

Corporate Governance and Agency Costs of Free Cash Flow in Acquisitions

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A Thesis

In

The John Molson School of Business

Presented in Partial Fulfilment of the Requirements

For the Degree of Master of Science (Finance) at

Concordia University

Montreal, Quebec, Canada

August 2020

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**CONCORDIA UNIVERSITY**

**School of Graduate Studies**

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## **Abstract**

### **Corporate Governance and Agency Costs of Free Cash Flow in Acquisitions**

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This study directly relates corporate governance to agency costs of free cash flow in acquisitions. We proxy for agency costs of free cash flow by two measures: free cash flows at the fiscal year-end prior to the acquisition announcement and the eventual use of internally generated funds to finance the transaction. We investigate four aspects of corporate governance: institutional investor monitoring, board monitoring, the presence of antitakeover provisions, and executive incentive strength. We find that the quality of corporate governance indirectly affects merger outcomes by mitigating the agency problem associated with the holding, rather than the use, of free cash flows.

## **Acknowledgements**

I would like to express my sincere gratitude to my supervisor, Dr. Nilanjan Basu, for guiding and supporting me throughout all stages of this thesis.

I am grateful to Dr. Parianen Veeren for providing me with the governance data and for his support and useful advice.

I would also like to thank Dr. Gregory Lypny for his insightful feedback and comments.

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## **1. Introduction**

According to the free cash flow hypothesis proposed by Jensen (1986), financial flexibility in the form of abundant cash increases the likelihood of managers wasting the cash resources on investments that benefit themselves at the expense of shareholders and thus will eventually destroy shareholder value. Empirical work provides evidence to support this prediction by documenting that the marginal value of cash decreases with larger cash holdings and that higher current excess cash balances lead to lower future firm value (Dittmar and Mahrt-Smith, 2007; Faulkender and Wang, 2006; Harford, Mansi, and Maxwell, 2008; Lee and Powell, 2011). Prior studies further show that corporate governance can affect the correlation between excess cash and firm value. Specifically, Dittmar and Mahrt-Smith (2007) find that excessive cash reserves reduce firm value only if the firm is poorly governed. Harford, Mansi, and Maxwell (2008) report that excess cash holdings have an even more negative impact on firm value when they are combined with weak corporate governance.

A different strand of literature in the setting of mergers and acquisitions adds more empirical evidence for the free cash flow hypothesis. Specifically, this literature finds that acquirers with substantial free cash flows before the merger announcement experience significantly lower abnormal announcement returns (Harford, 1999; Lang, Stulz, and Walkling, 1991; Schlingemann, 2004). This raises the question of whether the relation between free cash flows and takeover returns to bidders can also be influenced by corporate governance. To this end, we test the conjecture that high (low) quality of governance alleviates (intensifies) the agency costs of free cash flow and consequently mitigates (exacerbates) the negative effect of free cash flows on abnormal returns earned by the bidder.

Previous M&A literature studying corporate governance primarily focuses on whether the presence of strong governance directly increases bidder abnormal returns realized at the announcement of the takeover (Byrd and Hickman, 1992; Chen, Harford, and Li, 2007; Datta, Iskandar-Datta, and Raman, 2001; Lewellen, Loderer, and Rosenfeld, 1985; Masulis, Wang, and Xie, 2007). This thesis extends the existing literature in two dimensions. First, in light of the prior findings that certain governance mechanisms, for example, the market for corporate control, can improve bidder announcement-period abnormal returns (Masulis, Wang, and Xie, 2007), we aim to explore how or through what channels they achieve this. We predict that governance enhances

the outcomes of the takeover decisions through improving the use of cash resources in the acquisition process and reducing the agency costs of free cash flow. Second, in the case that some corporate governance mechanisms, for instance, institutional shareholder monitoring, do not directly increase acquirer announcement returns as reported in prior empirical studies (Chen, Harford, and Li, 2007; Masulis, Wang, and Xie, 2007), we attempt to investigate whether they exert their influence indirectly through facilitating more efficient use of cash resources. Specifically, we test whether the market reaction to the use of free cash flows by acquirers in the acquisition process would be influenced by the quality of corporate governance. We expect that the announcement-period abnormal stock returns for acquiring firms that have large free cash flows or use internally generated funds to finance the transaction would increase if the firm is well governed and reduced if the firm is badly governed.

We further differentiate between the firm's ex-ante financing choice on the holding of cash before the acquisition and the eventual use of internal funds by the firm to finance the acquisition. Harford (1999), Lang, Stulz, and Walkling (1991), and Schlingemann (2004) report a negative relationship between the bidder's free cash flow prior to the acquisition announcement and the stock returns to its shareholders. Bharadwaj and Shivdasani (2003), Martynova and Renneboog (2009) and Vladimirov (2015) show that acquisitions financed internally generate lower gains for acquirers than those funded with debt, despite the fact that they are both paid with cash. This thesis aims to examine whether corporate governance alleviates the free cash flow agency problem related to both the ex-ante internal financing and the eventual use of internal financing in the same way.

In addition to merger outcomes, we also explore the likelihood of diversification of the bidding firm through acquisitions. Specifically, we examine how corporate governance impacts the relationship between internal financing and the probability of the acquirer engaging in a diversifying takeover. Jensen (1986) and Montgomery (1994) suggest that acquisitions outside the industry tend to be driven by management's pursuit of personal interest, for example, empire building motives. We expect that firms with large free cash flows are more likely to undertake diversifying mergers, and this higher likelihood would be altered by the presence of strong corporate governance and strengthened by lack of strong governance.



This study investigates four aspects of corporate governance. The first two aspects, which focus on internal governance, are the monitoring by institutional investors and the monitoring by the board of directors. The third is related to external governance, more specifically, the disciplinary role of the market for corporate control, which is measured by the number of antitakeover provisions adopted by the firm. Last, we explore the effectiveness of CEO ownership and compensation in aligning the interest of shareholders and management. By examining four different corporate governance mechanisms, we attempt to depict a broad and comprehensive picture of how various elements of firm governance work together to alleviate the agency costs of free cash flow in the acquisition process.

Our main findings are as follows. First, we re-examine how bidder returns are correlated with free cash flow and the use of internal financing by employing a sample consisting of both cash and equity deals, and our results confirm the findings in the previous studies which exclusively focus on cash transactions (Lang, Stulz, and Walkling, 1991; Schlingemann, 2004; Vladimirov, 2015). Consistent with prior studies, we find that both the holding of free cash flows before the acquisition announcement and the eventual use of internal funds to finance the bid trigger a significantly lower abnormal stock return for the bidding firm. Second, although previous M&A literature does not find a direct relation between institutional monitoring and acquirer announcement returns (Chen, Harford, and Li, 2007; Masulis, Wang, and Xie, 2007), the present study shows that large institutional investors indirectly influence acquirer gains through the free cash flow channel. Specifically, we document that the negative relationship between free cash flows and bidder gains will be reversed in the presence of strong institutional monitoring. In contrast, lack of large institutional shareholders to monitor corporate decisions will further lower the market reaction to acquisition decisions made by firms with large free cash flows. This is evidence consistent with the conjecture that strong (weak) corporate governance would mitigate (exacerbate) the agency costs of free cash flow. Third, we show that effective monitoring by large institutional investors only mitigates the agency problem associated with the holding of free cash flow before the takeover announcement, not the eventual use of free cash flow. Fourth, we are unable to find clear evidence that other governance mechanisms, including board monitoring, the market for corporate control, and executive incentive strength, have significant effects on alleviating agency costs of free cash flow in mergers and acquisitions.

The remainder of the thesis is organized as follows. Section 2 reviews the related literature. Section 3 develops the hypotheses. Sections 4 and 5 describe the data and the methodology, respectively. Section 6 discusses univariate and multivariate results of our empirical tests. Section 7 presents the results for the robustness tests. Section 8 concludes the study.

## **2. Literature Review**

### **2.1. The free cash flow hypothesis**

Jensen (1986) predicts that firms that generate large cash flow reserves and finance projects internally will suffer from severe agency costs of free cash flow. With a large holding of cash under their discretion, managers are able to avoid the monitoring by the capital markets and are more likely to spend the cash on low-return or even value-destroying investments. For example, they may expand the firm beyond its optimal size through takeovers in order to increase their own power or earn higher levels of pay.

Two strands of literature empirically test the free cash flow hypothesis. First, two studies in the area of general corporate finance by Dittmar and Mahrt-Smith (2007) and Harford, Mansi, and Maxwell (2008) extend the argument about free cash flow to excess cash reserves, which are defined as the difference between actual cash holdings and predicted, normal cash. Both of them find that lagged excess cash balances are negatively associated with current operating performance.

Second, a number of papers in the M&A framework also provide evidence for the free cash flow theory of takeovers. Lang, Stulz, and Walkling (1991) and Schlingemann (2004) document that acquirer abnormal returns decline with the increase in free cash flows for the fiscal year before the announcement of the takeover. They both focus on cash transactions, and they measure the bidder abnormal returns by eleven-day cumulative abnormal stock returns and three-day market-adjusted stock returns around merger announcements, respectively. Harford (1999) investigates the impact of excess cash holdings, as defined the same way in Dittmar and Mahrt-Smith (2007) and Harford, Mansi, and Maxwell (2008), on cumulative abnormal returns from five days before to one day after the takeover announcement for acquiring firms. His findings further confirm the free cash flow hypothesis by showing a negative relationship between cash residuals and bidder returns.

## **2.2. Corporate governance and management of cash**

The agency costs of free cash flow are derived from the conflicts between managers and shareholders over the payout and use of firm cash resources. If managers are well monitored, they are more likely to use cash and make investments in a way that maximizes shareholders' wealth.

Harford, Mansi, and Maxwell (2008) and Dittmar and Mahrt-Smith (2007) evaluate the impact of corporate governance on the use and value of cash by extending the argument about free cash flow to excess cash reserves, which are essentially accumulated free cash flows and calculated as the difference between actual cash and a predicted normal level of cash. Specifically, the former report that excess cash holdings combined with weak corporate governance, as measured by the presence of a large number of antitakeover provisions, cause the firm to spend more on capital expenditures and acquisitions and less on research and development, and further lead to significantly lower firm value, as measured by the market-to-book value. The latter document that the negative influence of lagged excess cash on current operating performance, as measured by the return on assets, can be reversed by strong corporate governance, as proxied by fewer antitakeover provisions and higher institutional blockholdings.

## **2.3. Corporate governance in M&As**

Existing M&A literature studying corporate governance mainly focuses on the direct impact of governance structures on bidder returns, and the results are mixed.

Datta, Iskandar-Datta, and Raman (2001) examine the effect of the executive compensation structure on the two-day announcement period cumulative abnormal return for the bidding firm for a sample of tender offers. Their research shows that bidder gains are positively related to executive equity-based compensation, which is measured as the Black-Scholes value of new stock options granted to the top five executives as a percentage of total compensation, but insignificantly related to ownership controlled by the top five executives.

Lewellen, Loderer, and Rosenfeld (1985) report that the cumulative abnormal return experienced by the bidder firm from five days before the merger announcement to the merger approval date is positively correlated with the percentage of shares owned by senior management of the acquirer.

Byrd and Hickman (1992) investigate a sample of tender offers and find that acquiring firms in which at least half of the board members are independent outside directors experience significantly greater two-day announcement abnormal returns. They also document a positive association between the fraction of voting shares owned by directors on the board and acquirer gains.

Masulis, Wang, and Xie (2007) explore the relationships between various corporate governance mechanisms and the bidder's five-day cumulative abnormal return around the takeover announcement. They find that more takeover protection provisions and less product market competition, both of which are proxies for weak external firm governance, trigger lower acquirer returns. In terms of internal governance, they document that monitoring by institutional blockholders, public pension funds, or independent directors on the board is not directly associated with bidder gains. They also examine the impact of CEO ownership and the CEO's equity-based compensation on acquire gains and find no significant results.

Chen, Harford, and Li (2007) explicitly investigate the monitoring influences of different types of institutional investors on acquisition performance of bidders. Specifically, they measure institutional monitoring by five variables, namely total institutional ownership, concentrated holdings by the single largest institutional investor, holdings by the five largest institutions, holdings by institutional blockholders, and the fraction of shares owned by the five largest long-term, independent institutional investors. None of these measures are significantly correlated with short-run merger performance of the bidder, which is computed as the three-day abnormal announcement-period return.

#### **2.4. Free cash flow versus the use of internal financing**

Based on the free cash flow theory, the argument about the negative impact of free cash flow on bidder gains can be extended to the actual use of internal financing, which is the eventual use of internally generated funds to finance the acquisition. The free cash flow theory of takeovers implies that cash-financed takeovers are likely to be driven by empire building motives of managers of acquiring firms with free cash flows. Most empirical evidence is consistent with this implication.

In the univariate setting, Bharadwaj and Shivdasani (2003) examine a sample of cash tender offers and find that acquirer cumulative abnormal returns for two-, three-, five-, seven-, and ten-day event windows around the bid announcement are significantly lower for takeovers funded entirely with internal sources than for those fully financed by banks. Martynova and Renneboog (2009) report that although both paid with cash, deals financed with internal funds yield significantly lower cumulative average abnormal returns for bidding firms than those financed with debt, no matter in the pre- or post- announcement period or over the three-day event window around the announcement.

In a multivariate framework, Vladimirov (2015) documents a significantly negative effect of the use of 100% internal financing on the three-day bidder cumulative abnormal return around the deal announcement date by investigating a sample of international acquisitions entirely or partly paid with cash.

