Corporate Governance and Risk-Taking: Evidence from M&As

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We investigate whether governance mechanisms drive deal characteristics and merger synergy through the channel of corporate risk-taking. Specifically, we ask: Do firms with good (i.e., shareholder-friendly) governance structures and an aggressive investment policy enhance firm value by taking over targets with excessive risk avoidance? Based on widely used proxies for anti-takeover provisions (ATPs) and corporate risk-taking (*RISK1*), we find strong evidence in a sample of about 414 U.S. M&As over 1990-2007 that poorly governed (*high-ATP*) bidders are characterized by lower levels of *RISK1*, but the risk propensity of targets is not compromised by their ATPs. Extending this analysis to external risk-taking, we find that *high-ATP* bidders tend to takeover *low-RISK1* targets. Our results also suggest that bidders and targets with comparable ATPs and *RISK1* profiles tend to merge with each other, and firms with more ATPs and lower levels of *RISK1* are more likely to act as bidders rather than as targets. Both all-stock and tender offers are less likely when targets have more ATPs than do bidders. Finally, investors seem to react more favorably when acquirers with an aggressive investment policy bid for targets with excessive risk avoidance, but negatively when acquirers with a track-record of conservative investment policy bid for *high-RISK1* targets. Thus, our study identifies efficient risk transfer as an important channel underlying governance transfer through takeovers.

JEL Classification: G34, D21, D23
Keywords: Corporate Governance, Market for Corporate Control, Acquisitions, Takeovers, Agency Problems, Event Study, Risk-Taking and Abnormal Returns

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1. Introduction

Recent literature highlights that the effectiveness of the market for corporate control in mitigating agency conflicts between stockholders and managers depends critically on the governance mechanisms chosen by firms. In a seminal paper, Gompers, Ishii, and Metrick (2003) report that firms with more antitakeover provisions (ATPs) register worse long-run stock return performance than firms with fewer ATPs (also see Cremers and Nair (2005), Core, Guay, and Rusticus (2005)). Gompers et al. (2003) note that *low-ATP* firms enjoy an average annual governance premium of 8.5%, estimated as abnormal stock returns they earn over *high-ATP* firms. Investigating the sources of governance premium in the special case of mergers and acquisitions, Masulis, Wang and Xie (2007) argue that higher takeover defenses allow bidders to indulge in value-destroying acquisitions, and find that the takeover announcement abnormal returns for bidders are negatively related to their ATPs. Elaborating on governance transfers, Wang and Xie (2009) report that acquisitions of poorly governed targets by well-governed acquirers create more value. Their findings imply that disciplinary power of the corporate control market prevails and firm value enhanced when bidders with fewer takeover defenses absorb targets with more ATPs, but market discipline fails and value destroyed when acquirers protected by more takeover defenses absorb well-governed targets. However, it is unclear why the well-governed targets succumb to the raids by poorly-governed bidders. Moreover, little is known about the channels that underlie the link between investor reactions and takeover barriers. We explore whether the negative relation between bidder and target abnormal returns and their ATPs attributable to the possibility that *high-ATP* bidders have incentives to pick targets with more ATPs, poor profitability, and conservative risk-taking policies?

John, Litov, and Yeung (2008) argue that corporate governance mechanisms that weaken investor protection can dampen corporate risk-taking in investment and growth. Based on a sample of firms in a cross-country study, they find operational risk-taking, firm growth rate,

and GDP growth rate are positively related to the quality of investor protection. Further, they report that U.S. corporations with more antitakeover provisions exhibit less firm-level risk-taking and sales/asset growth. However, they do not investigate the link between ATPs and investment risk-taking in the context of mergers and acquisitions.

It is typical for new firms to experience growth cycles under which they enjoy rapid expected organic growth (i.e., growth from within) and extraordinary profitability. But the initial boom gradually peters out as competitors enter the market, leading more mature firms to seek growth by acquisition of another ongoing young firm. This pattern of growth and firm value raises an interesting question about the two broad types of corporate risk-taking policies: Is the *within-firm* (*internal*) risk choice underlying organic growth involving investment in a typical capital *project* more or less susceptible to investor protection (or lack thereof due to anti-takeover provisions) than the *between-firm* (ex*ternal*) risk choice associated with growth by acquisition of another *firm*? There are good reasons to believe that the risk-taking behavior of a firm with respect to a project will vary significantly from that associated with the acquisition of a firm. For example, Rhodes–Kropf, Robinson, and Viswanathan (2005) find that firms involved in mergers (particularly in stock-only deals) have significantly higher market-to-book ratios as compared with non-merger firms, which is consistent with the idea that merger firms have relatively higher growth opportunities or are more misvalued or both. Further, the decision to acquire a firm is exposed to the heightened scrutiny of the market for corporate control whereas managers enjoy much more discretion in the decision to invest in a project.

The objective of this empirical study is to improve our insights about the dynamic interactions among anti-takeover provisions, internal and external risk-taking, and firm value of bidders and targets. Integrating the findings of Masulis et al. (2007) and John et al. (2008,) we investigate whether governance mechanisms drive deal characteristics and merger synergy through the channel of external corporate risk-taking. Specifically, we ask the following

questions: (a) Do more ATPs lead to lower internal (*within-firm)* operational risk-taking prior to bid announcement, for both bidders and targets? (b) Turning to external (*between-firm)* risk-taking, do bidders with more ATPs tend to acquire less risky targets? (c) Do bidders with more ATPs and conservative internal investment risk-taking propensities tend to acquire targets with matching governance structures and operational risk profiles? (d) How do investors react when firms with low internal risk-taking profiles bid for targets with differential risk-taking propensities, after controlling for differences in ATPs?

Following John et al. (2008), we proxy for the riskiness of investment projects chosen by the bidding and target firms by the variation in annual firm-level cash flows scaled by total assets adjusted for contemporaneous market averages. Depending up on the context (*within-firm* or *between-firm*), this measure of risk-taking is interpreted as a proxy for both internal and external investment risk-taking propensities of bidders and targets. It serves as a measure of internal (*within-firm*) risk-taking in our analysis of either the bidder sample or the target sample. The same measure is used to evaluate external (*between-firm*) risk-taking when we focus on the risk choice of firms (bidder and target) in the context of a takeover. Using a large sample of mergers completed between 1990 and 2007, we provide a comprehensive analysis of the effects of ATPs on *within-firm* and *between-firm* risk-taking *(RISK1*) and of the difference in *RISK1* between bidders and targets on several deal terms and merger announcement abnormal returns.

Our main findings are as follows: First, while bidders with more ATPs take on less investment risk prior to merger announcement, the targets' ATPs are unrelated to their operational risk-taking propensities. This finding with respect to primarily internal risk-taking strategies suggests that targets' operations are not marred by excessive risk avoidance, in sharp contrast to those of the bidders. Second, with respect to external risk-taking we find that *high-ATP* bidders tend to takeover *low-RISK1* targets. Further, our analyses uncover weak evidence

that bidders and targets with matching ATPs tend to merge with each other, but the evidence on the alignment of risk profiles through mergers appears to be robust. These external risk-taking relations suggest that in addition to risk transfer, the strategic alignment of governance structures and risk-taking policies is an important consideration in merger decisions. Third, our findings indicate that firms with more ATPs and lower levels of *RISK1* are more likely to act as bidders rather than as targets. Both all-stock and tender offers are less likely when targets have more ATPs than do bidders. Likewise, bidders with higher risk propensities are more likely to go for hostile takeovers. Finally, investors seem to react more favorably to mergers when bidders with strong risk-taking propensities seek to takeover targets that avoid risk-taking in investment, and negatively when conservative acquirers bid for targets with high operational risk profiles. Our results are robust to using alternative proxies for governance mechanisms and risk-taking, and to different treatments for potential endogeneity of risk-taking and firm characteristics.

We make four contributions to the existing empirical literature on M&As by effectively synthesizing the findings of Dong et al. (2006), Masulis et al. (2007), Wang and Xie (2009) and John et al. (2008). First, we provide new evidence to show that while bidders with more takeover defenses suffer from excessive risk avoidance, targets' operations do not appear to be affected by suboptimal risk-taking attributable to anti-takeover provisions. Second, the previously documented generally within-firm risk avoidance behavior of *high-ATP* bidders tends to extend to takeovers as acquirers persist in selecting *low-RISK1* targets. This finding suggests that antitakeover provisions allow bidding managers to forgo risky but positive NPV acquisitions without having to face a serious threat of losing corporate control. But the cross-firm link between bidder takeover defenses and target risk-taking seems weaker relative to the strong *within-firm* relation between acquirer ATPs and *RISK1*, perhaps due to the power of the market for corporate control.

Third, bidders and targets with similar governance structures and risk propensities appear to seek out each other in merger deals. This match-making behavior is distinct from and complementary to governance transfer (i.e., the takeover of poorly-governed targets by better-governed bidders) as a source of value creation documented by Wang and Xie (2009). While their findings highlight that value is created or destroyed when 'opposites attract each other' in mergers, our analyses underscore the incentives of firms with matching governance and risk attributes to bond with each other in the takeover market. Further, investigating the role of market misevaluations in driving merger activity, Rhodes–Kropf, Robinson, and Viswanathan (2005) report that in the short-run high-growth (defined as market value to book value) firms tend to acquire low-growth targets, but based on long-run values *low-grow*th bidders acquire *high-growth* targets. Their long-run results imply that low-risk bidders takeover high-risk targets. Our multivariate tests highlight the significant role of risk alignment propensities in mergers in addition to risk transfer.

Finally, we identify risk transfer as a primary channel of value creation and destruction in mergers. Our findings suggest that value is created when mergers involve the takeover of a target subject to excessive risk avoidance by a bidder with an aggressive investment policy. In contrast, value appears to be diminished when bidders insulated by more takeover defenses and with a proven record of very conservative investment policy seek to takeover targets with high risk-taking propensities. This evidence on value destruction implies that investors anticipate the diversion of targets' resources to less risky and productive uses by entrenched bidders.

2. Research Questions

There is a vast literature on conflicts of interest between shareholders and managers covering wealth expropriation from dispersed owners by managers (Berle and Means (1933)),

managerial consumption of perquisites (Jensen and Meckling (1976)), managerial effort (Holmstrom (1979)), over-investment in pursuit of growth (e.g., Baumol (1959), Jensen (1986)), wealth transfers from dispersed minority shareholders by controlling shareholder(s) (Shleifer and Vishny (1997)), and diversion of corporate wealth by insiders (Dyke and Zingales (2004), Grossman and Hart (1988), Hart (1995), Zingales (1994)). Recent papers on corporate governance emphasize the role of takeover defenses in weakening investors' ability to protect themselves against such agency conflicts. Gompers et al. (2003), Cremers and Nair (2005), Core, Guay, and Rusticus (2005), and other researchers find that firms with more ATPs generate lower long-run stock returns. But we know little about how or through what channels antitakeover provisions negatively affect shareholder value.

Masulis et al. (2007) argue that more ATPs insulate bidders from the disciplinary power of the market for corporate control and allow them to pursue inefficient investment projects. Consequently, the conflict of interest between stockholders and managers is more severe at firms with more ATPs. They find that the takeover announcement abnormal returns for bidders are negatively related to their ATPs, leading them to conclude "Our evidence suggests that antitakeover provisions allow managers to make unprofitable acquisitions without facing a serious threat of losing corporate control", (see page 1854). Extending this line of inquiry to governance transfers, Wang and Xie (2009) find that acquisitions of targets with poor corporate governance by firms with good corporate governance generate more efficiency gains. However, these studies do not focus much on the main channels through which the efficiency gains are achieved.

