Are Institutional Investors with Multiple Blockholdings Effective Monitors?

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Current draft: March 2017

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Abstract

We examine whether institutions' monitoring effectiveness is related to the number of their blockholdings. We find that the number of blocks a firm's large institutions hold is positively associated with forced CEO turnover-performance sensitivity, abnormal returns around forced CEO turnover announcements and 13D filings, and changes in firm value. These results are particularly evident when institutions have multiple blockholdings in the same industry, when they have activism experience, or when they have long-term blockholdings in their portfolio firms. Our results suggest that information advantages and governance experience obtained from multiple blockholdings are important channels through which institutions perform effective monitoring.

***Keywords*:** Corporate governance, Institutional investors, Multiple blockholdings, Monitoring, Experience

***JEL Classification*:** G30, G32, G34

Previous studies show that, unlike small dispersed shareholders, large shareholders have strong incentives to monitor management and take actions that increase firm value. For example, Shleifer and Vishny (1986) argue that a large stake of ownership held by outside shareholders enhances firm value by increasing monitoring and reducing free-rider problems. Similarly, Demsetz and Lehn (1985) show that blockholders with a long-term investment horizon have strong incentives to monitor management.[1] However, despite extensive research on the monitoring role of large shareholders, the literature has paid little attention to the fact that institutions frequently serve as large shareholders in many firms at the same time and whether their monitoring incentives and effectiveness vary with the number of stocks they hold as large shareholders. This lack of evidence is surprising given that institutional investors in the U.S. on average hold a large number of block shares in different firms: according to the data from Thomson Reuters Institutional Holdings (13F) for the period 1993 to 2010, an institutional investor on average serves as a blockholder for five different firms at the same time.[2]

In this paper we extend the previous literature on institutional monitoring by examining how multiple large holdings by institutional investors influence their governance incentives and abilities. There are two competing arguments for the impact of multiple blockholdings on institutional monitoring. The first argument is that limited attention caused by multiple blockholdings makes institutional investors' monitoring less effective. In their recent study, Kempf, Manconi, and Spalt (2016) argue that corporate managers pursue their own private benefits when institutional investors are subject to attention constraints in monitoring firms. Supporting their view, Kempf, Manconi, and Spalt (2016) find that when institutional shareholders are distracted by return shocks to other unrelated firms in their portfolios, firms are more likely to undertake diversifying, value-destroying acquisitions and cut dividends. CEOs are also more likely to receive opportunistically timed equity grants and less likely to be fired after bad

[1] See Holderness (2003) for a review of the evidence on the effects of blockholders on corporate decisions and firm value.

[2] Similarly, Matvos and Ostrovsky (2008) and Harford, Jenter, and Li (2011) show that institutional cross-holdings in the U.S. have increased substantially in recent years. Azar (2011) also reports that the percentage of publicly listed U.S. firms held by the same institutional blockholder increases from 4% in 2000 to 14% in 2010.

performance.[3] Similarly, Gupta-Mukherjee and Pareek (2012) show that fund performance increases when fund managers allocate more attention toward the stocks with the highest attention requirements, suggesting that efficient attention allocation improves fund performance. These findings suggest that institutional investors with multiple blockholdings face time constraints in monitoring their portfolio firms and are thus less likely to perform effective monitoring functions. Therefore, according to the limited attention argument, multiple blockholdings reduce institutional investors' monitoring effectiveness and adversely affect firm value.

The other argument, however, predicts that multiple blockholdings provide institutional investors with enhanced capabilities and incentives to monitor corporate managers because governance-relevant information and monitoring experience obtained from multiple blockholdings reduce monitoring costs and information uncertainties associated with monitoring. For example, institutional investors with activism experience (e.g., Schedule 13D filing) of targeting poorly-performing firms would be more capable of disciplining inefficient managers in their portfolio firms. Therefore, multiple blockholdings are expected to improve institutional investors' monitoring effectiveness and firm value.

To examine the effect of multiple blockholdings on institutional monitoring, we use a residual approach and obtain the number of blockholdings by a firm's large institutions after controlling for institution size and skewness in the blockholding number. Specifically, using the 13F database on quarterly institutional holdings, for each institutional investor-quarter observation, we count the number of firms in which an institutional investor simultaneously owns at least 5% of their shares ("raw blockholding number") and regress log (1 + raw blockholding number) on fund size managed by the institutional investor. We use the residual from this regression as our blockholding measure ("residual blockholding number") to examine the monitoring effectiveness of institutional investors with multiple

[3] This argument is also in line with prior studies that examine the consequences of investors' limited attention for information disclosures, financial reporting policies, and securities prices. For example, Teoh, Welch, and Wong (1998a, 1998b) and Hirshleifer and Teoh (2003) show that investors with limited attention fail to fully capture all relevant information on earnings news and other disclosures, which has an important implication for firms' stock prices. In a different context, Azar, Schmalz, and Tecu (2016) examine whether multiple blockholdings adversely affect corporate behaviors and find that common ownership of diversified institutional investors in airline firms significantly reduces product market competition and increases airline ticket prices.

blockholdings. This residual approach ensures that the large number of stocks held by an institutional investor as a blockholder is not simply due to its large fund size, which reflects the financial resources available. For example, an institution with significant resources can hire more staff members and thus is unlikely to face time constraints in monitoring its portfolio firms. Next, for each sample firm-year observation, we identify three different groups of a firm's large institutions: the largest institutional shareholder (*Top 1*), the five largest institutional shareholders (*Top 5*), and the ten largest institutional shareholders (*Top 10*), and assign their residual blockholding numbers to each firm-year observation by matching institution identities.

Using a sample of the S&P 1500 firms, we first examine whether this residual blockholding number is related to forced CEO turnover-performance sensitivity. We focus on forced CEO turnover because firing top executives is considered to be one of the most aggressive and influential governance activities that large shareholders can take (Denis and Denis, 1995; Denis, Denis, and Sarin, 1997; Bethel, Liebeskind, and Opler, 1998) and the quality of such a decision can have a significant effect on shareholder wealth (Bonnier and Bruner, 1989; Hirshleifer and Thakor, 1994). We find that forced CEO turnover sensitivity to performance is significantly higher when the firm has institutions with larger residual blockholding numbers as its large institutional shareholders. Moreover, firms with such institutions realize higher abnormal returns around a forced CEO turnover announcement. Next, we investigate stock price reactions around initial Schedule 13D filings by institutional investors targeting the sample firms. We find that the abnormal stock returns are higher when the activist institutions have more residual blockholdings. Thus, the market's ex-ante valuation of institutional monitoring is particularly high when activist institutions hold more stocks as blockholders. We also find that changes in residual blockholding numbers are positively and significantly associated with changes in Tobin's *q*. Overall, these results support the view that multiple blockholdings increase institutional investors' monitoring effectiveness and firm value.

We then examine channels through which multiple blockholdings facilitate effective institutional monitoring and increase firm value: industry expertise, past activism experience, and accumulated monitoring experience from long-term large equity investments. First, we expect industry knowledge and experience from multiple blockholdings in firms operating in the same industry to be an important channel through which institutional investors gain monitoring effectiveness. In various aspects of firms' businesses, such as asset characteristics and financial policies, there is commonality among firms in the same industry. This commonality enables institutions with multiple blockholdings in firms in the same industry to accumulate industry-specific knowledge and information relevant to monitoring firms. Consistent with this view, Bottazzi, Da Rin, and Hellmann (2008) find that venture capital firms whose partners have more industry experience show greater activism and Gompers et al. (2008) show that venture capital firms with a larger number of investments in a particular industry have higher levels of investment sensitivity to investment opportunities. These findings suggest that multiple large ownerships in the same industry provide institutional investors with information advantages that are important for effective monitoring.

Second, we expect institutions' prior activism/governance experience (e.g., Schedule 13D filing) to be an important channel through which multiple blockholdings facilitate effective monitoring because experience in leadership restructuring and corporate policy intervention in activism campaigns help institutions reduce subsequent monitoring costs. Supporting the view that experience increases the effectiveness of institutional monitoring, Boyson and Mooradian (2012) find that hedge fund activists with prior experience in their specialized industries improve target performance. This finding suggests that past activism experience is an important channel through which multiple blockholdings facilitate effective monitoring.

Finally, we expect institutions' long-term investment horizons to be channels for effective monitoring. Demsetz and Lehn (1985), Gaspar, Massa, and Matos (2005), and Chen, Harford, and Li (2007) argue that large shareholders' monitoring incentives increase with their investment periods. A longer investment

horizon can improve an institution's accessibility to better quality information about firms and thus provide significant information advantages over institutions with short investment horizons.

Overall, these arguments suggest that multiple blockholdings lead to better monitoring when institutional investors a) have multiple large ownerships in firms operating in the same industry; b) have prior activism experience; or c) serve as blockholders for their portfolio firms over a long period of time.

Consistent with these predictions, we find that the sensitivity of forced CEO turnovers to performance is higher when institutional investors have multiple blockholdings in the same industry, when they have 13D filing experience, or when they serve as long-term blockholders in their other portfolio firms. The analyses for the announcement effects of forced CEO turnovers and initial Schedule 13D filings show similar results. These findings suggest that information spillover and accumulated monitoring experience are important channels through which multiple blockholdings enhance institutional monitoring.

To address the potential endogeneity bias associated with institutional ownership, we perform several tests. First, we use institution fixed effects in our panel regressions to remove potential bias arising from time-invariant omitted institution characteristics. Second, to control for the bias associated with time-invariant omitted firm characteristics, we use change regressions. Third, we perform an instrumental variables approach in which we use the composition and reconstitution of the Russell 1000 and 2000 indexes to construct our instrumental variables (Boone and White, 2015; Fich, Harford, and Tran, 2015; Schmidt and Fahlenbrach, 2017; Appel, Gormley, and Keim, 2016). Our results are robust to controlling for these endogeneity problems.

Our study contributes to the literature in several ways. First, our study contributes to the ongoing debate about the monitoring role of institutional investors by exploring a new dimension of institutional monitoring. Prior studies examine the importance of institutional heterogeneity and institution types in corporate monitoring. For example, Cornett et al. (2007) and Chen, Harford, and Li (2007) find that institutional monitoring is more effective when institutions are less likely to have business relationships with their portfolio firms and when they are long-term investors without business relationships,

respectively. In addition, several other studies identify institutional investors, such as hedge funds, that file Schedule 13Ds as active monitors and show that their monitoring influences corporate policies and firm value (Brav, et al., 2008; Klein and Zur, 2009; Brav, Jiang, and Kim, 2015). Our study adds to this literature by showing that institutional investors with multiple blockholdings are effective monitors, identifying such institutions as another important type of active monitors.

Moreover, our approach that uses blockholding information to identify effective monitors has two important benefits relative to those used in prior literature. First, our multiple blockholding measure captures information on institutions' active investment strategies that reflect their monitoring incentives and experience. Since multiple blockholding allows institutions to accumulate governance-relevant information and develop monitoring expertise through their prior experience, it enhances their monitoring capabilities and reduces the cost of their future governance activities. Thus, our measure is likely to capture valuable information about institutions' monitoring incentives and abilities, which are not fully captured by the measures used in prior literature. Second, our measure allows us to identify active investors more broadly since it is not restricted to any particular type of institutional investors. The measures used in prior literature typically classify institutions into active and passive monitors according to whether they have information on certain industries or firms, or whether they engage in 13D filings for specific targets. Therefore, these measures tend to be specific to certain industries or firms and applicable to only a certain set of institutions. In contrast, our measure can be applied to all types of large institutions since it requires only information on the number of block shares held by institutions to identify active monitors. Moreover, since institutional investors that frequently file Schedule 13Ds are relatively rare, our blockholding measure can be used for a broader set of institutions, including those that do not frequently file Schedule 13Ds, when we identify active institutions.

Second, our study adds to the literature on the role of large ownership in corporate governance. Theories on shareholder monitoring suggest that concentrated ownership reduces free-rider problems associated with diffused ownership and thus increases large shareholders' monitoring incentives

(Grossman and Hart, 1980; Holmstrom, 1982; Shleifer and Vishny, 1986). Consistent with this view, Hartzell and Starks (2003) show that institutional ownership concentration at the firm level is positively related to the CEO pay-for-performance sensitivity. We extend this line of literature by examining the effect of ownership concentration at the shareholder level and show that institutional investors with concentrated portfolios actively monitor corporate managers.

Third, our study complements the growing literature on the role of experience in institutional investment and monitoring. Several studies document that prior experience of venture capitalists (Sørensen, 2007; Gompers et al., 2008; Bottazzi, Da Rin, and Hellmann, 2008) and hedge fund activists (Boyson and Mooradian, 2012) is important for their effective monitoring. We extend this literature by showing that multiple blockholding is an important channel through which institutional investors accumulate monitoring experience and governance-relevant information.

Finally, our paper adds to the literature on institutional common ownership in multiple firms. Matvos and Ostrovsky (2008) and Harford, Jenter, and Li (2011) examine how institutional cross-holdings in both bidders and targets affect acquisition decisions and Massa and Žaldokas (2013) find that the credit risk of firms sharing a common blockholder is significantly correlated. We contribute to these studies by showing that multiple blockholdings improve the effectiveness of corporate governance and firm value.

The remainder of this paper is organized as follows. In Section 1, we describe the data, the sample characteristics, and the construction of our key variables. Section 2 investigates the impact of multiple blockholdings on the likelihood of forced CEO turnovers, announcement returns around forced CEO turnovers, announcement returns around initial Schedule 13D filings, and firm performance. Section 3 presents the results from various robustness tests including the instrumental variables approach. Finally, we present our summary and concluding remarks in Section 4.

1. Sample and Summary Statistics

1.1. Sample

Our main sample consists of 26,955 firm-year observations covered in the Compustat, CRSP, Thomson Reuters Institutional Holdings (13F), and ExecuComp databases from 1993 to 2010. To be included in our sample, a firm's CEO ID should be available in ExecuComp because we identify CEO turnover by examining the changes in CEO IDs. We also require that firms' total institutional ownership reported in Thomson Reuters Institutional Holdings (13F) be less than 100% and their stock returns and financial data be available in CRSP and Compustat, respectively.

1.2. Variable Construction

To examine whether the monitoring effectiveness of institutional investors varies with the number of their blockholdings, we focus on three types of a firm's large institutional investors that are likely to have strong incentives to monitor managerial behavior due to their large ownership (Shleifer and Vishny, 1986): *Top 1*, *Top 5*, and *Top 10*.[4] We then estimate our multiple blockholding measure separately using each of these three different definitions of large institutional investors.[5]

Specifically, we construct our multiple blockholding measures as follows. First, using the quarterly 13F institutional stock holding data, for each institution-quarter, we count the number of firms in which an institutional investor simultaneously owns at least 5% of their shares ("raw blockholding number"). If an institutional investor does not have any block ownership in firms, its raw blockholding number is set to be zero in a given quarter. We find that the raw blockholding number is highly correlated with the size of the funds that institutional investors manage. The correlation coefficient between the raw blockholding number and the market value of total equity holdings managed by the institutional investor is almost 0.7, significant at the 1% level. Moreover, the distribution of the raw blockholding number is highly skewed

[4] Similarly, Chen, Harford, and Li (2007) consider three different measures of concentrated holdings by institutional investors: 1) ownership controlled by the five largest institutional investors, 2) ownership controlled by the single largest institutional investor, and 3) ownership controlled by blockholders, to examine how independent institutional investors with significant ownership monitor firms when they hold shares for a long period of time.