### **3. Hypotheses**

The free cash flow hypothesis predicts a negative influence of both free cash flows and the use of internal financing on the bidder's share price reaction to the takeover announcement (Jensen, 1986). Empirical research provides support to this prediction by documenting that acquirer gains are a decreasing function of both free cash flow and the use of internal financing (Lang, Stulz, and Walkling, 1991; Schlingemann, 2004; Vladimirov, 2015). However, these studies only focus on transactions fully or partially paid with cash and exclude all-equity offers out of the analysis. The present study extends their research to a sample comprising both cash and equity offers as well as one comprising only pure equity deals. We expect that if an acquirer with large amounts of free cash flows uses equity to pay for the transaction, the market would incorporate into stock price reactions the likelihood of the unused excess cash being misused in the future. That is, the holding of free cash flows by the bidder prior to the merger announcement could be enough of a signal to trigger significantly lower abnormal stock returns, no matter whether the deal is eventually paid with cash. The use of internal funds to finance the transaction is expected to further lower the bidder abnormal announcement returns.

Our first set of hypotheses are therefore formulated as follows:

H1a: Free cash flow is negatively associated with announcement-period abnormal stock returns to acquirers.

H1b: The use of internal financing is negatively associated with announcement-period abnormal stock returns to acquirers.

Weak corporate governance exacerbates the agency problem of free cash flow because poorly controlled managers have more discretion over the use of cash resources while facing no disciplinary consequences. Harford, Mansi, and Maxwell (2008) show that the combination of excess cash and weak corporate governance leads to lower firm value. In this study, we predict that the negative relationship between free cash flow or the use of internal financing and acquirer returns would strengthen in the presence of poor firm governance. More specifically, we expect the interaction term between free cash flow and weak governance as well as that between the use of internal financing and weak governance to be significantly and negatively correlated with returns for bidding-firm shareholders around the announcement.

Strong corporate governance plays an essential monitoring role in ensuring managers act in the best interest of shareholders. Dittmar and Mahrt-Smith (2007) find that the lower firm value for companies with high excess cash is ameliorated and even reversed in the presence of strong corporate governance. In this research, we formulate two predictions about the relations among strong governance, free cash flow or the use of internal financing, and acquirer returns. First, we predict that strong firm governance would mitigate the negative influence of free cash flow or the use of internal financing on takeover returns to the bidder's shareholders. More specifically, we expect the interaction variable between free cash flow and strong governance as well as that between the use of internal financing and strong governance to be significantly positively related to bidder gains. Second, we further predict that the positive value of the coefficient on these interaction terms would cover the negative value of the coefficient on the free cash flow or the use of internal financing variable itself. That is, the negative relationship between free cash flow or the use of internal financing and acquirer returns would be completely cancelled out by the presence of effective governance structures.

We proxy for corporate governance by four measures: institutional ownership concentration, monitoring by the board of directors, the presence of antitakeover provisions, and CEO

compensation structures. Firms with strong (weak) governance are those within the top (bottom) quartile of institutional ownership concentration, board monitoring, and CEO incentive strength as well as those within the bottom (top) quartile of the number of antitakeover provisions. We discuss in detail the definitions of these governance proxies in the data section (Section 4.4) and the way we construct dummies for strong and weak governance in the methodology section (Section 5.2).

Our second set of hypotheses are developed as follows:

H2a: Free cash flow combined with weak corporate governance will decrease acquirer announcement returns, while the combination of free cash flow and strong governance will improve acquirer returns and further cancel out the negative impact of free cash flow on acquirer returns.

H2b: The use of internal financing combined with weak corporate governance will decrease acquirer announcement returns, while the combination of free cash flow and strong governance will improve acquirer returns and further cancel out the negative impact of the use of internal financing on acquirer returns.

## **4. Data and Sample Construction**

### **4.1. SDC sample selection**

The initial sample of U.S. domestic acquisitions announced between 1990 and 2016 is constructed from the Mergers and Acquisitions Database of the Securities Data Company (SDC). We extract all completed transactions where the bidder is publicly listed and the target is either a public firm, a private firm, or a subsidiary. We include only deals categorized by SDC as merger and acquisition of assets. We specifically exclude leverage buyouts, spinoffs, recapitalizations, self-tenders, repurchases, and privatizations. Acquirers that are financial firms (SIC 6000-6999) and regulated utilities (SIC 4900-4999) also are excluded. We require that the acquirer owns no more than 50% of the target prior to the acquisition announcement and takes over 100% following completion. To ensure that the takeover deals are large enough to have detectable value effects on the bidder, we require transaction value be at least \$1 million (Bena and Li, 2014; Doukas and

Petmezas, 2007; Jaffe et al., 2015). We further require the method of payment be either cash, equity or a mix of cash and equity.

The screening criteria and the observations remaining after applying each criterion are tabulated in Panel A of Table 1.

## **4.2. Acquirer returns**

In order to match the initial SDC sample with the Center for Research in Security Prices (CRSP) database and the Compustat database to obtain stock price information and accounting data, we first associate unique, permanent identifiers, PERMNO and GVKEY, with each acquirer in the sample using the method of Coles, Daniel, and Naveen (2014). The details of the procedure are specified in Appendix 2.

We extract stock price data from CRSP by matching PERMNO. We use 11-day cumulative abnormal stock returns (CARs) around initial bid announcements as bidder announcement period returns. Daily abnormal stock returns are computed using the Capital Asset Pricing Model (CAPM), with the value weighted CRSP index as the proxy for the market returns. The period used to estimate the systematic risk is 200 days, ending two months before the bid announcement to minimize the potential bias due to information leakage (Cai and Sevilier, 2012; Datta, Iskandar-Datta, and Raman, 2002; Harford, Jenter, and Li, 2011). The details of the calculation of CARs are discussed in the methodology section.

Following Masulis, Wang, and Xie (2007), we remove acquirers with multiple-class shares from the sample, as each of those firms can have multiple CARs for the same announcement date. In order to avoid contamination during the estimation period, we further delete the consecutive bid announced within 200 days following the previous transaction made by the same acquirer (Martynova and Renneboog, 2009).

## **4.3. Proxies for agency costs of free cash flow**

We measure the agency costs of free cash flow for bidders in acquisitions in two ways. The first measure is the free cash flow, which is the ex-ante internal financing during the fiscal year prior to the takeover announcement. Following previous literature, we compute it as operating income



before depreciation minus interest expenses, taxes, and preferred and common dividends normalized by book value of total assets (Lang, Stulz, and Walkling, 1991; Lehn and Poulsen, 1989; Schlingemann, 2004). We obtain the data from Compustat by matching GVKEY.

We use free cash flows rather than excess cash reserves to proxy for the agency costs of free cash flow in acquisitions for two reasons. First, excess cash stockpiles are essentially accumulated free cash flows (Harford, 1999). Both of these two measures have been used in previous M&A literature to represent the agency problem of free cash flow and lead to the same conclusion that confirms the free cash flow hypothesis. We therefore expect similar results from either of the two measures. Second, measures of free cash flows are subject to less subjectivity than measures of excess cash holdings. In order to estimate excess cash reserves, one must first be able to calculate expected normal cash holdings. There is no consistent way to do this, since previous studies that examine excess cash reserves, for example, Dittmar and Mahrt-Smith (2007), Harford, Mansi, and Maxwell (2008) and Harford (1999), all employ different models to predict normal cash. We, therefore, elect to use free cash flows as our measure of managerial discretion.

The second measure that we apply to proxy for the agency costs of free cash flow in mergers is the use of internal financing at the time of the bid announcement, which is defined as the actual use of internal funds to finance the takeover. We construct a dummy variable for internal financing, which is equal to one when the deal is entirely financed with internal funds, and zero otherwise. Financing with internal funds is different from paying with cash in that cash payment may come from different sources, namely internally generated funds, debt issue, or equity issue, whereas cash paid for internally financed deals is only from internal funds. The information on the source of funds is from SDC. By requiring the data on sources of financing, we lose more than half of the observations. In order to eliminate any possible bias due to this substantial sample shrinkage, we run our tests separately for the sample for internal financing and the sample for free cash flow. The observations remaining after requiring data on acquirer returns, free cash flows, and control variables are displayed in Panel B of Table 1.

[Insert Table 1]

#### **4.4. Proxies for corporate governance**

The present study investigates four major aspects of corporate governance, each of which has been suggested by prior literature to be potentially able to mitigate the conflict of interest between managers and shareholders. Specifically, the first two sets of governance proxies deal with the efficacy of internal governance. The third measure is related to the discipline of the market for corporate control. And the last proxy captures the effectiveness of executive incentives in alleviating managerial entrenchment.

First, Shleifer and Vishny (1986) and Shleifer and Vishny (1997) contend that the presence of large shareholders can serve as a valuable tool in addressing managerial agency conflicts. We construct two variables for large shareholder monitoring: ownership controlled by the single largest institutional investor (TOP1) and the sum of ownership controlled by institutions holding at least 5% of the firm's shares (BLOCK). The data is measured at the quarter-end preceding the bid announcement and is obtained from the Thomson Reuters Institutional Holdings (Form 13F) database by matching 6-digit CUSIP.

Second, we examine the efficacy of the firm's board of directors in monitoring the behaviors of managers. Prior literature suggests that the monitoring function of the board is mainly undertaken by independent directors (Byrd and Hickman, 1992; Coles, Daniel, and Naveen, 2014; Rosenstein and Wyatt, 1990) and that the board quality depends on the directors' incentives to monitor corporate decisions (Byrd and Hickman, 1992; Jensen and Meckling, 1976). In this thesis, we use board independence, which is calculated as the ratio of the number of independent directors to total board size, and director incentive strength, which is measured as total ownership by the directors on the board, to proxy for the quality of board oversight. Because of the restriction of data availability, we measure board of director characteristics at the end of the earliest year before the acquisition in which the information is available instead of at the fiscal year-end immediately preceding the acquisition announcement. In doing so, we assume that the information on board structures remains unchanged during the years following the most recent release of such information. We obtain the data from the RiskMetrics database by matching GVKEY. Since the director data provided by RiskMetrics only covers the period starting in 1996 and the companies included in the S&P 1500 index, we lose more than half of the observations by requiring the data.

Third, a series of studies by Gompers, Ishii, and Metrick (2003), Bebchuk and Cohen (2005), Core, Guay, and Rusticus (2006), and Bebchuk, Cohen, and Ferrell (2009) show that the market for corporate control is a strong component of external corporate governance in improving shareholder rights and enhancing firm value. Gompers, Ishii, and Metrick (2003) establish that more antitakeover provisions can protect managers from the discipline of the market for corporate control and thus indicate poor governance. They develop a governance index (G Index) by adding one point for the presence of each of the 24 antitakeover provisions provided by the Investor Responsibility Research Center (IRRC) publications. The G Index ranges from zero to 24, and a larger number is an indication of weaker shareholder rights. Bebchuk, Cohen, and Ferrell (2009) extend the G Index to an entrenchment index (E Index) using only the six provisions that they suggest have the greatest effect on firm value. The E Index varies between zero and six, and similarly, the higher the index is, the more entrenched the managers are assumed to be. This study examines both of these two indices. Similar to board of director characteristics, the data on the governance indices is measured at the end of the earliest year before the acquisition in which the information is available. We obtain the data from the IRRC database by matching GVKEY. Since the IRRC dataset only provides governance provisions from 1990 to 2006 for S&P 1500 companies, the inclusion of the G Index and the E Index severely restricts our sample size.

Last, Jensen and Meckling (1976) and Shleifer and Vishny (1997) propose that firms can align managerial behaviors with the interests of shareholders through incentive contracts that increase the sensitivity of executive wealth to stock prices. We examine executive incentive strength using CEO equity ownership and CEO option-based compensation. CEO equity ownership is defined as the percentage of shares held by the firm's CEO, and CEO option-based compensation is calculated as the Black-Scholes value of stock options granted to CEOs scaled by total compensation. The data is extracted from ExecuComp by matching GVKEY and is measured at the fiscal year-end before the acquisition announcement. Since ExecuComp only covers firms from the S&P Composite 1500 index and years after 1992, requiring the information on executive ownership and compensation reduces the sample size by half.

The use of different governance measures from four different databases gives us four samples of different size, as shown in Panel A of Table 2. The requirement of data on the source of funds further reduces the sample size for each governance measure, as displayed in Panel B of Table 2.

[Insert Table 2]

#### **4.5. Control variables**

We control for other bidder characteristics and deal characteristics that have been suggested by previous literature to be related to acquisition performance of acquirers. The data on bidder traits is obtained from Compustat through matching GVKEY, while that on deal characteristics is directly from SDC.

The bidder characteristics that we control for include leverage, Tobin's Q, and firm size, all of which are measured at the fiscal year-end preceding the takeover announcement. Theoretic studies by Jensen (1986) and Stulz (1990) contend that debt, by forcing managers to commit themselves to paying out future cash flows as interest, can control managerial discretion and reduce the likelihood of management over-investing. In our empirical tests, we include leverage as a control variable and define it as book value of debts over book value of assets.

Lang, Stulz, and Walkling (1989), Lang, Stulz, and Walkling (1991), and Servaes (1991) use Tobin's Q to proxy for growth opportunities and managerial performance and find that high q bidders earn higher announcement abnormal returns. However, Dong et al. (2006) argue that Tobin's q can also proxy for equity overvaluation, and they show that bidders with higher valuations experience worse announcement returns. Following the existing literature, we use Tobin's q to control for the effects of the bidder's growth prospects and the possible misvaluation of its stocks. We define Tobin's q as the ratio of an acquirer's market value of assets over its book value of assets.

