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TAKEOVER DEFENSES, INNOVATION, AND VALUE CREATION: EVIDENCE FROM ACQUISITION DECISIONS

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The desirability of antitakeover provisions (ATPs) is a contentious issue. ATPs might enable managerial empire building by insulating managers from disciplinary takeovers. However, some companies, such as "hard-to-value" (HTV) companies, might trade at a discount due to valuation difficulties, thereby exposing HTV companies to opportunistic takeovers and creating agency conflicts of managerial risk aversion. ATPs might ameliorate such managerial risk aversion by inhibiting opportunistic takeovers. This paper analyzes acquisitions made by HTV firms, focusing on whether the acquirer (not the target) is entrenched in order to examine the impact of entrenchment managerial decision making. The results show that HTV firms that are entrenched make acquisitions that generate more shareholder wealth and are more likely to increase corporate innovation, suggesting that ATPs can be beneficial in some firms. Copyright © 2013 John Wiley & Sons, Ltd.

INTRODUCTION

The desirability of antitakeover provisions (ATPs) is a contentious issue. ATPs can lead to shareholder wealth destruction by insulating managers from disciplinary takeovers and enabling them to engage in empire building. However, without ATPs, managers of hard-to-value (HTV) firms, which might trade at a discount due to valuation difficulties, are exposed to "opportunistic takeovers" (which aim to take advantage of low stock prices), potentially causing managerial myopia and underinvestment in innovative projects. Thus, in HTV firms, ATPs might serve as credible commitments to encourage managers to make value-creating investments, but in easier-to-value firms, they might lead to inefficient governance.

Keywords: innovation; takeovers; entrenchment; governance; antitakeover provisions
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This paper tests whether ATPs can ameliorate managerial myopia in HTV firms by examining the impact of entrenchment on the investments that HTV firms make. The study focuses on one major investment: the acquisition of another firm. Thus, the paper uses an event-study framework to examine whether acquirers who are HTV and have more ATPs make acquisitions that generate more shareholder wealth and innovation. Focusing on entrenchment in the acquiring firm enables the tests to assess how entrenchment influences managerial behavior. The hypothesis is that entrenched HTV acquirers (compared with nonentrenched HTV acquirers or entrenched non-HTV acquirers) feature the following characteristics: (1) the market reacts more positively to entrenched HTV firms' acquisitions, (2) these acquisitions lead to higher long-term post-takeover valuations, (3) the acquisitions are more likely to induce value-creating innovation, and (4) ATPs do not induce HTV firms to overpay for acquisitions.

The results show that entrenched HTV firms (compared with nonentrenched HTV firms) make

acquisitions that generate more shareholder wealth (as proxied by the acquirer's abnormal returns and long-run post-takeover Tobin's Q) and are more likely to increase innovation. These findings suggest that ATPs can serve as a credible commitment in some companies (i.e., HTV companies) but can otherwise induce inefficient governance.

The paper contributes to the literature in several ways. First, it contributes to the literature on managerial incentives and innovation, showing that ATPs can be one way to encourage innovation and mitigate managerial myopia. Second, the paper presents new evidence on the potential benefits of antitakeover provisions in some companies. The results support some related literature on the relationship between governance, innovation, and investment (Banerjee and Masulis, 2013; Becker-Blease, 2011; Chemmanur and Tian, 2012; Duru *et al*., 2013; O'Connor and Rafferty, 2012). The finding that ATPs can be beneficial in some firms suggests that a more nuanced analysis of the relation between firm value and ATPs is necessary.

PRIOR LITERATURE, HYPOTHESES, AND RELEVANCE TO MANAGEMENT

Theoretical background

Motivations for takeovers broadly include value creation and managerial self-interest. Takeovers that increase innovation are often value-creating takeovers. While some acquisitions reduce R&D and innovation (Desyllas and Hughes, 2010; Hitt *et al*., 1991), the literature also shows that whether acquisitions increase corporate innovation depends on the nature of the acquirer and/or target (Ahuja and Katila, 2001; Kapoor and Lim, 2007; Makri *et al*., 2010). This paper focuses on one potential driver of innovation in acquisitions: managerial entrenchment facilitated through a preponderance of ATPs.

Managerial entrenchment is typically associated with self-interested takeovers that destroy shareholder wealth (Harford *et al*., 2012; Humphery-Jenner, 2012; Humphery-Jenner and Powell, 2011; Masulis *et al*., 2007, 2009). Here, the entrenchment enables managers to resist the "market for corporate control" (a key disciplinary mechanism that exposes poorly performing managers to disciplinary takeovers). This enables managers to act self-interestedly without fear of external discipline. One such self-interested action is a self-interested takeover (Haleblian *et al*., 2009). For example, takeovers sometimes increase equity-based pay (Harford and Li, 2007; Ozkan, 2012) and bonuses (Grinstein and Hribar, 2004). Managers might also aim to increase corporate size, which could increase CEO power and managerial entrenchment and, thus, reduce employment risk (Gomez-Mejia *et al*., 1990; Haleblian and Finkelstein, 1993).

Managerial entrenchment could also be a driver of innovation through acquisitions in some firms, particularly in HTV firms. HTV firms have investments that are difficult to value and strategies that can be difficult to quantify. This is because their investments can be long term, rely on intellectual capital, and/or depend on key personnel. However, the market is often "myopic" and penalizes firms with these traits (Ali *et al*., 2012; Woolridge, 1988), often emphasizing the possibility of "disastrous" outcomes in long-dated investments (Martin, 2012; Weitzman, 2009). While properly structured incentive contracts would insulate managerial compensation market myopia (Thanassoulis, 2013; see, e.g., Makri *et al*., 2006), such schemes cannot protect managers from predatory or opportunistic takeovers, which aim to purchase relatively underpriced targets. Thus, if managers are not protected from these opportunistic takeovers, managers of HTV companies might be deterred from undertaking innovative investments (Stein, 1989). Takeover protection removes this risk. Therefore, in HTV companies, takeover protection (i.e., managerial entrenchment) might actually encourage managers to pursue investments that induce value-creating innovation. The process through which ATPs could encourage long-term value creation is shown in Figure 1.

Empirical implications and hypotheses

First, the market should react more positively to entrenched HTV acquirers' acquisitions. That is, the acquirer's cumulative abnormal returns (CARs) around the acquisition announcement will be higher if a HTV acquirer is entrenched than if it is not entrenched. This is premised on (1) the expectation (from above) that entrenchment enables HTV firms to make value-creating investments, and (2) the assumption that the market is correctly able to value whether entrenched HTV acquirers' acquisitions create more value.

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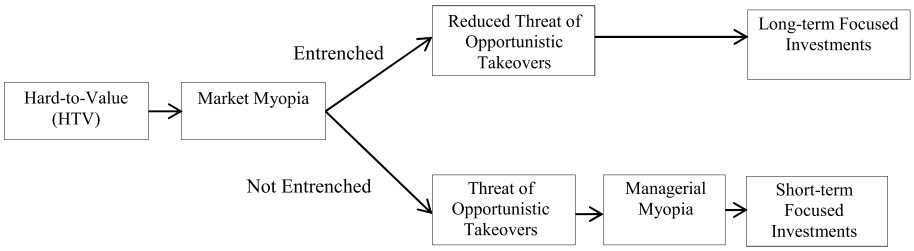

Figure 1. Entrenchment and managerial incentives

Superficially, these premises appear contradictory. However, the expectations are compatible: Schijven and Hitt (2012) show that in the presence of valuation difficulties the market will rely on publicly available information about the acquirer to appraise the value of its investments. One such piece of information is whether the acquirer is an entrenched HTV acquirer. So, while the market could rationally down-value risky firms due to the market's evaluation of downside risks (Martin, 2012; Weitzman, 1998, 2009), the market could then use the public information about entrenchment to offset this down valuation and infer information about the quality of the acquisition. That is, in HTV firms, the presence of entrenchment might indicate a credible commitment to reduce managerial risk aversion (which would arise due to the possibility of an opportunistic takeover) and to encourage value creation, thereby conveying a positive signal to the market.

Hypothesis 1: The market reacts more positively to entrenched HTV acquirers' acquisitions than it does to nonentrenched HTV acquirers' acquisitions.

The next hypothesis relates to entrenched HTV acquirers' acquisitions and long-run value. Hypothesis 1 focuses on the market's reaction to the takeover. However, Oler *et al*. (2008) and Schijven and Hitt (2012) suggest that short-term measures might not entirely reflect the value that a takeover creates. Given that entrenched HTV firms' acquisitions are expected to create value and encourage innovation, entrenched HTV acquirers' acquisitions should increase long-run firm value more than nonentrenched HTV acquirers' acquisitions.

Hypothesis 2: Entrenched HTV acquirers' acquisitions improve long-term acquirer valuations more than do nonentrenched HTV acquirers' acquisitions.

The third hypothesis relates to entrenchment and innovation in HTV firms. The above discussion suggests that entrenched HTV acquirers will be more willing to undertake investments that are innovative than will nonentrenched HTV acquirers.

Hypothesis 3: Entrenched HTV acquirers' acquisitions are more likely to increase innovation in a way that creates value.