[5] Although the largest institutional shareholder is likely to be the most influential over a firm, it is possible that other large investors also exert influence on the firm. Our *Top 5* and *Top 10* measures are expected to capture the information of block ownership that these large institutions hold in other firms.

in our sample. For example, the mean (median) raw number for institution-year observations in our main sample is 36 (11), with a standard deviation of 94. We also find that large mutual funds and money managers in particular hold many blocks (e.g., a mean (median) raw blockholding number of 41 (104), with a standard deviation of 195, for mutual funds). These findings suggest that large institutions, such as mutual funds and money managers, hold a large number of blocks, mainly due to their huge fund size, not to their monitoring motives. Thus, it is important to control for a high correlation between the raw blockholding number and fund size as well as adjust for a large skewness in the distribution of raw blockholding numbers when examining the role of multiple blockholders in corporate governance. We do this by first taking the natural logarithm of one plus the raw blockholding number and then regressing this log value on an institution's fund size:[6]

$$Ln\,(1 + Raw\ Blockholding\ Number) = \alpha + \beta \times Institution's\ Total\ Market\ Value\ of\ Equity\ Holdings, \quad (1)$$

where *Raw Blockholding Number* is the number of blockholdings that an institutional investor owns in a given quarter, as described above, and *Institution's Total Market Value of Equity Holdings* is the average market value of the total equity holdings managed by the institutional investor during the previous four calendar quarters deflated by the consumer price index in 2000.[7] We use the residual from this regression as the measure of blockholding numbers that an institution holds ("residual blockholding number"). The mean and median residual blockholding numbers for our sample institution-year observations are 1.53 and 1.61, respectively, with a standard deviation of 1.29, suggesting that our approach reduces the skewness problem quite well.

[6] Our residual approach is similar to that used in Hong, Lim, and Stein (2000), who use the residual from the regression of analyst coverage on firm size as a proxy for the number of analysts following in explaining the link between momentum and analyst coverage.

[7] In estimating *Eq.* (1), we use all institutional investors covered in the 13F database, irrespective of whether or not they hold blocks. Given that many institutions in the 13F database do not hold any block ownership, there may be potential sample selection bias in estimating residual blockholding numbers if we focus only on a subset of institutions with block ownership. Moreover, as discussed below, although raw blockholding numbers held by some of *Top 5* (*Top 10*) are zero, we still have to include these institutions in estimating *Eq.* (1), since their residual blockholding numbers are needed to compute the weighted average of *Top 5*'s (*Top 10*'s) residual blockholding numbers.

Next, we obtain a residual blockholding number at the firm level ("*Multiple blockholding (residual)*"). For each sample S&P 1500 firm-year observation, we identify a firm's *Top 1*, *Top 5*, and *Top 10* as of the quarter end immediately before the event year (date). Using institution identity, we then assign an institution's residual blockholding number, estimated from *Eq.* (1) above, to each firm-year observation. When we use *Top 1*, each firm-year's *Multiple blockholding (residual)* is measured as the residual blockholding number held by *Top 1* as of the quarter end immediately before the event year (date). When we use *Top 5* (*Top 10*), *Multiple blockholding (residual)* is measured as the weighted-average of residual blockholding numbers held by *Top 5* (*Top 10*) as of the quarter end immediately before the event year (date), where we use the ownership fraction (i.e., an institution's ownership in the firm / *Top 5*'s (*Top 10*'s) total ownership in the firm) as a weight. We use *Multiple blockholding (residual)* to examine how multiple blockholdings by an institutional shareholder affect their monitoring activities and firm value.

Finally, we construct *Multiple blockholding (indicator)* at the firm level. *Multiple blockholding (indicator)* takes the value of one if *Multiple blockholding (residual)* estimated using *Top 1* (*Top 5*, *Top 10*) is higher than the global median[8] of the sample firm-year observations, and zero otherwise.[9] We use this *Multiple blockholding (indicator)* as an alternative measure of monitoring incentives and capabilities of institutional shareholders with more blockholdings. Appendix A provides a detailed description of the procedure for constructing *Multiple blockholding (residual)* and *Multiple blockholding (indicator).*

To check the characteristics of institutions that have a large number of residual and raw blockholding numbers, we examine characteristics for the 10, 30, 50, and 100 highest-ranked institutions based on their median residual and raw blockholding numbers over the sample period, respectively. The results are reported in Appendix B. We use *Top 1* of the firms used in CEO turnover-performance sensitivity analyses as our sample institutions. The reported values are obtained by first calculating each largest

[8] We use the global median of firm-year observations in each sample over the entire time-series and cross-section. By using this global median, we can mitigate the concern that the median residual varies across years. We thank the referee for pointing out this important point.

[9] To check whether our definition of multiple blockholders defined using *Top 1* include institutions that have only one block**,** we examine the minimum raw blockholding number for institutions that are classified as multiple blockholders (i.e., *Multiple blockholding (indicator)* = 1) in each sample and find that all multiple blockholders hold more than one block. For example, the minimum number is 11 in a sample used for CEO turnover performance-sensitivity tests.

institution's median value of its characteristics over the sample years and then averaging this median across these highest-ranked institutional investors. Panels A and B show that average raw blockholding numbers are smaller for institutions ranked according to the residual blockholding number than those ranked according to raw blockholding numbers. For example, while the 30 highest-ranked institutions based on residual blockholding numbers hold 105 blocks on average, the corresponding number for the 30 highest-ranked institutions based on raw blockholding numbers is 183. We also find that the average fund size of the 30 highest-ranked institutions ranked according to residual blockholding numbers is much smaller than that of the 30 highest-ranked institutions ranked according to raw blockholding numbers ($14 billion compared to $97 billion). These results suggest that, even though multiple blockholders identified using residual blockholding numbers hold a relatively smaller number of blocks than those identified using raw blockholding numbers, their size-adjusted blockholding numbers are large, suggesting that our multiple blockholding measures effectively capture institutional investors holding many blocks conditional on their size.

Appendix B also shows that the fraction of independent institutions is larger when we identify multiple blockholders using residual blockholding numbers. For example, while 93% of the 30 highest-ranked institutions are classified as independent if we use residual blockholding numbers, only 70% are independent if we use raw blockholding numbers. Similarly, when we use the classification of Bushee (2001), while 40% of the 30 highest-ranked institutions based on residual blockholding numbers are dedicated investors, only 27% are classified as dedicated investors based on raw blockholding numbers.[10] Finally, we find that the number of Schedule 13Ds filed by institutions during our sample period is larger for institutions ranked according to residual blockholding numbers than for those ranked according to raw blockholding numbers, particularly for the ten highest-ranked institutions. Overall, these results suggest

[10] Following Brickley, Lease, and Smith (1988), Almazan, Hartzell, and Starks (2005), Cornett et al. (2007), and Chen, Harford, and Li (2007), we use legal types to classify institutions into independent and dependent investors. Independent institutional investors include investment companies, independent investment advisors, and public pension funds. All other types are classified as dependent institutional investors. Following Bushee (2001), we classify an institution as a dedicated investor according to its expected investment horizon.

that our multiple blockholding measures identify relatively small institutions that hold a large number of blocks and are likely to be active.

1.3. Summary Statistics

Table 1 reports the distribution of our sample firm-year observations with multiple blockholders (i.e., *Multiple blockholding (indicator)* using *Top 1* = 1) by industry and year.[11] The fraction of firms with multiple blockholders ranges between 47.6% and 51.2% across the industries, with the manufacturing, energy, and utilities industries having the highest fraction. We also find that the fraction of firms with multiple blockholders has decreased over time: it is more than 50% in each year before 2000 but becomes lower than 50% after 2000, except for the years 2004 and 2010.[12]

Table 2 compares firm-, CEO-, and institution (*Top 1*)-specific characteristics between sample firm-year observations with and without multiple blockholders. Detailed definitions of the variables used in Table 2 are provided in Appendix C.

Several observations are noteworthy. First, we find that compared to firms without multiple blockholders, those with multiple blockholders are smaller and have lower industry-adjusted stock returns, poorer operating performance, lower Tobin's *q*, and lower leverage. To the extent that the benefits of monitoring are likely to be greater when firms perform poorly, these results suggest that multiple blockholders prefer firms in which monitoring benefits exceed monitoring costs. Our results are similar to those of Brav et al. (2008) and Griffin and Xu (2009) who document that hedge fund investors prefer to invest in small stocks with relatively low Tobin's *q* and poor stock returns. Similarly, Bethel, Liebeskind, and Opler (1998) find that firms experiencing block share purchases by activist institutions are typically small and have low profitability and low market-to-book. Second, we find that CEOs have longer tenure

[11] The small number of sample firms in 1993 is due to our requirement that a firm's CEO ID be present in ExecuComp for two consecutive years to identify CEO turnover. ExecuComp starts in 1992 and for 1993, its coverage is significantly lower compared with later years.

[12] Due to the way in which we define *Multiple blockholding (indicator)*, its distribution differs depending on the sample firms used in the analysis.

and hold higher equity ownership when their firms have multiple blockholders serving as the largest institutional shareholder. These firms also have smaller total institutional ownership. Thus, multiple blockholders appear to prefer firms with poorer governance in which their active monitoring is more likely to add value. However, we also find that CEOs of firms with multiple blockholders are less likely to serve as chairs of the board, suggesting that multiple blockholders also prefer firms with lower managerial agency problems. Third, consistent with the results in Appendix B, although *Top 1*'s raw blockholding numbers and fund size are smaller for firms with multiple blockholders than for those without multiple blockholders, its residual blockholding numbers are larger. Fourth, *Top 1* classified as a multiple blockholder, on average, invests a smaller portion of its funds in the focal firm (but its median is higher), has higher portfolio turnover, and is more likely to be classified as an independent (a dedicated) institutional investor than *Top 1* without multiple blockholdings. Finally, we find that, in 89.8% of firms with multiple blockholders, the largest institutional investors have at least one block in other firms in the same industry as the focal firm in the past three years, but the corresponding number is 81.7% in firms without multiple blockholders. Other experience measures show similar patterns. For example, in 26.2% of firms with multiple blockholders, *Top 1* has activism experience of filing Schedule 13Ds in the past three years, while the corresponding number is 13.8% for firms without multiple blockholders. Therefore, although the largest institutions classified as multiple blockholders are relatively small and hold a relatively smaller number of raw blockholdings than the other largest institutions, they tend to be more experienced and better informed.

2. Impact of Multiple Blockholdings on Governance Activities and Firm Performance

To investigate whether multiple blockholdings affect institutional monitoring, in this section we examine the impacts of *Multiple blockholding (indicator)* and *Multiple blockholding (residual)*) defined using *Top 1*'s residual blockholding number on the likelihood of forced CEO turnover, announcement

returns around forced CEO turnover, announcement returns around initial Schedule 13D filings, and firm performance. We discuss the results using *Top 5* and *Top 10* in Section 3.

2.1. Sensitivity of Forced CEO Turnover to Performance

As a first test, we estimate a logit regression of the likelihood of nonroutine top executive turnover on the multiple blockholding measures and control variables. We consider a top executive turnover event as occurring in a given year when a firm's CEO ID in ExecuComp differs from that in the previous year. Our forced CEO turnover data is from Jenter and Kanaan (2015) for the 1993-2001 period and Peters and Wagner (2014) for the 2009-2010 period.[13] For the rest of our sample period from 2002 to 2008, we search news stories on *Factiva* to classify the turnover event as either nonroutine or routine. Following Denis, Denis, and Sarin (1995), Parrino (1997), Jenter and Kanaan (2015), and Peters and Wagner (2014), we classify a management change as nonroutine if the news articles report that the CEO has been fired, has been forced to depart from the position, or has departed due to unspecified policy differences. We also classify a management change as nonroutine if the age of the departing CEO is under 60 and the stated reason for the departure is not death, poor health, or the acceptance of another position. Finally, we classify a management change as nonroutine if the stated reason is retirement but it was not announced at least six months before the turnover. These classification approaches ensure that the forced CEO turnover events we identify are consistent with those of Jenter and Kanaan (2015) and Peters and Wagner (2014), who classify forced CEO turnover events following the procedure in Parrino (1997). Our final sample consists of a total of 3,025 CEO turnover events, 672 of which are classified as nonroutine.

Table 3 presents the results of logit regressions in which the dependent variable takes the value of one if a forced CEO turnover event occurs and zero otherwise. We use robust standard errors to adjust for heteroskedasticity (White, 1980) and institution clustering. Our key explanatory variable of interest is the interaction term between past industry-adjusted stock performance and *Multiple blockholding (indicator)*

[13] We thank Dirk Jenter and Florian S. Peters for providing us with forced CEO turnover data from 1993 to 2001 and from 2009 to 2010, respectively.

(*Multiple blockholding (residual)*). Given that our sample institutions, on average, hold their block shares for two years, we measure industry-adjusted stock performance as the average of annual buy-and-hold industry-adjusted stock returns during the past two years, up to the beginning of the quarter before the event year.[14] Jenter and Kanaan (2015) also show that both one-year lagged returns and two-year lagged returns are significantly related to the likelihood of forced CEO turnovers.

The regressions include institution-, firm-, and CEO-specific characteristics as control variables. As institution-specific characteristics, we first include the institutional shareholder's portfolio weight in the sample firm, since the institutional shareholder would have stronger monitoring incentives when the firm accounts for a larger fraction of its portfolio (Fich, Harford, and Tran, 2015). Second, we control for institutions' past portfolio returns as large fund inflows induced by their past superior performance may allow them to simultaneously hold large ownership positions in many different firms. It is also possible that their past portfolio performance reflects their monitoring/screening ability and thus controlling for past portfolio performance can alleviate the concern that multiple blockholdings simply serve as a proxy for better monitoring/screening. We also control for institutional shareholders' past portfolio turnover, since it can proxy for their monitoring incentives (Gaspar, Massa, and Matos, 2005).

As firm-specific characteristics, we control for firm size, Tobin's *q*, leverage, and total institutional ownership. We include firm size since Farrell and Whidbee (2003) and Huson, Parrino, and Starks (2001) find that CEO turnover is positively related to firm size. We include leverage because Gilson (1989) and Gilson and Vetsuypens (1993) show that leverage is associated with a high likelihood of top management turnover during financial distress. Tobin's *q* is included because a top executive is more likely to be dismissed if he fails to create sufficient growth opportunities (Gong and Wu, 2011). Finally, we include total institutional ownership because institutions as a whole may play an important monitoring role in top executive turnover. As CEO-specific characteristics, we control for CEO age, CEO tenure, CEO equity ownership, and a CEO-chairman duality indicator that takes the value of one if the CEO is the chairman

[14] The results in Table 3 are similar when we use the buy-and-hold industry-adjusted stock returns during the past one year, up to the beginning of the quarter before the event year.

of the board, and zero otherwise. Finally, to control for potential industry effects and time trends, we include industry and year fixed effects, respectively.

In regression (1), we find that past stock performance is significantly and negatively associated with the likelihood of forced CEO turnover, confirming prior findings that firms with poorer performance are more likely to experience nonroutine top executive turnover (Weisbach, 1988). In regression (2), we find that the sensitivity of forced CEO turnover to stock performance is higher if the firm's largest institutional shareholder has more residual blockholdings (i.e., *Multiple blockholding (indicator)* = 1). Specifically, the interaction between *Multiple blockholding (indicator)* and past stock performance is negatively and significantly related to the forced CEO turnover likelihood at the 1% level.[15] In regression (3), we replace *Multiple blockholding (indicator)* with a continuous variable, *Multiple blockholding (residual).* Its interaction with past stock performance again has a negative and significant coefficient. These results support the prediction that multiple blockholdings increase monitoring effectiveness.[16]

In the next three regressions, we examine the channels through which multiple blockholdings enable institutional investors to gain monitoring effectiveness. Specifically, we use information on industry concentration (Bottazzi, Da Rin, and Hellmann, 2008; Gompers et al., 2008), 13D filers (Brav et al., 2008; Klein and Zur, 2009; Brav, Jiang, and Kim, 2015), and portfolio turnover/holding periods (Gaspar, Massa, and Matos, 2005; Chen, Harford, and Li, 2007) to divide our multiple blockholders into two subgroups according to each of these experience variables. These classification approaches allow us not only to

[15] In unreported tests, we follow Ai and Norton (2003) to perform graphical analyses and find that for most observations, the marginal effects for the interaction term between the prior industry-adjusted stock return and the multiple blockholding indicator are clustered between 0% and -10% and their *z*-statistics are densely distributed around the 5% significance level, suggesting that the effects of the interaction term on the likelihood of nonroutine CEO turnover are statistically significant for most observations.