Moeller, Schlingemann, and Stulz (2004) find that large firms tend to gain less in acquisitions than small firms. They suggest that large firms suffer more severe managerial hubris and pay more for acquisitions. In our analysis, we control for firm size, which is defined as the logarithm of book value of total assets.

The deal characteristics that we control for are means of payment, target ownership status, industry relatedness between the bidder and the target, the attitude of target's management toward the bid, the type of the deal, and relative deal size. The pecking order theory advanced by Myers and Majluf (1984) implies that takeovers paid with cash will generate greater wealth creation for

acquiring firms than those paid with equity due to the negative signalling effects of new equity issues. We control for the effect of the method of payment by including the percentage of cash payment, which is computed as cash payment as a percentage of total payment, into the analysis.

Jensen (1986) and Montgomery (1994) predict that mergers between two companies from nonrelated industries will lead to lower takeover returns to acquirers because they are more likely to be driven by self-interested managers pursuing personal benefits. However, empirical studies document mixed findings. Some of them find evidence consistent with the prediction (Bharadwaj and Shivdasani, 2003; Morck, Shleifer, and Vishny, 1990), while others report an insignificant or even positive relationship between the bidder return and the industry relatedness between the acquirer and the target (Chen, Harford, and Li, 2007; Fischer, 2017; Martynova and Renneboog, 2009; Masulis, Wang, and Xie, 2007; Vladimirov, 2015). We capture this effect by creating a binary variable indicating diversifying acquisitions, which is equal to one if the bidder and the target do not share the same two-digit SIC industry, and zero otherwise.

Fuller, Netter, and Stegemoller (2002), Masulis, Wang, and Xie (2007), and Moeller, Schlingemann, and Stulz (2004) report that acquiring private and subsidiary targets creates larger benefits for bidders than acquiring public targets. We control for this effect using two indicator variables for the acquisition of the subsidiary and the private firm, respectively. In addition, studies by Asquith, Bruner, and Mullins (1983), Chen, Harford, and Li (2007), Moeller, Schlingemann, and Stulz (2004), Schlingemann (2004) document that the value of deal size relative to bidder size is positively associated with bidder returns. We thus include the ratio of transaction value to market value of bidder's assets into the regressions. Moreover, following Martynova and Renneboog (2009), Moeller, Schlingemann, and Stulz (2004), and Schlingemann (2004), we control for both whether the deal is a tender offer and whether it is hostile or friendly.

#### **4.6. Summary statistics**

Panel A of Table 3 presents summary statistics for acquirer announcement returns, free cash flows, and other acquiring-firm and deal characteristics. The mean value of the eleven-day cumulative abnormal returns for acquirers is 1.8%. Our significance test shows that it is significant at the 99% confidence level. This confirms the findings of Masulis, Wang, and Xie (2007) and Moeller, Schlingemann, and Stulz (2004), which document that after including private and

subsidiary targets into the sample, the mean abnormal return for bidders are significantly positive. The deal traits in our sample are generally consistent with those in Moeller, Schlingemann, and Stulz (2004). For example, the percentages of private, subsidiary, and public targets in their sample are 46.44%, 31.59%, and 21.97%, respectively, and those in our sample are 49%, 30%, and 21%, respectively. They report that the proportion of deals in their sample involving a bidder and a target with different two-digit SIC codes is 41.96%, which is very close to the number of 40.8% in our sample.

Panel B of Table 3 provides the summary statistics on different governance proxies for the four subsamples. Again, the statistics for our samples are consistent with those in prior literature. Specifically, the sample mean, median, and 25<sup>th</sup> and 75<sup>th</sup> percentiles of holdings by institutional blockholders (INST\_BLOCK) and the ratio of independent to total directors on the board (INDP\_DIR) are close to those in Dittmar and Mahrt-Smith (2007) and in Harford, Mansi, Maxwell (2008), respectively. The median, the 25<sup>th</sup> percentile, and the 75<sup>th</sup> percentile of the governance index (GINDEX) are exactly the same as in Dittmar and Mahrt-Smith (2007), Harford, Mansi, Maxwell (2008), and Masulis, Wang, and Xie (2007).

[Insert Table 3]

## **5. Methodology**

### **5.1. Short-window event study**

This thesis focuses on acquisition performance over the short run rather than the long run because of the serious methodological concerns with the long-horizon event study. Prior work suggests that long-horizon event studies are more vulnerable to errors in risk adjustment and more sensitive to the model choice in estimating expected returns than short-term event studies (Andrade, Mitchell, Stafford, 2001; Barber and Lyon, 1997; Brav, 2002; Fama, 1998; Kothari and Warner, 1997; Kothari and Warner, 2004; Lyon, Barber, and Tsai, 1999; Mitchell and Stafford, 2000). They find that the method commonly used in the literature studying long-run abnormal stock price performance yields severely biased and mis-specified test statistics. In contrast, short-term event studies based on simple risk-adjustment approaches have been proved to be well-specified by empirical research (Brown and Warner, 1980; Brown and Warner, 1985).

By using the short-window event study, we follow the efficient market hypothesis and assume that stock prices react to public information without major delays. This assumption has been supported by empirical studies, which find no evidence of long-term return anomalies after accounting for the methodological problems with long-window event studies (Fama, 1998; Mitchell and Stafford, 2000).

We measure the short-term wealth effect of the acquisition for the acquirer by the 11-day cumulative abnormal stock return around the initial bid announcement, which is calculated using the Capital Asset Pricing Model (CAPM) by the following steps:

First, we calculate expected returns. We regress daily stock returns on market risk premiums and risk-free rates for each security over the estimation period from 200 days to 60 days before the acquisition announcement date to obtain the CAPM parameter estimates:

$$R_{it} - R_F = \alpha_i + \beta_i(R_M - R_F),$$

where  $R_{it}$  is the daily return of firm  $i$  at day  $t$ ,  $R_F$  is the risk-free rate,  $R_M$  is the market rate of return, which is approximated by the return of the value weighted CRSP index, and  $\alpha_i$  and  $\beta_i$  are the CAPM parameters. Then with the estimated  $\alpha_i$  and  $\beta_i$ , we compute the expected daily stock returns over the 11-day event window  $(-5, +5)$ :

$$E(R_{it}) = \tilde{\alpha}_i + R_F + \tilde{\beta}_i(R_M - R_F),$$

where  $E(R_{it})$  is the expected return of firm  $i$  at day  $t$  and  $\tilde{\alpha}_i$  and  $\tilde{\beta}_i$  represent the estimated CAPM parameters.

Next, we compute daily abnormal stock returns. The abnormal stock return is defined as the difference between the realized return and the expected return in the absence of the event. We take the difference between the actual return of firm  $i$  at day  $t$ ,  $R_{it}$ , and the expected return of firm  $i$  at day  $t$ ,  $E(R_{it})$ , as the daily abnormal return of firm  $i$  at day  $t$ , which is denoted by  $AR_{it}$ :

$$AR_{it} = R_{it} - E(R_{it}).$$

Last, we sum up the daily abnormal returns for each firm to obtain the cumulative abnormal return over the 11-day event window  $(-5, +5)$  around the bid announcement day (0):

$$CAR_i = \sum AR_{i,t},$$

## 5.2. Ordinary least squares regression

We include governance in our analysis as dummy variables by the following steps. We first split the sample into quartiles based on the value of the governance measure. Then we construct two binary variables: the first takes the value of one if the firm is within the top quartile of the governance measure, and zero otherwise, and the second takes on the value of one if the firm is ranked in the bottom quartile of the governance measure, and zero otherwise. Our benchmark, therefore, are the firms that belong in the two middle quartiles. The first dummy is an indicator for weak governance and the second is an indicator for strong governance where governance is measured by concentrated holdings by institutional investors, board independence, the fraction of shares owned by board members, and CEO incentive strength. Whereas when governance is measured by the indices of antitakeover provisions, the opposite holds, which is that the first binary variable is an indicator for strong shareholder rights and the second is an indicator for weak shareholder rights.

To explore the relations among free cash flows, corporate governance, and acquiring firm stock returns, we estimate the following regression separately for each measure of corporate governance:

$$\begin{aligned} CAR_{i,t} = & \alpha_i + \beta_1 FCF_{i,t-1} + \beta_2 FCF_{i,t-1} \times [Dummy\ for\ bad\ governance]_{i,t-1} + \beta_3 FCF_{i,t-1} \\ & \times [Dummy\ for\ good\ governance]_{i,t-1} \\ & + \beta_4 [Dummy\ for\ bad\ governance]_{i,t-1} \\ & + \beta_5 [Dummy\ for\ good\ governance]_{i,t-1} + \sum_{i=6}^{12} \beta_j [Control\ variables]_{i,t-1} \\ & + Year\ dummies + 2 - digit\ SIC\ industry\ dummies + \varepsilon_{i,t}. \end{aligned}$$

In the regression,  $CAR_{i,t}$  is the eleven-day cumulative abnormal announcement-period return for the acquirer and  $FCF_{i,t-1}$  is computed as operating income before depreciation minus taxes, interest expenses, and total dividends scaled by the book value of total assets. We interact the two indicator variables for either strong or weak governance with the variable for free cash flows to test the impact of corporate governance on the relationship between free cash flows and acquirer returns.



We extend the analysis to the eventual use of free cash flows to finance the takeover bid by replacing the variable for FCF with the variable for the use of internal financing, and again, estimate the following regression separately for each measure of corporate governance:

$$\begin{aligned}
CAR_{i,t} = & \alpha_i + \beta_1[Cash\ financing]_{i,t-1} + \beta_2[Cash\ financing]_{i,t-1} \\
& \times [Dummy\ for\ bad\ governance]_{i,t-1} + \beta_3[Cash\ financing]_{i,t-1} \\
& \times [Dummy\ for\ good\ governance]_{i,t-1} \\
& + \beta_4[Dummy\ for\ bad\ governance]_{i,t-1} \\
& + \beta_5[Dummy\ for\ good\ governance]_{i,t-1} + \sum_{i=6}^{12} \beta_j[Control\ variables]_{i,t-1} \\
& + Year\ dummies + 2 - digit\ SIC\ industry\ dummies + \varepsilon_{i,t},
\end{aligned}$$

where cash financing is a binary dummy equal to one if the acquisition is entirely financed with internal funds, and zero otherwise, and other variables are defined the same way as in the previous regression.

## 6. Empirical results

### 6.1. Univariate analysis

Table 4 presents how abnormal announcement returns differ between bidders with high versus low free cash flows depending on corporate governance strength. Acquiring firms with high (low) FCF are those ranked within the top (bottom) quartile of free cash flows, and bidding firms with high (low) levels of a governance measure are those ranked in the top (bottom) quartile of that governance measure. We also report in the table differences in acquirer gains between internally financed deals and deals involving only partial or no internal financing across governance quartiles.

We are interested in whether the differences in CARs between acquirers with high FCF and low FCF differ between the lowest and the highest governance quartile. More specifically, we examine if high free cash flow is associated with lower abnormal returns for bidders and if this relationship holds for both well and poorly governed firms. Furthermore, we also test whether internally financed deals trigger lower acquirer returns compared to deals that are not or only partially funded with cash and whether this is the case across firms with different levels of governance strength.

We perform the univariate tests separately for each governance proxy. Panel A provides the results for institutional monitoring, which is measured by ownership of the acquiring firm by the largest institutional investor and institutional blockholders. As the panel shows, the differences in announcement returns between high-FCF versus low-FCF bidders are significantly negative for firms with weak institutional monitoring whereas insignificant for firms with strong institutional monitoring. Similarly, bidders that use 100% internal financing gain less than those that do not only if they are not well monitored by large institutional investors. These univariate results shed some light on the monitoring role played by the largest institutional investor and the institutional blockholders on mitigating the agency costs of free cash flows arising from both the accumulation of cash flows before the acquisition and the eventual use of these cash flow reserves to finance the deal.

Panels B, C, and D present the results for board monitoring, the market for control, and executive incentive strength, respectively. In Panel B, when board monitoring is measured by the ratio of the number of independent directors to board size, we find that bidder gains associated with high FCF and 100% internal financing are significantly lower only if there is a low proportion of independent directors on the board. However, we do not find any consistent pattern of significant results for other proxies for corporate governance. That is, our univariate tests do not provide evidence of the effectiveness of the market for corporate control and CEO compensation structure in improving merger performance of the acquiring firm through the free cash flow channel. It is noteworthy that due to lack of data on some of these governance variables our sample size is smaller for these tests. In particular, for some subsamples, such as firms with a low percentage of independent directors, our sample is especially small and possibly contaminated by the governance provisions with respect to board independence brought in by the Sarbanes-Oxley Act (SOX) and related regulations instituted by stock exchanges. Unfortunately, the time series prior to 2001 is too short for us to run meaningful subsample test using pre-SOX data. Our failure to find significant results for these subsamples, detailed in subsequent tables, should be interpreted with this in mind.

[Insert Table 4]

## **6.2. Multivariate analysis**

### **6.2.1. Agency costs of FCF and acquirer returns**

Table 5 tests the first set of hypotheses (H1a and H1b) that bidders that have large free cash flows before the acquisition or finance the deal entirely with internal funds generate lower abnormal returns. By investigating deals paid completely with equity as well as those paid with both cash and equity, our results provide additional evidence to the existing empirical literature on the agency costs of free cash flow arising from both the holding of cash flows before the takeover and the use of free cash flows to actually finance the deal.