An additional prediction relates to takeover premiums. Managerial hubris can induce high takeover premiums (Haleblian *et al*., 2009). However, if the target conveys high synergistic or strategic value, then it may warrant, and demand, a high takeover premium (Laamanen, 2007). Thus, while every additional dollar spent on acquisition premiums is a dollar lost to the acquirer's shareholders, it is less problematic if the premium is used to buy a valuable target. Thus, if the premium is used to buy a value-creating target, then the acquirer's shareholders will react less negatively to the acquisition premium (Schijven and Hitt, 2012). Given the prediction that entrenched HTV acquirers' acquisitions yield higher synergistic value, the market should react less negatively to the premiums paid by entrenched HTV firms.

Hypothesis 4: The market reacts less negatively to the premiums that entrenched HTV acquirers pay (compared with premiums that other firms pay).

SAMPLE AND VARIABLES

Sample selection

The goal is to analyze the acquisition decisions of acquirers that are hard to value and/or entrenched. The study uses an event-study framework in which the event is the announcement of an

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acquisition. The sample of interest is the set of acquirers that are hard to value (i.e., HTV acquirers). The control sample is the set of non-HTV acquirers. The treatment is whether an acquirer is entrenched (i.e., has a preponderance of ATPs). The dependent variables are proxies for whether the takeover increased acquirer value and/or innovation. The main independent variables are proxies for whether the acquirer is HTV and/or entrenched.

This sample is a cross-sectional dataset that comprises 3,935 acquisitions that were made between 1990 and 2005 by companies listed in the United States. The sample begins in 1990 because governance data is only available after 1990. The sample ends in 2005 to enable an assessment of post-takeover performance. The data sources are standard in the literature (see, e.g., Harford *et al*., 2012; Masulis *et al*., 2007, 2009; Moeller *et al*., 2004, 2005). Acquisitions are identified using SDC Platinum. Acquisition data comes from SDC Platinum. Stock price data is from the Center for Research in Security Prices (CRSP) and is used to construct CARs and control variables that require acquirer-level stock prices. Acquirer-level corporate data is from Compustat. Analyst forecasts are from the Institutional Brokers' Estimate System (IBES) and are used to construct the HTV variables. Data on ATPs are from RiskMetrics (formerly Investor Responsibility Research Center, IRRC). IRRC only reports data for every second or third year during the sample period. For years with missing data, the models use data from the most recent prior year. IRRC yields the data necessary to construct the Gompers *et al*. (2003) GIM index of 24 ATPs, and subsequently an indicator for whether the acquirer has a preponderance of ATPs, I(GIM $\geq$ 10). Consistent with Masulis *et al*. (2007), the sample only comprises completed acquisitions where the acquirer controls 100% of the target after the acquisition, and for which the bidder and target have the necessary data. The sample excludes companies with dual class shares (consistent with Gompers *et al*., 2003; Masulis *et al*., 2007) because (1) such companies are demonstrably different from nondual-class companies, and (2) it will make the results more generalizable to countries that do not allow dual-class share structures.

The following sections discuss the empirical models, dependent variables, explanatory variables, and control variables. Table 1 defines the HTV variables, entrenchment variables, and dependent variables. Table 2 both defines and explains the control variables; the discussion of the control variables (and the relevant prior literature) is left to Table 2 for brevity.

Empirical models and dependent variables

Short-run market returns

The first key issue (in Hypothesis 1) is whether the market reacts positively to acquisitions by HTV firms that have more ATPs. The dependent variable is the 5-day cumulative abnormal return based upon a market model estimated over the period 210 to 11 days before the acquisition (as per Harford *et al*., 2012; Masulis *et al*., 2007). The multivariate model is in Equation 1:

$$\begin{aligned} \mathrm{CAR}_k = \alpha &+ \beta^{(1)}\mathrm{I}\,(\mathrm{HTV})_k + \beta^{(2)}\mathrm{I}\,(\mathrm{GIM} \geq 10)_k \\ &+ \beta^{(3)}\left[\mathrm{I}\,(\mathrm{HTV}) \times \mathrm{I}\,(\mathrm{GIM} \geq 10)\right]_k \\ &+ \sum_{i=1}^{N} \varphi^{(i)}\mathrm{Control}_k^{(i)} + \varepsilon_k \end{aligned} \tag{1}$$

Here, I(GIM $\geq$ 10) is an indicator that the firm's Gompers *et al*. (2003) GIM index is at least 10, representing a preponderance of ATPs and entrenchment. I(HTV) is an indicator for whether the firm is hard to value. Both the HTV and entrenchment variables are justified below. The model uses standard errors clustered by 3-digit SIC industry and includes year dummies (consistent with Petersen, 2009). This also helps to address the documented industry effects in corporate governance (Cremers *et al*., 2008; Johnson *et al*., 2009). Hypothesis 1 suggests that there should be a positive coefficient on the interaction term, I(HTV) $\times$ I(GIM $\geq$ 10).

Long-term value creation

The second key issue (in Hypothesis 2) is whether these acquisitions improve long-term value. The dependent variable is the industry-adjusted Tobin's Q estimated j years after the announcement. The industry-adjusted Tobin's Q is the firm's Tobin's Q less the average Tobin's Q for all firms in its SIC 4-digit industry and year. Equation 2 contains

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Table 1. Variable definitions

Variable	Definition
Dependent variables	
CAR	The cumulative abnormal returns accruing to the bidder for the five days surrounding the announcement (from days -2 to +2). Abnormal returns are the difference between actual returns and predicted returns. The predicted return is based on an OLS estimation of the market model with parameters computed over the period 210–11 days before the announcement.
Ind Adj Tobin's Q	The bidder's industry adjusted Tobin's Q i years after the acquisition. The paper reports the results for i = 1. The bidder's Tobin's Q is its market value of assets over its book value of assets. The market value of assets is the firm's market capitalization plus book assets less its book equity. In Compustat terms, this is (at − ceq + csho × price)/at). The firm's industry adjusted Tobin's Q is its Tobin's Q less the average Tobin's Q in the firm's SIC 4-digit industry.
I(CAR ≥ 0) × I(R&D(t + i) > R&D(t − 1))	The interaction of (1) an indicator that equals 1 if the CAR is positive, and (2) an indicator that equals 1 if the R&D expenditure in year $t + i$ exceeds that in year t—i, where year t is the acquisition year.
I(CAR ≥ 0) × I(Target Tech)	The interaction of (1) an indicator that equals 1 if the CAR is positive, and (2) an indicator that equals 1 if the target is in a high-tech industry as defined in Loughran and Ritter (2004).
HTV variables	
I(Software)	A dummy variable that equals 1 if the acquirer is in the computer software industry and equals zero otherwise. These have the 4-digit SIC codes: 7371, 7372, 7373, 7374, 7375, 7378, 7379.
I(Medical)	A dummy variable that equals 1 if the acquirer is in the medical industry and equals zero otherwise. Loughran and Ritter (2004) define these as firms with 4-digit SIC codes of 3841 or 3845. However, the results also hold in an extended definition of medical firms as being classified as optical (SIC code 3827), surgical (SIC code 3841), orthopedic (SIC code 3842), dental (SIC code 3843), electromedical (SIC code 3845), ophthalmic (SIC code 3851), or pharmaceutical (SIC code 2834).
I(High Dispersion)	A dummy variable that equals 1 if the average of the standard deviation of analyst forecasts is in the top 25% of the IBES population and equals zero otherwise. The calculation is as follows: For each forecast period, IBES reports the standard deviation of the analyst forecasts. I computes the average of the standard deviations over the course of the year. I(High Dispersion) equals 1 if the average of the standard deviations is in the top 25% of the IBES population.
I(High Variability)	This is based upon the one-period-ahead analyst forecasts made over the 12 months before the acquisition announcement. Here, each forecast period IBES reports the mean one-period-ahead analyst forecast. The variable I(High Variability) equals 1 if the standard deviation of the mean analyst forecasts is in the top 25% of the IBES population.
I(High Forecast Error)	A dummy variable that equals 1 if the firm's average absolute forecast error is in the top 25% of the IBES population and equals zero otherwise. For each forecast period, the absolute forecast error is the absolute value of the difference between the earnings forecast and the actual earnings. An acquirer is a I(High Forecast Error) firm if the average absolute forecast error over the year before the acquisition is in the top 25% of the IBES population.
Governance variables	
GIM	The index of 24 ATPs used in Gompers *et al*. (2003). A firm's GIM score is the number of these 24 ATPs that the firm has.
I(GIM ≥ 10)	An indicator that equals 1 if the firm has a GIM score of at least 10 and has a classified board, and equals 0 otherwise. The reported models use this as the key governance variable.
BCF	The index of six ATPs used in Bebchuk *et al*. (2009). A firm's BCF score is the number of these six ATPs the firm has.
I(CBOARD)	An indicator that equals 1 if the firm has a classified board.
I(PPILL)	An indicator that equals 1 if the firm has a poison pill.

All continuous variables are winsorized at 1% unless otherwise indicated.