[16] To further examine whether the sensitivity of forced CEO turnover to performance is related to residual blockholding numbers held by institutions, in untabulated tests, we divide the sample into two subgroups according to *Multiple blockholding (indicator)* and separately estimate the marginal effects of past stock performance. We find that for the subsample of firms whose *Multiple blockholding (indicator)* equals one, the marginal effect of past stock performance is negative and significant at the 1% level. A one-standard-deviation decrease in the past stock return is associated with a one percentage point increase in the likelihood of forced CEO turnover. Given that the probability of forced CEO turnover is 2.5% for our full sample, such an increase is economically significant. In contrast, the corresponding marginal effect for the subsample of firms with *Multiple blockholding (indicator)* of zero is statistically insignificant and economically small: a one-standard-deviation decrease in the past stock return leads to only a 0.3 percentage point increase in the likelihood of forced CEO turnover.

further identify active institutions, but also to examine whether institutions' information advantages, knowledge, and prior monitoring experience obtained from multiple blockholdings are important channels through which multiple blockholders gain monitoring effectiveness and increase firm value.

In regression (4), we decompose the multiple blockholding indicator into same- and different-industry multiple blockholding indicators according to whether a firm's *Top 1* has at least one more additional blockholding in other firms in the same industry as the focal firm during the previous three years. If institutions' industry-specific information advantages accumulated from their multiple blockholdings function as a channel to drive the results in regression (2), we expect these results to be more pronounced when they hold multiple blockholdings in the same industry, since such holdings allow them to effectively obtain industry-specific information. Consistent with our expectation, the coefficient estimate on the interaction between the same-industry multiple blockholding indicator and past stock performance is negative and significant but that involving the different-industry multiple blockholding indicator is insignificant.

In regression (5), we decompose the multiple blockholding indicator into activism-experience and no-activism-experience multiple blockholding indicators according to whether a firm's *Top 1* has filed at least one initial Schedule 13D during the previous three years. If the 13D activism experience provides investors with better governance skills and enhanced monitoring capabilities as a blockholder, we expect the sensitivity of nonroutine CEO turnover to performance to be higher when a firm's *Top 1* has Schedule 13D activism experience. We find that although both the coefficient estimate on the interaction term between the activism-experience multiple blockholding indicator and past stock performance and that on the interaction term involving the no-activism-experience multiple blockholding indicator are negative and significant, its magnitude is larger for the former interaction term than for the latter interaction term.

In regression (6), we decompose the multiple blockholding indicator into long- and short-horizon multiple blockholding indicators according to whether a firm's *Top 1* has continuously served as another portfolio firm's blockholder for at least one year during the previous three years. To the extent that

long-term stock investment provides institutions with greater opportunities to accumulate governance-relevant information and skills, we predict that the sensitivity of nonroutine CEO turnover to performance is higher when a firm's *Top 1* has experience of serving as a long-term blockholder for its other portfolio firms. Consistent with our prediction, we find that only the interaction term involving the long-horizon multiple blockholding indicator has a significant negative coefficient. Overall, these results support our hypothesis that the monitoring experience and information advantages gained from multiple blockholdings are important channels through which institutional investors perform effective monitoring.

Previous studies show that shareholders vary along several different dimensions, such as their beliefs, skills, and preferences (Cronqvist and Fahlenbrach, 2009). Thus, it is possible that this investor heterogeneity is correlated with both institutions' multiple blockholdings and their monitoring, resulting in a spurious correlation between the two. In regression (7), to control for this unobservable institution heterogeneity, we include institution fixed effects and reestimate regression (2). We find that the interaction term between the multiple blockholding indicator and the industry-adjusted stock return is negative and significant at the 5% level. Thus, it is unlikely that our findings are driven by persistent heterogeneity in institutional investors' unobservable characteristics.[17]

Overall, the results in this subsection show that multiple blockholdings are an important way for institutional investors to accumulate governance-relevant knowledge and skills, which facilitates their future effective monitoring activities.

2.2. Market Reaction to Forced CEO Turnover Announcements

To investigate the market's ex-ante valuation of monitoring gains created by institutions with multiple blockholdings, we examine whether stock market reactions to the announcements of forced CEO turnover are related to multiple blockholding measures. To the extent that forced CEO turnovers are largely

[17] In untabulated tests, we reestimate the regressions in Table 3 by replacing industry-adjusted stock returns with market-adjusted stock returns. We find that the results do not change.

unanticipated, using turnover announcement returns in the analysis can potentially mitigate the reverse causality problem that exists in the tests of the effect of institutional monitoring on firm value.

Warner, Watts, and Wruck (1988) and Bonnier and Bruner (1989) argue that abnormal announcement returns for top management turnover reflect both an information effect, which is negative if the replacement suggests that firm performance is worse than market expectation, and a real effect, which is positive if the turnover is in the interest of shareholders. Similarly, Hirshleifer and Thakor (1994) argue that announcement returns for CEO turnover are likely to reflect two components: adverse information about managerial performance and the expected improvement in firm value as a result of the turnover.

These arguments suggest that market reactions to forced CEO turnover announcements can vary depending on the importance and the magnitude of information and real effects.[18] For example, the net effect of CEO turnover announcement is likely to be positive when the real effect is expected to be larger than the information effect. Supporting this prediction, Bonnier and Bruner (1989) find that the announcement returns are significantly positive when firms' poor performance has already been revealed in the market before the CEO replacement announcements. Weisbach (1988) and Borokhovich, Parrino, and Trapani (1996) also find that announcement returns for CEO turnovers are higher when firms have more outside directors on the boards. Huson, Malatesta, and Parrino (2004) further show that the CEO turnover announcement returns are positively related to subsequent changes in accounting performance. To the extent that firms better governed by effective boards or active investors are more likely to engage in value-enhancing CEO replacement decisions, the stock market is likely to perceive real effects of forced CEO turnover to be larger than its information effects, resulting in more positive market reactions to CEO replacement decisions. Therefore, if institutional investors with multiple blockholdings are effective monitors and thus influence firms to engage in value-enhancing CEO replacement decisions, we expect the announcements of such decisions to convey positive information that real effects exceed

[18] Previous studies show mixed evidence on the market reaction to CEO replacement announcements. While Weisbach (1988) and Huson, Malatesta, and Perrino (2004) find positive and significant stock market reactions to CEO turnovers, Warner, Watts, and Wruck (1988) show that these reactions are small and insignificant.

information effects, resulting in higher turnover announcement returns for firms with multiple blockholders than those for firms without multiple blockholders. In contrast, if multiple blockholdings lead to limited attention problems, institutional investors with multiple blockholdings may be less effective in influencing firms to engage in value-enhancing CEO turnovers, resulting in a smaller magnitude of real effects in their replacement decisions. Thus, turnover announcement returns are expected to be lower for firms with multiple blockholders than those without multiple blockholders.

2.2.1. Univariate Analysis

For each forced CEO turnover event, we use the date that it is first disclosed on *Factiva* as the announcement date. We also search *Factiva* for major confounding corporate events (e.g., announcements of mergers and acquisitions, dividend payments, earnings, security issuance, company name changes, and delisting) within one trading day before and after the announcement and exclude observations associated with such news. These sample criteria yield a final sample of 554 forced CEO turnover announcements. To examine the valuation effect of these announcements, we employ a standard event study methodology. Using 250 days of returns from 260 trading days before to 11 trading days before the announcement (day 0), we estimate a one-factor market model in which the CRSP equally-weighted index is used as the market portfolio. We sum the daily abnormal returns to compute the cumulative abnormal return (CAR) from the day before the announcement to the announcement date.

Table 4 presents the CARs around forced CEO turnover announcement dates. We find that the mean CAR (-1, 0) is -0.5% (*p*-value = 0.14) and the median CAR is -0.4% (*p*-value = 0.07), which are comparable to those in Warner, Watts, and Wruck (1988) and Weisbach (1988). The results for longer event windows, such as day -2 to day 0, day -1 to day +1, day -2 to day +2, and day -3 to day +3, are similar. The table also compares the CARs between firms with and without multiple blockholders. While most of CARs with different event widows are negative and significant for firms without multiple blockholders, the corresponding CARs are small and insignificant for firms with multiple blockholders. The differences in mean CAR (-1, 0) and CAR (-2, 0) between the two groups are significant at the 10%

level, suggesting that the market's ex-ante valuation of potential improvement in firm value caused by forced CEO turnover (i.e., real effects) is higher when firms are monitored by large institutional investors with multiple blockholdings. The results also suggest that for firms without multiple blockholders, the negative information effect of the announcement is larger than the expected improvement in firm value resulting from forced CEO turnover.

2.2.2. Multivariate Regression Analysis

Table 5 presents the estimates from ordinary least squares (OLS) regressions in which the dependent variable is CAR (-1, 0). We control for firm characteristics (size, leverage, Tobin's *q*, ROA, and total institutional ownership) and departing CEO characteristics (age, tenure, chairman duality indicator, and ownership) in the regressions. The regressions also control for the institution characteristics (portfolio weight, portfolio return, and portfolio turnover) and industry and year fixed effects, and cluster the standard errors by institutions.

In regression (1), we find that the coefficient estimate on *Multiple blockholding (indicator)* is positive and significant at the 5% level. The coefficient estimate of 0.013 indicates that, all else being equal, firms with multiple blockholders experience 1.3% higher abnormal announcement returns than those without multiple blockholders. Thus, the market's positive ex-ante valuation of multiple blockholding effects is both statistically and economically significant. The coefficient estimate on *Multiple blockholding (residual)* is also positive and significant in regression (2), confirming the positive valuation impact of multiple blockholdings.

To investigate the potential source of these positive valuation effects of multiple blockholdings, in regression (3), we decompose the multiple blockholding indicator into same- and different-industry multiple blockholding indicators. The coefficient estimate on the same-industry multiple blockholding indicator is positive and significant at the 5% level but that on the different-industry multiple blockholding indicator is not significant. In regression (4), we decompose the multiple blockholding indicator into activism-experience and no-activism-experience multiple blockholding indicators. The

coefficient estimate on the activism-experience multiple blockholding indicator is positive but insignificant, while that on the no-activism-experience multiple blockholding indicator is positive and significant at the 10% level. Therefore, we do not find evidence that forced CEO announcement returns significantly increase with activism experience of *Top 1*.[19] As a further test, in regression (5), we decompose the multiple blockholding indicator into long- and short-horizon multiple blockholding indicators. The coefficient estimate on the long-horizon multiple blockholding indicator is positive and significant at the 5% level, while that on the short-horizon multiple blockholding indicator is negative and insignificant. Thus, firms realize higher abnormal returns around forced CEO turnover announcements when they have as their largest institutional shareholders those that accumulate more governance-relevant information/skills through their experience of long-term blockholding in other portfolio firms.[20]

Overall, these results suggest that the positive effect of institutions' multiple blockholdings on firm value comes primarily from the enhanced monitoring associated with their prior experience and information advantage that result from multiple blockholdings.

2.3. Market Reaction to Shareholder Activism (Schedule 13D Filings)

As an additional test for the valuation effects of multiple blockholdings on institutional monitoring, in this subsection, we examine whether the multiple blockholdings of activist institutions influence their 13D filing announcement returns. According to the William Act of 1968, investors are legally required to file Schedule 13D with the Securities and Exchange Commission (SEC) within ten days of accumulating more than 5% of any class of a company's voting equity with an intention of influencing firm

[19] In untabulated tests, we replace the CAR (-1, 0) with the abnormal return on the announcement date and reestimate the regressions in Table 5. We find that the coefficient estimate on the activism-experience multiple blockholding indicator is positive and significant at the 5% level, with its magnitude being larger than that of the coefficient estimate on the no-activism-experience multiple blockholding indicator.

[20] In untabulated tests, we decompose the multiple blockholding indicator into turnover-experience and no-turnover-experience multiple blockholding indicators according to whether a firm's *Top 1* has forced CEO turnover experience as a blockholder in at least one of its other portfolio firms during the previous three years. The coefficient estimate on the turnover-experience multiple blockholding indicator is positive and significant at the 5% level but that on the no-turnover-experience multiple blockholding indicator is not significant, further supporting the view that prior monitoring experience accumulated through multiple blockholdings is an important source of value creation in institutional monitoring.

management (Mikkelson and Ruback, 1985). The 13D filing requirement that investors should reveal their intentions to intervene in a target's management allows us to examine how the market's ex-ante valuation of institutional monitoring is different depending on whether institutional investors hold more or fewer block shares.

We obtain information on Schedule 13D filings by searching the SEC EDGAR database. We first collect initial Schedule 13D filings by all 13F institutional investors targeting the firms covered in Compustat, CRSP, Thomson Reuters Institutional Holdings, and ExecuComp from 1994 to 2014. We then search *Factiva* for major confounding corporate events within 30 trading days before and five trading days after the initial 13D filing date and exclude observations associated with such news. These sample criteria yield a final sample of 306 initial Schedule 13D filings. We calculate daily abnormal returns using a market model with a 255 trading day estimation period beginning 300 days before and ending 46 days before the Schedule 13D filing dates. In untabulated results, we find that the mean (median) CAR (-30, 5), the mean (median) CAR (-20, 20), and the mean (median) CAR (-30, 30) are 5.2% (3.6%), 5% (3.9%), and 6.3% (5.6%), respectively, all of which are significant at the 1% level. These results are consistent with those in Brav et al. (2008) and Klein and Zur (2009), who find a mean CAR (-20, 20) of 7.2% and a mean CAR (-30, 5) of 5.7%, respectively, around the 13D filings by hedge funds.

To better understand the cross-sectional variation in abnormal announcement returns around the 13D filings, we conduct multivariate regressions using CAR (-30, 5) as the dependent variable, following Klein and Zur (2009). The results are reported in Table 6. Our key independent variables of interest are *Multiple blockholding (indicator)* and *Multiple blockholding (residual)* estimated using activist institutions filing 13Ds. The regressions control for several firm (firm size, leverage, Tobin's *q*, and ROA) and activist institution characteristics (portfolio weight, portfolio returns, and portfolio turnover) and industry and year fixed effects, and cluster the standard errors by institutions.

In regression (1), we find that the coefficient estimate on the *Multiple blockholding (indicator)* is positive and significant. The coefficient estimate of 0.074 suggests that ceteris paribus, firms targeted by

activist institutions with more residual blockholdings experience a 7.4% higher announcement return than those targeted by activist institutions with fewer residual blockholdings. Given that the mean CAR (-30, 5) is 5.2% for the full sample, this return is economically large and significant.[21] The results are similar when we replace *Multiple blockholding (indicator)* with *Multiple blockholding (residual)* in regression (2). In regression (3), we decompose the multiple blockholding indicator into same- and different-industry multiple blockholding indicators. Consistent with our hypothesis, the coefficient estimate on the same-industry multiple blockholding indicator is positive and significant, while that on the different-industry multiple blockholding indicator is insignificant. When the multiple blockholding indicator is decomposed according to the filing institution's past activism experience, the coefficient estimate on the activism-experience multiple blockholding indicator is positive and significant but that on the no-activism-experience multiple blockholding indicator is insignificant (regression (4)). In regression (5), we decompose the multiple blockholding indicator into long- and short-horizon multiple blockholding indicators. The long-horizon multiple blockholding indicator has a positive and significant coefficient, while the short-horizon multiple blockholding indicator has an insignificant coefficient.