Model (1) is based on a sample with data on free cash flow and without requiring information on sources of funds. The sample for Model (2) is a subsample of pure equity offers. The coefficients of the FCF variable in both models are negative and significant at the 99% confidence level, suggesting that regardless of whether the acquisition is paid with cash, acquires that hold substantial free cash flows experience significantly lower abnormal announcement returns. This finding contributes to the extant literature that exclusively examines cash offers (Lang, Stulz, and Walkling, 1991; Schlingemann, 2004) by showing that the holding of free cash flows before the takeover announcement is enough of a signal to trigger lower bidder gains, no matter whether the transaction is eventually paid with cash.

Models (3) and (4) are based on a sample with data on both free cash flow and financing sources. The requirement of availability of data on funding sources reduces the sample size by more than half. In Model (3), we exclusively examine the use of internal financing, and then we add free cash flow in Model (4). Consistent with the result in Model (1), the coefficient on the free cash flow variable remains significantly negative in Model (4). The coefficients for the dummy variable for the use of 100% internal financing in both Models (3) and (4) are significant and negative, indicating that if a firm uses internally generated funds to pay for the takeover, it tends to gain less than firms that finance their deals with debt or equity. Again, this finding is in line with that in prior research by Vladimirov (2015), which focuses on a sample excluding all-equity offers.

[Insert Table 5]

### 6.2.2. Institutional monitoring in alleviating agency costs of FCF

Table 6 provides the analysis of the relation between institutional monitoring, agency costs of free cash flow, and acquisition outcomes. We measure institutional monitoring by indicator variables for the extreme quartiles of concentrated holdings by the largest institutional investor as well as by institutional blockholders controlling at least 5% of the firm's equity. Specifically, firms in the top quartile of institutional ownership concentration are considered well governed, while those in the bottom quartile are considered poorly governed.

Models (1) and (2) test the efficacy of institutional monitoring on mitigating agency costs associated with the holding of free cash flows before the announcement of the acquisition. Consistent with the results in Table 5, the free cash flow variables on their own are significant and negative. The coefficients on the interaction variable of free cash flow and the indicator for low concentrated holdings by large institutions are negative and statistically significant at the 99% confidence level, suggesting that lack of monitoring by large institutional investors worsens the negative relation between free cash flow and acquirer returns. On the other hand, the coefficients on the interaction variable between free cash flow and the indicator for high institutional ownership concentration are positive and statistically significant at the 99% confidence level, suggesting that the presence of large institutional investors alleviates the negative market reactions to acquisition decisions made by acquiring firms with substantial free cash flows. Moreover, the positive values of the coefficients on the interaction term, which are 0.082 in Model (1) and 0.105 in Model (2), completely offset the negative values of the coefficients on the free cash flow variable itself, which are -0.042 in Model (1) and -0.045 in Model (2). This indicates that the negative impact of free cash flow on takeover returns to bidding shareholders can be reversed by effective monitoring of large institutional investors. These results are consistent with our hypotheses (H2a and H2b), which are developed based on the argument that strong corporate governance serves as an important tool in ensuring that managers use corporate resources in the best interest of shareholders.

Models (3) and (4) focus on the agency costs related to the eventual use of free cash flows to fund the acquisition. The major variables of interest have the expected signs. Specifically, the interaction terms of internal financing and low institutional ownership concentration are negative, and those between internal financing and high institutional ownership concentration are positive. However, none of them are significant.

In Models (5) and (6), we examine both free cash flows and the use of internal financing. The negative coefficients on the interaction of free cash flow and the dummy for low holdings by large institutions remain highly significant, whereas the positive coefficients on the interaction of free cash flow and the dummy for high holdings are insignificant or only marginally significant. Therefore, we conduct a further (unreported) test of whether the coefficients on the two interaction terms are significantly different, and the results show that the positive coefficients on the interaction of high institutional ownership concentration and free cash flows are significantly greater than the negative coefficient on the interaction of low institutional concentrated holdings and free cash flows. This is consistent with our hypotheses (H2a and H2b) and further confirms the results in Models (1) and (2). And again, all the variables for the interaction between the use of internal financing and institutional monitoring are not significant, although the signs are consistent with our expectations.

Overall, the results in Table 6 provide strong evidence that weak institutional monitoring increases the agency costs of free cash flow by further decreasing the stock returns to acquiring firms with large free cash flows. The results also suggest that strong institutional monitoring alleviates the agency problem of free cash flow by cancelling out the negative effect of free cash flow on acquirer returns, although the evidence is not as strong as that for weak institutional monitoring. Moreover, the insignificant results for the use of internal financing suggest that large institutional investors influence the ex-ante financing decision on the holding of cash rather than the eventual decision on the use of the cash. An alternative explanation is that the impact of institutional monitoring has already been captured by free cash flows, and thus is no longer reflected in the use of internal financing.

[Insert Table 6]

### **6.2.3. Other governance mechanisms in alleviating agency costs of FCF**

This section examines whether and how other governance metrics, specifically board monitoring, the market for corporate control, and executive incentive strength, mitigate the agency problem of free cash flow in acquisitions. The databases from which we collect the data on these governance measures, specifically, the RiskMetrics, the IRRC, and the ExcuComp databases, only cover the S&P 1500 companies, which are large, more profitable, publicly listed firms. These firms

are generally better monitored by the capital markets, and this would potentially bias our results against showing significant effects of the individual governance mechanism.

In the tables in this section, we find no effect of free cash flow on acquirer returns on its own. The lack of significance can be attributed to the fact that the bidders in the samples are large firms that are well monitored by the capital markets and thus are subject to much less severe agency conflicts between shareholders and managers over the use of cash resources.

Table 7 reports the results for board monitoring. The strength of board monitoring is measured by indicators for the extreme quartiles of the ratio of independent directors to board size and total ownership held by directors on the board. Firms in the top quartile are considered well governed, while those in the bottom quartile are considered poorly governed. In Model (1), the interaction term between free cash flow and the indicator for a high ratio of independent directors to board size is marginally significant and negative, and the interaction of free cash flow and the indicator for a low ratio is marginally significant and positive. This suggests that the combination of high free cash flow and a small number of independent directors leads to significantly lower abnormal announcement returns for acquirers, whereas when the high free cash flow is combined with a large number of independent directors, the market instead reacts positively to the acquisition announcement. This finding is consistent with the notion that independent directors play an active role in monitoring corporate decisions. However, the results no longer hold in Model (5) where the sample size is shrunk by half after requiring information on funding sources. For director ownership, Models (2) and (6) do not provide significant results to support the effectiveness of director ownership in aligning the interest of board members and shareholders through the free cash flow channel. Also, in Models (3) to (6), we do not find any significant results for the use of internal financing.

[Insert Table 7]

Table 8 shows the results for the strength of the market for corporate control, which is measured by the number of antitakeover provisions in place. Different from other governance proxies, in this case, a higher number of the Gompers, Ishii, and Metrick (2003) antitakeover index (the G Index) and the Bebchuk, Cohen, and Ferrell (2009) entrenchment index (the E Index) indicates lower shareholder rights. That is, firms in the bottom quartile of the governance indices have greater

shareholder power, while those in the top quartile have weaker governance. For G Index, the interaction terms between free cash flow and the dummy for the top quartile are positive in both Models (1) and (5) and marginally significant. For E Index, the interaction variables between free cash flow and the dummy for the bottom quartile are negative in both Models (2) and (6) and marginally significant. The corresponding coefficients for the bottom quartile for the G-index and the top quartile for the E-index are insignificant. The marginally significant coefficient estimates are counterintuitive in that strong governance appears to be associated with poorer results. However, given that the sample sizes are small and that the significance is marginal, we believe the results may be driven by a small number of influential observations and therefore interpret the results as inconclusive.

[Insert Table 8]

Table 9 presents the results for CEO compensation structures. We do not find any consistent evidence of the effect of either CEO ownership or the value of options granted to the CEO on alleviating the agency problem associated with either the holding or the use of free cash flows.

[Insert Table 9]

#### **6.2.4. Likelihood of diversifying mergers**

In this section, we shift our focus from acquisition outcomes to the likelihood of acquirers engaging in diversifying mergers. Specifically, we investigate whether bidders that hold abundant cash flows or use internal financing are more likely to take over targets from different industries, and whether corporate governance has impact on it. Table 10 reports the results for institutional monitoring. The results do not show any consistently significant effects of either free cash flows or the use of internal financing on the probability of diversification. And none of the eight interaction terms between institutional ownership concentration and free cash flows or the use of internal financing are significant. We do not present the results for other governance metrics because they also are insignificant.

It is not surprising that we do not find significant results here. Although theoretic research predicts that diversification programs are subject to more serious agency costs (Jensen, 1986;

Montgomery, 1994), empirical studies do not document consistent supportive evidence. For example, Campa and Kedia (2002) and Villalonga (2004) report that diversification is not necessarily correlated with lower firm value and it can even positively affect firm value.

[Insert Table 10]

## **7. Robustness tests**

In this section, we conduct two robustness tests. First, we test if our results are robust to the acquirer abnormal return over an expanded event window of twenty-one days around the merger announcement. Table 11 presents the results for the relation between bidder CARs (-10, +10), free cash flow/ the use of internal financing, and characteristics of institutional investors. Overall, the results are qualitatively similar to those in Table 6. In Models (1), (2), (5), and (6), the variables for free cash flow on its own are significantly negative, and the interaction variables between free cash flow and the indicator for the bottom quartile of both the two measures of institutional monitoring are negative and significant at the 99% confidence level. The interaction terms between free cash flow and the indicator for high institutional blockholdings are significantly positive in both Model (2) and Model (6), and the values of the coefficients reveal that the presence of large institutional blockholders can alter the negative relationship between free cash flow and acquirer abnormal returns. However, the interaction of free cash flow and the dummy for high holdings by the single largest institutional investors does not show any significant results. And the results for the use of internal financing remain insignificant as in Table 6.

[Insert Table 11]

Second, in order to rule out the possibility of a selection bias, we re-construct the indicators for strong and weak governance by sorting all firms in the governance database, rather than only firms in the acquisition sample, into quartiles based on the value of the corresponding governance measure. Table 12 reports the results for institutional ownership concentration. Again, the results are qualitatively similar to those in Table 6. Across all specifications, the free cash flow variable itself is significantly negative. In Models (1) and (5), the interaction of free cash flows and the indicator for strong governance is positive and significant at the 99% confidence level. In Models



(2) and (6), the interaction of free cash flows and the dummy for weak governance is significantly negative.

[Insert Table 12]

We do not display the results of robustness tests for other governance proxies because on the whole those results remain insignificant as in the main tables.

## **8. Conclusion**

In this study, we provide a complete and detailed picture of the relations among agency costs of free cash flow, corporate governance structures, and merger performance of acquirers. In so doing, we provide a fresh perspective on the manner in which corporate governance impacts the relation between free cash flows and merger performance.

First, we document a negative impact of free cash flow on bidder abnormal announcement returns by examining a comprehensive sample consisting of both cash and equity transactions as well as a subsample of pure equity offers. This finding provides additional evidence to the free cash flow hypothesis of Jensen (1986) and more importantly, shows that the holding of free cash flows by the acquirer preceding the acquisition announcement is enough of a signal to trigger less favorable market reactions even if the deal is not paid with internal funds. Our findings indicate that the market incorporates into share price reactions the likelihood of unused excess cash being misused in the future. We also find that the use of internally generated funds to finance the takeover further decreases bidder returns in addition to the negative effect of free cash flow.

Second, we find that acquisitions made by bidders holding substantial free cash flows are valued less by the market only if the bidder is poorly monitored by large institutional investors. Specifically, the negative relation between free cash flows and acquirer abnormal announcement returns is reversed if the bidder is well monitored by large institutional shareholders and is more pronounced if the bidder lacks institutional monitoring. Prior literature finds little evidence that institutional activism can directly improve bidder stock returns around the merger announcement. Our findings indicate there is more nuance to the relation between institutional shareholding and bidder returns than was captured by earlier studies.

Third, we investigate multiple other governance measures, including board composition, indices of shareholder rights constructed based on the number of antitakeover provisions, and CEO compensation structures. However, we do not find enough evidence to conclude that these corporate governance mechanisms also significantly mitigate the agency costs of free cash flow in the acquisition process. This final result comes with the caveat that our sample was constrained by the availability of data on these measures of governance for our sample of acquirers. We look forward to future research that can address this issue and so provide a comprehensive test of the impact of corporate governance on the relation between free cash flows and merger performance.

## Appendix 1

The following table presents variable definitions. Data sources are given in brackets.