It is widely recognized that managers tend to be risk-averse because their human capital is undiversified and their wealth may be concentrated in the firms they control. John et al. (2008) present several arguments as to how low investor protection can affect corporate risk-taking. First, insiders with large ownership positions are likely to follow more conservative

investment policies in order to protect their self-interest including private benefits of control, and may even pass up value-enhancing risky ventures, (also see Morck, Stangeland, and Yeung (2000) and Stulz (2005)). By reducing the diversion of firms' resources for private use, stronger investor protection tends to lower managerial risk aversion. Second, non-equity stakeholders such as unionized workers, banks, and government agencies may seek to safeguard their self-interest by constraining firms with weak investor protection from undertaking value-enhancing risky investment projects. Third, agency models of Amihud and Lev (1981), Holmstrom and Ricart I Costa (1986), and Hirshleifer and Thakor (1992) posit that managers may diversify firm's activities and avoid risk taking (including sacrificing positive-NPV but risky projects) to protect their career.

John et al. argue that by promoting better investor protection corporate governance mechanisms can mitigate excessive risk-avoidance by managers and lead them to undertake riskier but value-enhancing investments. However, a negative association between corporate governance and risk taking is also possible because stronger investor protection is likely to dampen the monitoring role of dominant outside shareholders, leading to greater managerial discretion to implement conservative investment policies. To test these predictions, they use a sample of cross-country and U.S.-only firms from 1992 to 2002 and find that corporate risk-taking, firm growth rate, as well as country-wide productivity and GDP growth are positively related to the quality of investor protection.

As noted earlier, it is helpful to think of overall corporate risk-taking as consisting of two broad classes of strategies. The first focuses on organic growth projects which involve growing the business from within – via conventional capital expenditure projects, such as, constructing a new plant. The second is the growth by acquisition strategy, which is an accelerated growth strategy to expand market share as compared with the first '*build from scratch*' approach. John, et al. concentrate on the *overall* corporate investment (operating) risk policy which covers both

types of activities. We extend their work to the case of M&As, which constitute an important class of corporate investment decisions. These transactions tend to broaden and intensify a variety of market frictions including informational and agency problems (conflict of interest) between managers, shareholders and other stakeholders (Jensen (1986) Lang, Stulz, and Walking (1991), Morck, Shleifer, and Vishny (1990)).

We study more broadly the dynamic interplay in the market for mergers and acquisitions among governance structures, corporate risk-taking in investment, and firm value. Our focus is on whether efficient risk transfer through mergers is an important channel underlying governance transfer previously documented by Wang and Xie (2009). To this end, we consider two classes of investment risk-taking strategies and policies: conventional capital expenditure projects driving predominantly organic and mergers and acquisitions. Organic growth takes longer to build from scratch plant and marketing facilities as compared with acquiring the operations of an ongoing firm. However, *between-firm* risk-taking underlying growth by acquisition poses numerous distinct challenges as compared with a growth from within approach. A salient feature of conventional capital expenditure projects is that they can be executed quietly, out of the public view. In contrast, takeover bids are exposed to intense scrutiny by the merger advisors of bidders and targets, potential criticism by shareholders of the merging firms of the ability of the management and of the board to pursue value enhancing growth opportunities, and the disciplinary force of the market for corporate control, including negative reactions leading to sharp drops in stock prices. While there is generally greater flexibility to correct for potential strategic errors under the conventional growth approach, a company might find it impossible to walk away because it is contractually obligated to go through the announced deal unless there is a material adverse change in the financial condition of the target. Further, a typical merger deal entails a far larger bet on growth than a standard capital project. For instance, in a sample of 3,333 completed U.S. mergers and acquisitions

between 1990 and 2003, Masulis et al. (2007) report annual mean (median) relative deal size, defined as the ratio of deal value to bidder market value of equity, of 0.16 (0.06). In contrast, based on a large sample of firms from 2001-2008, Phan and Hegde (2011) find mean and median annual capital expenditures to book asset ratios close to 0.05 and 0.03, respectively. Also, mergers are typically associated with sizeable changes in capital structure (i.e., financial risk-taking) of bidders.

Moreover, external growth often involves an overhaul of the board of directors and dramatic revamping of existing operations, including splitting off current business segments, layoffs, litigation from disenchanted employees, and sale of non-core assets. With the inflow of new board members in the executive suite, there is potential for tension between leadership styles, personality and culture clashes and strained relations as the combined firm explores strategic options and seeks to streamline and integrate operations of the merged entities to realize expected synergistic gains. Threats of board acrimony, abrupt departures of senior executives, particularly when they come from different governance structures (reflecting disparate levels of operating autonomy) and investment risk-taking environments, and strategic drift are high when the steps are taken to improve coordination across the merged firms through innovative business structures and management reorganization (see Vascellaro and Steel, *Wall Street Journal*, *September 10, 2011*).

Yet another challenge is to negotiate new labor contracts for the employees of the merged firm. The process of selecting which unions will represent employees of the bidder and the target in the combined firm and of reaching labor agreements with all workers can be cumbersome and fraught with litigation (see Carey and Nicas, *Wall Street Journal, September 27, 2011*) In addition, mergers involve the revision of operating procedures of the bidder and the target to ensure smooth integration of the merged firm (for example, integrating the complex passenger reservation systems of the two merging airlines). Also, merger might entail not only a

review by anti-trust regulators but also the need to obtain government approvals for the new operating procedures (such as, the requirement that a merged airline must secure a single operating certificate from the Federal Aviation Administration to streamline its safety, maintenance and operating procedures). These implementation issues are central to the realization of expected cost savings and revenue gains in merger investments.

Even within the context of mergers and acquisitions, prior studies indicate that bidders and targets have distinctly different value and growth characteristics. For example, Dong, Hirshleifer, Richardson, and Teoh (2006) investigate the misevaluation hypothesis of takeovers under which bidders seek to profit by purchasing undervalued targets for cash at a price lower than their fundamental value, or by issuing their overvalued equity to buy relatively less overvalued targets. They find that bidders are on average overvalued relative to targets and bidder and target valuations are related to a wide set of transaction characteristics. In a similar vein, Rhodes-Kropf and Viswanathan (2004) and Rhodes–Kropf, Robinson, and Viswanathan (2005) examine whether market valuation errors drive mergers. Based on market-to-book value (M/B), they find that acquirers are priced significantly higher than targets. Further, decomposing the M/B ratio into three components (short-run firm-specific valuation errors, time-series industry valuation errors and long-run value to book ratio), they report that while firm-specific valuation errors account for a large part of the acquirer's M/B, they contribute very little to the target's M/B ratio. In short, the range of conflicts of interest and frictions that are likely to spring up under the two regimes of risk-taking and growth strategies might affect the equilibrium relation between risk-taking and investor protection differently. It is for these reasons we believe it is important to study the impact of investor protection on risk-taking in the context of mergers and acquisitions.

Concentrating our analysis on takeovers allows us to study the interaction among anti-takeover provisions, corporate risk-taking, the disciplinary power of market for corporate

control in mitigating conflicts of interest, and firm value. The first research question we address is whether the basic evidence in John, et al., on suboptimal risk-taking by firms insulated by takeover defenses, holds for bidders and targets over the period prior to their entry into the takeover market. This question is plausible because managers empowered by stronger ATPs and lower operational risk might enter the market as bidders rather than as targets. Our second research question asks whether bidders with more ATPs (and consequently conservative investment policy) seek to acquire targets with a track-record of low investment risk-taking propensities. Our priors are that, unlike the conventional case of *project* risk choice, the context of mergers and acquisitions where both bidders and targets are widely exposed to the power of the discipline of the market for corporate control might subdue the tendency of bidding managers with more takeover defenses to shy away from risky but value-enhancing deals.

Third, Wang and Xie (2009) highlight that shareholder wealth is enhanced (destroyed) through governance transfers if bidders with fewer (more) ATPs acquire targets exposed to more (less) takeover defenses. However, prior studies suggest that if targets are armed with ATPs, it is likely to raise the cost of a hostile bid and reduce the probability of a successful takeover, thus discouraging potential acquirers (particularly those with fewer takeover defenses) to attempt a takeover (Bebchuk, Coates IV, and Subramanian (2002) and Field and Karpoff (2002)). We consider the potential side effects in terms of mismatches of governance structures and investment risk-taking policies between the merging partners that such a governance transfer-driven strategy entails. Our expectation is that bidders and targets with similar governance structures and risk-taking propensities have incentives to 'tie the knot' to ensure smooth integration of post-merger operations as compared with their counterparts who have disparate attributes. For example, if a bidder with dictatorial governance mechanisms takes over a target firm with strong democratic governance mechanisms, it might be difficult to realize the expected synergy due to potential culture clashes between the employees and

managers of the two firms after the merger. While such governance and risk-matching deals have the potential to enhance value for the shareholders of merger partners, they also might allow executives of bidding and target firms with more ATPs to extract private benefits by making it easy for them to negotiate deal terms that are more favorable to themselves than to shareholders. Therefore, the net effect on firm value of governance and risk-matching strategies seems ambiguous. Our objective is to empirically examine if bidders with more ATPs (or conservative investment policy) tend to merge with targets with matching governance and risk-taking attributes.

Finally, we investigate whether efficient risk-taking is an important channel through which merger synergy is created. By efficient risk-taking we mean the acquisition by a firm with less (undue) risk avoidance and lower takeover defenses of a target with suboptimal risk-taking and more ATPs. Such risk-efficient deals allow better-governed acquirers to redeploy the resources of poorly-governed targets to risky but value-enhancing uses. Anticipating such efficient risk transfer, we expect investors to react positively to acquisitions where bidders with higher investment risk-taking propensities takeover targets characterized by undue risk avoidance. Conversely, we expect negative abnormal returns on the announcement of a deal with the opposite, inefficient risk transfer – a deal where a bidder with a lower risk profile and higher ATPs seeks to absorb a suitor with less risk avoidance and lower takeover defenses. Investors are likely to view this type of merger as value-destructive because they suspect that entrenched bidding managers would dumb down the risk profile of the target after the merger by reallocating its resources to less risky and less value-generating uses. Clearly, this research question will help us identify whether efficient risk transfer is an important channel underlying the evidence in Wang and Xie (2009) that that acquisitions of poorly governed targets by well-governed acquirers generate more synergy. In other words, our objective is to scrutinize

whether the positive relation that these researchers find between abnormal merger announcement returns for the combined firm is attributable to efficient risk transfer.

3. Data

We use M&As announced between January 1990 to December 2007 available in Securities Data Corporation's (SDC) platinum U.S. mergers and acquisitions database. We follow Wang and Xie (2009), Masulis et al. (2007) and Bargeron et al. (2008) to generate a sample of 414 mergers and acquisitions. We start with all completed disclosed-value M&A deals involving bidders and targets domiciled in the U.S, excluding those classified as acquisitions of remaining interests, exchange offers, minority stake purchases, privatizations, recapitalizations, repurchases, self tenders, or spin-offs. Only those bidders with less than 50% ownership of the targets before announcement but own 100% of targets' equity after the merger are retained. Bidders and targets included in our sample have annual financial statement data available from Compustat, their stocks are classified as U.S. Common stocks in the Center for Research in Security Prices (CRSP) database (i.e., securities whose CUSIPs end with 10 and 11), and they have anti-takeover provisions available for at least one year preceding merger announcement. We disregard financial firms (i.e. those with primary SIC codes between 6000-6999). Further, we require that both bidders and targets have cumulative abnormal returns based on a window of 11 days (five days before and after the event day) surrounding the merger announcement day, at least 100 valid daily returns in the estimation window of 200 days, measures of risk-taking, and key control variables for risk-taking (as described later and in Appendix A.1).

3.1 Dependent and Key Test Variables

Following Masulis et al. (2007) and Wang and Xie (2008), we use the standard event study methodology based on the single-factor market model with the CRSP equal-weighted

portfolio returns as the market return.[1] We use individual stock and market index returns for 200 days over 11 to 210 days preceding the takeover announcement day to estimate cumulative abnormal returns for both targets and bidders for the 11-day event window, denoted as *CAR11*. In addition, we construct *PCAR11* as cumulative return on a value weighted portfolio of acquirer CAR and Target CAR over the 11 day event window (event day +/-5) consistent with Bradley, Desai, and Kim (1988), Lang, Stulz, and Walkling (1989), and Wang and Xie (2008). We select only those mergers for which there is no missing observation during the event window and are within the 99.5 and 0.5 percentile ranges of the distribution of *CAR11*.