Overall, the results based on institutional shareholder activism, together with those in previous tables, support our hypothesis that prior governance experience and information spillover are important channels through which institutional investors enhance their monitoring capabilities and that the stock market incorporates the benefits of better monitoring when valuing firms.[22]

[21] To check whether our results are mainly driven by 13D filers that target more than one firm in our sample and thus enter the sample repeatedly, in untabulated tests, we exclude institutions that file initial Schedule 13Ds more than once and reestimate the regressions. There are 99 cases in which an activist institution files a 13D only once in our sample. We find that the coefficient estimates on the multiple blockholding measures are still positive and significant, mitigating the concern that our results are driven by only those frequent 13D filers in the sample. In additional tests, we add an indicator that takes the value of one if an activist institution files 13Ds more than once in our sample and zero otherwise to regression (1) of Table 6 and reestimate the regression. We find that the coefficient estimate on *Multiple blockholding (indicator)* is still significant with a reduced estimate of 0.0617.

[22] In untabulated tests, we examine whether the institutions filing initial Schedule 13Ds drive the results in Table 3 (forced CEO turnover-performance sensitivity analysis). Specifically, we split sample firms in Table 3 according to whether their *Top 1* is one of the activist institutions included in the 13D filing sample and reestimate regressions (2) and (3) of Table 3 separately for these two subsamples. We find that coefficient estimates on the interaction terms between multiple blockholding measures and prior stock performance are negative and significant in both subsamples. However, their absolute magnitudes are larger for the subsample in which a firm's *Top 1* is a 13D filer than for the

2.4. Impact of Multiple Blockholdings on Firm Performance

In this subsection, we investigate how multiple blockholdings by large institutional shareholders affect firm performance. If multiple blockholdings facilitate more effective monitoring, to the extent that this effective monitoring translates into better firm performance, we expect that firm value improves as residual blockholdings by large institutional shareholders increase. Table 7 reports the results from regressions of annual changes in Tobin's *q* on changes in *Multiple blockholding (residual)* and changes in firm and institution characteristics. The sample consists of 32,809 firm-year observations covered in Compustat, CRSP, 13F, and ExecuComp databases from 1993 to 2014.

Regression (1) is estimated using an OLS with year fixed effects. We find that the coefficient estimate on change in *Multiple blockholding (residual)* is a significant 0.007, which suggests that a one-standard-deviation change in the residual blockholding number is associated with 2.17% change in Tobin's *q*. Given that the mean (median) change in Tobin's *q* is -6.8% (0.32%) for the full sample, this number is economically large and significant. In regressions (2) and (3), we add industry fixed effects and institution fixed effects to regression (1), respectively, and find that the coefficient estimates on the change in *Multiple blockholding (residual)* are positive and significant. Thus, controlling for the effects of time-invariant unobservable institutional characteristics does not change the results.

Overall, the results from Tobin's *q* regressions echo our previous results that the market's ex-ante valuation of forced CEO turnover announcements and 13D filings is higher for firms with multiple blockholders than those without multiple blockholders.

3. Additional Tests

subsample in which its *Top 1* is not a 13D filer (-2.25 compared to -0.62 for the interaction term involving *Multiple blockholding (indicator)*; -0.87 compared to -0.10 for the interaction term involving *Multiple blockholding (residual)*). These results suggest that although the results in Table 3 are particularly evident when a firm's *Top 1* is an activist institution, they are not entirely driven by such an institution.

In this section, we examine whether our results are robust to using alternative measures of multiple blockholdings and further address the potential endogeneity problems (unobserved heterogeneity and reverse causality biases) using an instrumental variables approach. We also conduct several other robustness tests and briefly discuss the results.

3.1 Alternative Measures of Multiple Blockholdings: Top 5 and Top 10 Measures

In this subsection, we use *Top 5* and *Top 10* as a firm's large institutional investors, respectively, to construct multiple blockholding measures and reestimate the previous regressions. We use the same set of control variables as those used in the previous regressions but the coefficient estimates on the intercept and control variables are suppressed for brevity.[23]

Panel A of Table 8 presents results from forced CEO turnover-performance sensitivity tests in which the multiple blockholding measures are estimated as the weighted-average residual blockholding number held by a firm's large institutions. The results using *Top 5* and *Top 10* are presented in the first five and next five regressions, respectively. In regressions (1) and (6), the interaction terms between industry-adjusted stock return and *Multiple blockholding (indicator)* have negative coefficients, which are significant at the 1% and 5% levels, respectively, suggesting that firms are more likely to fire poorly performing CEOs if their top 5 and top 10 largest institutions, on average, have a larger number of residual blockholdings. The results are identical if we replace *Multiple blockholding (indicator)* with *Multiple blockholding (residual)* in regressions (2) and (7).

In regressions (3) through (5) and (8) through (10), we examine whether institutional investors' industry concentration, activism experience, and portfolio turnover/holding periods are important channels through which multiple blockholders acquire their monitoring expertise. We decompose *Multiple blockholding (indicator)* into two indicators, following the same approach as in Table 3, except that we use the sample median of each specific experience variable for decomposition (i.e., according to

[23] The only exception is that for institution-specific characteristics (i.e., portfolio weight in the focal firm, past portfolio return, and past portfolio turnover) of *Top 5* (*Top 10*)), we use the average of their characteristics.

whether a total number of blockholdings by *Top 5* (*Top 10*) in each experience category is larger than the sample median). Appendix C provides detailed descriptions of this decomposition. We find that the coefficient estimates on interactions of past stock returns with the same-industry, activism-experience, and long-horizon multiple blockholding indicators are negative and significant at the 5% level or better in all six columns. In contrast, none of the coefficient estimates on the interaction terms involving the different-industry, no-activism-experience, and short-horizon multiple blockholding indicators are significant when we use *Top 10* as large institutions. When we use *Top 5*, the coefficient estimate on the interaction term involving the different-industry is insignificant while those on the interaction terms involving the no-activism-experience and short-horizon multiple blockholding indicators are negative and significant. However, the absolute values of their magnitudes are smaller than those for interaction terms involving the activism-experience and long-horizon multiple blockholding indicators. These results confirm those in Table 3 that uses *Top 1* as large institutions.

In Panel B of Table 8, we present results from the regressions of annual changes in Tobin's *q* on changes in *Multiple blockholding (residual)* that is constructed using *Top 5* and *Top 10* as a firm's large institutional investors, respectively. We include year fixed effects in all four regressions and add industry fixed effects in regressions (2) and (4).[24] In all specifications, we find that the coefficient estimate on the change in *Multiple blockholding (residual)* is positive and significant at the 1% level. These results confirm our earlier findings in Table 7 that the presence of large institutional shareholders with more residual blockholdings leads to a significant improvement in firm performance.

3.2. Endogeneity Bias: Instrumental Variables Approach

Although using institutional fixed effects and change regressions can mitigate potential endogeneity bias caused by time-invariant omitted variables, they do not address other types of endogeneity problems. For example, it is possible that time-variant unobservable firm or institution characteristics (e.g., an

[24] Since we use the weighted-average residual blockholding numbers of *Top 5* (*Top 10*) to define changes in *Multiple blockholding (residual)*, we cannot include institution fixed effects in the regressions.

institution's ability to identify undervalued stocks) affect both institutions' blockholding numbers and their monitoring (firm performance), resulting in a spurious correlation between the two. It is also possible that reverse causality drives our results. If institutions with more blockholdings have fewer incentives to monitor their portfolio firms due to time constraints, firms with good governance (performance) would attract more investments by these institutions and would also be associated with fewer agency problems (better performance). In this case, the direction of causation goes from good governance (performance) to the presence of multiple blockholders and not the other way around. To address these endogeneity problems, we use an instrumental variables approach.

3.2.1. Instrumental Variables

We attempt to capture exogenous variation in the presence of large institutional shareholders with multiple blockholdings by an instrumental variable approach. We use as instruments the variables that utilize the composition and reconstitution of the Russell 1000 and 2000 indexes (Boone and White, 2015; Fich, Harford, and Tran, 2015; Schmidt and Fahlenbrach, 2017; Appel, Gormley, and Keim, 2016)).[25]

The Russell 1000 (2000) index, which comprises the largest 1,000 (next largest 2,000) firms in the U.S. equity market, has been widely adopted by institutional investors tracking the market performance of large (mid) cap stocks. Both indexes are reconstituted at the end of May each year according to firms' market capitalization. After the indexes are rebalanced, institutions tracking these indexes have to adjust their portfolios to minimize tracking errors, which substantially changes the equity ownership of these institutional investors. Since the indexes are value-weighted, a firm ranked at the bottom of the Russell 1000 has a trivial weighting in the Russell 1000, while a top-ranked firm in the Russell 2000 has a significant weighting in the Russell 2000, even though its market capitalization is not much different from a bottom-ranker in the Russell 1000. Therefore, if a firm included in one of these indexes switches to the other, substantial exogenous changes will be made in the firm's institutional ownership structure because index-tracking institutions have to adjust their portfolio weights following the switch. According to Appel,

[25] We thank FTSE Russell for providing us the index data.

Gormley, and Keim (2016), the likelihood that each of the three largest passive institutions (i.e., Vanguard, State Street, and Barclays Bank) holding more than 5% of shares is two-thirds higher for the top 250 firms in the Russell 2000 than for the bottom 250 firms in the Russell 1000, while the likelihood of being a top five shareholder is 15% higher.

The nature of the composition/reconstitution of the Russell 1000 and 2000 indexes and the previous findings in the literature above suggest that changes in index assignments are highly correlated with the changes in our multiple blockholding measures (i.e., positively (negatively) correlated when a firm switches from the Russell 2000 (1000) to the Russell 1000 (2000)), thus satisfying the relevance requirement of the instrumental variables. For example, if a firm switches from the Russell 1000 to the Russell 2000, its ownership held by index-tracking institutions will significantly increase, which lowers the probability of an active institution with multiple blockholdings becoming one of the firm's large shareholders. In contrast, such a probability is likely to increase if the firm moves from the Russell 2000 to the Russell 1000 since its ownership held by index-tracking institutions will drop. Moreover, as discussed in Fich, Harford, and Tran (2015) and Appel, Gormley, and Keim (2016), the Russell index assignment can be viewed as random if the changes in a firm's market capitalization are properly controlled for. Thus, the changes in the Russell index assignments satisfy the exclusion condition of the instrumental variables because they are considered being random conditional on the changes in firms' market capitalization.

Specifically, following Fich, Harford, and Tran (2015) and Schmidt and Fahlenbrach (2017), we use four instrumental variables: two indicators for index switches to instrument the change in the multiple blockholding measure and two variables to control for market capitalization changes.[26] The first instrumental variable, *Russell 1000(t-1) to Russell 2000(t)*, is an indicator that takes the value of one if a

[26] In addition to these four variables, Fich, Harford, and Tran (2015) use indicators for index departure and index entrance as the instrumental variables. However, since we use the S&P 1500 firms as our sample and most of these firms are included either in the Russell 1000 index or in the Russell 2000 index, the frequency of our sample firms that exit or enter the Russell 2000 index tends to be smaller compared to those switching between indexes. Therefore, we do not use index departure and index entrance indicators as our additional instruments. Nevertheless, we reestimate 2SLS regressions by including these two additional indicators in the first stage and confirm that the results in the second stage are qualitatively the same as those reported in the table.

stock switches from the Russell 1000 index to the Russell 2000 index at the annual Russell index reconstitution, and zero otherwise. The second instrumental variable, *Russell 2000(t-1) to Russell 1000(t)*, is an indicator that takes the value of one if a stock switches from the Russell 2000 index to the Russell 1000 index, and zero otherwise. The third and fourth instrumental variables are the change in Russell index ranking measured by how many Russell rankings change from year *t-1* to year *t*, scaled by 100, and its squared term, respectively.

3.2.2. 2SLS Results

The two-stage least squares (2SLS) regressions results for the forced CEO turnover to performance sensitivity are reported in Panel A of Table 9. Since our main variable of interest in the forced CEO turnover-performance sensitivity regression is the interaction between past performance and the change in *Multiple blockholding (residual)*, we treat the change in *Multiple blockholding (residual)* and its interaction term with past performance as two separate endogenous variables in our first-stage regressions (e.g., Güner, Malmendier, and Tate, 2008; Butler, Fauver, and Mortal, 2009). Specifically, in the first-stage regressions, we respectively regress the change in *Multiple blockholding (residual)* and the interaction between the change in *Multiple blockholding (residual)* and industry-adjusted stock performance on four instruments discussed above, interaction terms between each of these four instruments and industry-adjusted stock return, and other controls. In the second stage, we estimate the likelihood of forced CEO turnovers using the instrumented change in *Multiple blockholding (residual)*, the instrumented interaction term between the change in *Multiple blockholding (residual)* and prior stock performance, and other controls used in the first-stage regression as independent variables. The results using *Top 1*, *Top 5*, and *Top 10* as large institutions are reported in the first three, second three, and last three columns of Panel A, respectively.

As expected, in regressions (1) and (2), (4) and (5), and (7) and (8), we find that our instrumental variables are significantly correlated with the endogenous variables. In regressions (1), (4), and (7), the coefficient estimates on *Russell 1000(t-1) to Russell 2000(t)* are all negative and significant at the 5%

level or better, suggesting that if firms switch from the Russell 1000 to the Russell 2000, residual blockholding numbers held by firms' large institutions decrease. The results suggest that these firms receive greater investments from passive index-tracking institutions with a smaller number of residual blockholdings, so the fraction of large institutional investors with more residual blockholdings decreases. In contrast, in regressions (4) and (7), the coefficient estimate on *Russell 2000(t-1) to Russell 1000(t)* is positive and significant at the 1% level, suggesting that if a firm switches from the Russell 2000 to the Russell 1000, its large institutional shareholders tend to own more residual blockholdings. These results are consistent with our prediction that the change in Russell index assignment leads to the exogenous composition change in a firm's large institutional investors. We also find that the interaction term between *Russell 1000(t-1) to Russell 2000(t)* and industry-adjusted stock performance is significantly correlated with the interaction term between the change in *Multiple blockholding (residual)* and past stock performance in regression (8) and the coefficient estimates on interaction terms involving *Russell 2000(t-1) to Russell 1000(t)* are all significant in regressions (2), (5), and (8).[27]

In regressions (3), (6), and (9), we estimate the second-stage regression of the likelihood of forced CEO turnover. The coefficient estimates on the instrumented interaction terms between the change in *Multiple blockholding (residual)* and prior stock performance are negative and significant at the 10% level or better. Thus, our finding that the sensitivity of forced CEO turnover to performance increases with the presence of multiple blockholders appears to be robust to controlling for endogeneity concerns.

Panel B of Table 9 presents the 2SLS regression results for the change in Tobin's *q*. In regressions (1), (3), and (5), we report results from the first-stage regressions in which the dependent variables are the changes in *Multiple blockholding (residual)* measured using *Top 1*, *Top 5*, and *Top 10*, respectively. We find that our instruments are significantly correlated with the change in *Multiple blockholding (residual)*.

[27] Since the first-stage regressions include two endogenous regressors, to test whether each of the endogenous regressors is underidentified or weakly identified, following Borisova et. al (2015), Lee, Hutton, and Shu (2015), and Schneider and Spalt (2016), we conduct Angrist and Pischke (2009) underidentification and weak identification tests, respectively. We find that both Angrist-Pischke chi-squared statistics and *F*-statistics are statistically significant in all the first-stage regressions, confirming the validity of our instrumental variables.

The coefficient estimate on *Russell 1000(t-1) to Russell 2000(t)* is negative and significant at the 1% level in all three columns. In contrast, the coefficient estimate on *Russell 2000(t-1) to Russell 1000(t)* is positive and significant in all three columns, suggesting that if a firm switches from the Russell 2000 to the Russell 1000, the residual blockholding numbers of its large institutions increase significantly.[28] In regressions (2), (4), and (6), we show results from the second-stage regressions. We find that the coefficient estimates on the instrumented multiple blockholding measures are positive and significant at the 1% level in all three columns, confirming our prior results that firm value increases with the presence of large institutional investors with more residual blockholdings.

3.3. Other Robustness Tests

3.3.1. Types of Institutional Investors

In this subsection we examine whether our results are sensitive to the types of institutional investors that hold multiple block shares. Previous studies show that only certain types of institutional investors perform an active monitoring role, suggesting that our results for multiple blockholdings are more pronounced when large institutional shareholders belong to the types of institutions that are likely to be active in monitoring.