Variable	Definition
CAR (-5, +5)	Eleven-day cumulative abnormal stock returns around bid announcements calculated using the CAPM over the estimation period of (-200, -60) before the announcement date (0) [CRSP]
Proxies for agency costs of FCF	
FCF	Free cash flow defined as operating income before depreciation (OIBDP) minus interest expenses (XINT), tax expenses (TXT), and preferred and common dividends (DVT) normalized by book value of total assets (AT) [Compustat]
CASH_FIN	A dummy equal to one if the takeover deal is entirely financed with internal funds, zero otherwise [SDC]
Proxies for corporate governance	
INST_TOP1_Q1	A dummy equal to one if the acquirer is within the bottom quartile of holdings by the largest institutional investor, zero otherwise [Form 13F]
INST_TOP1_Q4	A dummy equal to one if the acquirer is within the top quartile of holdings by the largest institutional investor, zero otherwise [Form 13F]
INST_BLOCK_Q1	A dummy equal to one if the acquirer is within the bottom quartile of total ownership by institutional investors that hold more than 5% of the firm's shares, zero otherwise [Form 13F]
INST_BLOCK_Q4	A dummy equal to one if the acquirer is within the top quartile of total ownership by institutional investors that hold more than 5% of the firm's shares, zero otherwise [Form 13F]
INDP_DIR_Q1	A dummy equal to one if the acquirer is within the bottom quartile of the fraction of independent directors on the board, zero otherwise [RiskMetrics]
INDP_DIR_Q4	A dummy equal to one if the acquirer is within the top quartile of the fraction of independent directors on the board, zero otherwise [RiskMetrics]
DIR_OWN_Q1	A dummy equal to one if the acquirer is within the bottom quartile of total stock ownership by all the directors on the board, zero otherwise [RiskMetrics]
DIR_OWN_Q4	A dummy equal to one if the acquirer is within the top quartile of total stock ownership by all the directors on the board, zero otherwise [RiskMetrics]
GINDEX_Q1	A dummy equal to one if the acquirer is within the bottom quartile of the Gompers, Ishii, and Metrick (2003) antitakeover index, zero otherwise [IRRC]
GINDEX_Q4	A dummy equal to one if the acquirer is within the top quartile of the Gompers, Ishii, and Metrick (2003) antitakeover index, zero otherwise [IRRC]
EINDEX_Q1	A dummy equal to one if the acquirer is within the bottom quartile of the Bebchuk, Cohen, and Ferrell (2009) entrenchment index, zero otherwise [IRRC]
EINDEX_Q4	A dummy equal to one if the acquirer is within the top quartile of the Bebchuk, Cohen, and Ferrell (2009) entrenchment index, zero otherwise [IRRC]
EXECU_OWN_Q1	A dummy equal to one if the acquirer is in the bottom quartile of CEO ownership (SHOWN_EXCL_OPTS_PCT/ 100), zero otherwise [ExecuComp]
EXECU_OWN_Q4	A dummy equal to one if the acquirer is in the top quartile of CEO ownership (SHOWN_EXCL_OPTS_PCT/ 100), zero otherwise [ExecuComp]

EXECU_OPT_Q1	A dummy equal to one if the acquirer is in the bottom quartile of the Black-Scholes value of stock options awarded to CEOs (OPTION_AWARDS_BLK_VALUE) scaled by total compensation (TDC1), zero otherwise [ExecuComp]
EXECU_OPT_Q4	A dummy equal to one if the acquirer is in the bottom quartile of the Black-Scholes value of stock options awarded to CEOs (OPTION_AWARDS_BLK_VALUE) scaled by total compensation (TDC1), zero otherwise [ExecuComp]
Acquirer characteristics	
LEV	Leverage defined as book value of debts (DLC +DLTT) over book value of assets (PRCC_F * CSHO +AT – CEQ) [Compustat]
Q	Tobin's Q defined as market value of assets (PRCC_F * CSHO +AT – CEQ) over book value of assets (AT) [Compustat]
SIZE	Firm size defined as the logarithm of book value of total assets (AT) [Compustat]
Deal characteristics	
CASH_PER	Percentage of cash payment [SDC]
PRV	A dummy equal to one if the target is privately held, zero otherwise [SDC]
SUB	A dummy equal to one if the target is a subsidiary, zero otherwise [SDC]
DIVERS	A dummy equal to one if the 2-digit SIC codes are different for the acquirer and the target, zero otherwise [SDC]
HOSTILE	A dummy equal to one if the deal is hostile, zero otherwise [SDC]
TENDER_OFFER	A dummy equal to one if the deal is a tender offer, zero otherwise [SDC]
DEAL_SIZE	Transaction value over market value of the bidder's assets (PRCC_F * CSHO +AT – CEQ) [SDC, Compustat]

## **Appendix 2**

We obtain PERMNOs from the dataset DSENNAMES of CRSP for each acquirer using the methodology as in Coles, Daniel, and Naveen (2014).

The DSENNAMES database contains PERMNO, the start and end dates during which the PERMNO is valid, and four firm identifiers, including CUSIP, historic CUSIP (NCUSIP), TICKER, and the company name (COMNAM). Our SDC sample contains the acquirer's 6-digit CUSIP, the acquirer's ticker, the bidder's name, and the bid announcement date. We match the SDC sample separately and sequentially with each of the firm identifiers of DSENNAMES, while requiring the announcement date to be between the start date and the end date.

The procedure of obtaining PERMNOs is tabulated in the table below. As the table shows, matching the acquirer CUSIP of SDC with the 6-digit NCUSIP of CRSP yields a match for 11,577 of the 12,979 observations. For the remaining 1,402 observations, we match using 6-digit CUSIP of CRSP. And we obtain a match for 45 observations. For the remaining 1,357 observations, we match the acquirer ticker of SDC with TICKER of CRSP and obtain a match for 187 observations. Then we match the 1,170 remaining observations using the company name. This yields a match for 15 observations. Overall, we find a matching PERMNO for 11,824 of the 12,979 observations.

In order to obtain GVKEYs, we match the 11,824 observations that have available PERMNOs with the CRSP-Compustat combined database. Again, we require the announcement date to be between the start date and the end date. This procedure finds a match for 11,506 observations.

	Matching Criteria	Observations	
SDC Sample			12,979
To obtain PERMNO	<ul style="list-style-type: none"> <li>• CRSP. 6-digit NCUSIP = SDC. Acquirer CUSIP</li> <li>• Start Date &lt;= Announcement Date &lt;= End Date</li> </ul>	11,577	
	<ul style="list-style-type: none"> <li>• CRSP. 6-digit CUSIP = SDC. Acquirer CUSIP</li> <li>• Start Date &lt;= Announcement Date &lt;= End Date</li> </ul>	45	
	<ul style="list-style-type: none"> <li>• CRSP. TICKER = SDC. Acquirer TICKER</li> <li>• Start Date &lt;= Announcement Date &lt;= End Date</li> </ul>	187	
	<ul style="list-style-type: none"> <li>• CRSP. Company Name = SDC. Company Name</li> <li>• Start Date &lt;= Announcement Date &lt;= End Date</li> </ul>	15	
To Obtain GVKEY	<ul style="list-style-type: none"> <li>• CRSP-SDC. PERMNO = CRSP-Compustat. PERMNO</li> <li>• Start Date &lt;= Announcement Date &lt;= End Date</li> </ul>		11,506

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Table 1  
Construction of the sample with stock price data and accounting data

Panel A: SDC sample selection		
	Screening Criteria	Observations Remaining
Date Announced	01/01/1990 – 12/31/2016	
Acquirer and Target Nation	US	241,814
Acquirer Public Status	Public	118,799
Target Public Status	Public, Private, Subsidiary	117,758
Acquirer Industry	Excluding: Financial Firms (SIC 6000-6999), Utilities (SIC 4900-4999)	86,332
Deal Status	Completed	60,827
Deal Value	>= \$1 million	30,097
% Owned before	< 50	
% Owned after	= 100	25,201
Deal Type	Excluding: Leveraged Buyouts, Spinoffs, Recapitalizations, Self-Tenders, Repurchases, Privatizations	25,124
Form of the Deal	Merger, Acquisition of Assets	24,579
Method of Payment	Percentage of Cash + Percentage of Equity = 100%	12,979
Panel B: Data on CARs, FCFs, and control variables		
		Observations
SDC Sample		12,979
With available PERMNOs and GVKEYs		11,506
Excluding multiple-class shares		11,340
Excluding consecutive bids announced by the same acquirer within 200 days		9,112
With available cumulative abnormal returns around announcements		8,143
With sufficient information on free cash flows and control variables		7,153

Table 2  
Construction of final samples with data on governance proxies

Panel A: Data on various governance measures and all variables in Panel B of Table 1			
Proxy for governance	Source of data	Period covered	Observations
Institutional monitoring	Form 13F	1990 - 2016	6,915
Board monitoring	RiskMetrics	1996 - 2016	1,232
Antitakeover Provisions	IRRC	1990 - 2006	1,553
CEO incentive strength	ExecuComp	1992 - 2016	3,151

  

Panel B: Data on sources of financing and all variables in Panel A			
Proxy for governance	Source of data	Period covered	Observations
Institutional monitoring	Form 13F	1990 - 2016	3,341
Board monitoring	RiskMetrics	1996 - 2016	682
Antitakeover Provisions	IRRC	1990 - 2006	774
CEO incentive strength	ExecuComp	1992 - 2016	1,346

Table 3

## Summary statistics

Panel A presents description of acquirer announcement returns and acquiring-firm and deal characteristics for our sample of completed U.S. mergers and acquisitions between 1990 and 2016. Panel B shows the summary statistics on different governance measures for the four subsamples. Both panels provide mean, median, 25<sup>th</sup> and 75<sup>th</sup> percentiles, and the number of non-missing observations for each variable. Definitions of the variables are presented in Appendix 1.

Panel A: Bidder returns, free cash flows, and control variables					
	Mean	Median	p25	p75	N
CAR (-5, +5)	0.018	0.006	-0.048	0.071	7153
FCF	0.04	0.081	0.037	0.121	7153
LEV	0.209	0.171	0.025	0.327	7153
Q	2.531	1.826	1.344	2.749	7153
SIZE	5.979	5.943	4.443	7.422	7153
CASH_PER	64.003	100	0	100	7153
PRV	0.49	0	0	1	7153
SUB	0.302	0	0	1	7153
DIVERS	0.408	0	0	1	7153
HOSTILE	0.002	0	0	0	7153
TENDER_OFFER	0.051	0	0	0	7153
DEAL_SIZE	0.23	0.062	0.021	0.177	7153
Panel B: Governance measures					
	Mean	Median	p25	p75	N
INST_TOP1	.086	.079	.05	.108	6915
INST_BLOCK	.152	.127	0	.236	6915
INDP_DIR	.681	.714	.571	.818	1232
DIR_OWN	.075	.02	.005	.073	1232
GINDEX	8.998	9	7	11	1553
EINDEX	2.021	2	1	3	1553
EXECU_OWN	.02	.002	0	.012	3151
EXECU_OPT	.243	0	0	.487	3151

Table 4

Univariate tests of differences in acquirer CARs (-5, +5) across levels of agency costs of FCF and governance strength

This table reports univariate comparisons of bidder abnormal returns by levels of the FCF agency problem across quartiles of each corporate governance proxy. The numbers for the combined High and Low FCF do not add up to the same as the ones for 100% internal financing since we separate the sample for free cash flow and the sample for the use of internal financing to eliminate any potential bias due to the large loss of observations by requiring data on sources of funds. The acquirer abnormal return is the cumulative abnormal return estimated from five days before the bid announcement to five days after the announcement. The FCF agency problem is proxied by FCF and the use of internal financing. FCF is defined as operating income before depreciation minus interest expense, taxes, and total dividends, scaled by the book value of total assets, for the fiscal year before the acquisition announcement. Acquiring firms with high (low) FCF are those ranked within the top (bottom) quartile of free cash flows. 100% internal financing refers to deals that are entirely financed with internally generated funds. Each panel presents the results for one aspect of corporate governance. Definitions of the governance variables are displayed in Appendix 1. Bidding firms with high (low) levels of a governance measure are those ranked in the top (bottom) quartile of that governance measure. Each cell includes the mean value of the acquirer CAR (-5, +5), the t-value for the mean, and the number of non-missing observations. For the comparison of means, we report the mean difference and the t-statistic assuming unequal variances in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Institutional monitoring						
	High FCF (1)	Low FCF (2)	Difference (1) – (2)	100% internal financing (3)	Partial or no internal financing (4)	Difference (3) – (4)
Holdings by the single largest institutional investor						
Low	0.0212** (2.18) N = 398	0.0598*** (5.60) N = 631	-0.0386*** (-2.68)	-0.0065 (-0.50) N = 50	0.0476*** (5.81) N = 943	-0.0541*** (-3.50)
High	0.0050 (0.91) N = 412	0.0091 (1.03) N = 403	-0.0041 (-0.39)	0.0121 (1.35) N = 49	0.0196*** (3.75) N = 730	-0.0074 (-0.71)
Holdings by institutional blockholders						
Low	0.0209** (2.16) N = 399	0.0591*** (5.56) N = 634	-0.0382*** (-2.66)	-0.0065 (-0.50) N = 50	0.0474*** (5.80) N = 944	-0.0539*** (-3.49)
High	0.0127** (2.34) N = 398	0.0109 (1.19) N = 351	0.0018 (0.17)	0.0196** (2.41) N = 51	0.0195*** (3.86) N = 692	0.0001 (0.01)

Panel B: Board monitoring

	High FCF (1)	Low FCF (2)	Difference (1) – (2)	100% internal financing (3)	Partial or no internal financing (4)	Difference (3) – (4)
The number of independent directors as a percentage of board size						
Low	-0.0147 (-1.09) N = 76	0.0345* (1.98) N = 81	-0.0492** (-2.24)	-0.0206 (-0.83) N = 15	0.0291** (2.42) N = 157	-0.0497* (-1.80)
High	0.0303*** (2.73) N = 68	-0.0052 (-0.18) N = 25	0.0355 (1.17)	0.0189** (0.0189) N = 25	0.0092 (1.27) N = 164	0.0096 (0.88)
Stock ownership by directors on the board						
Low	0.0009 (0.09) N = 93	0.0005 (0.03) N = 35	0.0004 (0.02)	-0.0152 (-0.88) N = 11	-0.0017 (-0.19) N = 145	-0.0134 (-0.69)
High	-0.0007 (-0.07) N = 75	0.0265 (1.28) N = 0.03	-0.0272 (-1.19)	0.0050 (0.28) N = 18	0.0188* (1.68) N = 153	-0.0139 (-0.66)