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Table 2. Control variables

Variable	Prediction and literature	Computation
General control variables		
ln(Assets)	Large firms' acquisitions tend to create less value, possibly reflecting the entrenching effect of large corporate size (Moeller *et al*., 2004, 2005; Shaver and Mezias, 2009).	The natural log of the acquirer's total assets (Compustat code: at).
P/RIV	Overvalued equity gives managers a currency with which to make self-interested investments, so should reduce takeover profitability (Jensen, 2005).	The firm's stock price (P) to a measure of its true value (Residual Income Value, RIV). The computation of RIV is as in Harford *et al*. (2012).
FCF/Assets	High free cash flows give managers greater discretion to make self-interested investments, so should reduce takeover returns (Jensen, 1986).	The firm's free cash flow scaled by the market value of assets. In Compustat codes, the free cash flow is (oibdp-xint—txt-capx)/ (at − ceq + csho × price), and the market value of assets is (at − ceq + csho × price), where *price* is the firm's share price 35 days before the announcement.
Debt/Assets	Higher levels of debt connote additional monitoring, which should encourage managers to create more value in acquisitions (Arping and Sautner, 2010; Maloney *et al*., 1993; Zwiebel, 1996).	The long-term debt (Compustat: dltt) scaled by the market value of assets (Compustat: at − ceq + csho × price, where *price* is the firm's share price 35 days before the announcement sourced from CRSP).
Tobin's *Q*	A high Tobin's *Q* might connote a past track record of value creation (Gompers *et al*., 2003), so might increase acquisition returns.	Tobin's *Q* is the market value of assets (at − ceq + csho × price, where *price* is the firm's share price 35 days before the announcement) scaled by the book value of assets (Compustat: at).
I(Serial Acquirer)	The prediction is ambiguous. Serial acquirers sometimes engage in acquisition programs that destroy corporate value (Moeller *et al*., 2005). However, there is some evidence that acquirers learn from acquisition experience, enabling them to improve acquisition performance (Barkema and Schijven, 2008; Vermeulen and Barkema, 2001).	An indicator that equals 1 if the acquirer has previously engaged in three or more acquisitions. This data is from SDC Platinum.
Run-Up	A strong stock price run-up should represent anticipation of the market's reaction to the takeover, so should be positively related to takeover performance.	The Run-Up variable is the firm's buy-and-hold abnormal return (BHAR) earned over the period 210–11 days before the takeover. The abnormal returns are based on an OLS estimation of the market model computed over 200 days before this period.
Volume Run-Up	Similar to the presence of a stock price run-up, a volume run-up might indicate market expectations of a takeover. However, a volume run-up does not imply that the market thinks the takeover will create value (and indeed could be associated with strong sell pressure). Subsequently a volume run-up proxies more for the presence of liquidity, thereby controlling for the market conditions that might influence acquirer CARs.	The measure of abnormal volume on day t is the turnover on day t less that predicted by an OLS estimation of a turnover-based market model (computed over a prior 20-day period). The *Volume* variable is the cumulative abnormal volume over the window from 10–30 days before the announcement.
TV/Assets	Large deals tend to involve greater integration difficulties, so might reduce takeover returns.	The transaction value divided by the bidder's market value 11 days before the announcement.

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Table 2. *continued*

Variable	Prediction and literature	Computation
I(Both Tech)	Deals where the bidder and target are both high-tech could induce higher returns by increasing market power.	I(Both Tech) equals 1 if both the bidder and target are in high-tech industries as defined in Loughran and Ritter (2004). They define high-tech firms as firms in these industries: computer hardware (SIC codes 3571, 3572, 3575, 3577, 3578); communications equipment (3661, 3663, 3669); electronics (3671, 3672, 3674, 3675, 3677, 3678, 3679); navigation equipment (3812); measuring and controlling devices (3823, 3825, 3826, 3827, 3829); medical instruments (3841, 3845); telephone equipment (4812, 4813); communications services (4899); and software (7371, 7372, 7373, 7374, 7375, 7378, 7379).
I(Diversifying)	Diversifying deals likely perform worse due to integration difficulties and the possibility that the motivation is managerial self-interest (Moeller and Schlingemann, 2005).	An indicator that equals 1 if the bidder and target are in different Fama-French 48 industries. The results are qualitatively the same when defining diversifying acquisitions as those in which the bidder and target are in different 2-digit, 3-digit, and 4-digit SIC codes.
I(Cross-border)	Cross-border deals may perform worse due to the difficulties of integrating companies in different countries and due to information asymmetries of distance (Vaara and Tienari, 2010).	An indicator that equals 1 if the bidder and target are based in different countries.
I(Friendly Deal)	Friendly deals may perform better if friendliness streamlines the integration process. However, it could also induce poor performance if the friendliness arises from paying an excess takeover premium.	An indicator that equals 1 if SDC codes the deal as neither hostile nor unsolicited.
I(Multi Bidders)	The presence of multiple bidders can force up takeover premiums and induce a winner's curse (Giliberto and Varaiya, 1989).	An indicator that equals 1 if there was more than one bidder.
Method of Payment and Target Status Interactions	Method of payment can influence takeover returns. For example, paying stock to an unlisted target can create a monitoring blockholder, which might improve monitoring (Chang, 1998; Fuller *et al*., 2002).	The indicators Public, Private, Subsidiary represent an acquisition of a listed target, an unlisted target, a subsidiary. The terms Cash and Stock equal 1 if the bidder paid with some cash, or with only stock, respectively. The models control for the interactions of the variables.
Industry M&A	Significant M&A activity in the target's industry might increase competition for targets, driving up takeover premiums (Haleblian *et al*., 2012; McNamara *et al*., 2008). It might also affect the acquirer's opportunity set (Gaur, Malhotra, and Zhu, 2013), influencing acquisitions the bidder might undertake (Berchicci *et al*., 2012).	The total value of the takeover transactions in the target's industry in the past year.

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Table 2. *continued*

Variable	Prediction and literature	Computation
Other governance variables used in unreported robustness tests		
I(5% Blockholder)	Large blockholders have an incentive to monitor companies. Thus, a large blockholder in the acquirer should improve governance and encourage managers to maximize shareholder wealth (McCahery *et al*., 2012).	An indicator that equals 1 if Thomson 13F filings indicate that a shareholder owns more than 5% of the company. The 5% threshold follows Hillman *et al*. (2011).
Discretionary Accruals/ Nondiscretionary Accruals	Large amounts of discretionary accruals can indicate earnings management. Earnings management connotes poor governance (Ahn and Choi, 2009; Chi and Gupta, 2009; Hochberg, 2012). Poor governance implies worse takeover returns and possibly less innovation.	Calculated using Compustat data following the balance sheet method in Hribar and Collins (2002).
CEO Percentage Ownership	Higher levels of CEO equity ownership can help to align CEO and shareholder incentives (Matta and McGuire, 2008). This could encourage value creation in acquisitions	The percentage of the firm's stock that the CEO owns, as reported in ExecuComp.
CEO Equity Compensation/Total Compensation	Higher levels of equity-based compensation could encourage managers to act in shareholders' interests.	The proportion of equity-based pay to total pay in ExecuComp (in ExecuComp codes: rstkgrnt/tdc1).
ln(CEO Age)	Older CEOs might become more entrenched, possibly enabling them undertake self-interested investments or engage in empire building.	The natural log of the CEO's age, as reported in ExecuComp.
ln(CEO Tenure)	Long-serving CEOs can become "entrenched," possibly enabling CEOs to become over-confident "star" CEOS, and enabling them to reduce shareholder wealth (Sinha *et al*., 2012)	The natural log of the time that the CEO has served at CEO, as reported in Execucomp.
I(CEO is Chair)	Having a chairperson that is also the CEO might connote poor corporate governance and reduce value gains from acquisitions (Rechner and Dalton, 1991). However, there is some evidence that CEO-chair duality is sometimes useful if it helps the CEO convey expertise, and there is mixed evidence on whether CEO-chair duality harms performance (see, e.g., Baliga *et al*., 1996).	An indicator that equals 1 if the CEO is also the chairperson of the board, as indicated in IRRC's directors database.
Num Directors	A larger board might harm performance due to the difficulties of coordinating myriad interests (Goodstein *et al*., 1994). However, there is some evidence that larger boards could improve governance through institutional learning, monitoring, or diluting CEO power (Changanti *et al*., 1985).	The number of directors on the company's board, as reported in IRRC's directors database.
Prop Exec Directors	Having more executive directors on the boards may emphasize agency conflicts and harm performance/innovation (Masulis and Mobbs, 2011). However, there is some evidence of a curvilinear effect (Wagner *et al*., 1998), reflecting the role of insiders in information provisioning (Coles and Hesterly, 2000).	The proportion of directors that are executive' directors (as opposed to independent or "gray" directors) as reported in IRRC's directors database.
Prop Bad Attendance	Poor attendance at board meetings might reflect a lack of attention/ monitoring and might harm performance	The proportion of directors that attended under 75% of the board meetings, as indicated in IRRC's directors database.