To address this issue, we first divide our sample firms according to whether their *Top 1* is a transient investor or a non-transient investor (Bushee, 2001).[29] The results are reported in Panel A of Table 10. Regression (1) shows that the effect of multiple blockholdings on the sensitivity of forced CEO turnovers to performance is significant only when a firm's *Top 1* is classified as a non-transient investor. In regression (2), we find that the announcement returns of forced CEO turnovers are positively and significantly associated with *Multiple blockholding (indicator)* only if *Top 1* is a non-transient investor. In regression (3), when we split the 13D filing sample according to whether activist institutional investors

[28] Angrist-Pischke chi-squared statistics and *F*-statistics are statistically significant, confirming that our instruments adequately identify the models.

[29] We exclude firm-year observations whose information on trading type classification is missing from the analysis.

are transient, in both subsamples, the coefficient estimates on *Multiple blockholding (indicator)* are statistically insignificant. In regression (4), we find that the positive effects of the change in multiple blockholdings on the change in Tobin's *q* are significant only for firms with a non-transient *Top 1*. Overall, these results are generally consistent with our prediction that multiple blockholding effects are more evident for non-transient institutions. Second, following Brickley, Lease, and Smith (1988), Almazan, Hartzell, and Starks (2005), and Cornett et al. (2007), we divide our sample firms according to whether a firm's *Top 1* is an independent investor or a dependent investor based on its legal type. We expect stronger effects of multiple blockholdings for independent investors, since they are less likely to have business relationships with firms. The results in Panel B of Table 10 echo those in Panel A, confirming our expectation. Third, since mutual funds are known to be relatively passive in monitoring firms, we exclude them from the analyses and reestimate all regressions in the paper. The results do not change (Panel C), indicating that multiple blockholding effects are not driven by mutual funds.

Overall, the results in this subsection suggest that our prior findings regarding the monitoring effectiveness of institutional investors with multiple blockholdings are mainly driven by the large institutional shareholders that are known as active monitors.[30]

3.3.2. Monitoring or Portfolio Diversification?

A potential concern with our measure of multiple blockholdings is that it may simply capture the extent of institutional investors' portfolio diversification. To rule out this concern, similar to Faccio, Marchica, and Mura (2011), we estimate the number of 13F stocks that a firm's *Top 1* holds (including both block and non-block ownership) and the Herfindhal index of its 13F equity holdings, and use these two variables as the measures of institutional investors' portfolio diversification. We then replace our multiple blockholding measures with them and estimate the regressions reported in the paper. Untabulated results show that the coefficient estimates on these portfolio diversification measures are insignificant in most of the regressions. In additional tests, we include both our multiple blockholding measure and each

[30] In untabulated tests, we also include legal type indicators for institutions in all previous regressions and find that our results remain the same.

of these portfolio diversification measures in the same regressions and find that the coefficient estimates on our multiple blockholding measures remain significant, while those on the portfolio diversification measures are insignificant in most of regressions. These results suggest that our multiple blockholding measures are not a proxy for portfolio diversification but capture the monitoring effectiveness of institutional shareholders.

3.3.3. Controlling for Governance Variables

Another concern with our analyses is that the residual blockholding number could just be a proxy for the quality of a firm's corporate governance. It is likely that well-governed firms attract large investments from institutional investors and also enjoy higher performance. To address this issue, we control for the E-index (Bebchuk, Cohen and Ferrell, 2009), board size (Jensen, 1993; Yermack, 1996), and the proportion of independent directors on the boards (Weisbach, 1988) as the measures of a firm's governance quality and redo all analyses in the paper.[31] Our results remain qualitatively similar.

3.3.4. Information Advantages and Geographic Proximity

The prior literature documents that due to the information advantages held by proximate investors over distant investors with respect to firms, investors located near firms earn significant abnormal returns on their investments (Coval and Moskowitz, 2001; Ivkovic and Weisbenner, 2005; Baik, Kang, and Kim, 2010) and also engage in active governance activities (Gaspar and Massa, 2007; Kang and Kim, 2008). These results raise a concern that our key findings may come mainly from the low information asymmetry between firms and nearby institutions and not necessarily from institutions' improved monitoring achieved through prior experience and information spillover. To address this alternative explanation, we divide our sample into two groups according to whether a firm and its *Top 1* are located in the same state and reestimate all reported regressions.[32] We find that *Multiple blockholding (indicator)* is significant only when a firm and its *Top 1* are located in different states in most of our regressions. Thus, it is

[31] We obtain information on boards of directors and the E-index from the RiskMetrics Directors Database.

[32] We obtain information on the location of institutional investors' headquarters from SEC EDGAR and several websites (e.g., institutions' websites, Yahoo Finance, Bloomberg Business Week, and other professional websites) and the location of firms' headquarters from Compustat.

unlikely that our key results are driven mainly by institutional investors' information advantages arising from geographic proximity.

4. Summary and Conclusion

This paper investigates whether the governance effectiveness of institutional investors is affected by the number of stocks they hold as blockholders. We find that institutional investors with a larger number of blockholdings perform more active and effective monitoring roles than those with a smaller number of blockholdings. Specifically, we find that, firms with multiple blockholders are more likely to replace poorly performing top executives and realize higher abnormal returns around forced CEO turnover announcements than those without multiple blockholders. We also find higher stock price reactions around initial Schedule 13D filings by activist institutions with larger residual blockholding numbers. These results are particularly pronounced when large institutional shareholders have multiple blockholdings in the same industry, when they have prior activism experience, or when they serve as long-term blockholders. Finally, we find that the change in Tobin's q is positively associated with the change in residual blockholding numbers held by large institutions.

The literature on corporate governance emphasizes the monitoring role of institutional investors since as informed and sophisticated investors, they have both incentives and abilities to monitor firms. Our findings add to this literature by showing that information/monitoring cost advantages accumulated through multiple blockholdings are important channels through which institutional investors perform effective monitoring and create value. Previous studies also show that the effectiveness of institutional shareholders' monitoring differs depending on their types, business relationships with firms, trading strategies, and 13D filing experience. Our study extends this literature by developing a broad new measure of concentrated ownership by institutional investors that captures their monitoring incentives and governance-relevant experiences.

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Table 1
Sample Distribution by Year and Industry

The sample consists of 26,955 firm-year observations covered in the Compustat, CRSP, Thomson Reuters Institutional Holdings (13F), and ExecuComp databases from 1993 to 2010. To be included in our final sample, a firm's CEO ID should be available in ExecuComp because we identify CEO turnover by examining the changes in CEO IDs. We also require that firms' total institutional ownership reported in the 13F database be less than 100% and their stock returns and financial data be available in CRSP and Compustat, respectively. Industry is classified using the Fama and French 5 industries. *Multiple blockholding (indicator)* takes the value of one if the residual blockholding number of a firm's largest institutional investor (*Top 1*) is higher than the sample median, and zero otherwise. Appendix A provides a detailed description of the construction of *Multiple blockholding (indicator)*.

	Business Equipment, Telephone, and Television Transmission		Consumer Durables, Nondurables, Wholesale, Retail, and Some Services (Laundries, Repair Shops)		Healthcare, Medical Equipment, and Drugs		Manufacturing, Energy, and Utilities		Other – Mines, Construction, Construction Materials, Trans, Hotels, Business Services, Entertainment, and Finance		Total	
Year	Number of firms (percentage of firms) with *Multiple blockholding (indicator)* = 1											
1993	51	(66.7)	91	(52.7)	24	(62.5)	141	(66.0)	105	(72.4)	412	(64.6)
1994	154	(80.5)	256	(70.3)	71	(84.5)	354	(74.6)	239	(76.6)	1,074	(75.5)
1995	216	(83.3)	357	(75.6)	108	(85.2)	433	(73.2)	324	(72.5)	1,438	(76.1)
1996	218	(89.4)	373	(76.7)	109	(84.4)	448	(73.4)	336	(78.6)	1,484	(78.6)
1997	223	(67.3)	370	(58.9)	104	(71.2)	436	(59.2)	315	(59.0)	1,448	(61.2)
1998	249	(66.7)	381	(60.1)	109	(62.4)	425	(65.6)	332	(59.9)	1,496	(62.9)
1999	267	(52.8)	378	(49.7)	105	(46.7)	410	(54.6)	358	(44.7)	1,518	(50.2)
2000	333	(49.2)	366	(46.2)	106	(47.2)	400	(45.5)	374	(48.9)	1,579	(47.4)
2001	346	(40.5)	345	(44.6)	107	(38.3)	401	(41.6)	391	(42.7)	1,590	(42.1)
2002	340	(42.1)	333	(45.3)	106	(35.8)	394	(43.9)	390	(44.9)	1,563	(43.5)
2003	340	(47.6)	321	(47.4)	106	(40.6)	388	(44.1)	395	(38.7)	1,550	(43.9)
2004	344	(51.7)	337	(51.3)	121	(43.8)	380	(50.5)	408	(50.0)	1,590	(50.3)
2005	331	(39.6)	326	(41.4)	115	(28.7)	375	(37.6)	412	(37.9)	1,559	(38.2)
2006	314	(43.9)	329	(45.6)	116	(37.1)	370	(41.9)	428	(43.2)	1,557	(43.1)
2007	336	(32.4)	337	(32.6)	123	(30.1)	377	(32.9)	482	(30.5)	1,655	(31.8)
2008	392	(33.9)	356	(32.6)	150	(33.3)	411	(34.5)	545	(29.4)	1,854	(32.4)
2009	381	(39.6)	354	(36.2)	148	(35.8)	404	(30.4)	528	(33.1)	1,815	(34.7)
2010	370	(55.9)	346	(48.8)	142	(57.7)	393	(55.7)	522	(51.5)	1,773	(53.4)
Total	5,205	(50.8)	5,956	(50.8)	1,970	(49.4)	6,940	(51.2)	6,884	(47.6)	26,955	(50.0)

Table 2
Summary Statistics

The sample consists of 26,955 firm-year observations covered in the Compustat, CRSP, Thomson Reuters Institutional Holdings (13F), and ExecuComp databases from 1993 to 2010. To be included in our final sample, a firm's CEO ID should be available in ExecuComp because we identify CEO turnover by examining the changes in CEO IDs. We also require that firms' total institutional ownership reported in the 13F database be less than 100% and their stock returns and financial data be available in CRSP and Compustat, respectively. *Multiple blockholding (indicator)* takes the value of one if the residual blockholding number of a firm's largest institutional investor (*Top 1*) is higher than the sample median, and zero otherwise. Industry is classified using the Fama and French 48 industries. Appendices A and C provide a detailed description of the construction of *Multiple blockholding (indicator)* and the variables used in the table, respectively. The numbers in the test-of-difference columns are *p*-values. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Full sample (N = 26,955)		Subsample with *Multiple blockholding (indicator)* = 1 (N = 13,475): A		Subsample with *Multiple blockholding (indicator)* = 0 (N = 13,480): B		Test of difference (A - B)	
Variable	Mean	Median	Mean	Median	Mean	Median	*t*-test	Wilcoxon *z*-test
Firm characteristics:								
Total assets ($ billions)	12.317	1.501	5.677	0.964	18.954	2.415	0.000***	0.000***
Industry-adjusted stock return	0.115	0.063	0.100	0.055	0.130	0.071	0.000***	0.000***
ROA	0.032	0.042	0.029	0.040	0.035	0.044	0.002***	0.000***
Tobin's *q*	1.976	1.457	1.860	1.416	2.092	1.504	0.000***	0.000***
Leverage	0.230	0.211	0.225	0.206	0.234	0.216	0.000***	0.000***
Total institutional ownership	0.646	0.665	0.627	0.639	0.664	0.691	0.000***	0.000***
CEO characteristics:								
CEO age (year)	55.561	56.000	55.610	55.000	55.512	56.000	0.289	0.701
CEO tenure (year)	6.806	5.000	6.936	5.000	6.676	5.000	0.003***	0.798
CEO ownership	0.027	0.003	0.031	0.004	0.024	0.003	0.000***	0.000***
CEO is chairman (indicator)	0.597	1.000	0.592	1.000	0.602	1.000	0.099*	0.099*
Forced CEO turnover (indicator)	0.025	0.000	0.025	0.000	0.025	0.000	0.872	0.872

Institution (*Top 1*) characteristics:								
Number of blockholdings owned by institutions (raw blockholding number)	288.357	112.000	205.721	86.000	370.962	186.000	0.000***	0.000***
Multiple blockholdings (residual)	0.916	1.852	3.148	2.955	-1.315	-0.062	0.000***	0.000***
Total market value of equity holdings managed by institutions ($ billions)	134.545	50.560	38.270	21.565	230.785	200.102	0.000***	0.000***
Portfolio weight	0.016	0.002	0.009	0.003	0.024	0.002	0.000***	0.000***
Portfolio return	0.038	0.049	0.044	0.045	0.033	0.054	0.000***	0.001***
Portfolio turnover	0.179	0.163	0.195	0.179	0.163	0.155	0.000***	0.000***
Same-industry experience (indicator)	0.858	1.000	0.898	1.000	0.817	1.000	0.000***	0.000***
Activism experience (indicator)	0.200	0.000	0.262	0.000	0.138	0.000	0.000***	0.000***
Long-horizon experience (indicator)	0.976	1.000	0.992	1.000	0.961	1.000	0.000***	0.000***
Independent institution (indicator)	0.768	1.000	0.883	1.000	0.653	1.000	0.000***	0.000***
Dedicated institution (indicator)	0.328	0.000	0.385	0.000	0.271	0.000	0.000***	0.000***

Table 3
Logit Estimates of the Likelihood of Forced CEO Turnover

The sample consists of 26,445 firm-year observations covered in the Compustat, CRSP, Thomson Reuters Institutional Holdings (13F), and ExecuComp databases from 1993 to 2010. To be included in our final sample, a firm's CEO ID should be available in ExecuComp because we identify CEO turnover by examining the changes in CEO IDs. We also require that firms' total institutional ownership reported in the 13F database be less than 100% and their stock returns and financial data be available in CRSP and Compustat, respectively. A turnover event is considered occurring in a given year when the CEO ID reported in ExecuComp differs from that in the prior year. Following Parrino (1997) and Denis, Denis, and Sarin (1997), we refer to a turnover event as a forced turnover if: 1) news articles on *Factiva* report that the CEO has been fired, has been forced to depart from the position, or has departed due to unspecified policy differences; 2) the departing CEO is under the age of 60 and the stated reason for the departure is not death, poor health, or the acceptance of another position (elsewhere or within the firm); or 3) the departing CEO is under the age of 60 and the stated reason for the departure is retirement but the firm does not announce it at least six months before the departure. The dependent variable takes the value of one if a forced CEO turnover occurs, and zero otherwise. *Multiple blockholding (indicator)* takes the value of one if the residual blockholding number of a firm's largest institutional investor (*Top 1*) is higher than the sample median, and zero otherwise. All firm (institution) and CEO characteristics are measured as of the fiscal year-end (the calendar quarter-end) that immediately precedes the event year. Industry is classified using the Fama and French 48 industries. Appendices A and C provide a detailed description of the construction of multiple blockholding measures and the variables used in the table, respectively. *P*-values are in parentheses and estimated using robust standard errors that adjust for heteroscedasticity and institution clustering. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Multiple blockholding (indicator): A	0.024 (0.782)	0.062 (0.462)					0.140 (0.349)
Multiple blockholding (residual): B			0.001 (0.943)				
Same-industry multiple blockholding (indicator): C				0.056 (0.507)			
Different-industry multiple blockholding (indicator): D				0.118 (0.520)			
Activism-experience multiple blockholding (indicator): E					-0.039 (0.764)		
No-activism-experience multiple blockholding (indicator): F					0.103 (0.229)		
Long-horizon multiple blockholding (indicator):G						0.063 (0.451)	
Short-horizon multiple blockholding (indicator):H						-0.326 (0.617)	
Industry-adjusted stock return: I	-0.737*** (0.001)	-0.380** (0.049)	-0.732*** (0.000)	-0.380** (0.049)	-0.380** (0.049)	-0.379** (0.049)	-0.303* (0.083)
A × I		-0.822*** (0.001)					-0.665** (0.012)
B × I			-0.119*** (0.000)				
C × I				-0.828*** (0.002)			
D × I				-0.770 (0.309)			
E × I					-1.025** (0.014)		
F × I					-0.767*** (0.007)		