We obtain antitakeover provision (ATP) indices derived from the Investor Responsibility Research Center's (IRRC) database by Gompers et al. (2003) maintained by Andrew Metrick at http://faculty.som.yale.edu/andrewmetrick/.[2] IRRC reports ATP data for the following subset of sample years: 1990, 1993, 1995, 1998, 2000, 2002, 2004, and 2006. Consistent with past studies (for example, Masulis et al. (2007)), we assume that takeover defenses remain unchanged between the two consecutive IRRC publications years. For 1993 and 1998, the gap from the immediately preceding IRRC publication year is three years, and for the rest of the sample it is two years. For the years other than the publication years, we use ATP indices published in the year preceding the non-publication year.[3] *GIM* is an ATP index based

[1] We also repeat our analysis using CRSP value- weighted portfolio returns and find that our results are practically the same using either of these indices.

[2] We use the *GIM* index throughout our main analysis because this index provides greater variability across firms. In addition, we use the BCF index of Bebchuk et al. (2009) for robustness purpose, the results of which are briefly described below in robustness section. The *BCF* is an ATP index based on a subset of six IRRC provisions and is dubbed as a management entrenchment index. These entrenchment provisions include (i) staggered or classified board, (ii) limits to amend by-laws, (iii) supermajority requirement for mergers, (iv) supermajority requirement for charter amendments, (v) poison pills, and (vi) golden parachutes.

[3] Gompers et al. (2003, see pages 116-117) note that "*At the firm level, G is relatively stable. For individual firms the mean (absolute) change in G between publication dates (1990, 1993, 1995, 1998) is 0.60, and the median (absolute) change between publication dates is zero*." Given this infrequent change in ATPs over time, we expect that approximating missing firm-year values of *GIM* and *BCF* Indices for a firm with the

on all 24 antitakeover provisions described in Appendix A of Gompers et al. (2003), with values ranging from 0 to 24 in concept.

If a firm invests in riskier projects and has riskier operations, it is expected to have more volatile earnings. We follow John et al. (2008) and Acharya et al. (2008) and develop our proxy for corporate risk-taking in investment, *RISK1*, as the standard deviation of firm-level annual earnings before interest tax and depreciation scaled by total assets' (EBITDA) adjusted for the mean EBITDA of all Compustat firms for that particular year. Unlike the cross-sectional analysis of John et al. who use EBITDA for all available years between 1992-2002, we utilize 10 years of EBITDA preceding the event year to estimate our corporate risk-taking proxy to suit our event study methodology.[4] As merger events are observed subsequent to the window over which our risk- taking proxy is estimated, biases due to spurious relations and endogeneity of risk-taking are substantially reduced. As noted in the opening section, we distinguish between two types of investment activities in our analysis of risk-taking, with-in firm capital projects and acquisitions of firms. The focus of John et al. is overall risk-taking. Since we do not screen for merger events over the 10-year window (similar to John et al.), our *RISK1* proxies for *total* firm-level risk-taking in investment, both *within-firm* (internal or organic) and *between-firm* (external or acquisition). However, for most cases this measure is likely to be driven by organic risk-taking. Moreover, excluding observations which involve some merger activity within the 10-year estimation window is likely to leave us with a much smaller sample consisting of predominantly new firms. For these reasons we interpret *RISK1* as a proxy for internal as well as external risk-taking in our analyses of within and between-firm risk choices.

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corresponding prior year values will introduce little bias, if any. Accordingly, we use values from the prior year for any missing values of ATPs.

[4] In addition to the *market-adjusted RISK1*, we construct an alternative *industry-adjusted* estimate of risk-taking based on the deviation of firm-level EBITDA from the corresponding Fama-French 48 industry average EBITDA. And dub it as *RISK2.* Our untabulated robustness tests that use *RISK2* provide support for our key findings.

3.2 Control Variables for Corporate Risk-Taking

For our regressions associating internal corporate risk-taking with ATPs, we follow the specifications used in John et al. (2008) by measuring the control variables as of the beginning of the 10-year *RISK1* estimation window (i.e., event year -10). We define these control variables in Appendix A.1. *Initial Size* is the natural log of total assets, *Initial Leverage* is the ratio of book value of debt divided by total market value of the firm, *Initial Bank Power* is the level of bank financing of the firm, and *Initial Profitability* is EBITDA, all as of event year-10. *Sales Growth* is the average annual percent increase in sales over 10 years preceding the event year. To estimate *Earnings Smoothing* over the prior 10 years, we follow Ball, Kothari and Robin (2000), Bhattacharya, Daouk, and Welker (2003), Leuz, Nanda and Wysocki (2003), and John et al. (2008). *Initial Leverage* is the ratio of book debt to total assets estimated as of event year-10. *Union Membership* is measured at two digit SIC code, which is compiled by Barry Hirsh and David Macpherson and made available at www.unionstats.com. *Observations in Risk-Taking* is the number of observations used in estimating our proxy for risk-taking, which ranges between a minimum of 5 and a maximum of 10 observations. *Inside Ownership* is the total of percentage ownership of officers and directors of the firm collected from Compact Disclosure. This variable is used from the nearest year preceding the merger announcement date. Selecting these control variables from the initial year of the 10-year risk-taking estimation window should help us mitigate concerns about reverse causality with respect to *RISK1*.

3.3 Firm and Deal Characteristics

Consistent with the prior literature (see Wang and Xie (2009), for example), we use accounting and industry information available from Compustat and merger information from SDC Platinum: Global Mergers and Acquisitions databases to compile several industry, firm, and deal characteristics. For the fiscal year-end preceding the merger announcement year, we estimate natural log of the firm's total market value of equity (*LogMCAP), Market to Book, Return*

on Assets (ROA) and *Leverage* for both targets and acquirers. Using the date the firm was included in CRSP databases, we estimate *log(Age)* for each firm. In addition, we construct other firm and deal characteristics, such as, *MCAP Ratio (Target MCAP* divided by *Acquirer MCAP)*, diversifying merger (*Diversifying*), *Hostile* takeover, *Merger of Equals*, *Tender Offer, High_Tech and Allcash* using SDC Platinum along with Compustat variables. The details of construction of these variables are included in Appendix A.1. We expect all these control variables to follow the signs as predicted in Wang and Xie (2009).

4. Research Design and Analysis

4.1 Descriptive statistics and univariate analyses

[Insert Table 1 about here]

Table 1 provides descriptive statistics and Person's correlation coefficients for the dependent and explanatory variables for our acquirer and target samples of 414 firms each.[5] From Panels A and B, acquirers have a mean (median) cumulative abnormal return over 11 business days surrounding the bid announcement of -2.05% (-1.40%) and the corresponding figures for the target sample are 22.43% (20.56%). These numbers are well in parity with the existing literature, which reports negative announcement returns for acquirers (e.g. Fuller, Netter, and Stegemoller (2001), Moeller, Schlingemann, and Stulz (2004, 2005), Masulis et al. (2007), Wang and Xie (2009)) and large positive announcement abnormal returns for targets (e.g., Bradley, Desai, and Kim (1988), Lang, Stulz, and Walkling (1989), Dong et al. (2006), and Wang and Xie (2009)). The mean (median) ATPs as proxied by the GIM index for acquirers are higher at 9.42 (9.50), while those for the targets are 8.96 (9.00). Consistent with the positive relation between investor protection and risk-taking as predicted by John et al. (2008), the mean

[5] We winsorize firm characteristics (*MCAP Ratio, Market to Book, Leverage, and ROA)* at 99 and 1 percentiles of the distribution. Also, for a small number of firms for some variables if year -1 value was unavailable, we have included a value from prior years, e.g. ROA.

RISK1 (RISK2) for bidders (computed over 10 years preceding bid announcement) is lower at 6% (7%) as compared with 8% (9%) for the target sample. Also, it is of interest to note that there is far more heterogeneity in risk propensities among target firms than in the acquirer sample as reflected by the standard deviations of *RISK1* for the two groups of 10% and 4%, respectively. Since firm-level risk-taking and growth rates are positively correlated (see John, et al. (2008)), these summary statistics are consistent with the popular notion that bidders with relatively low investment risk-taking seek to accelerate their low (organic) growth rates by adopting a growth by acquisition strategy (i.e., by bidding for targets characterized by high risk-taking propensities). Following Wang and Xie (2009), we construct *PCAR* to measure the value-weighted CAR of the combined firm, and we proxy for governance transfer by *DGIM*, computed for each pair of merger partners by subtracting the number of ATPs of the *target from those of the bidder*. In addition, we construct a proxy for risk efficiency labeled as *DRISK1*, which is constructed as the excess of *RISK1* of the *bidder over that of the target*. Our estimates suggest that the targets in our sample have fewer ATPs on average (mean *DGIM* equals -0.46), the average bidder follows a more conservative investment policy (mean *DRISK1* equals -0.02), and the mean merger synergy (*PCAR11*) is equal to 2.07%. The positive value for combined merger synergy is consistent with the prior literature, such as, Andrade, Mitchell, and Stafford (2001), Moeller, Schlingemann, and Stulz (2004), Bhagat et al. (2005) and Wang and Xie (2009).

The last panel shows that the pairwise correlation between the key variables of interest. Consistent with the evidence in John, et al. (2008) on the positive relation between *within-firm* risk choice and investor protection, we find that the number of ATPs both bidders and targets are negatively correlated with their respective measures of *RISK1*. Turning to between-firm risk choices, *ACQGIM* is negatively correlated with *TGTRISK1* consistent with our conjecture that acquirers with more ATPs tend to bid for less risky targets. The positive correlation between *ACQGIM* and *TGTGIM* as well as that between *ACQRISK1* and *TGTRISK1* provide support to

our speculation that firms seek to match their governance structures and risk-taking cultures when they look for merger partners. The correlation between *PCAR11* and *DGIM* is positive and significant, confirming the findings of Wang and Xie (2009) that investors are pleased when a poorly-governed target is absorbed by a bidder with stronger shareholder rights. Moreover, *DRISK1* is positively but insignificantly correlated with *DGIM*, implying our measure of risk transfer (*DRISK1*) is virtually unrelated to the measure of governance transfer (*DGIM*). Finally, the correlation between *DRISK1* and *PCAR11* is positive but insignificant, thus providing little initial support for our conjecture that risk efficiency might be an important contributor to the previous finding that governance transfer is a significant source of merger synergy.

In order to address our research questions more formally, we begin with a battery of univariate tests. First, we test whether bidders armed with more takeover defenses indulge in excessive risk avoidance. To this end, we divide the bidder sample into two classes based on the GIM Index, acquirers with GIM index values less than the midpoint of 9.5 are placed in the *low-ATP* category and those with index values equal to or above the median are put in the *high-ATP* class. We repeat this process for the target sample using the median GIM index value of 9.0. Next we perform a test to verify if the difference in mean *RISK1* between the *low-ATP* and *high-ATP* groups is significant. The results presented in Panel A of Table 2 show that the mean *RISK1* of 5.37% for the *high-ATP* bidder class is significantly lower than the mean of 6.52% for the *low-ATP* group, confirming that *high-ATP* acquirers take less investment risk. Turning to targets, we find from Panel B that the *high-ATP* targets also take significantly less operational risk compared to their *low-ATP* counterparts (mean *RISK1* = 6.39% vs. 9.87). Thus, the results on internal risk-taking is suggests that both parties to the merger engage in excessive risk avoidance, which is consistent with the evidence in the non-merger sample of John et al. (2008).