Panel C: Antitakeover provisions

	High FCF (1)	Low FCF (2)	Difference (1) – (2)	100% internal financing (3)	Partial or no internal financing (4)	Difference (3) – (4)
G Index						
Low	-0.0098 (-1.15) N = 120	0.0225 (0.0225) N = 83	-0.0323 (-1.62)	0.0045 (0.40) N = 24	0.0073 (0.68) N = 176	-0.0027 (-0.17)
High	0.0046 (0.43) N = 75	-0.0280* (-2.05) N = 18	0.0327* (1.87)	-0.0171 (-1.23) N = 13	0.0004 (0.04) N = 126	-0.0174 (-1.03)
E Index						
Low	-0.0079 (-1.02) N = 145	0.0343* (1.86) N = 81	-0.0422** (-2.11)	0.0073 (0.66) N = 25	0.0086 (0.88) N = 209	-0.0013 (-0.09)
High	-0.0088 (-0.74) N = 47	-0.0105 (-0.48) N = 30	0.0017 (0.07)	0.0038 (0.14) N = 9	-0.0052 (-0.45) N = 100	0.0090 (0.31)

Panel D: CEO incentive strength

	High FCF (1)	Low FCF (2)	Difference (1) – (2)	100% internal financing (3)	Partial or no internal financing (4)	Difference (3) – (4)
CEO ownership						
Low	0.0036 (0.71) N = 365	0.0027 (0.20) N = 127	0.0009 (0.06)	-0.0108 (-1.00) N = 56	0.0037 (0.73) N = 469	-0.0145 (-1.22)
High	0.0062 (1.04) N = 278	-0.0054 (-0.42) N = 101	0.0116 (0.83)	0.0208 (1.47) N = 24	0.0107 (1.49) N = 319	0.0101 (0.63)
Value of options granted to the CEO						
Low	0.0045 (1.04) N = 469	-0.0096 (-0.84) N = 195	0.0140 (1.15)	0.0048 (0.68) N = 88	0.0138*** (3.16) N = 609	-0.0090 (-1.09)
High	-0.0011 (-0.18) N = 270	-0.0086 (-0.58) N = 99	0.0074 (0.46)	0.0071 (0.41) N = 27	-0.0098 (-1.35) N = 311	0.0169 (0.90)



Table 5

Regressions of bidder CARs (-5, +5) on free cash flow and the use of internal financing

This table presents the results of regressing acquirer returns on free cash flows and the use of internal financing. The acquirer return is the eleven-day cumulative abnormal return around the acquisition announcement. FCF is measured as operating income before depreciation minus interest expense, taxes, and total dividends, scaled by the book value of total assets, at the end of the fiscal year before the acquisition announcement. CASH\_FIN denotes a dummy that takes a value of one for transactions that are entirely financed with internal funds, and zero otherwise. Definitions of control variables are specified in Appendix 1. Model (1) is based on a sample with data on FCF, Model (2) is based on a subsample of pure equity offers, and Models (3) and (4) are based on a sample with data on both FCF and CASH\_FIN. t-statistics are given in parentheses below the coefficient. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
FCF	-0.070*** (-8.57)	-0.088*** (-6.13)		-0.082*** (-7.27)
CASH_FIN			-0.027** (-1.96)	-0.028** (-2.09)
LEV	0.025** (2.55)	0.019 (0.74)	0.027* (1.67)	0.018 (1.10)
Q	-0.006*** (-8.34)	-0.006*** (-5.01)	-0.005*** (-5.81)	-0.006*** (-6.28)
SIZE	-0.007*** (-6.26)	-0.011*** (-3.95)	-0.015*** (-8.51)	-0.010*** (-5.45)
CASH_PER	-0.000 (-0.71)		0.000 (0.70)	0.000 (1.61)
PRV	0.029*** (5.27)	0.043*** (3.79)	0.036*** (4.42)	0.037*** (4.64)
SUB	0.037*** (6.17)	0.068*** (4.02)	0.050*** (5.04)	0.050*** (5.00)
DIVERS	0.005 (1.28)	0.013 (1.26)	0.007 (1.11)	0.007 (1.03)
HOSTILE	-0.040 (-1.05)	0.003 (0.03)	-0.030 (-0.59)	-0.035 (-0.70)
TENDER_OFFER	0.042*** (4.47)	0.028 (0.48)	0.053*** (3.73)	0.049*** (3.44)
DEAL_SIZE	0.004*** (5.25)	0.003** (2.32)	0.004*** (3.91)	0.004*** (3.92)
Constant	0.073 (0.84)	-0.065 (-0.44)	-0.036 (-0.29)	-0.054 (-0.43)
Industry & Year FE	Yes	Yes	Yes	Yes
Observations	7153	2062	3483	3483
R <sup>2</sup>	0.059	0.097	0.072	0.086

Table 6

Regressions of bidder CARs (-5, +5) on free cash flow, internal financing, and institutional monitoring

This table reports the results of the regressions of acquirer returns on free cash flow, internal financing, and institutional ownership concentration. The acquirer return is the eleven-day cumulative abnormal return around the takeover announcement date. The major variables of interest are eight interaction terms: FCF \* INST\_TOP1\_Q1, FCF \* INST\_TOP1\_Q4, FCF \* INST\_BLOCK\_Q1, FCF \* INST\_BLOCK\_Q4, CASH\_FIN \* INST\_TOP1\_Q1, CASH\_FIN \* INST\_TOP1\_Q4, CASH\_FIN \* INST\_BLOCK\_Q1, and CASH\_FIN \* INST\_BLOCK\_Q4. FCF is defined as operating income before depreciation minus interest expenses, taxes and total dividends scaled by book value of total assets at the end of the fiscal year prior to the acquisition announcement. CASH\_FIN is a dummy equal to one if the deal is fully financed with internally generated funds, and zero otherwise. INST\_TOP1\_Q1 (INST\_TOP1\_Q4) is an indicator variable for bidders within the bottom (top) quartile of the level of ownership controlled by the single largest institutional investor. INST\_BLOCK\_Q1 (INST\_BLOCK\_Q4) is a dummy variable for bidders within the bottom (top) quartile of the level of total ownership controlled by the institutions holding at least 5% of the firm's shares. Definitions of control variables are presented in Appendix 1. Models (1) and (2) employ the sample with data on FCF, while Models (3) through (6) use a subset of observations for which information on financing sources is available. t-statistics are given in parentheses below the coefficient. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
FCF	-0.042** (-2.57)	-0.045*** (-2.80)			-0.053** (-2.41)	-0.056*** (-2.58)
FCF * INST_TOP1_Q1	-0.058*** (-3.10)				-0.068*** (-2.75)	
FCF * INST_TOP1_Q4	0.082*** (2.65)				0.068 (1.51)	
FCF * INST_BLOCK_Q1		-0.056*** (-3.05)				-0.066*** (-2.68)
FCF * INST_BLOCK_Q4		0.105*** (3.18)				0.089* (1.87)
CASH_FIN			-0.027 (-1.51)	-0.026 (-1.46)	-0.029* (-1.66)	-0.029 (-1.60)
CASH_FIN * INST_TOP1_Q1			-0.023 (-0.74)		-0.012 (-0.40)	
CASH_FIN * INST_TOP1_Q4			0.024 (0.78)		0.022 (0.70)	
CASH_FIN * INST_BLOCK_Q1				-0.024 (-0.76)		-0.014 (-0.44)
CASH_FIN * INST_BLOCK_Q4				0.022 (0.71)		0.021 (0.67)
INST_TOP1_Q1	0.014*** (3.01)		0.018** (2.37)		0.012 (1.59)	
INST_TOP1_Q4	-0.005 (-1.01)		-0.001 (-0.14)		-0.004 (-0.52)	
INST_BLOCK_Q1		0.015*** (3.16)		0.020** (2.54)		0.014* (1.80)
INST_BLOCK_Q4		-0.003 (-0.67)		0.004 (0.44)		-0.000 (-0.03)
LEV	0.017* (1.77)	0.017* (1.73)	0.013 (0.81)	0.013 (0.79)	0.002 (0.13)	0.002 (0.13)
Q	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***

	(-8.04)	(-8.04)	(-5.59)	(-5.54)	(-6.05)	(-6.02)
SIZE	-0.005***	-0.004***	-0.011***	-0.011***	-0.007***	-0.007***
	(-4.17)	(-4.03)	(-6.22)	(-6.20)	(-3.55)	(-3.45)
CASH_PER	-0.000	-0.000	0.000	0.000	0.000	0.000
	(-0.48)	(-0.45)	(0.89)	(0.87)	(1.51)	(1.49)
PRV	0.033***	0.033***	0.041***	0.041***	0.042***	0.042***
	(6.04)	(6.09)	(5.02)	(5.01)	(5.20)	(5.23)
SUB	0.041***	0.041***	0.055***	0.055***	0.055***	0.055***
	(6.82)	(6.85)	(5.50)	(5.48)	(5.55)	(5.57)
DIVERS	0.006	0.006	0.010	0.010	0.010	0.010
	(1.46)	(1.45)	(1.53)	(1.52)	(1.53)	(1.53)
HOSTILE	-0.042	-0.044	-0.036	-0.039	-0.040	-0.044
	(-1.12)	(-1.17)	(-0.73)	(-0.78)	(-0.83)	(-0.90)
TENDER_OFFER	0.042***	0.043***	0.054***	0.055***	0.049***	0.051***
	(4.49)	(4.58)	(3.78)	(3.85)	(3.48)	(3.63)
DEAL_SIZE	0.019***	0.019***	0.017***	0.017***	0.017***	0.017***
	(8.34)	(8.34)	(6.15)	(6.16)	(5.98)	(5.99)
Constant	0.048	0.049	-0.062	-0.062	-0.083	-0.081
	(0.55)	(0.57)	(-0.50)	(-0.50)	(-0.67)	(-0.66)
Industry & Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6915	6915	3341	3341	3341	3341
R <sup>2</sup>	0.072	0.072	0.081	0.081	0.103	0.104

Table 7

Regressions of bidder CARs (-5, +5) on free cash flow, internal financing, and board monitoring

This table reports the results of the regressions of acquirer returns on free cash flow, internal financing, and board characteristics. The acquirer return is the eleven-day cumulative abnormal return around the takeover announcement date. The major variables of interest are eight interaction terms: FCF \* INDP\_DIR\_Q1, FCF \* INDP\_DIR\_Q4, FCF \* DIR\_OWN\_Q1, FCF \* DIR\_OWN\_Q4, CASH\_FIN \* INDP\_DIR\_Q1, CASH\_FIN \* INDP\_DIR\_Q4, CASH\_FIN \* DIR\_OWN\_Q1, and CASH\_FIN \* DIR\_OWN\_Q4. FCF is defined as operating income before depreciation minus interest expenses, taxes and total dividends scaled by book value of total assets at the end of the fiscal year prior to the acquisition announcement. CASH\_FIN is a dummy equal to one if the deal is fully financed with internally generated funds, and zero otherwise. INDP\_DIR\_Q1 (INDP\_DIR\_Q4) is an indicator variable for bidders within the bottom (top) quartile of the ratio of independent directors to board size. DIR\_OWN\_Q1 (DIR\_OWN\_Q4) is a dummy variable for bidders within the bottom (top) quartile of total ownership controlled by directors on the board. Definitions of control variables are presented in Appendix 1. Models (1) and (2) employ the sample with data on FCF, while Models (3) through (6) use a subset of observations for which information on financing sources is available. t-statistics are given in parentheses below the coefficient. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
FCF	0.027 (0.50)	-0.009 (-0.19)			0.004 (0.05)	0.005 (0.08)
FCF * INDP_DIR_Q1	-0.133* (-1.91)				-0.071 (-0.72)	
FCF * INDP_DIR_Q4	0.205* (1.71)				0.246 (1.39)	
FCF * DIR_OWN_Q1		0.057 (0.63)				0.011 (0.09)
FCF * DIR_OWN_Q4		-0.087 (-1.15)				-0.094 (-0.90)
CASH_FIN			-0.007 (-0.34)	-0.010 (-0.50)	-0.008 (-0.35)	-0.010 (-0.51)
CASH_FIN * INDP_DIR_Q1			-0.057 (-1.45)		-0.055 (-1.37)	
CASH_FIN * INDP_DIR_Q4			0.019 (0.57)		0.018 (0.54)	
CASH_FIN * DIR_OWN_Q1				0.025 (0.58)		0.024 (0.57)
CASH_FIN * DIR_OWN_Q4				-0.017 (-0.47)		-0.013 (-0.35)
INDP_DIR_Q1	0.019** (2.13)		0.030** (2.28)		0.033** (2.27)	
INDP_DIR_Q4	-0.012 (-0.88)		0.006 (0.47)		-0.017 (-0.84)	
DIR_OWN_Q1		-0.006 (-0.56)		-0.018 (-1.13)		-0.019 (-0.99)
DIR_OWN_Q4		0.014 (1.44)		0.009 (0.74)		0.016 (1.09)
LEV	0.033* (1.81)	0.032* (1.74)	0.018 (0.66)	0.022 (0.80)	0.019 (0.70)	0.023 (0.81)
Q	-0.007*** (-4.50)	-0.007*** (-4.76)	-0.007*** (-3.74)	-0.008*** (-4.01)	-0.007*** (-3.64)	-0.008*** (-3.96)