G × I						-0.836*** (0.001)	
H × I						0.590 (0.474)	
Log (total assets)	0.023 (0.441)	0.023 (0.433)	0.019 (0.541)	0.023 (0.433)	0.023 (0.437)	0.023 (0.431)	0.039 (0.235)
Tobin's *q*	0.013 (0.682)	0.011 (0.730)	0.006 (0.859)	0.011 (0.730)	0.011 (0.733)	0.011 (0.732)	0.010 (0.591)
Leverage	0.390** (0.026)	0.387** (0.026)	0.392** (0.023)	0.387** (0.026)	0.386** (0.026)	0.386** (0.026)	0.383* (0.053)
Total institutional ownership	-0.468** (0.042)	-0.443* (0.051)	-0.415* (0.070)	-0.443* (0.051)	-0.441* (0.053)	-0.445* (0.050)	-0.676*** (0.005)
Log (CEO age)	-0.943*** (0.004)	-0.935*** (0.005)	-0.928*** (0.005)	-0.934*** (0.005)	-0.925*** (0.005)	-0.934*** (0.005)	-0.945*** (0.004)
Log (CEO tenure)	-0.171*** (0.000)	-0.172*** (0.000)	-0.172*** (0.000)	-0.172*** (0.000)	-0.173*** (0.000)	-0.171*** (0.000)	-0.162*** (0.002)
CEO is chairman (indicator)	-0.219** (0.025)	-0.218** (0.027)	-0.221** (0.024)	-0.218** (0.027)	-0.218** (0.026)	-0.218** (0.027)	-0.188** (0.042)
CEO ownership	-3.083** (0.018)	-3.066** (0.019)	-2.996** (0.022)	-3.067** (0.019)	-3.065** (0.019)	-3.065** (0.019)	-2.904*** (0.003)
Institutional investor's portfolio weight	-0.030 (0.965)	0.006 (0.992)	0.040 (0.951)	-0.004 (0.995)	0.027 (0.967)	0.013 (0.985)	-0.055 (0.968)
Institutional investor's portfolio return	0.299 (0.375)	0.315 (0.360)	0.307 (0.369)	0.317 (0.358)	0.318 (0.358)	0.304 (0.378)	0.422 (0.401)
Institutional investor's portfolio turnover	0.669** (0.028)	0.693** (0.022)	0.715** (0.019)	0.691** (0.023)	0.676** (0.026)	0.704** (0.021)	0.178 (0.774)
Year fixed effects	YES	YES	YES	YES	YES	YES	YES
Industry fixed effects	YES	YES	YES	YES	YES	YES	YES
Institution fixed effects	NO	NO	NO	NO	NO	NO	YES
Pseudo R^2	0.0496	0.0512	0.0517	0.0512	0.0514	0.0513	0.0511
Number of observations	26,445	26,445	26,445	26,445	26,445	26,445	22,360

Table 4
Cumulative Abnormal Returns around Forced CEO Turnover Announcement Dates

The sample consists of 554 forced CEO turnover announcements by firms covered in the Compustat, CRSP, Thomson Reuters Institutional Holdings (13F), and ExecuComp databases from 1993 to 2010. We exclude turnover events if there are other major confounding corporate events (e.g., announcements of mergers and acquisitions, dividend payments, earnings, debt issuance, equity issuance, company name change, and delisting) within one trading day before and after the announcement date. Following Parrino (1997) and Denis, Denis, and Sarin (1997), we refer to a turnover event as a forced turnover if: 1) news articles on *Factiva* report that the CEO has been fired, has been forced to depart from the position, or has departed due to unspecified policy differences; 2) the departing CEO is under the age of 60 and the stated reason for the departure is not death, poor health, or the acceptance of another position (elsewhere or within the firm); or 3) the departing CEO is under the age of 60 and the stated reason for the departure is retirement but the firm does not announce it at least six months before the departure. Daily abnormal returns (ARs) are calculated using a market model with a 250 trading day estimation period beginning 260 days before and ending ten days before the forced CEO turnover announcement date. The daily ARs are cumulated to obtain the cumulative abnormal return (CAR) from day t_1 before the turnover announcement date to day t_2 after the turnover announcement date. The CRSP equally weighted return is used as a proxy for the market return. *Multiple blockholding (indicator)* takes the value of one if the residual blockholding number of a firm's largest institutional investor (*Top 1*) is higher than the sample median, and zero otherwise. Appendix A provides a detailed description of the construction of *Multiple blockholding (indicator)*. The numbers in the test-of-difference columns are *p*-values from the *t*-test for the mean difference and Wilcoxen *z*-test for the median difference, respectively. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Event windows	Full sample (N = 554)		Subsample with *Multiple blockholding (indicator)* = 1 (N = 277): A		Subsample with *Multiple blockholding (indicator)* = 0 (N = 277): B		Test of difference (A - B)	
	Mean	Median	Mean	Median	Mean	Median	*t*-test	Wilcoxon *z*-test
AR (0)	-0.005*	-0.003	-0.001	-0.001	-0.009**	-0.004**	0.154	0.107
CAR (-1, 0)	-0.005	-0.004*	0.001	-0.003	-0.012**	-0.006**	0.087*	0.343
CAR (-2, 0)	-0.007	-0.004**	0.001	-0.002	-0.014**	-0.006**	0.077*	0.356
CAR (-1, 1)	-0.01**	-0.004	-0.007	-0.004	-0.012*	-0.004	0.551	0.748
CAR (-2, 2)	-0.013**	-0.006**	-0.008	-0.007	-0.018**	-0.005**	0.34	0.569
CAR (-3, 3)	-0.017**	-0.01***	-0.005	-0.003	-0.028***	-0.014***	0.073*	0.046**

Table 5
OLS Estimates of Cumulative Abnormal Returns (-1, 0) around Forced CEO Turnover Announcement Dates

The sample consists of 547 forced CEO turnovers by firms covered in the Compustat, CRSP, Thomson Reuters Institutional Holdings (13F), and ExecuComp databases from 1993 to 2010. We exclude the turnover events if there are other major confounding corporate events (e.g., announcements of mergers and acquisitions, dividend payments, earnings, debt issuance, equity issuance, company name change, and delisting) within one trading day before and after the announcement date. We define a turnover event as a forced turnover following Parrino (1997) and Denis, Denis, and Sarin (1997). The dependent variable is the cumulative abnormal return (-1, 0) around the forced CEO turnover announcement date. Daily abnormal returns are calculated using a market model with a 250 trading day estimation period beginning 260 days before and ending ten days before the forced CEO turnover announcement date. The CRSP equally weighted return is used as a proxy for the market return. *Multiple blockholding (indicator)* takes the value of one if the residual blockholding number of a firm's largest institutional investor (*Top 1*) is higher than the sample median, and zero otherwise. All firm (institution) and CEO characteristics are measured as of the fiscal year-end (the calendar quarter-end) that immediately precedes the announcement date. Industry is classified using the Fama and French 48 industries. Appendices A and C provide a detailed description of the construction of multiple blockholding measures and the variables used in the table, respectively. *P*-values are in parentheses and estimated using robust standard errors that adjust for heteroskedasticity and institution clustering. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Independent variables	(1)	(2)	(3)	(4)	(5)
Multiple blockholding (indicator)	0.013**				
	(0.032)				
Multiple blockholding (residual)		0.003**			
		(0.049)			
Same-industry multiple blockholding (indicator)			0.013**		
			(0.041)		
Different-industry multiple blockholding (indicator)			0.012		
			(0.521)		
Activism-experience multiple blockholding (indicator)				0.010	
				(0.269)	
No-activism-experience multiple blockholding (indicator)				0.014*	
				(0.056)	
Long-horizon multiple blockholding (indicator)					0.013**
					(0.031)
Short-horizon multiple blockholding (indicator)					-0.004
					(0.868)
Log (total assets)	0.005*	0.005**	0.005*	0.005*	0.005*
	(0.054)	(0.031)	(0.053)	(0.053)	(0.058)
Leverage	0.032	0.032	0.032	0.031	0.032
	(0.265)	(0.260)	(0.267)	(0.267)	(0.265)
Tobin's q	-0.000	-0.000	-0.000	0.000	-0.000
	(0.993)	(0.987)	(0.993)	(0.992)	(0.996)
ROA	-0.015	-0.018	-0.015	-0.016	-0.015
	(0.539)	(0.475)	(0.542)	(0.512)	(0.542)
Total institutional ownership	-0.071***	-0.069***	-0.071***	-0.071***	-0.071***
	(0.003)	(0.005)	(0.003)	(0.003)	(0.003)
Log (CEO age)	-0.020	-0.017	-0.020	-0.019	-0.020
	(0.570)	(0.636)	(0.571)	(0.587)	(0.572)
Log (CEO tenure)	-0.001	-0.002	-0.001	-0.001	-0.001
	(0.749)	(0.726)	(0.748)	(0.743)	(0.741)
CEO is chairman (indicator)	-0.008	-0.009	-0.008	-0.008	-0.008
	(0.393)	(0.386)	(0.394)	(0.401)	(0.411)
CEO ownership	-0.000	0.005	-0.000	-0.002	0.003
	(1.000)	(0.931)	(1.000)	(0.973)	(0.956)
Institutional investor's portfolio weight	0.007	-0.010	0.008	0.008	0.008

	(0.837)	(0.781)	(0.836)	(0.829)	(0.829)
Institutional investor's portfolio return	0.069	0.069	0.069	0.070	0.069
	(0.164)	(0.168)	(0.164)	(0.161)	(0.164)
Institutional investor's portfolio turnover	-0.004	-0.005	-0.004	-0.004	-0.004
	(0.868)	(0.837)	(0.869)	(0.865)	(0.877)
Constant	0.011	0.002	0.011	0.007	0.011
	(0.937)	(0.991)	(0.937)	(0.961)	(0.939)
Year fixed effects	YES	YES	YES	YES	YES
Industry fixed effects	YES	YES	YES	YES	YES
Adjusted R^2	0.0496	0.0502	0.0476	0.0478	0.0478
Number of observations	547	547	547	547	547

Table 6
OLS Estimates of Cumulative Abnormal Returns (-30, 5) for Target Firms around Initial Schedule 13D Filings

The sample consists of 306 initial filings of Schedule 13D by institutional investors targeting the firms covered in the Compustat, CRSP, Thomson Reuters Institutional Holdings (13F), and ExecuComp databases from 1994 to 2014. We exclude the events if there are other major confounding corporate events (e.g., announcements of mergers and acquisitions, dividend, earnings, debt issuance, equity issuance, company name change, and delisting) within 30 trading days before and 5 trading days after the filing date. The dependent variable is the cumulative abnormal returns (-30, 5) around the initial Schedule 13D filing. Daily abnormal returns are calculated using a market model with a 255 trading day estimation period beginning 300 days before and ending 46 days before the Schedule 13D filings. The CRSP equally weighted return is used as a proxy for the market return. *Multiple blockholding (indicator)* takes the value of one if the residual blockholding number of an activist institution is higher than the sample median, and zero otherwise. All firm (institution) characteristics are measured as of the fiscal year-end (the calendar quarter-end) that immediately precedes the Schedule 13D filing date. Industry is classified using the Fama and French 48 industries. Appendices A and C provide a detailed description of the construction of multiple blockholding measures and the variables used in the table, respectively. *P*-values are in parentheses and estimated using robust standard errors that adjust for heteroskedasticity and institution clustering. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Independent variables	(1)	(2)	(3)	(4)	(5)
Multiple blockholding (indicator)	0.074**				
	(0.035)				
Multiple blockholding (residual)		0.028*			
		(0.075)			
Same-industry multiple blockholding (indicator)			0.073*		
			(0.053)		
Different-industry multiple blockholding (indicator)			0.076		
			(0.242)		
Activism-experience multiple blockholding (indicator)				0.082**	
				(0.020)	
No-activism-experience multiple blockholding (indicator)				-0.022	
				(0.769)	
Long-horizon multiple blockholding (indicator)					0.076**
					(0.031)
Short-horizon multiple blockholding (indicator)					-0.004
					(0.967)
Log (total assets)	-0.016	-0.013	-0.016	-0.017	-0.016
	(0.259)	(0.348)	(0.264)	(0.221)	(0.261)
Leverage	0.019	0.011	0.019	0.023	0.020
	(0.858)	(0.915)	(0.859)	(0.830)	(0.852)
Tobin's *q*	-0.001	-0.001	-0.001	-0.005	-0.001
	(0.938)	(0.940)	(0.940)	(0.800)	(0.942)
ROA	-0.200	-0.208	-0.200	-0.193	-0.199
	(0.411)	(0.396)	(0.412)	(0.425)	(0.414)
Institutional investor's portfolio weight	0.249	0.231	0.247	0.236	0.269
	(0.507)	(0.560)	(0.516)	(0.534)	(0.476)
Institutional investor's portfolio return	0.127	0.131	0.127	0.123	0.126
	(0.520)	(0.518)	(0.522)	(0.532)	(0.525)
Institutional investor's portfolio turnover	0.124**	0.132**	0.124**	0.122**	0.124**
	(0.022)	(0.025)	(0.024)	(0.021)	(0.022)
Constant	0.010	-0.036	0.012	0.012	0.006
	(0.968)	(0.883)	(0.960)	(0.961)	(0.979)
Year fixed effects	YES	YES	YES	YES	YES
Industry fixed effects	YES	YES	YES	YES	YES
Adjusted R^2	0.0484	0.0464	0.0443	0.0485	0.0449
Number of observations	306	306	306	306	306

Table 7
OLS Estimates of Changes in Tobin's *q*

The sample consists of 32,809 firm-year observations covered in the Compustat, CRSP, Thomson Reuters Institutional Holdings (13F), and ExecuComp databases from 1993 to 2014. The dependent variable is the annual change in Tobin's *q*. Change in *Multiple blockholding (residual)* is the annual change in residual blockholding numbers of a firm's largest institutional investor (*Top 1*). All firm (institution) characteristics are measured as of the fiscal year-end (calendar quarter-end) that immediately precedes the year in which the performance change is measured. Industry is classified using the Fama and French 48 industries. Appendices A and C provide a detailed description of the construction of multiple blockholding measures and the variables used in the table, respectively. *P*-values are in parentheses and estimated using robust standard errors that adjust for heteroskedasticity. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Independent variables	(1)	(2)	(3)
Change in multiple blockholding (residual)	0.007**	0.007**	0.005*
	(0.019)	(0.017)	(0.096)
Change in log (total assets)	-0.006***	-0.006***	-0.006***
	(0.000)	(0.000)	(0.000)
Change in ROA	0.137	0.132	0.155
	(0.265)	(0.286)	(0.210)
Change in leverage	0.204	0.207	0.236
	(0.312)	(0.306)	(0.279)
Change in total institutional ownership	-0.377***	-0.371***	-0.317**
	(0.001)	(0.001)	(0.026)
Change in institutional shareholder's portfolio weight	0.117	0.117	0.045
	(0.582)	(0.583)	(0.857)
Change in institutional shareholder's portfolio return	-0.268*	-0.270*	-0.290*
	(0.063)	(0.062)	(0.067)
Change in institutional shareholder's portfolio turnover	-0.000	-0.001	-0.000
	(0.168)	(0.176)	(0.472)
Constant	-0.120***	-0.134***	0.048
	(0.000)	(0.009)	(0.229)
Year fixed effects	YES	YES	YES
Industry fixed effects	NO	YES	NO
Institution fixed effects	NO	NO	YES
Adjusted R^2	0.0449	0.0452	0.0391
No. of observations	32,809	32,809	32,809