[Insert Table 2 about here]

Earlier we found the unconditional mean *RISK1* for targets equals 8%. In Panel C we conduct a test to check if high ATP acquirers pick low *RISK1* targets. Our estimates show that bidders with high takeover defenses choose to pair with targets with a mean *RISK1* equal to 7.37%, while their peers with low ATPs pick targets with a significantly higher average *RISK1* of 9.37%. Thus, the excessive risk avoidance behavior of high ATP bidders seems to be not limited to their internal operations but extends even to the choice of merger partners. Our next test, in Panel D, focuses on whether high ATP bidders tend to merge with targets with matching governance environments. From Panel B of Table 1, the unconditional mean of GIM index for targets equals 8.96. The estimates indicate that high ATP bidders pick targets with a mean GIM index value of 9.12, but it is not statistically higher than the mean target ATP of 8.80 associated with the low ATP acquirers. Another question of interest is whether bidders seek to merge with targets of similar risk-taking propensities. From Panel E we find that acquirers with high *RISK1* bid for targets with a mean *RISK1* of 9.50%, which is significantly higher than the corresponding target mean *RISK1* of 7.24% associated with the low *RISK1* acquirers. Recall that the unconditional mean *RISK1* equals 8%. Thus, our tests reveal that there is a stronger tendency to seek mates matched on investment risk-taking propensities than on governance mechanisms in the takeover market. This is perhaps telling us that merger partners view differences in risk-taking culture can pose a greater threat to successful post-merger integration and profitability (or lower private benefits) than do differences in governance structures.

Next we examine whether the two sources of overall merger synergy are complements. Specifically, we check if mergers with high governance transfers are accompanied by larger risk transfers than those with low governance transfers. The results in Panel F show that takeovers with non-negative *DGIM* correspond to a mean *DRISK1* of -2.5%, as compared with an average *DRISK1* equal to -2.34% for mergers with negative *DGIM*. The difference in the mean risk transfers is insignificant. Against the backdrop of the unconditional mean *DRISK1* equal to -2%,

we interpret these preliminary results to mean that deals with high governance transfers generate neither positive nor higher risk transfers as compared with deals involving negative governance transfers.

How do investors respond to governance and risk transfers in our sample? From Panel E we learnt that bidders and targets in our sample exhibit more pronounced risk-matching behavior, implying weaker risk transfers. In contrast, we noticed in Panel D milder governance-matching tendencies, which stronger governance transfers through takeovers. The tests presented in Panel G show that high governance transfers are correlated with positive synergy (mean *PCAR11* of 3.19%, which is significantly larger than the mean *PCAR11* of 0.88% associated with negative governance transfers. The last panel shows that deals with high risk transfers also lead to positive merger synergy (mean *PCAR11* of 2.56%), but this is not significantly higher than the mean *PCAR11* of 1.58% corresponding to deals with low risk transfers. Thus, our preliminary (univariate) tests suggest that governance transfers have a greater impact than risk transfers on overall merger synergy. These results seem to be consistent with the evidence on stronger risk-matching but milder governance-matching behavior of merger partners. We will provide more rigorous analyses of the relative contributions of the two sources of merger synergy in the following subsections.

4.2 Acquirer and target within-firm risk-taking and ATPs

John et al. (2008) report that better investor protection (i.e., lower GIM) leads corporations to undertake riskier but value-enhancing investments in both the U.S. and overseas markets. Their samples do not focus on takeovers but appear to concentrate on general operational risk-taking. Mergers and acquisitions constitute a very important class of corporate investments, representing external risk-taking as compared with internal (*within-firm*) risk-taking. As discussed in the introductory section, external risk-taking has several salient features that appear to distinguish it from the normal internal risk-taking projects. Chief among them is

the fact that takeovers are negotiated under the watchful eyes of analysts and investors whereas internal capital expenditure projects are executed largely out of the public view. Stronger public scrutiny of takeover deals is likely to further constrain the private benefit-seeking behavior of managers, as compared with the relative protection from market oversight managers enjoy in carrying out internal risk-taking activities. Consequently, we have good reasons to expect that external risk-taking would be less susceptible, as compared with internal risk-taking activities, to firm-specific investor protection regimes (such as antitakeover provisions adopted by individual firms).

We begin by examining whether the positive relation between investment risk-taking and investor protection reported by John et al. (2008) obtains in the context of a large sample of U.S. mergers and acquisitions. In other words, we investigate whether the bidders with fewer ATPs take more operational risk (i.e., *within-firm* risk-taking). Our measure of risk-taking is the standard deviation of market-adjusted (scaled) EBITDA, and our test specification is basically similar to that of John et al.[6] As reported in column 2 of Table 3, the estimated coefficient on the acquirer GIM index (controlling for industry fixed effects) is significantly negative, -0.0018.[7] Its magnitude is very close to -0.0019 that John et al. report for their U.S. non-merger sample (see John et al. (2008, p. 1709) column 2 of Table 4: Panel A). Based on this coefficient estimate, one standard deviation (approximately 3) increase in the number of anti-takeover provisions results in, on average, 9.00% decline in bidder risk-taking. Thus, the economic significance of the negative effects of ATPs on risk-taking appears to be substantial in our bidder subsample.

[6] We use control variables similar to those in John et al. (2008) in our specifications, except for inside ownership. They use large shareholder ownership instead, but we do not have access to that data. In unreported tests we use cash holdings (which might also imply potential for expropriation of minority shareholders) as an instrument and find that our results remain robust. We also control for industry effects in our regressions which largely take care of any industry variation in ownership structures (e.g., younger industries are likely to have more concentrated equity ownership).

[7] In examining the association between risk-taking and ATPs, we use specifications consistent with John et al. (2008) with industry fixed effects. We maintain these specifications for Tables 3 to 6.

[Insert Table 3 about here]

To address potential endogeneity concerns about the acquirer GIM index (which is dated as of the last year of the 10-year window over which we measure risk-taking), we use two substitute regressors - the GIM index value taken from the initial year of the 10-year window and the mean industry GIM index drawn from the Fama-French 48 industry categories. Similarly, we use the industry mean inside ownership as a surrogate for firm-level inside ownership. The coefficient estimates on the bidder ATPs presented in columns 3 (-0.0101) and 5 (-0.0018) show that our base level negative relation is robust to these endogeneity treatments. Finally, there might be concerns that causality runs from acquirer ATPs to their risk-taking behavior because firms could adopt stronger takeover defenses in anticipation of a strategic takeover of less risk-taking targets to advance their private benefits. We follow Masulis et al. (2007) and use a subsample of firms that were incorporated before 1990 to ensure that most of their ATPs were adopted before the start of our study period. The results reported in the last column indicate that our sample size drops from 414 to 343 firms, but the negative relation between bidder internal risk-taking and ATPs remains intact.

[Insert Table 4 about here]

In Table 4, we analyze the link between own risk-taking and ATPs for our sample of targets. Although we find a negative relation in the simple regression estimate reported in column 1, contrary to our expectation, the estimated coefficients presented in the remaining columns are much smaller and the negative association between target risk-taking and target GIM index disappears after we add the full set of controls. None of the endogeneity corrections alter this finding. Recall from the summary statistics presented in Table 1 that in comparison to bidders targets have on average 0.46 fewer number of takeover defenses and they follow a more aggressive investment policy (as reflected by their higher mean and median *RISK1* measures). The insignificant relation suggests that targets' risk-taking behavior is not on average distorted

by their takeover defenses and, unlike bidders, they do not generally indulge in excessive risk avoidance. This is a very important finding, although we are unable to explain why targets are on average a different breed with regard to internal risk-taking. Despite just o.46 fewer *number* of ATPs on average, the *types* of ATPs targets adopt do not seem to constrain their investment policy as much, with the result that their risk-taking behavior is primarily governed by the economic fundamentals of shareholder value maximization in capital project evaluation. Our finding that, unlike bidders, targets are risk-efficient on average is somewhat different from Mitchell and Lehn (1990) who report that bad bidders tend to become good targets. Based on acquisition announcement abnormal returns for a sample 1158 target and non-target firms during 1982-1986, they find that target firms, especially hostile targets, had systematically made acquisitions that reduced their equity values, whereas non-target firms had made acquisitions that increased their equity values. They conclude that the market for corporate control disciplines inefficient target management.

Turning to control variables, we find that acquirer risk-taking is negatively correlated with Initial Size, Earnings Smoothing, and Initial Profitability, consistent with John et al. (2008). Turning to control variables, we find that *ACQRISK1* is negatively associated with *Initial Size*, *Earnings Smoothing*, and Initial *Profitability*, consistent with the literature (John et al. (2008)). Prior studies imply that non-equity stakeholders and insiders with large undiversified ownership are likely to curtail corporate risk taking. Accordingly, we find *Inside Ownership* (John et al., 2008) and *Union Membership* (Faleye et al. (2006)) are also negatively associated with acquirer risk-taking, but with weaker significance. Likewise, target risk-taking bears negative relation to *Initial Size*, *Initial Profitability* and *Earnings Smoothing*, however, it fails to maintain expected signs with *Union Membership* and *Inside Ownership*.

In summary, our results on internal risk-taking suggest that acquirers insulated by more ATPs exhibit excessive risk avoidance, but the investment risk-taking behavior of targets is not

influenced by the number of takeover defenses they adopt. Together, they imply that there is much less potential for beneficial (value-enhancing) risk transfer because targets on average suffer from little risk inefficiency wrought by antitakeover provisions.

4.3 Risk-taking in takeovers and acquirer ATPs

Having established that acquirers with higher anti-takeover provisions tend to follow a conservative investment policy with respect to internal operations, now we examine whether such excessive risk avoidance extends to their merger policy. In column 1 of Table 5, the coefficient on *ACQGIM* is negative and significant after controlling for all other variables that influence risk-taking by acquirers as shown in Table 3, confirming the univariate test results reported earlier.

[Insert Table 5 about here]

To address the potential endogeneity bias, we perform the following robustness checks. It is plausible that choices of governance mechanisms of individual firms are likely to be correlated with those of their industry peers because of competitive pressures in the product market. Further, reverse causality between the choice of target risk-taking and bidder *ATP*s is less likely if we pick the acquirer governance indices from the first year the corresponding firms enter our study period. This proxy has been used by John et al. (2008). Accordingly, in column 2 (3) we replace the firm-level *ACQGIM* with the corresponding *Industry ACQGIM* (firm-level *Initial ACQGIM*) to address concerns about potential reverse causality. For each of these corrections the coefficient on *Industry ACQGIM* (*Initial ACQGIM*) remains negative and significant at 10% or better with controls for industry fixed effects. Overall, we find support for the argument that bidders armed with more ATPs tend to acquire targets with less investment risk while accounting for potential endogeneity of the test and control variables. However, the negative effect of bidder ATPs on external risk-taking appears weaker as compared to the case of internal risk-taking analyzed in Table 3. A plausible explanation for the weak evidence is that

the heightened public scrutiny and market discipline surrounding mergers constrains high ATP bidders from excessive risk avoidance, as contrasted with their suboptimal within-firm risk-taking behavior.

4.4 Risk and Governance-matching in mergers

Although the descriptive statistics on internal risk-taking presented in Table 1 indicated that acquirers take less investment risk on average, the univariate tests on risk-taking in mergers (i.e., external risk-taking) reported in Panel E of Table 2 showed that *high-RISK1* bidders tend to pick *high-RISK1* targets. This pattern is consistent with our conjecture that firms might use takeovers as a vehicle to match their investment risk-taking and governance profiles to ensure smooth integration of their operations as well as to increase their private benefits. But it is distinct from the risk-transfer via mergers argument that we also explore – that more aggressive acquirers absorb targets following a conservative investment policy. To explore this type of risk-matching behavior in takeovers, we regress target risk-taking on bidder risk-taking and relevant control variables as in Tables III and V and report the results in Table 6. The coefficient on *ACQRISK1* in the simple regression is positive and significant (see column 1), and it remains positive and significant when we add bidder characteristics as controls and account for industry cluster-corrected standard errors and year fixed effects (see column 2).