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Table 2. *continued*

Variable	Prediction and literature	Computation
Prop Female Directors	Adams and Funk (2012) argue that female directors have different goals and preferences to male directors. Greater diversity on a board can improve governance and board attendance, although appear not to improve performance (Adams and Ferreira, 2009).	The proportion of the board that are female as indicated in IRRC's directors database.
Prop Exec on Audit Committee	The audit committee should independently monitor managers. More insiders on the committee would worsen governance.	The proportion of the insiders on the audit committee, as indicated in IRRC's directors database.
Prop Exec on Governance Committee	The governance committee should set governance mechanisms to prevent agency conflicts. Insiders on the governance committee would undermine this process.	The proportion of insiders on the governance committee, as indicated in IRRC's directors database.
I(Delaware Incorporation)	Delaware has a reputation for allowing manager-friendly governance arrangements, possibly harming corporate governance and reducing performance (Macey, 2002; McCahery and Vermeulen, 2005).	An indicator that equals 1 if the company is incorporated in Delaware.

the OLS regression model.

$$\begin{aligned}\text{Ind Adj Tobin's Q } (\mathrm{t+j})_k &= \alpha + \beta^{(1)}\mathrm{I}\,(\mathrm{HTV})_k \\ &+ \beta^{(2)}\mathrm{I}\,(\mathrm{GIM} \geq 10)_k \\ &+ \beta^{(3)}\,[\mathrm{I}\,(\mathrm{HTV}) \times \mathrm{I}\,(\mathrm{GIM} \geq 10)]_k \\ &+ \sum_{i=1}^{N} \varphi^{(i)}\mathrm{Control}_k^{(i)} + \varepsilon_k \end{aligned} \quad (2)$$

The model uses fewer controls than in the CARs regressions because some deal-based variables should not logically influence the acquirer's long-term value. The models use robust standard errors clustered by 3-digit SIC code and include year dummies. Hypothesis 2 suggests that there should be a positive coefficient on the interaction term, I(HTV) × I(GIM ≥ 10).

Value-creating innovation

The third issue (in Hypothesis 3) is whether entrenchment encourages HTV acquirers to make acquisitions that generate value-creating innovation. The proxies for whether a takeover involves value-creating innovation have two components: (1) value creation (i.e., if the CAR > 0), and (2) innovation (i.e., an increase in the acquirer's R&D and/or an acquisition of a high-tech target as defined in Loughran and Ritter, 2004). This yields two *value-creating innovation* variables: I(Target Tech) × I(CAR > 0) captures whether an acquisition of a tech target creates value, and I(R&D(t + i) > R&D(t − 1)) × I(CAR > 0) examines whether an acquisition increases the acquirer's R&D and creates value. The regression specifications are below:

$$\begin{aligned}\left(\mathrm{I}\,(\text{Target Tech})_{\mathrm{k}} \times \mathrm{I}\,(\mathrm{CAR} \geq 0)_{\mathrm{k}}\right) &= \alpha + \beta^{(1)}\mathrm{I}\,(\mathrm{HTV})_k + \beta^{(2)}\mathrm{I}\,(\mathrm{GIM} \geq 10)_k \\ &+ \beta^{(3)}\,[\mathrm{I}\,(\mathrm{HTV}) \times \mathrm{I}\,(\mathrm{GIM} \geq 10)]_k \\ &+ \sum_{i=1}^{N} \varphi^{(i)}\mathrm{Control}_k^{(i)} + \varepsilon_k \end{aligned} \quad (3)$$

$$\begin{aligned}\left(\mathrm{I}\,(\mathrm{R\&D}\,(\mathrm{t+i}) > \mathrm{R\&D}\,(\mathrm{t-1}))_{\mathrm{k}} \times \mathrm{I}\,(\mathrm{CAR} \geq 0)_{\mathrm{k}}\right) &= \alpha + \beta^{(1)}\mathrm{I}\,(\mathrm{HTV})_k + \beta^{(2)}\mathrm{I}\,(\mathrm{GIM} \geq 10)_k \\ &+ \beta^{(3)}\,[\mathrm{I}\,(\mathrm{HTV}) \times \mathrm{I}\,(\mathrm{GIM} \geq 10)]_k \\ &+ \sum_{i=1}^{N} \varphi^{(i)}\mathrm{Control}_k^{(i)} + \varepsilon_k \end{aligned} \quad (4)$$

The models are logit models, use robust standard errors clustered by 3-digit SIC code, and include year dummies. Hypothesis 3 indicates that there should be a positive coefficient on I(HTV) × I(GIM ≥ 10).

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Takeover premiums

The prediction in Hypothesis 4 is that the market should react positively to the takeover premiums that HTV firms pay. The regression specification is

$$\begin{aligned} \mathrm{CAR}_k = {} & \alpha + \beta^{(1)}\mathrm{I}\,(\mathrm{HTV})_k \\ & + \beta^{(2)}\mathrm{I}\,(\mathrm{GIM} \geq 10)_k \\ & + \beta^{(3)}\,(\text{Proxy Premium (D Days)}) \\ & + \beta^{(4)}\left[\mathrm{I}\,(\mathrm{HTV})_k \text{ x } \mathrm{I}\,(\mathrm{GIM} \geq 10)_k\right] \\ & \beta^{(5)}\left[\mathrm{I}\,(\mathrm{HTV})_k \times (\text{Proxy Premium (D Days)})_k\right] \\ & + \beta^{(6)}[(\text{Proxy Premium (D Days)})_k \\ & \times I\,(\mathrm{GIM} \geq 10)_k] \\ & + \beta^{(7)}]\mathrm{I}\,(\mathrm{HTV})_k \times \mathrm{I}\,(\mathrm{GIM} \geq 10)_k \\ & \times (\text{Proxy Premium (D Days)})_k] \\ & + \sum_{i=1}^{N} \varphi^{(i)}\mathrm{Control}_k^{(i)} + \varepsilon_k \end{aligned} \tag{5}$$

Here, proxy premium (denoted Proxy Premium (D days)) is the average premium paid for firms in the target's SIC 2-digit industry in that year, where the takeover premium is variously the transaction value divided by the target's stock price D days before the acquisition announcement, where D days is variously 3, 11, or 21 days. The logic behind the variable is below. The models use robust standard errors clustered by 3-digit SIC industry and include year dummies. Hypothesis 4 implies that there should be a positive coefficient on the triple interaction term, I(HTV) × I(GIM ≥10) × Proxy Premium (D days).

Explanatory variables

Proxies for hard-to-value companies

The study uses a HTV indicator that equals 1 if the firm satisfies one of five definitions of being hard to value. The results are robust to examining each variable individually. The HTV conditions are (1) *I(Software)*, a dummy that equals 1 if the firm is in the software industry (as defined in Table 1); (2) *I(Medical)*, a dummy that equals 1 if the firm is in the medical industry (as defined in Table 1); (3) *I(High Dispersion)*, a dummy that equals 1 if the firm's yearly average analyst forecast dispersion is in the top 25% of the IBES population; (4) *I(High Variability)*, a dummy that equals 1 if the standard deviation of analyst forecast errors is in the top 25% of the IBES population for that year; and (5) *I(High Forecast Error)*, a dummy that equals 1 if the firm's analyst forecast error is in the top 25% of the IBES population for that year, implying some difficulty valuing the company. The HTV indicator, I(HTV), equals 1 if the acquirer satisfies any one of these five proxies. The results are also robust to analyzing each of these proxies individually (see the robustness section).

The rationale for the proxies is as follows. Software companies and medical companies are typically high-innovation companies, relying on R&D and patents (Danzon *et al*., 2007; Desyllas and Hughes, 2010; Makri *et al*., 2010). Thus, firms in the software and/or medical industries would be more likely to be innovative and hard to value (as highlighted in Giaccotto *et al*., 2011). For the analyst forecast variables, a high dispersion in earnings forecasts, or a high error rate, implies difficulties estimating and evaluating a firm's earnings.

The entrenchment variables

The entrenchment variable is I(GIM ≥ 10), a dummy variable that equals 1 if the firm has a Gompers *et al*. (2003) GIM index above 10 (following Harford *et al*., 2012). The GIM index is constructed by counting the number of 24 key antitakeover provisions that a firm has. The rationale for using a dummy variable is severalfold: (1) it is easier to interpret double and triple interactions that feature dummy variables; and (2) Harford *et al*. (2012) suggest that managers are sufficiently entrenched if there is a "critical mass" of ATPs. That is, having a small number of ATPs is ineffective; (3) following the second point, there is nonlinearity in the impact of ATPs. This supports the use of a nonlinear indicator variable; (4) in the data, as illustrated in Figure 2, there is a clear change in acquirer returns after a firm has more than 10 ATPs, suggesting that ATPs start to influence investment decision making when the firm has a preponderance of them. Nonetheless, the results are robust to other ATP measures.

Takeover premium

The takeover premium is the transaction value divided by the target's share price 3, 11, or 21 days

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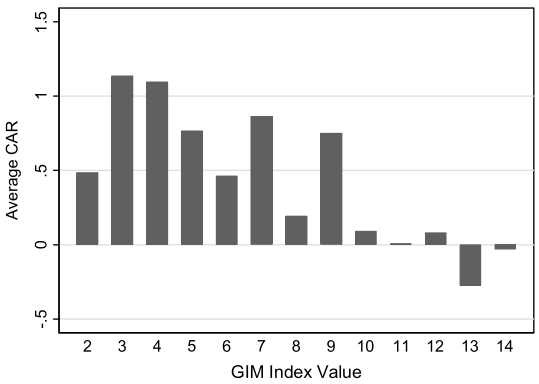

Figure 2. Average acquirer CARs by GIM index value. The cumulative abnormal returns accruing to the bidder for the five days surrounding the announcement (from days −2 to +2). Abnormal returns are the difference between actual returns and predicted returns. The predicted return is based on an OLS estimation of the market model with parameters computed over the period 210 to 11 days before the announcement. The GIM index is an equally weighted index of 24 antitakeover provisions, with a higher score indicating greater entrenchment. The variables are defined in Tables 1 and 2

before the acquisition. To address the fact that both (1) takeover premiums are unobserved in acquisitions of unlisted targets, and (2) premiums can be endogenous with CARs, the models use a Proxy Premium, defined as the average takeover premium paid for companies in the target's industry in the year of the acquisition (following Officer, 2007). The use of industry average premiums is consistent with the fact that investment bankers tend to set takeover premiums for a transaction by looking at the premiums paid for other comparable transactions in the industry (see, e.g., Rosenbaum and Pearl, 2009). It is also consistent with the presence of industry and time clustering in bidding strategies (Eckbo, 2009; Huizinga *et al*., 2008).