Table 8
Using *Top 5* and *Top 10* to Measure *Multiple Blockholdings*

The sample in Panel A consists of 26,445 firm-year observations covered in the Compustat, CRSP, Thomson Reuters Institutional Holdings (13F), and ExecuComp databases from 1993 to 2010. To be included in the sample, a firm's CEO ID should be available in ExecuComp because we identify CEO turnover by examining the changes in CEO IDs. We also require that firms' total institutional ownership reported in the 13F database be less than 100% and their stock returns and financial data be available in CRSP and Compustat, respectively. The dependent variable takes the value of one if a forced CEO turnover occurs, and zero otherwise. All firm (institution) and CEO characteristics are measured as of the fiscal year-end (the calendar quarter-end) that immediately precedes the event year. The sample in Panel B consists of 32,809 firm-year observations covered in the Compustat, CRSP, Thomson Reuters Institutional Holdings (13F), and ExecuComp databases from 1993 to 2014. The dependent variable is the annual change in Tobin's *q*. All firm (institution) characteristics are measured as of the fiscal year-end (calendar quarter-end) that immediately precedes the year in which the performance change is measured. We measure *Multiple blockholdings* using a firm's top 5 and top ten largest institutional shareholders (*Top 5* and *Top 10*). Industry is classified using the Fama and French 48 industries. Appendices A and C provide a detailed description of the construction of multiple blockholding measures and the variables used in the table, respectively. *P*-values are in parentheses and estimated using robust standard errors that adjust for heteroskedasticity. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Logit estimates of the likelihood of forced CEO turnover

Independent variables	*Top 5*					*Top 10*				
			Monitoring experience					Monitoring experience		
	(1)	(2)	Industry (3)	Activism (4)	Holding period (5)	(6)	(7)	Industry (8)	Activism (9)	Holding period (10)
Multiple blockholding (indicator): A	0.148					0.221**				
	(0.166)					(0.041)				
Multiple blockholding (residual): B		0.019					0.038			
		(0.586)					(0.426)			
Same-industry / activism-experience / long-horizon multiple blockholding (indicator): C			0.003	0.157	0.123			0.136	0.208*	0.230*
			(0.979)	(0.177)	(0.338)			(0.295)	(0.079)	(0.072)
Different-industry / no-activism-experience / short-horizon multiple blockholding (indicator): D			0.260**	0.132	0.156			0.304**	0.222	0.205*
			(0.038)	(0.320)	(0.184)			(0.019)	(0.105)	(0.095)
Industry-adjusted stock return: E	-0.397*	-0.639***	-0.407*	-0.397*	-0.396*	-0.424*	-0.608***	-0.432*	-0.423*	-0.425*
	(0.088)	(0.000)	(0.079)	(0.088)	(0.089)	(0.071)	(0.001)	(0.065)	(0.072)	(0.071)
A × E	-0.784***					-0.672**				
	(0.009)					(0.030)				
B × E		-0.233***					-0.224**			
		(0.003)					(0.032)			
C × E			-1.143***	-0.813**	-1.000**			-1.083***	-1.007***	-0.993**
			(0.002)	(0.020)	(0.022)			(0.003)	(0.004)	(0.021)
D × E			-0.478	-0.752**	-0.688**			-0.242	-0.326	-0.526

			(0.174)	(0.043)	(0.032)			(0.527)	(0.407)	(0.119)
Control variables (same as in Table 3)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Pseudo R^2	0.0517	0.0521	0.0528	0.0517	0.0518	0.0509	0.0505	0.0519	0.0514	0.0511
Number of observations	26,445	26,445	26,445	26,445	26,445	26,445	26,445	26,445	26,445	26,445

Panel B: OLS estimates of changes in Tobin's q

	Top 5		*Top 10*	
Independent variables	(1)	(2)	(3)	(4)
Change in multiple blockholding (residual)	0.036*** (0.000)	0.036*** (0.000)	0.054*** (0.000)	0.054*** (0.000)
Control variables (same as in Table 7)	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Industry fixed effects	NO	YES	NO	YES
Adjusted R^2	0.0463	0.0466	0.0465	0.0468
Number of observations	32,809	32,809	32,809	32,809

Table 9
Instrumental Variables Approach

In Panel A, the sample consists of 24,349 firm-year observations covered in the Compustat, CRSP, Thomson Reuters Institutional Holdings (13F), and ExecuComp databases from 1993 to 2010. To be included in the sample, a firm's CEO ID should be available in ExecuComp and its reported total institutional ownership should be less than 100%. Columns (1) and (2), (4) and (5), and (7) and (8) show results from the first-stage OLS regressions where *Multiple blockholding (residual)* is measured using the top one, top five, and top ten largest institutional investors (*Top 1*, *Top 5*, and *Top 10*), respectively. In columns (1), (4), and (7), the dependent variable is the change in *Multiple blockholding (residual)*. In columns (2), (5), and (8), the dependent variable is the interaction term between industry-adjusted stock return and the change in *Multiple blockholding (residual)*. Columns (3), (6), and (9) show results from the second-stage regressions where instrumented *multiple blockholding (residual)* is measured using *Top 1*, *Top 5*, and *Top 10*, respectively. The dependent variable takes the value of one if a forced CEO turnover occurs, and zero otherwise. In Panel B, the sample consists of 30,428 firm-year observations covered in the Compustat, CRSP, Thomson Reuters Institutional Holdings (13F), and ExecuComp databases from 1993 to 2014. Columns (1), (3), and (5) show results from the first-stage regressions where *Multiple blockholding (residual)* is measured using *Top 1*, *Top 5*, and *Top 10*, respectively. The dependent variable is the change in *Multiple blockholding (residual)*. Columns (2), (4), and (6) show results from the second-stage regressions, where instrumented change in *multiple blockholding (residual)* is measured using *Top 1*, *Top 5*, and *Top 10*, respectively. The dependent variable is the change in Tobin's *q*. In both panels, all firm (institution) characteristics are measured as of the fiscal year-end (calendar quarter-end) that immediately precedes the event year (the year in which the performance change is measured). Industry is classified using the Fama and French 48 industries. Appendices A and C provide a detailed description of the construction of *Multiple blockholding (residual)* and the variables used in the table, respectively. *P*-values are in parentheses and estimated using robust standard errors that adjust for heteroskedasticity. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: 2SLS estimates of the likelihood of forced CEO turnover

	Top 1			*Top 5*			*Top 10*		
	1st stage	1st stage	2nd stage	1st stage	1st stage	2nd stage	1st stage	1st stage	2nd stage
	Change in *Multiple blockholding* (residual)	Industry-adjusted stock return × change in *Multiple blockholding* (residual)	Forced CEO turnover (indicator)	Change in *Multiple blockholding* (residual)	Industry-adjusted stock return × change in *Multiple blockholding* (residual)	Forced CEO turnover (indicator)	Change in *Multiple blockholding* (residual)	Industry-adjusted stock return × change in *Multiple blockholding* (residual)	Forced CEO turnover (indicator)
Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Russell 1000$_{(t-1)}$ to Russell 2000$_{(t)}$ (indicator): A	-0.387**	-0.035		-0.223***	0.024		-0.171***	0.017	
	(0.039)	(0.294)		(0.000)	(0.172)		(0.000)	(0.181)	
A × E	-0.447	-0.532		0.223	0.227		0.068	0.211*	
	(0.239)	(0.167)		(0.190)	(0.186)		(0.560)	(0.081)	
Russell 2000$_{(t-1)}$ to Russell 1000$_{(t)}$ (indicator): B	0.288	0.315**		0.297***	0.225***		0.256***	0.196***	
	(0.134)	(0.033)		(0.000)	(0.000)		(0.000)	(0.001)	
B × E	-0.131	-0.903*		-0.075	-0.593***		-0.064	-0.466**	
	(0.465)	(0.074)		(0.404)	(0.007)		(0.316)	(0.014)	
Change in ranking in Russell$_{(t-1, t)}$: C	-0.084***	-0.002		-0.057***	0.007*		-0.038***	0.006**	
	(0.000)	(0.811)		(0.000)	(0.061)		(0.000)	(0.034)	
C × E	0.002	-0.081*		0.003	-0.027		0.002	-0.023*	
	(0.923)	(0.069)		(0.705)	(0.104)		(0.693)	(0.063)	

Squared change in ranking in Russell$_{(t\text{-}1,\ t)}$: D	-0.004***	-0.000		-0.002***	0.000		-0.002***	0.000	
	(0.003)	(0.963)		(0.000)	(0.917)		(0.000)	(0.586)	
D × E	0.005**	0.006		0.003***	0.000		0.003***	0.000	
	(0.019)	(0.115)		(0.000)	(0.972)		(0.000)	(0.973)	
Industry-adjusted stock return: E	-0.397**	-0.328	-0.017	-0.277***	-0.337***	-0.024**	-0.230***	-0.293***	-0.026***
	(0.012)	(0.491)	(0.115)	(0.000)	(0.000)	(0.011)	(0.000)	(0.000)	(0.010)
Instrumented: change in Multiple blockholding (residual)			0.023***			0.035***			0.041***
			(0.000)			(0.000)			(0.002)
Instrumented: change in Multiple blockholding (residual) × industry-adjusted stock return			-0.023**			-0.039**			-0.049*
			(0.032)			(0.046)			(0.055)
Change in institutional shareholder's portfolio weight$_{(t\text{-}1,\ t)}$	2.383	0.532*	-0.059	3.542***	0.532**	-0.119*	3.461***	1.209***	-0.210*
	(0.108)	(0.075)	(0.128)	(0.000)	(0.017)	(0.095)	(0.000)	(0.001)	(0.089)
Change in institutional shareholder's portfolio return$_{(t\text{-}1,\ t)}$	0.780***	0.344***	-0.010	-0.012	0.107*	-0.009	0.248***	0.154***	-0.014
	(0.003)	(0.001)	(0.421)	(0.894)	(0.068)	(0.494)	(0.000)	(0.002)	(0.339)
Change in institutional shareholder's portfolio turnover$_{(t\text{-}1,\ t)}$	0.054	0.005*	-0.001	1.741***	0.205***	-0.036	0.062***	0.006***	-0.002*
	(0.153)	(0.064)	(0.156)	(0.000)	(0.000)	(0.117)	(0.001)	(0.002)	(0.069)
Log (total assets)	-0.009	-0.016	0.001	-0.014***	-0.019***	0.001	-0.009***	-0.015***	0.000
	(0.809)	(0.117)	(0.576)	(0.008)	(0.000)	(0.549)	(0.009)	(0.000)	(0.628)
Tobin's *q*	-0.015	-0.049	0.000	-0.016***	-0.041***	-0.000	-0.012***	-0.030***	-0.000
	(0.603)	(0.117)	(0.930)	(0.008)	(0.008)	(0.962)	(0.008)	(0.005)	(0.952)
Leverage	-0.170	-0.092***	0.020***	-0.028	-0.023	0.018**	-0.004	-0.008	0.018**
	(0.218)	(0.008)	(0.001)	(0.539)	(0.362)	(0.041)	(0.907)	(0.643)	(0.038)
Total institutional ownership	-0.195	0.037	-0.002	0.021	0.081***	-0.004	0.005	0.057***	-0.004
	(0.813)	(0.646)	(0.932)	(0.639)	(0.000)	(0.579)	(0.877)	(0.001)	(0.569)
Log (CEO age)	-0.151	-0.005	-0.019*	-0.092	0.024	-0.018**	-0.035	0.028	-0.019**
	(0.305)	(0.921)	(0.078)	(0.106)	(0.413)	(0.027)	(0.375)	(0.212)	(0.017)
Log (CEO tenure)	0.012	-0.004	-0.004***	0.003	-0.003	-0.004***	-0.001	-0.003	-0.004***
	(0.518)	(0.528)	(0.000)	(0.749)	(0.489)	(0.001)	(0.805)	(0.274)	(0.001)
CEO is chairman (indicator)	0.008	-0.001	-0.007***	-0.007	-0.005	-0.007***	0.002	-0.004	-0.007***
	(0.880)	(0.945)	(0.010)	(0.635)	(0.516)	(0.004)	(0.825)	(0.445)	(0.002)
CEO ownership	0.023	0.044	-0.043**	0.194*	0.029	-0.049***	0.122	0.016	-0.048***
	(0.958)	(0.678)	(0.019)	(0.091)	(0.577)	(0.000)	(0.120)	(0.696)	(0.000)
Constant	1.267*	0.404	0.062	0.672**	0.203	0.029	0.279	0.117	0.052
	(0.071)	(0.198)	(0.140)	(0.017)	(0.150)	(0.502)	(0.144)	(0.265)	(0.208)
Year and industry fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES
Number of observations	24,349	24,349	24,349	24,349	24,349	24,349	24,349	24,349	24,349
Regression *p*-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Angrist-Pischke chi-squared / *F* statistics (*p*-value)	0.00 / 0.00	0.04 / 0.04		0.00 / 0.00	0.00 / 0.00		0.00 / 0.00	0.00 / 0.00	

Panel B: 2SLS estimates of changes in Tobin's q

	Top 1		*Top 5*		*Top 10*	
	First stage	Second stage	First stage	Second stage	First stage	Second stage
	Change in *Multiple blockholding* (residual)	Change in Tobin's q	Change in *Multiple blockholding* (residual)	Change in Tobin's q	Change in *Multiple blockholding* (residual)	Change in Tobin's q
Independent variable	(1)	(2)	(3)	(4)	(5)	(6)
Russell 1000$_{(t\text{-}1)}$ to Russell 2000$_{(t)}$ (indicator)	-0.373***		-0.259***		-0.200***	
	(0.000)		(0.000)		(0.000)	
Russell 2000$_{(t\text{-}1)}$ to Russell 1000$_{(t)}$ (indicator)	0.186*		0.248***		0.218***	
	(0.081)		(0.000)		(0.000)	
Change in ranking in Russell$_{(t\text{-}1,\ t)}$	-0.090***		-0.062***		-0.046***	
	(0.000)		(0.000)		(0.000)	
Squared change in ranking in Russell$_{(t\text{-}1,\ t)}$	-0.004***		-0.002***		-0.001***	
	(0.001)		(0.000)		(0.000)	
Instrumented:		0.303***		0.406***		0.515***
Change in Multiple blockholding (residual)		(0.001)		(0.001)		(0.002)
Change in institutional shareholder's	2.796***	-0.766*	4.389***	-1.678*	2.918***	-0.454
portfolio weight$_{(t\text{-}1,\ t)}$	(0.000)	(0.052)	(0.000)	(0.080)	(0.000)	(0.745)
Change in institutional shareholder's	0.387**	-0.342*	-0.233**	-0.367**	-0.202***	-0.427***
portfolio return$_{(t\text{-}1,\ t)}$	(0.023)	(0.055)	(0.015)	(0.018)	(0.003)	(0.006)
Change in institutional shareholder's	0.054**	-0.016	0.051***	-0.020**	0.041***	-0.020**
portfolio turnover$_{(t\text{-}1,\ t)}$	(0.050)	(0.107)	(0.002)	(0.020)	(0.000)	(0.020)
Change in log (total assets)	-0.001	-0.004***	-0.072**	-0.452***	-0.065***	-0.453***
	(0.143)	(0.000)	(0.035)	(0.000)	(0.007)	(0.000)
Change in ROA	-0.110	0.150	-0.232***	0.214	-0.196***	0.219
	(0.527)	(0.240)	(0.000)	(0.111)	(0.000)	(0.109)
Change in leverage	-0.097	0.064	0.189**	-0.025	0.117*	-0.000
	(0.645)	(0.730)	(0.039)	(0.887)	(0.071)	(0.999)
Change in total institutional ownership	-0.037	-0.062	0.760***	-0.385***	0.680***	-0.444***
	(0.865)	(0.680)	(0.000)	(0.006)	(0.000)	(0.002)
Constant	0.386	0.372***	-0.065	0.165***	0.035	0.198***
	(0.614)	(0.001)	(0.762)	(0.002)	(0.771)	(0.000)
Year and industry fixed effects	YES	YES	YES	YES	YES	YES
Number of observations	30,428	30,428	30,428	30,428	30,428	30,428
Regression's *P*-value	0.000	0.000	0.000	0.000	0.000	0.000
Angrist-Pischke chi-squared / *F* statistics (*p*-value)	0.00 / 0.00		0.00 / 0.00		0.00 / 0.00	