[Insert Table 6 about here]

However, this regression specification can be problematic if acquirers engage in risk-posturing behavior - they might adjust their risk profiles before the merger announcement to raise their expected profits and lure target managements. Thus, our use of the bidder risk-taking measure based on the prior 10-year window as a regressor can be vulnerable to endogeneity bias. In order to mitigate this concern, we reestimate acquirer risk-taking as the standard deviation of market-adjusted (scaled) EBITDA over event year-2 to event year-11 and call it *Lagged ACQRISK1*. Similarly, the corresponding earnings smoothing and observations in risk

taking variables are also lagged by one year. The coefficient on *Lagged ACQRISK1* reported in column 3 remains positive and significant at 5% level, thus mitigating the risk that our results in column 2 are due to endogeneity bias.

As a further check on endogeneity, we use mean *Industry ACQRISK1* instead of *Lagged ACQRISK1.* This industry surrogate for firm-level risk-taking has been previously used by John et al. (2008), who observe that investment risk choices of individual firms are likely to be correlated those of their industry peers because of competitive pressures in the product market. The coefficient on the test variable continues to be positive and significant in column 4. Overall, these results offer support for our conjecture that bidders and targets with similar investment risk-taking profiles tend to merge with each other. Further, the risk-matching incentives seem to coexist with the risk avoidance behavior of bidders with high ATPs we found in Table 5.

[Insert Table 7 about here]

In a similar vein, we regress target ATPs on bidder ATPs to probe the governance structure alignment behavior in merger deals and report estimates in Table 7. Since the choice variable in this regression is the structure of anti-takeover provisions of the target, we rely on the governance literature and pick regular acquirer characteristics and deal terms as controls. The coefficient on *ACQGIM* is positive and significant in the simple regression in column 1, and it remains positive and statistically significant at 10% level when we add the control variables in the next column. It is plausible that bidders shore up their takeover defenses in anticipation of a merger move, which raises the concern that *ACQGIM* is an endogenous regressor. To mitigate the potential endogeneity bias, we perform two additional tests. First, following John et al. (2008) and Masulis et al. (2007), we use *ACQGIM* from the first year the corresponding firms enter our study period (*Initial ACQGIM*). Second, we use Fama-French industry means of ACQGIM (*Industry ACQGIM*) as surrogates for the respective firm-level governance characteristics for bidders in column 4. The coefficient on the *Initial ACQGIM* in column 3 is not

significant but that on the acquirer industry GIM surrogate is positive and highly significant. These findings offer some support for the argument that firms tend to match their governance cultures in mergers. However, our evidence on governance alignment is weaker than that on risk profile matching in mergers. Wang and Xie (2009) report that value is enhanced when better-governed (*low-ATP*) bidders takeover poorly-governed (*high-ATP*) targets, and value is destroyed in the opposite case (*high-ATP* bidders absorb *low-ATP* targets). We complement their work by uncovering the dynamic of governance matching behavior which tends to moderate governance transfer through mergers.

A review of coefficients on the control variables in Model 2 of Table 7 reveals that the high ATP targets have larger size (*Log MCAP*) in line with the multivariate results of Stráska and Waller (2010) and lower *Tobin's Q*, which is consistent with Gompers et al. (2003) and Stráska and Waller (2010). Further, high ATP targets are positively with the *All Cash* deal dummy.

4.5 Risk-taking, merger probabilities, and deal characteristics

So far we have examined the impact of antitakeover provisions on risk-taking in the takeover market. Now we turn to the analysis of how the risk-taking behavior as well as the governance structures of a firm affect the probability of being involved in a merger transaction as a bidder rather than as a target. In other words, we ask: what is the likelihood that a firm enters a merger deal as a bidder as a function of its relative risk-taking propensities? Similarly, what is the probability that a firm with more ATPs enters a takeover transaction as a bidder rather than as a target? To address these issues, we adapt the methodology of Rhodes–Kropf et al. (2005) and perform probit regressions in which the dependent variable is one if the firm is an acquirer and zero if a target. This specification allows us to test the difference in the risk-taking behavior and shareholder rights of bidders and targets. We use market-to-book value ratio as a control variable and ignore year fixed effects because the fraction of bidders does not vary over

time in our sample. Our test variables are GIM and *RISK1*. To mitigate concerns about spurious relations and reverse causality, all our regressors precede the bid announcement date.

Consistent with Rhodes–Kropf et al. (2005), we find in Table 8 that a firm is much more likely to be an acquirer if it has a higher M/B ratio. More importantly, the significant coefficient on GIM in column 1 indicates that a larger number of takeover defenses increases the probability that a firm is involved as a bidder. In addition, the significant negative coefficient on *RISK1* in column 2 suggests that the likelihood that a firm acts as a bidder is decreasing in risk-taking. Finally, when we include both GIM and *RISK1* (see column 3), it turns out that risk-taking has a more significant influence on the probability of participation as a bidder in a merger deal. Based on the coefficient on *RISK1*, the probability of being bidder increases by about 4% with one standard deviation (about 3) increase in the number of anti-takeover provisions and decreases by about 9% with one standard deviation (about 4%) increase in corporate risk-taking. Thus, the economic significance of the impact of *RISK1* on the probability of entering a takeover as a bidder appear to be substantial after controlling for both valuation and governance effects.

In addition, in untabulated results we compute the odds ratios and find that the odds of a marginal increase in *RISK1* prompting a firm to act as a bidder is virtually zero (compared to prompting it to act as a target). Likewise, the odds of an increase in the number of anti-takeover provisions making a firm a bidder is 1.078 times that it would not act as a bidder(in model 1).

[Insert Table 8 about here]

Since firms choose their investment risk-taking policy as well as their governance structures, the above tests also are vulnerable to potential endogeneity bias. To address this concern, we use the Fama-French industry average GIM, log of firm age and market-to-book ratio of the firm as instruments for the firm-specific GIM index and perform 2SLS regressions. In unreported estimates we find that both the industry surrogate GIM and log of firm age

highly significant and positive in the first-stage, and so is the instrumented GIM in the second stage. Next we instrument firm-level *RISK1* with the corresponding industry average surrogates, log of firm age and firm M/B ratios and find that the instrumented *RISK1* is negative and highly significant.

Together, these estimates suggest that a firm with more antitakeover provisions and a more conservative investment policy is more likely to enter the takeover market as an acquirer. Conversely, a firm with low ATPs (i.e., stronger shareholder rights) and high *RISK1* is more likely to be involved as a target. Thus we identify two additional drivers of takeover dynamics. First, risk-taking behavior appears to be as important for predicting whether a firm will enter a deal as a bidder or target as its relative misevaluation, which has been highlighted by prior studies. Second, antitakeover provisions are also an important determinant of a firm's role in a merger transaction, but they appear to be less significant as compared with risk-taking and valuation errors.

[Insert Table 9 about here]

Next we ask: how do governance structures and risk-taking propensities of bidders and targets influence deal characteristics, such as, all-cash bids, all-stock bids, hybrid offers, hostile bids, and tender offers? To begin this analysis, we report univariate results in Table 9. Of the 414 total deals in our sample, 146 are all-cash, 124 all-stock, 144 hybrid, 82 tender offers and 20 hostile bids. In Panel A, we report mean ATPs for bidders and targets, as well as for *DGIM* (target GIM less bidder GIM). From the last column, acquirers are on average armed with significantly more anti-takeover provisions than targets. This finding is consistent with the pattern reported in Table 8 that firms are more likely to play the role of a bidder if they have more takeover defenses. Further, bidders have on average 1.194 (1.159) more takeover defenses than their counterparts in all-stock offers (tender offers). In the last column of Panel B we notice that an average bidder takes significantly less investment risk than the target, which is in line

with the prior result that a firm is more likely to be involved as an acquirer if it has been taking less investment risk. Similarly, bidders making all-cash, all-stock, and tender offers take significantly less operational risk than their counterparts.

[Insert Table 10 about here]

We follow Dong et al. (2006) to perform multivariate probit regressions to evaluate the impact of risk-taking and governance profiles of bidders and targets on the choice of deal characteristics. In each regression the dependent variable is a binary variable equal to 1 if the corresponding term of the transaction is present, 0 otherwise. We use the same control variables as do Dong et al. (2006). To mitigate concerns about spurious relations and reverse causality all our regressors precede the bid announcement date. In Table 10, our findings that both bidders and targets with higher valuations (larger price-to-book ratios) are more (less) likely to choose all-stock (all-cash and tender) offers are generally comparable to those reported by Dong et al. (2006) and Rhodes-Kropf et al. (2005). Consistent with the univariate test, the significant negative coefficient on *DGIM* indicates that a firm is much more likely to make all-stock (as well as tender) offers if it has more takeover defenses than the target. In addition, the significant positive coefficient on *DRISK1* suggests that a firm with an aggressive investment policy relative to the target is more likely to make a hostile offer and less likely to make a tender offer.[8]

To sum up, we present robust evidence which indicates that risk-taking behavior and governance structures of firms are as important as market misevaluations in shaping merger dynamics. In particular, if a firm follows a conservative investment policy and is insulated by

[8] Our test variables *DGIM* and *DRISK1* are vulnerable to endogeneity bias. To mitigate this concern, we also use instrumental variable probit (IVPROBIT) tests. In these tests we instrument *DGIM* on industry average *DGIM* and log of bidder age minus log of target age, and *DRISK1* on industry average *DRISK1* and log of bidder age minus log of target age. In unreported results we find that instrumented *DGIM* is not significant for all-cash, all-stock, and hybrid mergers, and significantly negative for tender offers. However, instrumented *DRISK1* is significant for all-cash mergers at 10% level, and for hybrid and tender offers at 1% level. The model that uses hostile takeovers fails to converge while using instrumental variable probit tests.

more takeover defenses, it is more likely to be involved as a bidder rather than as a target in a merger deal. Moreover, such a firm is more likely to make a tender offer using equity rather than cash as the sole means of payment.

5. Risk Transfer and Merger Synergy

[Insert Table 11 about here]

The forgoing results indicate that (a) firms with more antitakeover provisions and a conservative investment policy (i.e., firms with less internal risk-taking in investment projects) are more likely to act as bidders rather than as targets, and (b) firms with similar (internal) risk-taking behavior and governance mechanisms (some evidence) tend to merge with each other (see Tables VI and VII). Now we investigate how the dynamics of risk-taking and investor protection influence synergistic gains from mergers. Following Bradley, Desai, and Kim (1988) and Wang and Xie (2009), we estimate merger synergy as the announcement-period abnormal return of a value-weighted portfolio (*PCAR11*) of the acquirer and the target. Then we regress *DGIM* and *DRISK1* on *PCAR11* and a set of control variables similar to Wang and Xie (2009) and report the results in Table 11. Our prior evidence that a high (low) ATP firm is more likely to act as a bidder (target) predicts a positive sign on *DGIM* because such a merger involves the takeover of a better-governed target by a poorly-governed firm, resulting in lower *PCAR11*. This prediction is consistent with the argument in Wang and Xie (2009). However, this *high-ATP* buys *low-ATP* behavior might be tempered by the governance-matching propensity of the merger candidates. In addition, our earlier finding that a firm with a conservative (aggressive) investment policy is more likely enter a merger deal as bidder (target) implies a positive sign on *DRISK1*, because the *low-ATP* bidder is more likely to reallocate the target's resources to less risky and value-destroying uses. But such tendencies are likely to be moderated by the risk-

matching behavior of the participants in the takeover market. If risk transfer propensities in mergers dominate the risk alignment tendencies, we would expect a positive sign on *DRISK1.*

Recall that *DRISK1* measures the difference between acquirer and target *RISK1*. In untabulated univariate analysis, we find that the mean and median *PCAR11* show an increasing trend from -0.42% and -0.79% for the first quartile to 3.00% and 30.01% for the fourth quartile of *DRISK1,* respectively. Interpreting *DRISK1* as a proxy for risk transfer via mergers, these estimates imply that risk transfer is an important source of merger synergy. In other words, value is enhanced when a bidder with high *RISK1* absorbs a target with low *RISK1*.