Control variables

The control variables are standard in the literature (see, e.g., Harford *et al*., 2012; Humphery-Jenner, 2012; Humphery-Jenner and Powell, 2011; Masulis *et al*., 2007; Moeller *et al*., 2004, 2005). The control variables are in two classes: (1) general control variables that are used in the baseline regressions, and (2) other governance variables used in robustness tests. Separate models (in the robustness section) analyze the other governance variables because requiring them almost halves the sample size, which would expose the results to sample-selection biases.

Summary statistics

Table 3 contains the sample description by year. Software companies make 408 of these acquisitions and medical companies make 164 acquisitions in the sample. The sample reveals some takeover clustering. Spikes in activity occur around 1998 and 1999 (coinciding with the tech boom) and in 2004 (coinciding with an increased availability of capital with which to make takeovers). These spikes in activity are consistent with those documented in prior studies (Maksimovic *et al*., forthcoming; Powell and Yawson, 2005, 2007).

Table 4 contains summary statistics. Column 1 contains statistics for the full sample of 3,935 firms. The statistics are largely in line with those reported in prior literature (Masulis *et al*., 2007; Moeller *et al*., 2004). Columns 2–6 contain summary statistics for subsamples of HTV firms. There is significant variation in the variables across the HTV subsamples. Table 5 contains the bivariate correlations. They suggest some significant correlation between the control variables, which the models in the robustness section address.

RESULTS

The hypotheses suggest that ATPs are beneficial if entrenched HTV acquirers' acquisitions (1) are associated with positive market reactions, (2) create more long-term value, (3) lead to innovation that creates corporate value, and (4) do not induce overpayment for acquisitions. The results are in Table 6.

The results indicate that the market responds more positively to acquisitions made by entrenched HTV firms. Column 1 contains OLS models that examine short-run acquisition CARs (as per Equation 1). The coefficients on I(GIM $\geq$ 10) and I(HTV) indicates that CARs are lower for both entrenched acquirers and for HTV acquirers. However, the positive coefficient on I(GIM $\geq$ 10) $\times$ I(HTV) indicates that entrenched HTV acquirers destroy less value than do entrenched non-HTV acquirers or nonentrenched HTV acquirers. Figure 3 illustrates this result. In Figure 3, CARs are rebased such that the columns represent deviation from the CAR that a

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Table 3. Sample composition by year

Year	Total [1]	Software [2]	Nonsoftware [3]	Medical [4]	Nonmedical [5]	High dispersion [6]	High variability [7]	High error [8]
1990	119	11	108	2	117	0.090	0.157	0.338
1991	109	5	104	2	107	0.281	0.319	0.736
1992	121	12	109	3	118	0.064	0.101	0.159
1993	201	14	187	10	191	0.077	0.150	0.188
1994	225	11	214	10	215	0.063	0.099	0.161
1995	225	26	199	8	217	0.083	0.144	0.180
1996	232	17	215	11	221	0.069	0.121	0.156
1997	236	13	223	4	232	0.066	0.123	0.925
1998	382	40	342	15	367	0.079	0.212	0.331
1999	322	18	304	16	306	0.084	0.227	0.243
2000	279	31	248	8	271	0.125	0.330	0.430
2001	252	22	230	11	241	0.071	0.324	0.281
2002	319	55	264	12	307	0.058	0.197	0.338
2003	289	52	237	14	275	0.063	0.207	0.179
2004	336	40	296	18	318	0.058	0.169	0.173
2005	288	41	247	20	268	0.059	0.162	0.172
Overall	3,935	408	3,527	164	3,771	0.087	0.190	0.312

Column 1 = total number of acquisitions; Column 2 (Column 3) = number of acquisitions by a software (nonsoftware) company; Column 4 (Column 5) = number of acquisitions by a medical (nonmedical) company); Column 6 = average of the standard deviation in analyst forecasts; Column 7 = standard deviation of the mean analyst forecast; Column 8 = average forecast error

nonentrenched non-HTV firm would earn (thus, a negative column indicates that the acquisition creates less value, not that it destroys value per se). The result is also economically significant. The net effect for entrenched HTV acquirers is $\beta^{(\mathrm{I(HTV)})} + \beta^{(\mathrm{I(GIM \geq 10)})} + \beta^{(\mathrm{I(HTV) \times I(GIM \geq 10)})}$. The effect for nonentrenched HTV acquirers is $\beta^{(\mathrm{I(HTV)})}$. Therefore, the difference between entrenched HTV acquirers and nonentrenched HTV acquirers is $\beta^{(\mathrm{I(GIM \geq 10)})} + \beta^{(\mathrm{I(HTV) \times I(GIM \geq 10)})}$. Thus, entrenched HTV acquirers earn CARs that are 0.640 points higher than those of entrenched non-HTV acquirers.

The models suggest that entrenchment improves long-run performance in HTV firms. Columns 2 and 3 examine long-run postacquisition Tobin's Q values (as per Equation 2), and indicate that entrenched HTV acquirers have higher postacquisition Tobin's Qs than do nonentrenched HTV acquirers and entrenched non-HTV acquirers. This result is consistent with Hypothesis 2, suggesting that entrenchment has long-run value implications for HTV firms, and indicates that the short-run results do not merely reflect a market overreaction.

The results indicated that entrenchment increases the likelihood of value-creating innovation in HTV firms, supporting Hypothesis 3. Columns 4–6 examine value-creating innovation in acquisitions (as per Equation 3). They show that the acquisitions of entrenched HTV acquirers are more likely to result in value-creating innovation than are those of nonentrenched HTV acquirers and entrenched non-HTV acquirers. This result is consistent with entrenchment reducing managerial myopia and encouraging innovation and value creation.

The regression results suggest that the market responds more positively to the takeover premiums paid by entrenched HTV firms, supporting Hypothesis 4. Columns 7–9 examine the market's reaction to takeover premiums (as per Equation 4). The important result is the coefficient on $\mathrm{I(HTV)} \times \mathrm{I(GIM \geq 10)} \times$ Proxy Premium (D days), which is positive and significant. This suggests that the market reacts less negatively to the takeover premiums that entrenched HTV acquirers make. The result implies that the premiums paid by entrenched HTV acquirers reflect a payment for synergies rather than an overpayment.

Together, these results indicate that entrenched HTV acquirers' acquisitions are more likely to be synergistic, to create corporate value, and to generate value-creating innovation. These results lend support for Hypotheses 1–4. The next section discusses additional ways to mitigate econometric concerns.

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Table 4. Summary statistics

	All firms	Software	Medical	High dispersion	High variability	High error
Panel A: Dependent and related variables						
CAR	0.301	0.035	−0.017	0.122	−0.006	0.500
Ind Adj Tobin's $Q(t+3)$	0.155	0.190	0.300	−0.043	−0.100	−0.099
Ind Adj Tobin's $Q(t+2)$	0.173	0.334	0.284	−0.032	−0.060	−0.115
Ind Adj Tobin's $Q(t+1)$	0.192	0.406	0.339	−0.060	−0.043	−0.067
I(Tgt Tech)	0.258	0.806	0.421	0.216	0.309	0.277
I(R&D(t + 2) > R&D(t − 1))	0.915	0.902	0.872	0.814	0.840	0.848
I(R&D(t + 1) > R&D(t − 1))	0.910	0.868	0.848	0.827	0.840	0.857
Proxy Premium (3 days)	1.139	1.526	1.178	1.139	1.267	1.202
Proxy Premium (11 days)	1.196	1.586	1.273	1.191	1.329	1.256
Proxy Premium (21 days)	1.228	1.662	1.303	1.214	1.354	1.293
Panel B: Governance variables						
GIM	9.418	8.137	9.220	9.288	9.164	8.946
BCF	2.270	1.730	2.018	2.161	2.146	1.929
I(CBOARD)	0.629	0.458	0.640	0.583	0.588	0.473
I(GIM ≥ 10)	0.484	0.270	0.439	0.487	0.455	0.473
I(BCF ≥ 3)	0.450	0.260	0.360	0.386	0.391	0.295
Panel C: Control variables						
Assets (USDm)	12,154	2,121	4,643	18,025	14,777	25,662
Ind Adj Tobin's $Q(t-1)$	0.426	1.001	0.886	0.143	0.345	0.235
Tobin's $Q(t-1)$	1.972	3.115	3.353	1.580	1.934	1.618
P/RIV	2.137	3.652	3.198	1.699	1.759	0.591
FCF/Assets	0.017	0.020	0.032	−0.001	0.004	−0.009
Debt/Assets	0.166	0.057	0.110	0.205	0.183	0.221
Run-up	−0.071	−0.098	−0.086	−0.073	−0.128	−0.073
Ind M&A	0.022	0.038	0.036	0.020	0.023	0.017
TV/Assets	0.133	0.090	0.113	0.170	0.148	0.195
I(Diversifying)	0.369	0.328	0.372	0.363	0.407	0.438
I(Cash Payment)	0.552	0.525	0.579	0.565	0.572	0.580
I(Stock Payment)	0.448	0.475	0.421	0.435	0.428	0.420
I(Private Target)	0.364	0.500	0.305	0.277	0.367	0.268
I(Public Target)	0.317	0.297	0.378	0.343	0.290	0.348
I(Subsidiary Target)	0.314	0.201	0.317	0.371	0.337	0.384
I(Multi Bidders)	0.020	0.017	0.037	0.030	0.027	0.036
Volume Run-up	0.072	−0.105	0.163	0.057	0.120	0.120
I(Cross-border)	0.007	0.005	0.006	0.013	0.006	0.009
I(Friendly Deal)	0.989	0.988	0.976	0.983	0.987	0.991
I(Serial Acquirer)	0.200	0.201	0.116	0.124	0.160	0.071
HHI	0.154	0.106	0.091	0.144	0.152	0.120

All figures are sample means. Column 1 examines all firms in the sample. Columns 2–6 examine subsamples of firms that are HTV. The HTV definition is in the column title.