SIZE	-0.006*** (-2.69)	-0.006*** (-2.61)	-0.008** (-2.23)	-0.008** (-2.20)	-0.007** (-2.02)	-0.008** (-2.07)
CASH_PER	0.000 (0.29)	0.000 (0.32)	-0.000 (-0.62)	-0.000 (-0.88)	-0.000 (-0.52)	-0.000 (-0.72)
PRV	0.016* (1.93)	0.017** (2.04)	0.025* (1.96)	0.025* (1.94)	0.024* (1.83)	0.025* (1.90)
SUB	0.020** (2.25)	0.022** (2.45)	0.022 (1.58)	0.022 (1.56)	0.020 (1.41)	0.021 (1.51)
DIVERS	0.002 (0.26)	0.001 (0.23)	-0.000 (-0.03)	-0.003 (-0.33)	-0.000 (-0.04)	-0.003 (-0.34)
HOSTILE	-0.026 (-0.35)	-0.029 (-0.39)	-0.035 (-0.29)	-0.040 (-0.33)	-0.033 (-0.28)	-0.039 (-0.33)
TENDER_OFFER	0.013 (1.10)	0.014 (1.17)	0.033* (1.77)	0.030 (1.64)	0.030 (1.64)	0.029 (1.57)
DEAL_SIZE	0.013 (1.02)	0.013 (1.02)	0.015 (0.93)	0.013 (0.81)	0.015 (0.97)	0.014 (0.88)
Constant	0.020 (0.45)	0.031 (0.68)	0.033 (0.57)	0.066 (1.10)	0.030 (0.51)	0.064 (1.05)
Industry & Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1232	1232	682	682	682	682
R <sup>2</sup>	0.136	0.130	0.171	0.165	0.176	0.166

Table 8

Regressions of bidder CARs (-5, +5) on free cash flow, internal financing, and governance indices

This table reports the results of the regressions of acquirer returns on free cash flow, internal financing, and the number of antitakeover provisions. The acquirer return is the eleven-day cumulative abnormal return around the takeover announcement date. The major variables of interest are eight interaction terms: FCF \* GINDEX\_Q1, FCF \* GINDEX\_Q4, FCF \* EINDEX\_Q1, FCF \* EINDEX\_Q4, CASH\_FIN \* GINDEX\_Q1, CASH\_FIN \* GINDEX\_Q4, CASH\_FIN \* EINDEX\_Q1, and CASH\_FIN \* EINDEX\_Q4. FCF is defined as operating income before depreciation minus interest expenses, taxes and total dividends scaled by book value of total assets at the end of the fiscal year prior to the acquisition announcement. CASH\_FIN is a dummy equal to one if the deal is fully financed with internally generated funds, and zero otherwise. GINDEX\_Q1 (GINDEX\_Q4) is an indicator variable for bidders within the bottom (top) quartile of the Gompers, Ishii, and Metrick (2003) antitakeover index. EINDEX\_Q1 (EINDEX\_Q4) is a dummy variable for bidders within the bottom (top) quartile of the Bebchuk, Cohen, and Ferrell (2009) entrenchment index. Definitions of control variables are presented in Appendix 1. Models (1) and (2) employ the sample with data on FCF, while Models (3) through (6) use a subset of observations for which information on financing sources is available. t-statistics are given in parentheses below the coefficient. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
FCF	-0.001 (-0.04)	0.044 (1.00)			0.001 (0.02)	0.067 (1.09)
FCF * GINDEX_Q1	-0.054 (-1.27)				-0.056 (-1.04)	
FCF * GINDEX_Q4	0.195* (1.65)				0.486** (2.11)	
FCF * EINDEX_Q1		-0.104** (-2.03)				-0.138* (-1.96)
FCF * EINDEX_Q4		-0.050 (-0.82)				-0.054 (-0.68)
CASH_FIN			0.004 (0.21)	-0.006 (-0.32)	0.004 (0.20)	-0.007 (-0.41)
CASH_FIN * GINDEX_Q1			-0.014 (-0.45)		-0.012 (-0.40)	
CASH_FIN * GINDEX_Q4			-0.020 (-0.53)		-0.012 (-0.32)	
CASH_FIN * EINDEX_Q1				0.004 (0.15)		0.007 (0.25)
CASH_FIN * EINDEX_Q4				0.015 (0.34)		0.015 (0.34)
GINDEX_Q1	0.005 (0.76)		0.008 (0.69)		0.012 (1.00)	
GINDEX_Q4	-0.020 (-1.55)		0.003 (0.26)		-0.043* (-1.71)	
EINDEX_Q1		0.013* (1.85)		0.006 (0.59)		0.016 (1.36)
EINDEX_Q4		-0.005 (-0.54)		-0.019 (-1.40)		-0.014 (-0.98)
LEV	0.041** (2.51)	0.041** (2.47)	0.059** (2.28)	0.061** (2.36)	0.056** (2.12)	0.048* (1.82)
Q	-0.006*** (-4.26)	-0.007*** (-4.39)	-0.007*** (-3.47)	-0.007*** (-3.60)	-0.007*** (-3.65)	-0.007*** (-3.81)

SIZE	-0.005*** (-2.63)	-0.005*** (-2.84)	-0.007** (-2.18)	-0.008** (-2.34)	-0.007** (-1.97)	-0.008** (-2.24)
CASH_PER	0.000 (0.78)	0.000 (0.73)	0.000 (0.61)	0.000 (0.64)	0.000 (0.37)	0.000 (0.48)
PRV	0.018** (2.50)	0.017** (2.39)	0.023* (1.96)	0.023** (1.98)	0.025** (2.11)	0.024** (2.02)
SUB	0.021*** (2.63)	0.020*** (2.60)	0.025* (1.80)	0.025* (1.82)	0.026* (1.87)	0.027* (1.90)
DIVERS	0.004 (0.64)	0.004 (0.68)	0.005 (0.54)	0.005 (0.56)	0.005 (0.57)	0.006 (0.64)
HOSTILE	-0.019 (-0.45)	-0.017 (-0.40)	-0.018 (-0.35)	-0.015 (-0.28)	-0.014 (-0.27)	-0.013 (-0.25)
TENDER_OFFER	0.016 (1.52)	0.015 (1.43)	0.022 (1.28)	0.021 (1.24)	0.025 (1.46)	0.023 (1.31)
DEAL_SIZE	0.030** (2.09)	0.028** (2.00)	0.033* (1.74)	0.033* (1.74)	0.032* (1.69)	0.029 (1.54)
Constant	-0.109 (-1.15)	-0.092 (-0.97)	-0.124 (-1.09)	-0.103 (-0.91)	-0.153 (-1.33)	-0.103 (-0.91)
Industry & Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1553	1553	774	774	774	774
R <sup>2</sup>	0.103	0.104	0.160	0.163	0.169	0.170

Table 9

Regressions of bidder CARs (-5, +5) on free cash flow, internal financing, and CEO compensation structures

This table reports the results of the regressions of acquirer returns on free cash flow, internal financing, and CEO compensation characteristics. The acquirer return is the eleven-day cumulative abnormal return around the takeover announcement date. The major variables of interest are eight interaction terms: FCF \* EXECU\_OWN\_Q1, FCF \* EXECU\_OWN\_Q4, FCF \* EXECU\_OPT\_Q4, FCF \* EXECU\_OPT\_Q4, CASH\_FIN \* EXECU\_OWN\_Q1, CASH\_FIN \* EXECU\_OWN\_Q4, CASH\_FIN \* EXECU\_OPT\_Q4, and CASH\_FIN \* EXECU\_OPT\_Q4. FCF is defined as operating income before depreciation minus interest expenses, taxes and total dividends scaled by book value of total assets at the end of the fiscal year prior to the acquisition announcement. CASH\_FIN is a dummy equal to one if the deal is fully financed with internally generated funds, and zero otherwise. EXECU\_OWN\_Q1 (EXECU\_OWN\_Q4) is an indicator variable for bidders within the bottom (top) quartile of CEO ownership. EXECU\_OPT\_Q1 (EXECU\_OPT\_Q4) is a dummy variable for bidders within the bottom (top) quartile of the value of options awarded to the CEO. Definitions of control variables are presented in Appendix 1. Models (1) and (2) employ the sample with data on FCF, while Models (3) through (6) use a subset of observations for which information on financing sources is available. t-statistics are given in parentheses below the coefficient. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
FCF	0.029 (0.88)	-0.045 (-0.64)			-0.041 (-0.73)	-0.078 (-0.78)
FCF * EXECU_OWN_Q1	-0.009 (-0.17)				0.043 (0.56)	
FCF * EXECU_OWN_Q4	0.056 (1.00)				0.176** (2.03)	
FCF * EXECU_OPT_Q1		0.107 (1.42)				0.128 (1.15)
FCF * EXECU_OPT_Q4		0.079 (1.01)				0.094 (0.85)
CASH_FIN			-0.008 (-0.53)	-0.026 (-1.20)	-0.007 (-0.47)	-0.026 (-1.18)
CASH_FIN * EXECU_OWN_Q1			-0.011 (-0.51)		-0.012 (-0.55)	
CASH_FIN * EXECU_OWN_Q4			-0.001 (-0.05)		-0.003 (-0.11)	
CASH_FIN * EXECU_OPT_Q1				0.011 (0.43)		0.010 (0.41)
CASH_FIN * EXECU_OPT_Q4				0.039 (1.28)		0.038 (1.26)
EXECU_OWN_Q1	0.003 (0.48)		0.006 (0.71)		0.003 (0.23)	
EXECU_OWN_Q4	0.003 (0.48)		0.006 (0.67)		-0.011 (-0.92)	
EXECU_OPT_Q1		-0.013 (-1.38)		-0.002 (-0.16)		-0.015 (-0.98)
EXECU_OPT_Q4		-0.012 (-1.25)		-0.010 (-1.06)		-0.019 (-1.35)
LEV	0.005 (0.39)	0.003 (0.30)	-0.001 (-0.07)	-0.002 (-0.09)	0.003 (0.15)	-0.002 (-0.08)
Q	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***



	(-5.25)	(-4.95)	(-3.47)	(-3.32)	(-3.41)	(-3.33)
SIZE	-0.004***	-0.005***	-0.005**	-0.006**	-0.006**	-0.006**
	(-3.07)	(-3.48)	(-2.36)	(-2.50)	(-2.37)	(-2.56)
CASH_PER	0.000	0.000	0.000	0.000	0.000	-0.000
	(0.35)	(0.33)	(0.25)	(0.13)	(0.22)	(-0.00)
PRV	0.021***	0.021***	0.035***	0.035***	0.036***	0.035***
	(3.79)	(3.79)	(4.18)	(4.19)	(4.25)	(4.15)
SUB	0.026***	0.026***	0.040***	0.039***	0.040***	0.040***
	(4.53)	(4.54)	(4.12)	(4.12)	(4.16)	(4.15)
DIVERS	-0.003	-0.003	-0.007	-0.007	-0.007	-0.007
	(-0.72)	(-0.69)	(-1.11)	(-1.04)	(-1.01)	(-0.99)
HOSTILE	-0.031	-0.032	-0.031	-0.027	-0.029	-0.027
	(-1.14)	(-1.17)	(-0.96)	(-0.85)	(-0.92)	(-0.85)
TENDER_OFFER	0.018**	0.018**	0.034***	0.034***	0.034***	0.034***
	(2.20)	(2.20)	(2.74)	(2.71)	(2.73)	(2.76)
DEAL_SIZE	0.009	0.009	0.002	0.002	0.003	0.002
	(0.97)	(0.97)	(0.21)	(0.22)	(0.28)	(0.14)
Constant	0.056	0.077	0.072	0.082	0.067	0.092
	(0.93)	(1.27)	(0.86)	(0.98)	(0.81)	(1.10)
Industry & Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3151	3151	1346	1346	1346	1346
R <sup>2</sup>	0.066	0.066	0.113	0.114	0.116	0.115

Table 10

Logit regressions of the dummy for diversifying mergers on free cash flows, internal financing, and institutional monitoring

This table reports the results of the logit regressions of the dummy for diversifying acquisitions on free cash flow, internal financing, and institutional ownership concentration. The dependent variable is an indicator that equals one if the acquirer and the target do not share the same 2-digit SIC code, and zero otherwise. The major variables of interest are eight interaction terms: FCF \* INST\_TOP1\_Q1, FCF \* INST\_TOP1\_Q4, FCF \* INST\_BLOCK\_Q1, FCF \* INST\_BLOCK\_Q4, CASH\_FIN \* INST\_TOP1\_Q1, CASH\_FIN \* INST\_TOP1\_Q4, CASH\_FIN \* INST\_BLOCK\_Q1, and CASH\_FIN \* INST\_BLOCK\_Q4. FCF is defined as operating income before depreciation minus interest expenses, taxes and total dividends scaled by book value of total assets at the end of the fiscal year prior to the acquisition announcement. CASH\_FIN is a dummy equal to one if the deal is fully financed with internally generated funds, and zero otherwise. INST\_TOP1\_Q1 (INST\_TOP1\_Q4) is an indicator variable for bidders within the bottom (top) quartile of the level of ownership controlled by the single largest institutional investor. INST\_BLOCK\_Q1 (INST\_BLOCK\_Q4) is a dummy variable for bidders within the bottom (top) quartile of the level of total ownership controlled by the institutions holding at least 5% of the firm's shares. Definitions of control variables are presented in Appendix 1. Models (1) and (2) employ the sample with data on FCF, while Models (3) through (6) use a subset of observations for which information on financing sources is available. t-statistics are given in parentheses below the coefficient. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
FCF	0.000 (0.00)	-0.088 (-0.38)			-0.037 (-0.14)	0.005 (0.02)
FCF * INST_TOP1_Q1	-0.202 (-0.74)				-0.001 (-0.00)	
FCF * INST_TOP1_Q4	-0.404 (-0.87)				-0.195 (-0.34)	
FCF * INST_BLOCK_Q1		-0.110 (-0.42)				-0.038 (-0.12)
FCF * INST_BLOCK_Q4		-0.045 (-0.09)				-0.473 (-0.76)
CASH_FIN			0.478** (2.15)	0.281 (1.26)	0.475** (2.14)	0.277 (1.24)
CASH_FIN * INST_TOP1_Q1			-0.615 (-1.59)		-0.616 (-1.59)	
CASH_FIN * INST_TOP1_Q4			-0.492 (-1.25)		-0.484 (-1.23)	
CASH_FIN * INST_BLOCK_Q1				-0.421 (-1.09)		-0.421 (-1.09)
CASH_FIN * INST_BLOCK_Q4				0.145 (0.37)		0.150 (0.38)
INST_TOP1_Q1	0.173** (2.54)		0.148 (1.53)		0.147 (1.51)	
INST_TOP1_Q4	-0.036 (-0.51)		0.118 (1.15)		0.129 (1.20)	
INST_BLOCK_Q1		0.159** (2.35)		0.093 (0.97)		0.094 (0.98)
INST_BLOCK_Q4		-0.091 (-1.21)		-0.044 (-0.41)		-0.013 (-0.11)
LEV	-0.050	-0.048	0.127	0.135	0.124	0.134

