year *t*, and *N* is the total number of blockholders in firm *i*. As the typical Herfindahl Index captures concentration, we multiply the index by minus one. A higher value of *BHCOMP* indicates more competition in trading.

Wealth-Performance Sensitivity

WPS — Dollar change in CEO wealth for a one percentage point change in firm value, divided by annual pay as in Edmans, Gabaix, and Landier (2009).

Other Firm Characteristics

SIZE — The natural logarithm of total assets (at_t)

ROA — Income before extraordinary items (ib_t) divided by lagged total assets (at_{t-1}).

REVVOL — The standard deviation of revenue (scaled by lagged total assets) over the past five years.

Appendix (continued)
Variable Definitions

OCFVOL	The standard deviation of operating cash flows (scaled by lagged total assets) over the past five years.
LEV	Long-term debt ($dltt_t$) divided by the sum of long-term debt and book value of equity (ceq_t).
BTM	The book ($at_t - lt_t$) to market ($prcc\_f_t \times csho_t$) ratio.
ANALYST	Number of analyst issuing earnings forecasts for a firm.

Table 1
Sample Distribution

Panel A: Fama-French 12 Industry Distribution

Ind. #	Industry Name	Frequency	Percent
1	Consumer NonDurables -- Food, Tobacco, Textiles, Apparel, Leather, Toys	729	5.79
2	Consumer Durables -- Cars, TV's, Furniture, Household Appliances	451	3.58
3	Manufacturing -- Machinery, Trucks, Planes, Off Furn, Paper, Com Printing	2,240	17.79
4	Oil, Gas, and Coal Extraction and Products	705	5.60
5	Chemicals and Allied Products	554	4.40
6	Business Equipment -- Computers, Software, and Electronic Equipment	2,717	21.58
7	Telephone and Television Transmission	178	1.41
9	Wholesale, Retail, and Some Services (Laundries, Repair Shops)	1,959	15.56
10	Healthcare, Medical Equipment, and Drugs	1,127	8.95
12	Other -- Mines, Constr, BldMt, Trans, Hotels, Bus Serv, Entertainment	1,931	15.34
	Total	12,591	100.00

Panel B: Year-wise distribution

Fiscal year	Frequency	Percent
1996	694	5.51
1997	649	5.15
1998	935	7.43
1999	870	6.91
2000	881	7.00
2001	855	6.79
2002	817	6.49
2003	941	7.47
2004	964	7.66
2005	939	7.46
2006	927	7.36
2007	975	7.74
2008	1,080	8.58
2009	1,064	8.45
Total	12,591	100.00

The sample includes all S&P 1500 firms for the period 1996 to 2009 for which we have data. For the period of 1996-2001, we use the blockholder data set of Dlugosz et al. (2006) for S&P 1500 firms. Following their procedure, we additionally hand-collect blockholder data from the proxy statements for the years 2002-2009. We exclude financial industry firms, utility firms, and firms with dual class shares.

Table 2
Descriptive Statistics

	N	Mean	SD	p5	p25	Median	p75	p95
FRQ	12,591	–0.500	0.187	–0.833	–0.639	–0.500	–0.361	–0.222
BHCOMP	12,591	–0.496	0.273	–1.000	–0.561	–0.390	–0.278	–0.194
DEC	12,591	0.682	0.466	0.000	0.000	1.000	1.000	1.000
ASIAN	12,591	0.040	0.196	0.000	0.000	0.000	0.000	0.000
RUSSIAN	12,591	0.057	0.231	0.000	0.000	0.000	0.000	1.000
SIZE	12,591	7.180	1.391	5.037	6.182	7.057	8.082	9.725
ROA	12,591	0.039	0.109	–0.159	0.012	0.052	0.092	0.177
REVVOL	12,591	0.170	0.207	0.030	0.070	0.123	0.212	0.453
OCFVOL	12,591	0.052	0.047	0.012	0.025	0.041	0.065	0.129
LEV	12,591	0.329	0.275	0.000	0.083	0.312	0.487	0.800
BTM	12,591	0.545	0.442	0.084	0.276	0.450	0.688	1.378
ANALYST	12,591	12.192	9.004	1.000	5.000	10.000	17.000	30.000

See the Appendix for variable definitions.