Other robustness tests

In addition to the aforementioned robustness checks in relation to variable definitions, clustering, and fixed effects, the results are robust in the following ways.

The results are robust to the definition of acquirer CARs in several ways. First, the results hold when using the event windows (-1,1), (-2,2), (-5,5), (-60,0), (-60,2), (-60,5), (0,60), (-2,60), and (-5,60). Second, the results are robust to whether the takeover changes the acquirer's systemic risk. The way to address this is by calculating the weighted average beta of the bidder and the target (with weights based on the market values 11 days before the announcement), and then using this weighted average beta to compute CARs. Third, the results are robust to calculating CARs by using the Scholes and Williams (1977) and Dimson (1979) adjustments for nonsynchronous trading and thin trading and to using GARCH or EGARCH models. For the long-term performance models, the results are robust to examining Tobin's Q (rather than industry-adjusted Tobin's Q), to

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Table 5. Bivariate correlations

Variable Number	Variable	1	2	3	4	5	6	7	8	9	10	11	12
1	CAR	1.00											
2	Ind Adj Tobin's $Q(t+3)$	0.02	1.00										
3	Ind Adj Tobin's $Q(t+2)$	−0.01	0.78	1.00									
4	Ind Adj Tobin's $Q(t+1)$	0.02	0.66	0.77	1.00								
5	I(Tgt Tech)	−0.02	0.08	0.10	0.13	1.00							
6	I(R&D(t + 2) > R&D(t − 1)])	0.04	0.03	0.05	0.09	−0.12	1.00						
7	I(R&D(t + 1) > R&D(t − 1)])	0.03	0.04	0.04	0.07	−0.13	0.71	1.00					
8	Proxy Premium (3 days)	0.02	0.05	0.04	0.06	0.27	−0.08	−0.09	1.00				
9	Proxy Premium (11 days)	0.02	0.05	0.04	0.06	0.27	−0.09	−0.09	1.00	1.00			
10	Proxy Premium (21 days)	0.02	0.05	0.04	0.06	0.28	−0.09	−0.09	0.99	1.00	1.00		
11	GIM	−0.05	−0.09	−0.08	−0.11	−0.18	−0.01	0.00	−0.07	−0.07	−0.07	1.00	
12	BCF	−0.05	−0.14	−0.12	−0.13	−0.16	0.01	0.00	−0.07	−0.07	−0.07	0.71	1.00
13	I(CBOARD)	−0.04	−0.09	−0.09	−0.08	−0.12	0.00	−0.01	−0.08	−0.08	−0.07	0.50	0.64
14	I(GIM ≥ 10)	−0.05	−0.05	−0.06	−0.08	−0.16	−0.01	0.00	−0.07	−0.07	−0.07	0.82	0.59
15	I(BCF ≥ 3)	−0.04	−0.08	−0.08	−0.08	−0.14	0.01	−0.01	−0.06	−0.06	−0.05	0.61	0.84
16	ln(Assets)	−0.11	−0.04	−0.07	−0.06	−0.25	0.07	0.09	−0.12	−0.11	−0.12	0.21	0.11
17	Ind Adj Tobin's $Q(t-1)$	−0.01	0.45	0.50	0.61	0.23	0.04	0.02	0.15	0.15	0.15	−0.16	−0.17
18	Tobin's $Q(t-1)$	−0.02	0.41	0.46	0.55	0.34	0.02	−0.01	0.21	0.21	0.22	−0.20	−0.20
19	P/RIV	−0.09	0.09	0.09	0.14	0.08	0.00	0.01	0.02	0.02	0.02	−0.05	−0.04
20	FCF/Assets	0.03	0.05	0.07	0.08	−0.01	0.12	0.11	−0.05	−0.05	−0.04	0.09	0.04
21	Debt/Assets	0.05	−0.23	−0.25	−0.27	−0.33	0.03	0.06	−0.06	−0.06	−0.06	0.13	0.12
22	Run-up	−0.01	0.02	0.02	0.01	−0.07	0.07	0.07	−0.06	−0.06	−0.06	0.07	0.06
23	Ind M&A	0.00	0.10	0.11	0.11	0.38	−0.07	−0.09	0.13	0.14	0.16	−0.06	−0.08
24	TV/Assets	0.00	−0.08	−0.11	−0.12	−0.09	0.00	0.03	0.05	0.05	0.05	0.03	0.02
25	I(Diversifying)	0.03	0.03	0.02	0.02	0.08	−0.09	−0.10	0.05	0.06	0.06	0.05	0.02
26	I(Cash Payment)	0.11	−0.05	−0.05	−0.06	−0.03	−0.04	−0.06	0.05	0.05	0.05	0.06	0.05
27	I(Stock Payment)	−0.11	0.05	0.05	0.06	0.03	0.04	0.06	−0.05	−0.05	−0.05	−0.06	−0.05
28	I(Private Target)	0.06	0.03	0.02	0.01	0.10	−0.01	−0.02	0.04	0.03	0.03	−0.11	−0.05
29	I(Public Target)	−0.18	0.04	0.04	0.04	−0.02	0.04	0.06	−0.08	−0.07	−0.07	0.06	0.03
30	I(Subsidiary Target)	0.12	−0.07	−0.06	−0.05	−0.08	−0.03	−0.04	0.05	0.05	0.05	0.06	0.02
31	I(Multi Bidders)	−0.03	0.02	0.00	−0.01	−0.02	−0.01	0.01	0.01	0.01	0.01	0.02	0.01
32	Volume Run-up	0.03	0.04	0.03	0.04	−0.04	0.01	−0.01	0.01	0.01	0.01	−0.01	−0.01
33	I(Cross-border)	0.04	−0.01	−0.02	−0.03	−0.01	−0.03	−0.02	0.01	0.01	0.01	−0.06	−0.05
34	I(Friendly Deal)	−0.02	−0.01	−0.01	0.00	0.02	0.00	0.02	0.01	0.00	0.01	−0.01	0.01
35	I(Serial Acquirer)	−0.02	−0.01	0.02	0.02	0.00	0.07	0.05	−0.08	−0.09	−0.09	0.11	0.07
36	HHI	0.05	0.02	0.02	0.01	−0.15	−0.04	−0.04	0.05	0.05	0.05	0.05	0.00

		13	14	15	16	17	18	19	20	21	22	23	24
13	I(CBOARD)	1.00											
14	I(GIM ≥ 10)	0.40	1.00										
15	I(BCF ≥ 3)	0.57	0.55	1.00									
16	ln(Assets)	0.10	0.19	0.10	1.00								
17	Ind Adj Tobin's $Q(t-1)$	−0.09	−0.12	−0.12	−0.10	1.00							
18	Tobin's $Q(t-1)$	−0.12	−0.16	−0.15	−0.19	0.93	1.00						
19	P/RIV	−0.02	−0.05	−0.03	0.00	0.23	0.24	1.00					
20	FCF/Assets	0.02	0.07	0.03	0.03	0.04	0.04	0.00	1.00				

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Table 5. Continued

Variable Number	Variable	13	14	15	16	17	18	19	20	21	22	23	24
21	Debt/Assets	0.09	0.10	0.11	0.18	−0.33	−0.40	−0.10	−0.19	1.00			
22	Run-up	0.06	0.05	0.03	0.11	−0.09	−0.10	0.04	0.04	0.03	1.00		
23	Ind M&A	−0.06	−0.07	−0.05	−0.21	0.18	0.27	0.07	0.04	−0.15	−0.08	1.00	
24	TV/Assets	0.00	0.02	0.02	−0.06	−0.11	−0.12	−0.05	−0.05	0.28	0.01	−0.07	1.00
25	I(Diversifying)	−0.01	0.06	0.04	−0.13	0.03	0.04	0.00	0.09	−0.01	0.00	0.11	−0.07
26	I(Cash Payment)	0.03	0.05	0.03	−0.14	−0.13	−0.11	−0.05	0.06	0.10	−0.02	0.01	−0.11
27	I(Stock Payment)	−0.03	−0.05	−0.03	0.14	0.13	0.11	0.05	−0.06	−0.10	0.02	−0.01	0.11
28	I(Private Target)	−0.01	−0.10	−0.05	−0.28	0.05	0.08	0.02	0.01	−0.11	−0.05	0.07	−0.17
29	I(Public Target)	0.01	0.05	0.04	0.34	0.04	0.02	0.03	0.05	−0.06	0.05	−0.04	0.17
30	I(Subsidiary Target)	0.00	0.05	0.02	−0.05	−0.10	−0.11	−0.05	−0.06	0.18	0.00	−0.03	0.00
31	I(Multi Bidders)	0.00	0.02	0.02	0.03	0.00	0.00	0.00	0.01	0.02	−0.04	0.02	0.11
32	Volume Run−up	−0.05	0.01	−0.01	0.01	0.05	0.05	0.01	0.04	0.03	−0.01	0.00	−0.02
33	I(Cross−border)	−0.05	−0.06	−0.02	0.03	−0.03	−0.03	−0.01	0.00	0.02	−0.01	0.01	−0.01
34	I(Friendly Deal)	0.00	−0.01	0.01	−0.04	−0.02	−0.01	0.00	−0.03	0.00	0.01	−0.03	−0.06
35	I(Serial Acquirer)	0.07	0.06	0.09	0.19	0.00	−0.02	0.01	0.04	0.01	0.00	−0.01	−0.10
36	HHI	0.02	0.03	−0.01	−0.10	−0.04	−0.06	−0.05	0.13	0.11	0.00	0.01	0.04