	(-0.34)	(-0.33)	(0.62)	(0.66)	(0.60)	(0.65)
Q	0.001	-0.000	0.003	0.003	0.003	0.003
	(0.06)	(-0.03)	(0.32)	(0.28)	(0.31)	(0.30)
SIZE	0.043***	0.042***	-0.003	-0.003	0.000	-0.001
	(2.65)	(2.59)	(-0.11)	(-0.12)	(0.01)	(-0.03)
CASH_PER	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002
	(-1.32)	(-1.31)	(-1.62)	(-1.59)	(-1.53)	(-1.50)
PRV	0.396***	0.394***	0.480***	0.479***	0.481***	0.478***
	(4.90)	(4.88)	(4.69)	(4.67)	(4.70)	(4.66)
SUB	0.274***	0.273***	0.339***	0.343***	0.338***	0.339***
	(3.05)	(3.04)	(2.66)	(2.69)	(2.64)	(2.65)
HOSTILE	0.363	0.385	0.807	0.844	0.804	0.846
	(0.65)	(0.69)	(1.28)	(1.34)	(1.28)	(1.34)
TENDER_OFFER	0.719***	0.706***	0.929***	0.935***	0.927***	0.929***
	(5.27)	(5.18)	(5.27)	(5.29)	(5.25)	(5.25)
DEAL_SIZE	0.016	0.016	0.019	0.019	0.019	0.019
	(0.49)	(0.48)	(0.57)	(0.58)	(0.57)	(0.58)
Constant	0.007	-0.016	-0.516	-0.462	-0.518	-0.467
	(0.01)	(-0.01)	(-0.36)	(-0.32)	(-0.36)	(-0.33)
Industry & Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6905	6905	3313	3313	3313	3313
R <sup>2</sup>	0.090	0.090	0.094	0.094	0.094	0.094

Table 11

Regressions of bidder CARs (-10, +10) on free cash flow, internal financing, and institutional monitoring (robustness)

This table reports the results of the regressions of acquirer returns on free cash flow, internal financing, and institutional ownership concentration. The acquirer return is the twenty-one-day cumulative abnormal return around the takeover announcement date. The major variables of interest are eight interaction terms: FCF \* INST\_TOP1\_Q1, FCF \* INST\_TOP1\_Q4, FCF \* INST\_BLOCK\_Q1, FCF \* INST\_BLOCK\_Q4, CASH\_FIN \* INST\_TOP1\_Q1, CASH\_FIN \* INST\_TOP1\_Q4, CASH\_FIN \* INST\_BLOCK\_Q1, and CASH\_FIN \* INST\_BLOCK\_Q4. FCF is defined as operating income before depreciation minus interest expenses, taxes and total dividends scaled by book value of total assets at the end of the fiscal year prior to the acquisition announcement. CASH\_FIN is a dummy equal to one if the deal is fully financed with internally generated funds, and zero otherwise. INST\_TOP1\_Q1 (INST\_TOP1\_Q4) is an indicator variable for bidders within the bottom (top) quartile of the level of ownership controlled by the single largest institutional investor. INST\_BLOCK\_Q1 (INST\_BLOCK\_Q4) is a dummy variable for bidders within the bottom (top) quartile of the level of total ownership controlled by the institutions holding at least 5% of the firm's shares. Definitions of control variables are presented in Appendix 1. Models (1) and (2) employ the sample with data on FCF, while Models (3) through (6) use a subset of observations for which information on financing sources is available. t-statistics are given in parentheses below the coefficient. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
FCF	-0.059*** (-2.76)	-0.075*** (-3.59)			-0.063** (-2.22)	-0.083*** (-2.96)
FCF * INST_TOP1_Q1	-0.132*** (-5.42)				-0.178*** (-5.50)	
FCF * INST_TOP1_Q4	0.064 (1.58)				0.006 (0.11)	
FCF * INST_BLOCK_Q1		-0.116*** (-4.87)				-0.159*** (-4.97)
FCF * INST_BLOCK_Q4		0.141*** (3.28)				0.107* (1.73)
CASH_FIN			-0.025 (-1.04)	-0.025 (-1.06)	-0.030 (-1.32)	-0.030 (-1.31)
CASH_FIN * INST_TOP1_Q1			-0.022 (-0.55)		0.000 (0.00)	
CASH_FIN * INST_TOP1_Q4			0.025 (0.60)		0.025 (0.61)	
CASH_FIN * INST_BLOCK_Q1				-0.022 (-0.53)		-0.000 (-0.00)
CASH_FIN * INST_BLOCK_Q4				0.026 (0.63)		0.025 (0.61)
INST_TOP1_Q1	0.019*** (3.10)		0.026** (2.52)		0.016 (1.55)	
INST_TOP1_Q4	-0.000 (-0.02)		0.003 (0.26)		0.004 (0.34)	
INST_BLOCK_Q1		0.017*** (2.88)		0.025** (2.46)		0.014 (1.44)
INST_BLOCK_Q4		-0.007 (-1.03)		0.001 (0.13)		-0.002 (-0.20)
LEV	0.025** (1.96)	0.025* (1.94)	0.037* (1.68)	0.037* (1.68)	0.018 (0.82)	0.016 (0.77)

Q	-0.008*** (-8.84)	-0.008*** (-8.92)	-0.007*** (-5.59)	-0.007*** (-5.56)	-0.007*** (-6.19)	-0.007*** (-6.26)
SIZE	-0.006*** (-3.95)	-0.006*** (-3.86)	-0.016*** (-6.51)	-0.016*** (-6.51)	-0.007*** (-2.71)	-0.007*** (-2.65)
CASH_PER	0.000 (1.60)	0.000 (1.63)	0.000 (1.20)	0.000 (1.20)	0.000** (2.22)	0.000** (2.15)
PRV	0.029*** (4.16)	0.030*** (4.21)	0.030*** (2.84)	0.030*** (2.82)	0.032*** (3.09)	0.033*** (3.11)
SUB	0.036*** (4.55)	0.036*** (4.59)	0.054*** (4.04)	0.053*** (4.02)	0.053*** (4.12)	0.054*** (4.14)
DIVERS	0.004 (0.71)	0.004 (0.70)	0.005 (0.61)	0.005 (0.60)	0.005 (0.58)	0.005 (0.60)
HOSTILE	-0.030 (-0.61)	-0.031 (-0.64)	-0.023 (-0.34)	-0.023 (-0.36)	-0.031 (-0.48)	-0.034 (-0.53)
TENDER_OFFER	0.043*** (3.52)	0.044*** (3.61)	0.057*** (3.04)	0.059*** (3.10)	0.048*** (2.61)	0.050*** (2.74)
DEAL_SIZE	0.026*** (8.67)	0.026*** (8.66)	0.025*** (6.75)	0.025*** (6.76)	0.024*** (6.56)	0.024*** (6.56)
Constant	-0.022 (-0.19)	-0.019 (-0.17)	-0.050 (-0.30)	-0.049 (-0.29)	-0.086 (-0.53)	-0.084 (-0.52)
Industry & Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6915	6915	3341	3341	3341	3341
R <sup>2</sup>	0.085	0.086	0.076	0.076	0.127	0.127

Table 12

Regressions of bidder CARs (-5, +5) on free cash flow, internal financing, and institutional monitoring (robustness)

This table reports the results of the regressions of acquirer returns on free cash flow, internal financing, and institutional ownership concentration. The acquirer return is the eleven-day cumulative abnormal return around the takeover announcement date. The major variables of interest are eight interaction terms: FCF \* INST\_TOP1\_Q1, FCF \* INST\_TOP1\_Q4, FCF \* INST\_BLOCK\_Q1, FCF \* INST\_BLOCK\_Q4, CASH\_FIN \* INST\_TOP1\_Q1, CASH\_FIN \* INST\_TOP1\_Q4, CASH\_FIN \* INST\_BLOCK\_Q1, and CASH\_FIN \* INST\_BLOCK\_Q4. FCF is defined as operating income before depreciation minus interest expenses, taxes and total dividends scaled by book value of total assets at the end of the fiscal year prior to the acquisition announcement. CASH\_FIN is a dummy equal to one if the deal is fully financed with internally generated funds, and zero otherwise. We sort all firms in the Form 13F database into quartiles based on the level of the institutional ownership concentration. INST\_TOP1\_Q1 (INST\_TOP1\_Q4) is an indicator variable for bidders within the bottom (top) quartile of the level of ownership controlled by the single largest institutional investor. INST\_BLOCK\_Q1 (INST\_BLOCK\_Q4) is a dummy variable for bidders within the bottom (top) quartile of the level of total ownership controlled by the institutions holding at least 5% of the firm's shares. Definitions of control variables are presented in Appendix 1. Models (1) and (2) employ the sample with data on FCF, while Models (3) through (6) use a subset of observations for which information on financing sources is available. t-statistics are given in parentheses below the coefficient. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
FCF	-0.087*** (-8.53)	-0.043** (-2.37)			-0.108*** (-8.06)	-0.055** (-2.26)
FCF * INST_TOP1_Q1	0.006 (0.33)				0.025 (0.87)	
FCF * INST_TOP1_Q4	0.110*** (4.41)				0.098*** (2.70)	
FCF * INST_BLOCK_Q1		-0.057*** (-2.85)				-0.067** (-2.48)
FCF * INST_BLOCK_Q4		0.054* (1.91)				0.042 (1.07)
CASH_FIN			-0.027 (-1.56)	-0.034 (-1.49)	-0.026 (-1.55)	-0.037 (-1.63)
CASH_FIN * INST_TOP1_Q1			-0.084 (-1.01)		-0.076 (-0.93)	
CASH_FIN * INST_TOP1_Q4			0.006 (0.22)		0.002 (0.06)	
CASH_FIN * INST_BLOCK_Q1				-0.015 (-0.45)		-0.005 (-0.13)
CASH_FIN * INST_BLOCK_Q4				0.025 (0.85)		0.025 (0.86)
INST_TOP1_Q1	0.046*** (4.87)		0.066*** (4.56)		0.060*** (3.98)	
INST_TOP1_Q4	-0.008* (-1.92)		0.001 (0.12)		-0.001 (-0.20)	
INST_BLOCK_Q1		0.015*** (3.09)		0.023*** (2.80)		0.017** (2.09)
INST_BLOCK_Q4		0.000 (0.02)		0.010 (1.26)		0.008 (0.97)
LEV	0.014	0.017*	0.009	0.014	-0.002	0.003

Q	(1.44) -0.005***	(1.77) -0.005***	(0.51) -0.005***	(0.82) -0.005***	(-0.15) -0.005***	(0.19) -0.005***
SIZE	(-8.09) -0.004***	(-8.00) -0.005***	(-5.39) -0.010***	(-5.53) -0.011***	(-6.07) -0.005***	(-5.98) -0.007***
CASH_PER	(-3.25) -0.000	(-4.11) -0.000	(-5.22) 0.000	(-6.25) 0.000	(-2.64) 0.000*	(-3.53) 0.000
PRV	(0.88) 0.033***	(0.81) 0.033***	(5.08) 0.041***	(4.99) 0.041***	(5.32) 0.043***	(5.19) 0.042***
SUB	(6.15) 0.041***	(6.07) 0.041***	(5.49) 0.055***	(5.50) 0.055***	(5.54) 0.055***	(5.56) 0.055***
DIVERS	(6.84) 0.005	(6.84) 0.006	(5.28) 0.008	(5.23) 0.010	(5.24) 0.008	(5.26) 0.010
HOSTILE	(1.25) -0.042	(1.45) -0.042	(1.28) -0.037	(1.53) -0.038	(1.24) -0.041	(1.52) -0.042
TENDER_OFFER	(-1.11) 0.042***	(-1.12) 0.042***	(-0.74) 0.051***	(-0.77) 0.055***	(-0.84) 0.047***	(-0.86) 0.050***
DEAL_SIZE	(4.46) 0.018***	(4.49) 0.019***	(3.59) 0.017***	(3.85) 0.017***	(3.36) 0.016***	(3.56) 0.017***
Constant	(8.09) 0.034	(8.35) 0.050	(5.92) -0.069	(6.17) -0.062	(5.83) -0.091	(6.00) -0.079
Industry & Year FE	(0.40) Yes	(0.58) Yes	(-0.55) Yes	(-0.49) Yes	(-0.74) Yes	(-0.64) Yes
Observations	6915	6915	3341	3341	3341	3341
R <sup>2</sup>	0.074	0.072	0.085	0.082	0.105	0.104