Table 3
Threat of Exit on FRQ – Full Sample

		Dependent Variable=*FRQ*		
	Prediction	(1)	(2)	(3)
BHCOMP		−0.021	−0.003	−0.021
		(−1.07)	(−0.30)	(−1.07)
DEC		0.019		
		(1.19)		
BHCOMP×*DEC* (H1)	+	0.023*		
		(1.89)		
ASIAN			−0.078***	
			(−32.82)	
BHCOMP×*ASIAN* (H1)	−		−0.081***	
			(−15.61)	
RUSSIAN				−0.064***
				(−20.04)
BHCOMP×*RUSSIAN* (H1)	_			−0.059***
				(−10.14)
SIZE		−0.013***	−0.012***	−0.012***
		(−3.08)	(−3.05)	(−3.02)
ROA		0.286***	0.289***	0.290***
		(7.76)	(7.71)	(7.76)
REVVOL		−0.102***	−0.103***	−0.103***
		(−3.87)	(−3.88)	(−3.88)
OCFVOL		−0.373***	−0.376***	−0.375***
		(−3.52)	(−3.53)	(−3.53)
LEV		−0.014	−0.012	−0.012
		(−0.98)	(−0.91)	(−0.90)
BTM		−0.002	−0.002	−0.002
		(−0.26)	(−0.34)	(−0.31)
ANALYST		0.003***	0.003***	0.003***
		(6.21)	(6.11)	(6.11)
CONSTANT		−0.445***	−0.425***	−0.425***
		(−14.86)	(−17.85)	(−17.88)
Year FE		Yes	Yes	Yes
N		12,591	12,591	12,591
Adjusted R^2		0.088	0.089	0.089

See the Appendix for variable definitions. Standard errors are clustered by firm and year. ***, **, * denotes significance at the 0.01, 0.05, 0.01 level using a two-tailed t-test.

Table 4
Threat of Exit on FRQ – Partition by Managers' Wealth-Performance Sensitivity (WPS)

	Dependent Variable=*FRQ*						
	High *WPS*			Low *WPS*			High *WPS* vs. Low *WPS*
	(1)	(2)	(3)	(5)	(4)	(6)	(H2)
BHCOMP	–0.020	0.012	0.012	–0.025	–0.017	–0.018	
	(–1.32)	(1.03)	(0.97)	(–1.25)	(–1.33)	(–1.39)	
DEC	-0.008			0.014			
	(-0.25)			(0.83)			
BHCOMP×DEC	0.049**			0.011			0.039***
	(2.37)			(0.47)			(2.65)
ASIAN		–0.106***			–0.061***		
		(–30.22)			(–13.36)		
BHCOMP×ASIAN		–0.098***			–0.061***		–0.037***
		(–12.97)			(–6.88)		(–2.76)
RUSSIAN			–0.083***			–0.056***	
			(–15.97)			(–8.29)	
BHCOMP×RUSSIAN			–0.084***			–0.031***	–0.064***
			(–10.18)			(–4.05)	(–5.39)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	
N	6,296	6,296	6,296	6,295	6,295	6,295	
Adjusted R^2	0.062	0.063	0.063	0.115	0.122	0.122	

See the Appendix for variable definitions. Control variables include those in Table 3 (*SIZE*, *ROA*, *REVVOL*, *OCFVOL*, *LEV*, *BTM*, and *ANALYST*). Standard errors are clustered by firm and year. ***, **, * denotes significance at the 0.01, 0.05, 0.01 level using a two-tailed t-test.

Table 5
Tests Using Firm-level Liquidity Measures

	Prediction	Full	High *WPS*	Low WPS	Full	High *WPS*	Low *WPS*	High *WPS* vs. Low *WPS* (H2)
BHCOMP		−0.021	−0.029	−0.017	0.008	0.027	−0.012	
		(−1.47)	(−1.40)	(−0.95)	(0.58)	(1.34)	(−0.57)	
TURNOVER		0.002***	0.004***	0.001*				
		(2.99)	(4.23)	(1.87)				
BHCOMP×*TURNOVER* (H1)	+	0.001*	0.004**	−0.000				0.0043**
		(1.74)	(2.59)	(−0.07)				(2.27)
SPREAD					−1.400***	−0.650	−0.980	
					(−2.63)	(−0.91)	(−1.59)	
BHCOMP×*SPREAD* (H1)	−				−1.531**	−1.706**	−0.114	−1.592**
					(−2.16)	(−1.98)	(−0.35)	(−2.25)
Controls		Yes	Yes	Yes	Yes	Yes	Yes	
Year FE		Yes	Yes	Yes	Yes	Yes	Yes	
N		12,585	6,293	6,292	12,552	6,276	6,276	
Adjusted R^2		0.090	0.071	0.122	0.087	0.066	0.115	

See the Appendix for variable definitions. *TURNOVER* is calculated as the annual average of daily turnover. *SPREAD* is annual average of monthly spreads (Crown and Schultz 2012). Control variables include those in Table 3 (*SIZE*, *ROA*, *REVVOL*, *OCFVOL*, *LEV*, *BTM*, and *ANALYST*). Standard errors are clustered by firm and year. ***, **, * denotes significance at the 0.01, 0.05, 0.01 level using a two-tailed t-test.