Since risk-taking and firm size are significantly inversely correlated, we exclude market capitalizations of the acquirer and the target from the set of control variables. We control for *MCAP Ratio* (defined as the ratio of target to acquirer market capitalizations), which is highly correlated with firm size. The OLS estimate in column 1 indicates that *DGIM* is positive and significant, thus confirming the findings of Wang and Xie (2009) on the role of governance transfer in generating merger synergy. In the next column, *DRISK1* is also positive and significant at 5% level along with *DGIM*. According to Table 1, a median firm has a *PCAR11* value of 2.07%, and the standard deviations of *DGIM* and *DRISK1* are, respectively, 3.6 and 0.10. The coefficient of 0.0022 for *DGIM* and 0.0591 DRISK1 in model 2 suggest that a one standard deviation increase in *DRISK1* (*DGIM*) increases *PCAR11* by approximately 0.59% (0.79%) on average. Thus, the impact of risk transfer (*DRISK1*) and governance transfer (*DGIM*) seem to be economically significant.

Finally, following Masulis et al. (2007) and Wang and Xie (2009) we do not control for industry effects in our PCAR regressions. However, there might be concern that our results are affected by the membership of sample firms in particular industries, in particular, spillover effects of other mergers in that industry. We address this concern in our main analysis in prior sections by correcting standard errors for industry clustering. In order to further mitigate this

concern we replicate Table 11 with controls for industry fixed effects, standard errors corrected for white noise, and standard errors corrected for both clustering and white noise. In unreported results we continue to find that *DRISK1* loads positively on *PCAR11* at better than 5% level of significance.[9]

[Insert Table 12 about here]

The above OLS tests could be problematic because *DRISK1* (derived from the investment risk-taking behavior of the bidder and target) can be endogenous. To address this concern, we follow John et al. (2008) and instrument *DRISK1* with *DSIZE* (defined as acquirer's (log of) total assets minus those of the target firm) and *DGIM*. The 2SLS results are reported in Table 12.

As expected, the first-stage results show that *DRISK1* is negatively correlated with the instrument *DSIZE* and positively with the industry-level surrogate *Industry DRISK1*. But *DRISK1* is not affected by *DGIM*, as indicated by the insignificant slope coefficient. The two instruments have significant predictive power, as they explain 3.39% of the variation in *DRISK1* (partial-R^2). The F-test rejects the null hypothesis that the coefficients on both instruments are jointly zero. These inferences are confirmed by the Angrist-Pischke F test for weak identification, and Angrist-Pischke Chi-square test of underidentification, which reject the null hypothesis that the equation is weakly identified and underidentified, respectively at better than 1% level. Kleibergen Paap LM test also rejects the null hypothesis that the equation is underidentified, providing further support for the lack of underidentification. Further, the overidentification test (Hansen-J test) indicates that our choice of instruments is valid, because we are unable to reject the joint null hypothesis that the excluded instruments are not correlated

[9] In our main analysis we use PCAR11 estimated as market value-weighted average of ACAR11 and TCAR11. However, our results in Table 11 are practically the same when we use PCAR11 estimated as asset-weighted average of ACAR11 and TCAR11.

with the error terms and they are correctly excluded from the second-stage estimation. The second-stage results indicate that the instrumented *DRISK1* is positively related to *PCAR11*, significant at 5%. The Hausman test rejects the null hypothesis that the 2SLS and OLS coefficients on *DRISK1* are the same, thus confirming our endogeneity concern.

To sum up, our analysis underscores two significant, but somewhat countervailing, propensities on the part of bidders and targets with respect to risk transfer, governance transfer, and value creation through mergers and acquisitions. First, we find a pronounced tendency towards risk alignment and governance alignment in mergers. Second, our analysis also reveals significant evidence on risk transfer and governance transfer, indicating that on average firms with relatively more antitakeover provisions and conservative investment policies acquire targets with fewer takeover defenses and more aggressive operational risk-taking. Correcting for the endogeneity bias, we find that merger synergy, proxied by the announcement-period abnormal return of a value-weighted portfolio of the acquirer and the target, is positively related to the difference in risk-taking between the bidder and the target. In other words, the market seems to be pleasantly surprised when high risk-taking firms acquire firms with excessive risk avoidance in investment. But investors seem disappointed with inefficient risk transfers in which conservative bidders takeover targets with aggressive investment policy. This finding suggests that risk transfer incentives dominate the tendency of some firms with comparable risk appetites merge their operations.

6. Additional Robustness Tests

An important concern with our analysis is that risk-taking in investment (including acquisitions) is inherently endogenous to the firm. Mindful of this problem, we have so far used a range of tools to mitigate endogeneity bias, such as, instruments for endogenous test variables, industry surrogates, firm characteristics (control variables) dated as of the beginning

of the 10-year risk estimation window, year fixed effects and industry fixed effects to account for omitted variable bias. Below we present additional sensitivity tests of our core findings with respect to our choice of proxies for risk-taking and anti-takeover provisions.

Our analysis thus far has relied on *RISK1* as a proxy for acquirer and target risk-taking. *RISK1* is based on firm-level EBITDTA adjusted for *market average* EBITDTA for each year. However, variation in firm-level EBITDTA is quite likely to be industry-specific, given the evidence that merger waves tend to be concentrated in specific industries (see for example Rhodes-Kropf et al. (2005)). Therefore, the market-adjusted *RISK1* is likely to miss variation due to industry economic conditions. We attempt to address this concern either by using industry effects or by presenting test statistics using industry cluster-corrected standard errors. In order to mitigate this concern further, we use an alternative risk-taking proxy (*RISK2*) based on firm-level EBITDTA adjusted for Fama-French 48 *industry average* EBITDTA. In the robustness tests (untabulated) our core findings are robust and often stronger in using *RISK2* as a proxy for acquirer and target risk-taking.

Similar to the analysis of governance transfer in Wang and Xie (2009), our main tests rely on the GIM index of anti-takeover provisions developed by Gompers et al. (2003) as a proxy for lack of investor protection. One key reason for using this index is that it offers greater variability across firms and over time as it is based on 24 anti-takeover provisions. However, some studies (e.g., Bebchuk et al. (2009)) argue that not all ATPs effectively increase managerial entrenchment. In other words, some proxies included in GIM index are not effective as takeover defenses. In order to mitigate this concern, we replicate our results using Bebchuk et al. (2009) 'E-index' which comprises six major anti-takeover provisions. According to Bebchuk et al., these provisions are important for valuation purposes as they transfer real power from shareholders to managers, making the later more powerful. In untabulated results, we replicate the main results in Tables 3 and 4 and find that the acquirer E-Index is significantly negatively related to

acquirer risk-taking, but the target E-index remains insignificant in the regression on target risk-taking. In replicating main results in Table 5, although the E-index loads with a negative coefficient against *TGTRISK1*, it is insignificant. Similarly, in replicating Table 7, the target E-index is significantly positively associated with the acquirer E-index. However, in replicating the main tests in Table 11, we find *PCAR11* is positively associated with the difference between the target and the acquirer E-indices, but is not significant. In particular, the difference between bidder and target ATPs using the E-index (similar to *DGIM*) turns out to be a poor proxy because it captures little variability (i.e., the range of the E-index itself is limited, from 0 to 6).

7. Conclusion

We investigate whether governance mechanisms drive deal characteristics and merger synergy through the channel of corporate risk-taking. Specifically, we ask: (a) Do firms with good (i.e., shareholder-friendly) governance structures and an aggressive investment policy bid for targets with excessive risk avoidance? (b) Does the market perceive such risk-taking behavior in acquisitions as value enhancing? Based on an index of anti-takeover provisions (ATPs) developed by Gompers et al. (2003) and a measure of corporate risk-taking (*RISK1*) following John et al. (2008), we find strong evidence in a sample of about 414 U.S. M&As over 1990-2008 that poorly governed (*high-ATP*) bidders are characterized by lower levels of RISK, but the risk propensity of targets is not compromised by their ATPs. In other words, our evidence suggests that targets as a group exhibit little sign of excessive risk avoidance in investment compared to the acquirers. Extending this analysis of internal risk-taking to risk choices in mergers, we find that the excessive risk avoidance of high ATP bidders seems to persist even in external risk-taking as reflected by their tendency to takeover low RISK targets. Our results also suggest that bidders and targets with comparable ATPs and RISK profiles tend to merge with each other. Firms with more antitakeover provisions and a more conservative

investment policy are more likely to enter the takeover market as acquirers rather than as targets. Moreover, such firms are more likely to make a tender or a hostile offer often using equity rather than cash as the sole means of payment.

Turning to the valuation effects of risk-taking in mergers, investors seem to react negatively when acquirers armed with more takeover defenses and a conservative investment policy absorb targets with fewer anti-takeover provisions and aggressive risk-taking in operations. Further, our instrumental variable regressions provide robust evidence on beneficial (value-enhancing) risk transfer when bidders with an aggressive investment policy seek out targets with excessive risk avoidance. Thus, we identify efficient risk transfer via mergers as an important channel underlying the synergistic effects of governance transfer uncovered by prior studies.

Appendix A.1

Variable Definitions

Variable	Definition	Source
CAR11	Cumulative abnormal returns over an 11 day window (event day -5 to +5) estimated using the market model based on the Centre for Research in Stock Prices (CRSP) equally weighted index, see Masulis, Wang and Xie (2007) and Wang and Xie (2008).	Author's computation
ACAR11, TCAR11 & PCAR11	ACAR11 is acquirer CAR11, TCAR11 target CAR11 and PCAR11 is the value weighted average of ACAR11 and TCAR11.	Author's computation
GIM	Gompers et al. (2003) governance index is based on 24 anti-takeover provisions compiled by IRRS, which takes a value of 0 to 24, lower value indicating better corporate governance, available for years 1990, 1993, 1995, 1998, 2000, 2002, 2004 and 2006.	Andrew Metrick 's website
DGIM	*TGTGIM* less *ACQGIM*	Author's computation
Log Size	Natural log of total assets of the firm (data6) as of fiscal year- end prior to merger announcement.	Compustat

Log (AGE)	Natural log of number of years from the firm's initial coverage in CRSP database.	CRSP/Author's computation
Leverage	Book value of debt (data34 + data9) over market value of firm (data6-data60 + data25 X data199).	Compustat
Log *MCAP*	Natural log of MCAP, where MCAP = (closing stock price multiplied by numbers shares outstanding - data25 x data199, estimated as of the fiscal year-end prior to merger announcement).	Compustat
Price to Book / Market to Book	Market value of equity divided by book value of equity estimated as of the fiscal year- end prior to merger announcement.	Compustat/Author's computation
MCAP Ratio	Target MCAP divided by acquirer MCAP	Compustat/Author's computation
Return on Assets (*ROA*)	Operating Income (data13) (divided by book value of total assets (data6).	Compustat/Author's computation
High_tech	Indicator variable, that takes a value of 1 if bidder and target are both from high tech industries, as defined in Loughran and Ritter (2004), 0 otherwise.	SDC Platinum & Compustat
Diversifying	Indicator variable that takes a value of 1 if acquirer and target both are from different Fame French 48 industry groups.	SDC Platinum & Compustat & Author's computation
Merger of Equals	Dummy variable that takes a value of 1 if SDC classifies the deal as merger of equals.	SDC Platinum
Tender Offer	Dummy variable that takes a value of 1 if SDC states the deal as tender offer.	SDC Platinum
Hostile Takeover	Dummy variable that takes a value of 1 if SDC classifies the deal attitude as hostile.	SDC Platinum
Allcash	Dummy variable that takes a value of 1 if SDC reports consideration type is cash only.	SDC Platinum
Stock	Dummy variable that takes a value of 1 if SDC reports consideration type is shares only.	SDC Platinum
Hybrid	Dummy variable that takes a value of 1 if SDC reports consideration type is both cash and shares.	SDC Platinum
RISK1	Following John et al. (2008) we assess firm-level risk taking behavior by first computing EBITDTA (Earnings before interest, taxes and depreciation (EBITD) scaled by Total Assets (TA). Our main proxy for risk-taking is the standard deviation of EBITDTA in excess of annual average EBITDTA for all Compustat firms. We denote this proxy as '***ACQRISK1***' for acquirers and '***TGTRISK1***' for targets. We use annual data over 10 years preceding bid announcement, requiring at least four valid observations in this window.	Compustat, Author's computation
RISK2	Our second proxy of risk- taking is estimated as standard deviation of EBITDTA in excess of industry – year average EBITDTA, where industries are classified as Fama-French 48 industries. We denote this proxy as '**ACQRISK2**' for acquirers and '***TGTRISK2***' for targets. We use annual data over 10 years preceding bid announcement, requiring at least four valid observations in this window.	Compustat, Author's computation
DRISK1	ACQ*RISK1* less *TGTRISK1*.	Author's computation