		25	26	27	28	29	30	31	32	33	34	35
25	I(Diversifying)	1.00										
26	I(Cash Payment)	0.10	1.00									
27	I(Stock Payment)	−0.10	−1.00	1.00								
28	I(Private Target)	0.05	−0.05	0.05	1.00							
29	I(Public Target)	−0.11	−0.35	0.35	−0.52	1.00						
30	I(Subsidiary Target)	0.06	0.40	−0.40	−0.51	−0.46	1.00					
31	I(Multi Bidders)	−0.03	0.01	−0.01	−0.09	0.14	−0.04	1.00				
32	Volume Run-up	0.00	−0.01	0.01	0.03	−0.04	0.01	0.00	1.00			
33	I(Cross-border)	−0.01	0.03	−0.03	−0.02	−0.01	0.04	−0.01	−0.01	1.00		
34	I(Friendly Deal)	0.00	0.03	−0.03	0.03	−0.08	0.05	−0.21	0.00	0.01	1.00	
35	I(Serial Acquirer)	−0.01	−0.07	0.07	−0.05	0.06	−0.01	−0.01	−0.01	−0.03	−0.01	1.00
36	HHI	0.13	0.15	−0.15	0.03	−0.12	0.09	0.02	0.02	0.00	−0.01	−0.07

This table contains the bivariate correlations between the variables. The variable definitions are in Tables 1 and 2.

industry adjusting by using 2-digit or 4-digit SIC industry, or the industry median Tobin's Q (rather than the mean Tobin's Q).

The results are robust to the definition of HTV firms. The results are robust to examining each HTV variable separately, rather than aggregated together. Second, the results are robust to the possibility that entrenchment mainly protects HTV firms' managers when their corporation is undervalued (rather than when the firm is overvalued). Specifically, they are robust to examining dummy variables that equal 1 if the firm is both HTV and if the firm's P/RIV (a measure of overvaluation/undervaluation as described in Table 2) is in the bottom 25% of the sample. Third, one concern is that some companies in the software industry are relatively large and might not be difficult to value. Nonetheless, the results are robust to using a dummy variable that equals 1 if the firm is in the software industry and if the firm's log assets are in the bottom 50% of the sample. Fourth, one issue is that negative forecast error is more important than positive forecast error, so focusing on the absolute forecast error (as the main results do) might be misleading. Nonetheless, the results are robust to replacing the absolute forecast error variables with variables based on negative forecast error (i.e., analysts underpredicting the firm's earnings).

The results are robust to the ATP variable used. The results hold in models that use I(CBOARD) and I(PPILL), dummies that equal 1 if the firm has a classified board or has poison pills, respectively. The results also hold in models that use the Gompers *et al*. (2003) index or the Bebchuk *et al*. (2009) index.

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Table 6. Multivariate regressions

Dependent variable	CAR [1]	Ind Adj Tobin's Q (t+1) [2]	Ind Adj Tobin's Q (t+2) [3]	I(CAR ≥ 0) × I(Tgt Tech) [4]	I(CAR ≥ 0) × I(R&D(t+1) > R&D(t−1)) [5]	I(CAR ≥ 0) × I(R&D(t+2) > R&D(t−1)) [6]	CAR [7]	CAR [8]	CAR [9]
I(GIM ≥ 10)	−1.160***	−0.193***	−0.151**	−0.686***	−0.383***	−0.414***	−0.723**	−0.686**	−0.692**
	[0.001]	[0.007]	[0.016]	[0.000]	[0.000]	[0.000]	[0.015]	[0.017]	[0.016]
I(HTV)	−0.946***	−0.288***	−0.266***	−0.079	−0.415***	−0.114***	−0.418	−0.365	−0.47
	[0.001]	[0.001]	[0.001]	[0.621]	[0.000]	[0.000]	[0.244]	[0.300]	[0.181]
I(GIM ≥ 10) × I(HTV)	1.586***	0.329***	0.326**	0.601***	0.540***	0.129***	0.594	0.5	0.545
	[0.000]	[0.005]	[0.016]	[0.009]	[0.000]	[0.000]	[0.284]	[0.373]	[0.322]
Proxy Premium (3 days)							0.362**		
							[0.041]		
I(HTV) × Proxy Premium (3 days)							−0.474*		
							[0.057]		
I(GIM ≥ 10) × Proxy Premium (3 days)							−0.354*		
							[0.077]		
I(HTV) × I(GIM ≥ 10) × Proxy Premium (3 days)							0.796**		
							[0.033]		
Proxy Premium (11 days)								0.370**	
								[0.024]	
I(HTV) × Proxy Premium (11 days)								−0.494**	
								[0.037]	
I(GIM ≥ 10) × Proxy Premium (11 days)								−0.373**	
								[0.047]	
I(HTV) × I(GIM ≥ 10) × Proxy Premium (11 days)								0.836**	
								[0.019]	
Proxy Premium (21 days)									0.331**
									[0.042]
I(HTV) × Proxy Premium (21 days)									−0.400*
									[0.075]
I(GIM ≥ 10) × Proxy Premium (21 days)									−0.377**
									[0.043]
I(HTV) × I(GIM ≥ 10) × Proxy Premium (21 days)									0.804**
									[0.017]

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Table 6. Continued

Dependent variable	CAR [1]	Ind Adj Tobin's Q (t+1) [2]	Ind Adj Tobin's Q (t+2) [3]	I(CAR ≥ 0) × I(Tgt Tech) [4]	I(CAR ≥ 0) × I(R&D(t+1) > R&D(t−1)) [5]	I(CAR ≥ 0) × I(R&D(t+2) > R&D(t−1)) [6]	CAR [7]	CAR [8]	CAR [9]
ln(Assets)	−0.371***	−0.017	−0.021	−0.077	−0.107***	−0.006	−0.279***	−0.279***	−0.277***
	[0.000]	[0.305]	[0.177]	[0.261]	[0.000]	[0.253]	[0.001]	[0.001]	[0.001]
Tobin's Q	0.284**			0.187***	0.131***	3.391***	0.231**	0.229*	0.227*
	[0.026]			[0.002]	[0.000]	[0.002]	[0.049]	[0.050]	[0.053]
Ind Adj Tobin's Q		0.197***	0.147***						
		[0.003]	[0.009]						
P/RIV	−0.082***	0.006	−0.001	−0.023***	−0.007	0.926***	−0.065***	−0.065***	−0.065***
	[0.000]	[0.279]	[0.734]	[0.008]	[0.213]	[0.002]	[0.000]	[0.000]	[0.000]
FCF/Assets	5.769	0.767*	0.481	−0.997	3.499***	0.140*	3.432	3.43	3.426
	[0.163]	[0.063]	[0.395]	[0.638]	[0.002]	[0.073]	[0.191]	[0.191]	[0.194]
Debt/Assets	2.984***	−1.154***	−1.224***	−2.866***	1.020***	−0.484	2.763***	2.764***	2.723***
	[0.009]	[0.000]	[0.000]	[0.000]	[0.001]	[0.745]	[0.002]	[0.002]	[0.003]
Run-up	0.026			0.033	0.142*	−0.168	−0.107	−0.106	−0.11
	[0.944]			[0.694]	[0.088]	[0.403]	[0.638]	[0.640]	[0.628]
Ind M&A	3.126			26.892***	−0.969	−0.124**	4.779	4.763	5.116
	[0.551]			[0.000]	[0.561]	[0.035]	[0.290]	[0.291]	[0.260]
TV/Assets	0.574	−0.202***	−0.104*	−0.943**	−0.125	0.086	−0.343	−0.347	−0.384
	[0.516]	[0.003]	[0.083]	[0.012]	[0.519]	[0.463]	[0.623]	[0.619]	[0.588]
I(Both Tech)	0.495	−0.026	−0.024				0.620**	0.621**	0.601**
	[0.117]	[0.560]	[0.612]				[0.024]	[0.024]	[0.032]
I(Both Tech) × TV/Assets	−7.021***	−0.142	−0.284				−4.689***	−4.686***	−4.592***
	[0.000]	[0.467]	[0.119]				[0.000]	[0.000]	[0.001]
I(Diversifying)	0	−0.007	0.034	0.088	−0.135**	−0.522***	0.075	0.075	0.075
	[0.999]	[0.873]	[0.465]	[0.654]	[0.024]	[0.000]	[0.701]	[0.703]	[0.702]
I(Public Target) × I(Cash Payment)	0.283			0.161	0.043	0.117	0.574*	0.574*	0.578*
	[0.477]			[0.324]	[0.709]	[0.166]	[0.070]	[0.070]	[0.070]
I(Public Target) × I(Stock Payment)	−2.011***			−0.708***	−0.505***	0.068	−1.541***	−1.542***	−1.550***
	[0.000]			[0.000]	[0.000]	[0.555]	[0.000]	[0.000]	[0.000]
I(Private Target) × I(Cash Payment)	0.373			−0.247	0.087	0.301***	0.579**	0.580**	0.591**
	[0.202]			[0.159]	[0.343]	[0.000]	[0.023]	[0.022]	[0.021]
I(Private Target) × I(Stock Payment)	0.242			0.312	0.026	−0.37	0.389	0.388	0.382
	[0.637]			[0.179]	[0.809]	[0.128]	[0.385]	[0.386]	[0.392]