Table 6
Threat of Exit on FRQ – Partition by Managers' Wealth-Performance Sensitivity (WPS) Excluding Individuals and Corporations

	Dependent Variable=*FRQ*						
	High *WPS*			Low *WPS*			High *WPS* vs. Low *WPS*
	(1)	(2)	(3)	(5)	(4)	(6)	(H2)
BHCOMP	−0.041*	0.014	0.013	−0.018	−0.022	−0.021	
	(−1.92)	(1.03)	(0.97)	(−1.19)	(−1.62)	(−1.58)	
DEC	0.020			-0.010			
	(0.81)			(-0.50)			
BHCOMP×DEC	−0.131***			-0.006			0.079***
	(−11.95)			(-0.31)			(3.64)
ASIAN		−0.141***			−0.047***		
		(−23.09)			(−12.95)		
BHCOMP×ASIAN		−0.131***			−0.026***		−0.105***
		(−11.95)			(−3.24)		(−7.02)
RUSSIAN			−0.098***			−0.047***	
			(−14.32)			(−6.29)	
BHCOMP×RUSSIAN			−0.092***			−0.021**	−0.071***
			(−8.37)			(−2.41)	(−4.55)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	
N	5,949	5,949	5,949	5,950	5,950	5,950	
Adjusted R^2	0.064	0.064	0.063	0.118	0.120	0.120	

See the Appendix for variable definitions. Control variables include those in Table 3 (*SIZE*, *ROA*, *REVVOL*, *OCFVOL*, *LEV*, *BTM*, and *ANALYST*). Standard errors are clustered by firm and year. ***, **, * denotes significance at the 0.01, 0.05, 0.01 level using a two-tailed t-test.

Table 7
FRQ Change Around First 13G Filings

	Dependent Variable=*FRQ*	
	Coefficient	t-stats
FIRST_13G	0.026*	1.93
SIZE	0.043*	1.83
ROA	0.567***	6.26
BTM	0.088***	4.37
LEV	−0.052	−1.10
OCFVOL	−0.219	−0.40
REVVOL	−0.014	−0.21
ANALYST	−0.001	−0.57
Year FE	Yes	
Firm FE	Yes	
N	732	
Adjusted R^2	0.627	

See the Appendix for variable definitions. We focus on the first 13G filings and denote the first filing year as the event year. In addition, in order to isolate the effect of exit threat, we further require that no 13D is filed in year *t-1*, *t, or t+1*. The entry threat variable here *FIRST_13G* takes the value of 1 for *t* and *t+1*, and zero for *t-1*.Standard errors are clustered by year. ***, **, * denotes significance at the 0.01, 0.05, 0.01 level using a two-tailed t-test.

Table 8
Threat of Exit on FRQ – Partition by Managers' Pay-Performance Sensitivity (PPS)

	Prediction	High *PPS*	Low *PPS*	High *PPS*	Low *PPS*	High *PPS*	Low *PPS*	High *PPS* vs. Low *PPS* (H2)
BHCOMP		–0.000	–0.053	0.025**	–0.028***	0.022*	–0.027	
		(–0.04)	(–1.63)	(2.46)	(–2.89)	(1.81)	(–1.52)	
DEC		0.027	0.005					
		(1.05)	(0.21)					
BHCOMP×*DEC* (H1)	+	0.043**	–0.010					0.053**
		(2.32)	(–0.93)					(2.32)
ASIAN				–0.107***	–0.063***			
				(–25.17)	(–13.35)			
BHCOMP×*ASIAN* (H1)	–			–0.126***	–0.021***			–0.105***
				(–19.98)	(–2.51)			(–11.35)
RUSSIAN						–0.034***	–0.090***	
						(–5.31)	(–27.05)	
BHCOMP×*RUSSIAN* (H1)	–					–0.069***	–0.038***	–0.031**
						(–6.31)	(–5.78)	(–2.29)
Controls		Yes	Yes	Yes	Yes	Yes	Yes	
Year FE		Yes	Yes	Yes	Yes	Yes	Yes	
N		6,296	6,295	6,296	6,295	6,296	6,295	
Adjusted R^2		0.066	0.122	0.066	0.122	0.066	0.122	

See the Appendix for variable definitions. Following Core and Guay (2002), *PPS* is calculated as the change in the dollar value (in millions) of the CEO's stock and option holding for a one percent change in the stock price. Control variables include those in Table 3 (*SIZE*, *ROA*, *REVVOL*, *OCFVOL*, *LEV*, *BTM*, and *ANALYST*). Standard errors are clustered by firm and year. ***, **, * denotes significance at the 0.01, 0.05, 0.01 level using a two-tailed t-test.