Earnings Smoothing	Following John et al. (2008), first we estimate standard deviation of operating income scaled by beginning total assets (OPI), and standard deviation of operating cash flow scaled by beginning total assets (OCF). Then we estimate Earnings Smoothing (ES1) as the ratio of OPI to OCF. We subtract ES1 from 1 in order to obtain ES2. Higher values of ES2 resemble greater firm-level earnings smoothing. Operating cash flow is estimated as Operating Income less Accruals, where *Accruals= (ΔCurrent Assets-ΔCash and Equivalents - Δ Current Liabilities + ΔDebt in Current Liabilities + ΔTaxes Payable) - Depreciation and Amortization*. We use annual data over 10 years preceding bid announcement, requiring at least four valid observations in this window.	Compustat, Author's computation
Initial Size	Log of Total Assets for the 10th year preceding bid announcement where available, otherwise for the next available year.	Compustat
Initial Bank Power	We measure Bank Power as the ratio of bank debt to total assets for the 10th year preceding bid announcement where available, otherwise for the next available year.	Compustat
Initial Profitability	Earnings before interest, tax and depreciation divided by total assets for the 10th year preceding bid announcement where available, otherwise for the next available year.	Compustat
Sales Growth	Average annual Sales Growth over 10 years preceding the event year.	Compustat
Initial Leverage	Firm's book leverage estimated as book debt divided by total assets for the 10th year preceding bid announcement where available, otherwise for the next available year.	Compustat
Insider Ownership	Total percentage equity ownership of officers and directors of the firm.	Compact Disclosure
Union Membership	We use two-digit SIC code union membership data as a proxy for firm-level labor union influence on corporate risk-taking. Union membership by industry is extracted from Barry Hirsh and David Macpherson (www.unionstats.com). As detailed coverage by industry codes is available only from 1992, we use 1992 as the initial year for this data.	Barry Hirsh and David Macpherson
Observations in Risk-Taking	Number of observations used to estimate our proxy of firm-level risk-taking.	Author's computation

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Table 1

Statistical Properties of Key Variables

This table includes descriptive statistics on the key variables used in the study. The sample covers 414 completed mergers over 1990 -2007. GIM is an index of anti-takeover provisions (ATPs) based on Gompers et al. (2003), which is maintained by Andrew Metrick at http://faculty.som.yale.edu/andrewmetrick/. Risk-taking measures (RISK1 and RISK2) are estimated following John et al. (2008), where RISK1 is the standard deviation of market-adjusted annual EBITD scaled by assets (EBITDA) and RISK2 is the standard deviation of industry-adjusted annual EBITD scaled by assets (EBITDA) over 10 years prior to merger announcement. Other variables are defined in the Appendix A.1. The last panel presents pairwise correlation coefficients between key variables. Correlations for other variables are suppressed for brevity. Bold faced correlation coefficients are significant at better than 10% level using two sided tests.

Panel A: Descriptive Statistics-Acquirers

Variable	Mean	STDEV	Q1	Median	Q3	N
ACQCAR11 (%)	-2.05%	9.32%	-6.46%	-1.40%	3.02%	414
ACQGIM	9.42	2.73	7.00	9.50	11.00	414
ACQRISK1	0.06	0.04	0.04	0.05	0.08	414
ACQRISK2	0.07	0.04	0.03	0.06	0.09	414
Initial Size	7.18	1.96	5.99	7.42	8.50	414
Initial Bank Power	0.24	0.20	0.10	0.20	0.32	414
Initial Profitability	0.16	0.11	0.11	0.16	0.20	414
Sales Growth	0.16	0.20	0.05	0.11	0.22	414
Earnings Smoothing	0.23	0.37	0.03	0.24	0.47	414
Initial Leverage	0.54	0.20	0.40	0.55	0.66	414
Union Membership	0.17	0.12	0.08	0.13	0.25	414
Observations in Risk Taking	9.48	1.36	10.00	10.00	10.00	414
Inside Ownership	0.04	0.08	0.00	0.02	0.04	414
Log Size	8.41	1.46	7.41	8.35	9.46	414
Log MCAP	9.01	1.60	7.94	8.92	10.11	414
Leverage	0.14	0.11	0.05	0.11	0.22	414
Market to Book	2.49	1.79	1.48	1.94	2.84	414
Return on Assets (ROA)	0.16	0.14	0.10	0.15	0.22	414

Panel B: Descriptive Statistics-Targets

Variable	Mean	STDEV	Q1	Median	Q3	N
TGTCAR11 (%)	22.43%	22.61%	9.26%	20.56%	33.20%	414
TGTGIM	8.96	2.62	7.00	9.00	11.00	414
TGTRISK1	0.08	0.10	0.04	0.06	0.10	414
TGTRISK2	0.09	0.10	0.04	0.06	0.10	414
Initial Size	5.42	1.97	4.04	5.45	6.92	414
Initial Bank Power	0.27	0.28	0.05	0.21	0.39	414
Initial Profitability	0.10	0.28	0.08	0.14	0.20	414
Sales Growth	0.15	0.22	0.03	0.10	0.23	414
Earnings Smoothing	0.26	0.38	0.02	0.26	0.53	414
Initial Leverage	0.52	0.23	0.35	0.53	0.67	414
Union Membership	0.16	0.12	0.05	0.13	0.24	414
Observations in Risk Taking	9.20	1.59	9.00	10.00	10.00	414
Inside Ownership	0.06	0.11	0.00	0.02	0.07	414
Log Size	6.68	1.40	5.70	6.57	7.58	414
Log MCAP	7.08	1.43	6.14	7.04	7.88	414
Leverage	0.16	0.15	0.02	0.14	0.25	414
Market to Book	2.09	1.34	1.30	1.68	2.38	414
Return on Assets (ROA)	0.10	0.16	0.06	0.11	0.17	414

Panel C: Descriptive Statistics-Combined

Variable	Mean	STDEV	Q1	Median	Q3	N
PCAR11 (%)	2.07%	9.12%	-2.99%	2.07%	6.67%	414
DGIM	-0.46	3.57	-3.00	0.00	2.00	414
DRISK1	-0.02	0.10	-0.04	-0.01	0.01	414

Table 1 (contd.)

Panel D: Pair wise correlation coefficients

Variables	PCAR11	ACQCAR11	TGTCAR11	DGIM	ACQGIM	TGTGIM	DRISK1	ACQRISK1
ACQCAR11	**0.783**							
TGTCAR11	**0.394**	**0.115**						
DGIM	**0.095**	0.045	**0.085**					
ACQGIM	-0.016	-0.047	-0.004	**-0.683**				
TGTGIM	**0.113**	0.012	**0.112**	**0.651**	**0.110**			
DRISK1	0.063	0.013	-0.018	0.029	0.026	0.066		
ACQRISK1	-0.037	-0.071	-0.013	0.051	**-0.186**	**-0.124**	**0.106**	
TGTRISK1	-0.075	-0.039	0.013	-0.009	**-0.095**	**-0.111**	**-0.926**	**0.276**
N	414	414	414	414	414	414	414	414

Table 2
Anti-takeover Provisions, Abnormal Returns and Risk-Taking

This table includes univarate tests on anti-takeover provisions (ATPs), risk-taking, and bid announcement abnormal returns on the portfolio of acquirers and targets. The sample includes 414 completed mergers over 1990 – 2007. GIM is an ATP index taken from GIM dataset maintained by Andrew Metrick at http://faculty.som.yale.edu/andrewmetrick/. A firm is classified as *high-ATP* if its GIM > 9 (= sample median), low otherwise. Risk-taking (*RISK1*) is estimated following John et al. (2008) as the standard deviation of market-adjusted annual EBITD scaled by assets (EBITDA) over 10 years prior to merger announcement. Variable definitions are included in the Appendix A.1.

ATP Source	Variable	ATP Type	Mean	STDEV	Q1	Median	Q3	N	Difference (**TSTAT**)
Panel A: Anti-takeover provisions vs. Acquirer Risk Taking (Risk1)									
GIM	TGTRISK1	*high ATP*	0.0537	0.0293	0.0334	0.0465	0.0692	207	-0.0115
		low ATP	0.0652	0.0431	0.0387	0.0555	0.0805	207	**-3.1662**
Panel B: Target Anti-takeover provisions vs. Target Risk Taking(Risk1)									
GIM	TGTRISK1	*high ATP*	0.0639	0.0387	0.0369	0.0573	0.0759	178	-0.0348
		low ATP	0.0987	0.1239	0.0403	0.0678	0.1101	236	**-4.0599**
Panel C: Acquirer Anti-takeover provisions vs. Target Risk Taking (Risk1)									
GIM	TGTRISK1	*high ATP*	0.0737	0.0554	0.0370	0.0586	0.0926	207	-0.0201
		low ATP	0.0937	0.1270	0.0405	0.0632	0.0989	207	**-2.0862**
Panel D: Acquirer Anti-takeover provisions vs. Target Anti-Takeover Provisions									
GIM	TGTGIM	*high ATP*	9.1159	2.6905	7.0000	9.0000	11.0000	207	0.3188
		low ATP	8.7971	2.5538	7.0000	9.0000	11.0000	207	**1.2366**
Panel E: Acquirer Risk Taking 1 vs. Target Risk Taking (Risk1)									
ACQRISK1	TGTRISK1	*high ACQRISK1*	0.0950	0.0810	0.0528	0.0717	0.1102	207	0.0226
		low ACQRISK1	0.0724	0.1121	0.0309	0.0468	0.0740	207	**2.3490**
Panel F: DGIM vs. DRISK									
DGIM	DRISK1	*DGIM=>0*	-0.0250	0.1196	-0.0257	-0.0024	0.0149	213	-0.0016
		DGIM<0	-0.0234	0.0591	-0.0451	-0.0095	0.0055	201	**-0.1723**
Panel G: DATP vs. PCAR11									
DGIM	PCAR11	*DGIM=>0*	0.0319	0.0881	-0.0182	0.0281	0.0692	213	0.0231
		DGIM<0	0.0088	0.0932	-0.0400	0.0105	0.0645	201	**2.5914**
Panel H: DRISK vs. PCAR									
DRISK1	PCAR11	*DRISK1>Median*	0.0256	0.1037	-0.0308	0.0270	0.0750	207	0.0097
		DRISK1<=Median	0.0158	0.0767	-0.0289	0.0094	0.0606	207	**1.0864**