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Table 6. Continued

Dependent variable	CAR [1]	Ind Adj Tobin's Q (t+1) [2]	Ind Adj Tobin's Q (t+2) [3]	I(CAR ≥ 0) × I(Tgt Tech) [4]	I(CAR ≥ 0) × I(R&D(t+1) > R&D(t−1)) [5]	I(CAR ≥ 0) × I(R&D(t+2) > R&D(t−1)) [6]	CAR [7]	CAR [8]	CAR [9]
I(Subsidiary Target) × I(Cash Payment)	1.069***			−0.007	0.252***	0.031	1.217***	1.215***	1.195***
	[0.002]			[0.971]	[0.003]	[0.307]	[0.000]	[0.000]	[0.000]
I(Multi Bidders)	−1.603**			−0.657	−0.338	0.373	−1.282**	−1.285**	−1.272**
	[0.012]			[0.119]	[0.167]	[0.455]	[0.028]	[0.028]	[0.030]
Volume Run-up	0.161			0.029	0.021	−0.558**	0.146	0.146	0.145
	[0.148]			[0.576]	[0.493]	[0.045]	[0.145]	[0.145]	[0.145]
I(Cross-border)	2.840**	−0.183	−0.078	−0.448	0.576	0.136	2.484**	2.467**	2.492**
	[0.029]	[0.151]	[0.454]	[0.544]	[0.166]	[0.141]	[0.013]	[0.014]	[0.013]
I(Friendly Deal)	−2.493***			0.599	−0.374	−0.406***	−2.470***	−2.471***	−2.465***
	[0.003]			[0.289]	[0.228]	[0.000]	[0.001]	[0.001]	[0.001]
I(Serial Acquirer)	0.184	0.053	0.043	0.383***	0.111	0.559***	0.148	0.151	0.153
	[0.462]	[0.358]	[0.384]	[0.006]	[0.205]	[0.000]	[0.556]	[0.550]	[0.548]
Constant	5.181***	0.520**	0.523***	−3.061***	1.001**	1.240***	3.846***	3.818***	3.857***
	[0.000]	[0.012]	[0.000]	[0.002]	[0.018]	[0.002]	[0.000]	[0.001]	[0.000]
Observations	3,935	3,709	3,452	3,935	3,935	3,935	3,169	3,169	3,177
R-squared	6.80%	22.50%	18.80%				8.00%	8.00%	7.90%
Pseudo R-squared				27.10%	3.85%	3.91%			

Columns 1, 2, 3, 7, 8, and 9 use OLS models. Columns 4, 5, and 6 use logit models. All models include year dummies and cluster standard errors by 3-digit industry. Brackets contain p-values, and superscripts ***, **, and * denote significance at 1, 5, and 10%, respectively.

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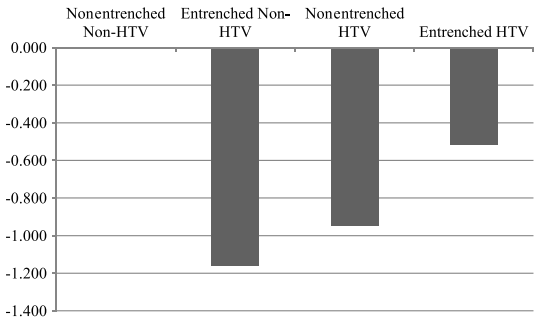

Figure 3. Predicted CARs from the regressions in Column 1 of Table 6 by whether the firm is HTV and/or has a GIM index of at least 10. Note that the figure rebases CARs such that nonentrenched non-HTV firms are represented as having a zero CAR (cf. the intercept in Column 1 of Table 6, which shows that such firms earn a CAR of 5.181). Thus, the figures in this graph show the extent to which entrenched and/or HTV firms' acquisitions create less value than do those of nonentrenched non-HTV firms

The results are robust to the potential presence of serial acquirers. It is possible that a small number of innovative firms engage in serial acquisitions in order to generate value-creating growth. This could enable them to "learn" from the acquisition experience (Aktas *et al*., 2011, 2013; Haleblian *et al*., 2006; Haleblian and Finkelstein, 1999; Heimeriks *et al*., 2012; Laamanen and Keil, 2008; Lin *et al*., 2009; McDonald *et al*., 2008; Muehlfeld *et al*., 2012; Vermeulen and Barkema, 2001) and, thus, to experience a more positive performance in subsequent acquisitions. The main models address this through the serial-acquirer indicator. The results are robust to excluding firms that make more than one acquisition during the sample period, and to retaining only the first acquisition that any firm makes.

The results are robust to collinearity issues. Several variables are based on the subvariable *assets*. This can make the variables difficult to interpret and might bias the results (Wiseman, 2009). Despite this concern, the variance inflation factor does not exceed 2 for any variable in the models. Nonetheless, the relation between the HTV variable, ATPs, and the dependent variables holds in models that replace the bidder and deal control variables with principal components that reflect the bidder and deal characteristics, or that replace the continuous variables that are based on the assets subvariables with indicators that equal 1 if that variable is in the top 25% of the sample.

The study uses several models to ameliorate endogeneity concerns. One concern is that the anticipation of lower CARs might drive a firm to adopt ATPs, rather than the presence of ATPs driving the firm to make a value-increasing/value-decreasing acquisition. The results are untabulated but are consistent with those in Table 6. First, the results are robust to restricting the sample to comprise only firms that are listed before 1990. For the firms listed before 1990, it became more difficult for existing firms to implement ATPs after 1990, thereby preventing them from strategically increasing ATPs (see, e.g., Masulis *et al*., 2007).

Second, the results are robust to instrumenting $I(GIM \geq 10)$ with the average level of ATPs in the firm's home state. The rationale for this instrument is that (1) managers may take advantage of all the takeover protection they can get in their home state (so the instrument satisfies the relevance condition), but (2) the state's mean level of ATPs should not be correlated with corporate performance (so the instrument satisfies the exclusion condition).

Third, the results are robust to replacing $I(GIM \geq 10)$ with a Residual ATP index that is the residual from a first-stage regression that predicts the level of ATPs (following Murphy and Topel, 2002; Pagan, 1984). The Residual ATP represents that proportion of the ATP index that is not due to other firm and governance characteristics. These characteristics are: a dummy that equals 1 if the firm was sued under a shareholder class action in the last 12 months, the proportion of inside directors, a CEO-chairman duality indicator, the log of the CEO's age, the log of the CEO's tenure, the proportion of incentive pay to total pay, the level of insider ownership, a high-tech dummy, the natural log of assets, the firm's Tobin's Q, the industry-adjusted operating performance over assets, and the Herfindahl-Hirschman Index (HHI).

The results are robust to potential endogeneity between the control variables and the dependent variables. Specifically, the results are qualitatively the same in models that replace the controls with industry averages.

The results are also robust to controlling for other CEO and board characteristics, which the "Other governance variables" panel of Table 1 details. These variables do not feature in the main models because requiring these variables roughly halves the sample size, inducing risks of sample-selection bias.

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The results are robust to the clustering standard errors by 2-digit, 3-digit, or 4-digit SIC industry or by acquirer. They are also robust to the inclusion of year dummies and/or 2-digit, 3-digit, or 4-digit SIC industry dummies.

CONCLUSION

This paper examines whether ATPs can ameliorate agency conflicts of managerial risk aversion, thereby enabling managers to focus on long-term strategic objectives. This paper tests the impact of managerial entrenchment on the takeover decisions of HTV firms. The results show that if an acquirer is both (1) high-tech or is hard to value and (2) entrenched, then its acquisitions receive a more positive market response and are more likely to involve value-creating innovation. Overall, the results tend to suggest that entrenchment can be beneficial in high-tech and innovative firms.

These results contribute to several bodies of literature. First, they contribute to the governance literature by clarifying the relation between ATPs and firm value. Second, they contribute to the managerial incentive literature by showing one way to reduce agency conflicts of managerial risk aversion. This suggests that regulators might consider allowing ATPs in some types of firms where there is a strong argument that ATPs could create corporate value. Future research could focus on other types of firms that might benefit from the presence of ATPs. Further, additional work could examine the appropriate regulatory mechanism through which regulators can encourage value-creating uses of ATPs while deterring value-reducing uses of ATPs.

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