Table 10
Robustness Tests: Subsample Analyses According to Institution Types

The samples used in columns (1) through (4) are those used in Tables 3, 5, 6, and 7, respectively. In Panel A, the sample is partitioned according to whether a firm's largest institutional shareholder (*Top 1*) is a transient or a non-transient institution. In Panel B, the sample is partitioned according to whether a firm's *Top 1* is an independent or a dependent institution. In Panel C, only a subsample of firms with *Top 1* that are not mutual funds are used in the analysis. *Multiple blockholding (indicator)* is measured using a firm's *Top 1*. Control variables used in previous regressions are included in the analysis but, for the sake of brevity, their estimates are not reported. Year and industry fixed effects are included. Industry is classified using the Fama and French 48 industries. Appendices A and C provide a detailed description of the construction of *Multiple blockholding (indicator) and* the variables used in the table, respectively. *P*-values are in parentheses and estimated using robust standard errors that adjust for heteroskedasticity. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Independent variables	Likelihood of forced CEO turnover		CAR (-1, 0) around forced CEO turnover announcement		CAR (-30, 5) around initial schedule 13D filings		Changes in Tobin's *q*	
	Logit		OLS		OLS		OLS	
	(1)		(2)		(3)		(4)	
Panel A: According to whether a firm's Top 1 is transient or not								
	Non-transient	Transient	Non-transient	Transient	Non-transient	Transient	Non-transient	Transient
Multiple blockholding (indicator) /	0.137	-0.386*	0.013*	-0.007	0.058	0.033	0.009***	0.001
Change in multiple blockholding (residual)	(0.133)	(0.088)	(0.069)	(0.822)	(0.139)	(0.736)	(0.004)	(0.919)
Multiple blockholding (indicator) ×	-0.922***	-0.315						
industry-adjusted stock return	(0.002)	(0.602)						
Number of observations	22,548	3,266	450	88	197	88	28,072	4,445
Panel B: According to whether a firm's Top 1 is independent or dependent								
	Independent	Dependent	Independent	Dependent	Independent	Dependent	Independent	Dependent
Multiple blockholding (indicator) /	-0.052	0.064	0.013**	-0.001	0.055	0.010	0.006**	0.008
Change in multiple blockholding (residual)	(0.516)	(0.837)	(0.039)	(0.984)	(0.148)	(0.890)	(0.039)	(0.289)
Multiple blockholding (indicator) ×	-0.762***	-1.155						
industry-adjusted stock return	(0.004)	(0.231)						
Number of observations	20,275	5,121	464	83	271	35	26,007	6,802
Panel C: Subsample of firms with Top 1 that is not a mutual fund								
Multiple blockholding (indicator) /	0.109		0.013*		0.077**		0.006*	
Change in multiple blockholding (residual)	(0.277)		(0.092)		(0.027)		(0.071)	
Multiple blockholding (indicator) ×	-0.835***							
industry-adjusted stock return	(0.007)							
Number of observations	18,406		397		301		22,918	

Appendix A
Procedure for Constructing *Multiple Blockholding* Measures

This appendix provides a detailed description of the procedure for constructing *Multiple blockholding (indicator)* and *Multiple blockholding* (*residual)*.

Step 1: Estimation of Residual Blockholding Number at the Institution Level

i. Using the quarterly 13F institutional stock holding data, for each institution-quarter, count the number of firms for which an institutional investor simultaneously owns at least 5% of the firm's shares ("raw blockholding number"). If an institutional investor does not have any block ownership in firms, its raw blockholding number is set to zero in a given quarter.

ii. Using the 13F database, for each institution-quarter, compute institution's total market value of equity holdings, which is measured as the average market value of the total equity holdings managed by the institutional investor during the previous four calendar quarters, deflated by the consumer price index in 2000.

iii. Run the following regression using all institution-quarter observations in the 13F database and obtain the residual from the regression ("residual blockholding number"):

$$Ln\ (1 + Raw\ Blockholding\ Number) = \alpha + \beta \times Institution's\ Total\ Market\ Value\ of\ Equity\ Holdings\ (1),$$

Step 2: Estimation of Multiple Blockholding (Residual) at the Firm Level

i. Using the 13F database, for each firm-year observation in the S&P 1500 firms, identify a firm's largest institutional shareholder (*Top 1*), five largest institutional shareholders (*Top 5*), and ten largest institutional shareholders (*Top 10*) as of the quarter end immediately before the event year (date).

ii. Using institution identity, assign residual blockholding numbers that *Top 1* (*Top 5*, *Top 10*) holds as of the quarter end immediately before the event year (date), which is estimated from step 1 above, to each firm-year observation.

iii. For each firm-year observation in the S&P 1500 firms, define *Multiple blockholding (residual)* for *Top 1*, *Top 5*, and *Top 10* as follows.

a) *Multiple blockholding (residual)* for *Top 1* is measured as the residual blockholding number held by *Top 1* as of the quarter end immediately before the event year (date).
b) *Multiple blockholding (residual)* for *Top 5* (*Top 10*) is measured as the weighted-average of residual blockholding numbers held by *Top 5* (*Top 10*) as of the quarter end immediately before the event year (date), where the ownership fraction (i.e., an institution's ownership in the firm / *Top 5*'s (*Top 10*'s) total ownership in the firm) is used as a weight.

Step 3: Estimation of Multiple Blockholding (Indicator) at the Firm Level

For each firm-year observation in the S&P 1500 firms, set *Multiple Blockholding* (indicator) to be one if *Multiple Blockholding* (residual) for *Top 1* (*Top 5*, *Top 10*) estimated from step 2 above is higher than the global sample median (i.e., the median over the entire time-series and cross-section) of firm-year observations, and zero otherwise.

Appendix B
Characteristics of Selected Institutional Investors Ranked According to Their Residual and Raw Blockholding Numbers

This appendix compares average characteristics of institutional investors that have the largest residual blockholding numbers (Panel A) and raw blockholding numbers (Panel B). The sample institutions are those used in Table 3. Average institution characteristics are obtained by first calculating each institution's median value of its characteristic over the sample years, and then averaging this median across institutional investors in a selected group. The residual blockholding number is the residual estimated from *Eq. (1*) of the paper. The raw blockholding number is the number of stocks that the institution holds as a blockholder. The number of Schedule 13D filings per year is the ratio of the total number of Schedule 13D that an institutional investor files during the sample period to the number of years that the institutional investor files Schedule 13F during the sample period. The total number of Schedule 13D filings is the total number of Schedule 13D that an institutional investor files during the sample period. Appendices A and C provide a detailed description of the construction of the residual blockholding number and the variables used in the table, respectively.

Selected group of institutions	Residual blockholding number	Raw blockholding number	Total market value of equity holdings: ($ billions)	Portfolio return	Portfolio turnover	Independent institution (%)	Dedicated institution (%)	Number of Schedule 13D filings per year	Total number of Schedule 13D filings
Panel A: Institutional investors ranked according to their residual blockholding numbers									
Highest 10	3.98	161.60	12.53	0.05	0.20	90%	50%	3.81	68.50
Highest 30	3.53	105.18	14.06	0.03	0.22	93%	40%	1.61	27.83
Highest 50	3.32	83.43	13.80	0.04	0.23	84%	30%	0.99	17.10
Highest 100	3.02	58.65	11.69	0.04	0.23	89%	32%	0.61	10.31
Panel B: Institutional investors ranked according to their raw blockholding numbers									
Highest 10	1.56	331.50	146.87	0.03	0.17	90%	20%	0.22	4.20
Highest 30	2.12	182.72	97.00	0.03	0.18	70%	27%	1.50	27.07
Highest 50	2.34	134.60	72.23	0.04	0.19	82%	22%	0.94	16.64
Highest 100	2.48	87.86	47.63	0.04	0.21	82%	22%	0.60	10.12

Appendix C
Variable Definitions

This appendix shows detailed descriptions of the construction of all the variables used in the tables.

Variable	Definition
Activism-experience multiple blockholding (indicator)	An indicator that takes the value of one if the value of *Multiple blockholding (indicator)* for the largest institutional investor is one and a firm's largest institutional investor has filed at least one initial Schedule 13D during the previous three years, and zero otherwise; an indicator variable that takes the value of one if the value of *Multiple blockholding (indicator)* for the top five (10) institutional investors is one and the number of initial Schedule 13Ds filed by these institutional investors during the previous three years is higher than the sample median, and zero otherwise.
CEO is chairman (indicator)	An indicator that takes the value of one if the CEO is the chairman of the board, and zero otherwise.
CEO ownership	The fraction of the firm's equity held by the CEO.
Change in ranking in Russell$_{(t\text{-}1,\ t)}$	The change in Russell index ranking measured by the change in a firm's rankings in the Russell index from year *t*-1 to year *t*, which is scaled by 100.
Dedicated institution (indicator)	An indicator that takes the value of one if the institution is classified as a dedicated investor based on its expected investment horizon following Bushee (2001), and zero otherwise.
Different-industry multiple blockholding (indicator)	An indicator that takes the value of one if the value of *Multiple blockholding (indicator)* for the largest institutional investor is one and a firm's largest institutional investor has no blockholding in other firms in the same industry as the firm during the previous three years, and zero otherwise; an indicator variable that takes the value of one if the value of *Multiple blockholding (indicator)* for the top five (10) institutional investors is one and the number of blockholdings that the top five (10) institutional investors have in other firms in the same industry as the firm during the previous three years is lower than the sample median, and zero otherwise.
Forced CEO turnover (indicator)	An indicator that takes the value of one if a forced CEO turnover occurs and zero otherwise. Following Parrino (1997) and Denis, Denis, and Sarin (1997), we refer to turnover events as forced turnovers if: 1) news articles on Factiva report that the CEO has been fired, has been forced to depart from the position, or has departed due to unspecified policy differences; 2) the departing CEO is under the age of 60 and the stated reason for the departure is not death, poor health, or the acceptance of another position (elsewhere or within the firm); or 3) the departing CEO is under the age of 60 and the stated reason for the departure is retirement but the firm does not announce it at least six months before the departure.
Independent institution (indicator)	An indicator that takes the value of one if the institutional shareholder is an investment company, independent investment advisor, or public pension fund, and zero otherwise, as defined by Chen, Harford, and Li (2007).
Industry-adjusted stock return	The average of annual buy-and-hold industry-adjusted stock returns during the past two years up to the beginning of the quarter before the event year. The median Fama and French 48 industry return is used as the proxy for the industry return.
Institution type (indicator)	An indicator for an institutional investor's legal type. These are six indicator variables corresponding to the six different legal types classified by Form 13F and Brian Bushee: banks and trusts, insurance companies, investment companies, independent investment advisors, public pension funds, and other investors (private pension funds, university and foundation endowments, etc.).
Institution's total market value of equity holdings	The average market value of total equity holdings managed by the institutional investor during the previous four calendar quarters deflated by the consumer price index in 2000.
Institutional investor's portfolio return	The monthly buy-and-hold value-weighted portfolio return for the largest institutional shareholder in the quarter before the event (year); the average portfolio return of the top five (10) institutional investors, where each institution's portfolio return is measured by the monthly buy-and-hold value-weighted portfolio return in the quarter

	before the event (year).
Institutional investor's portfolio turnover	The churn rate for the largest institutional shareholder in the quarter before the event defined as aggregate purchase plus aggregate sale minus the absolute value of net flows over lagged equity asset holding value, similar to Gaspar, Massa and Matos (2005); the average portfolio turnover of the top five (10) institutional investors, where each institution's portfolio turnover is measured as aggregate purchase plus aggregate sale minus the absolute value of net flows over lagged equity asset holding value, similar to Gaspar, Massa and Matos (2005).
Institutional investor's portfolio weight	The weight of the value of the equity investment in a firm in the largest institutional shareholder's portfolio; the average portfolio weight of the top five (10) institutional investors, where each institution's portfolio weight is calculated by the ratio of the market value of its equity investment in the firm to the market value of its total equity holdings managed.
Leverage	The book value of short-term debt plus the book value of long-term debt divided by the book value of total assets.
Log (CEO age)	Log of CEO's age.
Log (CEO tenure)	Log of CEO's tenure.
Log (total assets)	Log of the book value of total assets.
Long-horizon multiple blockholding (indicator)	An indicator that takes the value of one if the value of *Multiple blockholding (indicator)* for the largest institutional investor is one and a firm's largest institutional investor has continuously served as another portfolio firm's blockholder for at least one year during the previous three years, and zero otherwise; an indicator that takes the value of one if the value of *Multiple blockholding (indicator)* for the top five (10) institutional investors is one and the total number of portfolio firms that these institutional investors have continuously served as blockholders for at least one year during the previous three years is higher than the sample median, and zero otherwise.
Multiple blockholding (indicator)	An indicator that takes the value of one if a firm's *Multiple blockholding (residual)* is higher than the sample median, and zero otherwise. Appendix A provides a detailed description of the construction of Multiple blockholding (indicator) and Multiple blockholding (residual).
Multiple blockholding (residual)	See Appendix A.
No-activism-experience multiple blockholding (indicator)	An indicator that takes the value of one if the value of *Multiple blockholding (indicator)* for the largest institutional investor is one and a firm's largest institutional investor has not filed any initial Schedule 13Ds during the previous three years, and zero otherwise; an indicator that takes the value of one if the value of *Multiple blockholding (indicator)* for the top five (10) institutional investors is one and the number of initial Schedule 13Ds filed by these institutional investors during the previous three years is lower than the sample median, and zero otherwise.
Raw number	The number of stocks that the institution holds as a blockholder.
ROA	The ratio of EBITDA to book value of assets.
Russell 1000*(t-1)* to Russell 2000*(t)* (indicator)	An indicator that takes the value of one if a stock switches from the Russell 1000 index to the Russell 2000 index at the annual Russell index reconstitution in May, and zero otherwise.
Russell 2000*(t-1)* to Russell 1000*(t)* (indicator)	An indicator that takes the value of one if a stock switches from the Russell 2000 index to the Russell 1000 index at the annual Russell index reconstitution in May, and zero otherwise.
Same-industry multiple blockholding (indicator)	An indicator that takes the value of one if the value of *Multiple blockholding (indicator)* for the largest institutional investor is one and a firm's largest institutional investor has at least one more additional blockholding in the other firm in the same industry as the firm during the previous three years, and zero otherwise; an indicator that takes the value of one if the value of *Multiple blockholding (indicator)* for the top five (10) institutional investors is one and the number of other blockholdings that these institutional investors have in the same industry as the firm during the previous three years is higher than the sample median, and zero otherwise.
Short-horizon multiple blockholding (indicator)	An indicator that takes the value of one if the value of *Multiple blockholding (indicator)* for the largest institutional investor is one and a firm's largest institutional investor has not continuously served as another portfolio firm's blockholder for at least one year during the previous three years, and zero otherwise; an indicator that takes the value of one if the value of *Multiple blockholding (indicator)* for the top five

	(10) institutional investors is one and the total number of portfolio firms that these institutional investors have continuously served as blockholders for at least one year during the previous three years is lower than the sample median, and zero otherwise.
Tobin's q	The book value of assets minus the book value of equity plus the market value of equity divided by the book value of assets.
Total institutional ownership	The aggregate ownership held by institutions.
Transient institution (indicator)	An indicator that takes the value of one if the institution is classified as a transient investor based on its expected investment horizon following Bushee (2001), and zero otherwise.