Table 3

Acquirer Anti-takeover Provisions and Acquirer Risk-Taking

The table presents results from regressing acquirer anti -takeover provisions (*ACQGIM*) and control variables on acquirer risk-taking (*ACQRISK1*, dependent variable). The sample covers all mergers from January 1990 to September 2008 with valid data (including those on anti-takeover provisions) in CRSP, Compustat, and GIM dataset maintained by Andrew Metrick at http://faculty.som.yale.edu/andrewmetrick/. *ACQRISK1* is estimated following John et al. (2008) as the standard deviation of market-adjusted annual EBITD scaled by assets (EBITDA) over 10 years prior to merger announcement. Size is natural log of total assets, Bank Power is bank loans scaled by total assets, Profitability is EBITD scaled by total assets (EBITDA), Leverage is total debt scaled by total assets, and sales growth is the average of the annual sales growth (percent change in sales) over the sample period, observations in risk taking is the number of observations used in estimating risk-taking, union membership is percent of members unionized by industry at two digit SIC codes extracted from the website of Barry Hirsh and David Macpherson (www.unionstats.com), and earnings smoothing is estimated as defined in the Appendix A.1. 'Initial' refers to the values of those variables in the first year of a firm's entry into our risk taking estimation window over 10 years prior to bid announcement. All other control variables are defined in the Appendix A.1. T-statistics based on robust standard errors are presented inside the parenthesis, *,**, and *** refer to significance at 10%, 5% and 1% level respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Model	ACQRISK1	ACQRISK1	ACQRISK1	ACQRISK1	ACQRISK1	ACQRISK1
ACQGIM	-0.0025***	-0.0018***		-0.0017***		-0.0019***
	(-4.127)	(-3.502)		(-3.280)		(-3.814)
Industry ACQGIM			-0.0101***			
			(-4.905)			
Initial ACQGIM					-0.0018***	
					(-3.029)	
Acquirer Characteristics						
Initial Size		-0.0051***	-0.0051***	-0.0053***	-0.0052***	-0.0030**
		(-4.590)	(-4.794)	(-4.974)	(-4.630)	(-2.550)
Initial Bank Power		0.0077	0.0079	0.0068	0.0084	0.0046
		(0.576)	(0.604)	(0.527)	(0.607)	(0.393)
Initial Profitability		-0.1251***	-0.1283***	-0.1235***	-0.1352***	-0.0600
		(-4.170)	(-4.323)	(-4.291)	(-4.324)	(-1.539)
Sales Growth		0.0093	0.0070	0.0070	0.0130	0.0062
		(0.751)	(0.572)	(0.593)	(0.787)	(0.430)
Earnings Smoothing		-0.0216***	-0.0215***	-0.0217***	-0.0216***	-0.0235***
		(-4.675)	(-4.862)	(-4.720)	(-4.749)	(-5.253)
Initial Leverage		-0.0245	-0.0209	-0.0228	-0.0294*	-0.0167
		(-1.410)	(-1.232)	(-1.379)	(-1.677)	(-1.025)
Union Membership		-0.0176	-0.0008	-0.0346**	-0.0165	-0.0248**
		(-1.253)	(-0.055)	(-2.585)	(-1.129)	(-2.035)
Observations in Risk Taking		0.0023	0.0021	0.0024*	0.0034**	0.0036*
		(1.620)	(1.541)	(1.771)	(1.991)	(1.734)
Inside Ownership		-0.0323*	-0.0214		-0.0337**	-0.0138
		(-1.939)	(-1.288)		(-2.099)	(-0.904)
Industry Ownership				-0.1235***		
				(-3.986)		
Constant	.0834***	0.1300***	0.2026***	0.1560***	0.1227***	0.0875***
	(12.487)	(7.965)	(8.576)	(8.752)	(6.667)	(3.719)
Observations	414	414	414	412	399	343
Adjusted R-squared	0.032	0.315	0.330	0.333	0.339	0.233
Other Effects						
Industry Effects	No	Yes	Yes	Yes	Yes	Yes
Before 1990 Incorporation	No	No	No	No	No	Yes

Table 4

Target Anti-takeover Provisions and Target Risk-Taking

The table presents results from regressing target anti -takeover provisions (*TGTGIM*) and control variables on acquirer risk-taking (*TGTRISK1*, dependent variable). The sample covers all mergers from January 1990 to September 2008 with valid data (including those on anti-takeover provisions) in CRSP, Compustat, and GIM dataset maintained by Andrew Metrick at http://faculty.som.yale.edu/andrewmetrick/. *TGTRISK1* is estimated following John et al. (2008) as the standard deviation of market-adjusted annual EBITD scaled by assets (EBITDA) over 10 years prior to merger announcement. Size is natural log of total assets, Bank Power is bank loans scaled by total assets, Profitability is EBITD scaled by total assets (EBITDA), Leverage is total debt scaled by total assets, and sales growth is the average of the annual sales growth (percent change in sales) over the sample period, observations in risk taking is the number of observations used in estimating risk-taking, union membership is percent of members unionized by industry at two digit SIC codes extracted from the website of Barry Hirsh and David Macpherson (www.unionstats.com), and earnings smoothing is estimated as defined in the Appendix A.1. 'Initial' refers to the values of those variables in the first year of a firm's entry into our risk taking estimation window over 10 years prior to bid announcement. All other control variables are defined in the Appendix A.1. T-statistics based on robust standard errors are presented inside the parenthesis, *,**, and *** refer to significance at 10%, 5% and 1% level respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Model	TGTRISK1	TGTRISK1	TGTRISK1	TGTRISK1	TGTRISK1	TGTRISK1
TGTGIM	-0.0042***	-0.0005		-0.0005		0.0004
	(-3.889)	(-0.499)		(-0.577)		(0.449)
Industry TGTGIM			0.0009			
			(0.260)			
Initial TGTGIM					-0.0001	
					(-0.145)	
Target Characteristics						
Initial Size		-0.0090***	-0.0092***	-0.0095***	-0.0083***	-0.0065***
		(-4.739)	(-4.876)	(-4.985)	(-3.976)	(-2.947)
Initial Bank Power		-0.0026	-0.0020	-0.0001	-0.0017	0.0131
		(-0.214)	(-0.164)	(-0.009)	(-0.137)	(1.165)
Initial Profitability		-0.2692***	-0.2693***	-0.2732***	-0.2640***	-0.1061***
		(-8.828)	(-8.766)	(-7.910)	(-7.047)	(-3.315)
Sales Growth		0.0119	0.0122	0.0121	0.0138	0.0453
		(0.830)	(0.853)	(0.837)	(0.812)	(1.628)
Earnings Smoothing		-0.0347***	-0.0345***	-0.0358***	-0.0342***	-0.0155**
		(-4.389)	(-4.377)	(-4.325)	(-4.041)	(-2.361)
Initial Leverage		-0.0257	-0.0266	-0.0260	-0.0255	-0.0362*
		(-1.397)	(-1.423)	(-1.419)	(-1.356)	(-1.705)
Union Membership		0.0164	0.0145	0.0200	0.0193	0.0105
		(0.802)	(0.681)	(0.970)	(0.955)	(0.596)
Observations in Risk Taking		0.0024	0.0022	0.0023	0.0011	0.0013
		(1.165)	(1.102)	(1.108)	(0.502)	(0.344)
Inside Ownership		0.0590	0.0593		0.0716*	-0.0030
		(1.456)	(1.464)		(1.893)	(-0.118)
Industry Ownership				0.0037		
				(0.078)		
Constant	0.1209***	0.1576***	0.1480***	0.1641***	0.1599***	0.1160***
	(9.860)	(6.380)	(3.699)	(5.654)	(6.030)	(2.910)
Observations	414	414	414	414	376	287
Adjusted R-squared	0.010	0.736	0.736	0.733	0.731	0.276
Other Effects						
Industry Effects	NO	Yes	Yes	Yes	Yes	Yes
Before 1990 Incorporation	NO	No	No	No	No	Yes

Table 5

Acquirer Anti-takeover provisions and Target Risk Taking

The table presents results from regressing acquirer anti -takeover provisions (ACQGIM) and control variables on target risk-taking (TGTRISK1, dependent variable), including treatments for potential endogeneity bias of risk-taking. The sample covers all mergers from January 1990 to September 2008 with valid data (including those on anti-takeover provisions) in CRSP, Compustat, and GIM dataset maintained by Andrew Metrick at http://faculty.som.yale.edu/andrewmetrick/. *TGTRISK1* is estimated following John et al. (2008) as the standard deviation of market-adjusted annual EBITD scaled by assets (EBITDA) over 10 years prior to merger announcement. Size is natural log of total assets, Bank Power is bank loans scaled by total assets, Profitability is EBITD scaled by total assets (EBITDA), Leverage is total debt scaled by total assets, and sales growth is the average of the annual sales growth (percent change in sales) over the sample period, union membership is percent of members unionized by industry at two digit SIC codes extracted from the website of Barry Hirsh and David Macpherson (www.unionstats.com), and earnings smoothing is estimated as defined in the Appendix A.1. 'Initial' refers to the values of those variables in the first year of a firm's entry into our risk taking estimation window over 10 years prior to bid announcement. All other control variables are defined in the Appendix A.1. T-statistics based on robust standard errors are presented inside the parenthesis, *,**, and *** refer to significance at 10%, 5% and 1% level respectively.

	(1)	(2)	(3)
Model	TGTRISK1	TGTRISK1	TGTRISK1
ACQGIM	-0.0032*		
	(-1.826)		
Industry ACQGIM		-0.0181***	
		(-2.692)	
Initial ACQGIM			-0.0035*
			(-1.658)
Control Variables			
Initial Size	0.0037	0.0036	0.0050
	(1.264)	(1.266)	(1.504)
Initial Bank Power	0.0215	0.0212	0.0230
	(0.702)	(0.703)	(0.689)
Initial Profitability	-0.0661	-0.0720	-0.0781
	(-0.962)	(-1.066)	(-1.037)
Sales Growth	0.0212	0.0179	0.0257
	(0.662)	(0.549)	(0.601)
Earnings Smoothing	0.0049	0.0049	0.0051
	(0.529)	(0.542)	(0.513)
Initial Leverage	-0.1104***	-0.1032**	-0.1121**
	(-2.623)	(-2.402)	(-2.451)
Union Membership	-0.0842**	-0.0545*	-0.0806**
	(-2.528)	(-1.807)	(-2.265)
Inside Ownership	-0.0792**	-0.0603*	-0.0687*
	(-2.213)	(-1.883)	(-1.925)
Constant	0.1644***	0.2930***	0.1566***
	(7.509)	(5.554)	(7.164)
Observations	414	414	399
Adjusted R-squared	0.079	0.086	0.078
Industry Effects	No	Yes	Yes

Table 6
Acquirer Risk Taking and Target Risk Taking

The table presents results from regressing acquirer risk-taking (ACQRISK1) and control variables on target risk-taking (TGTRISK1, dependent variable), including treatments for potential endogeneity bias of risk-taking. The sample covers all mergers from January 1990 to September 2008 with valid data (including those on anti-takeover provisions) in CRSP, Compustat, and GIM dataset maintained by Andrew Metrick at http://faculty.som.yale.edu/andrewmetrick/. *ACQRISK1* is estimated following John et al. (2008) as the standard deviation of market-adjusted annual EBITD scaled by assets (EBITDA) over 10 years prior to merger announcement. Size is natural log of total assets, Bank Power is bank loans scaled by total assets, Profitability is EBITD scaled by total assets (EBITDA), Leverage is total debt scaled by total assets, and sales growth is the average of the annual sales growth (percent change in sales) over the sample period, union membership is percent of members unionized by industry at two digit SIC codes extracted from the website of Barry Hirsh and David Macpherson (www.unionstats.com), and earnings smoothing is estimated as defined in the Appendix A.1. 'Initial' refers to the values of those variables in the first year of a firm's entry into our risk taking estimation window over 10 years prior to bid announcement. All other control variables are defined in the Appendix A.1. T-statistics based on robust standard errors are presented inside the parenthesis, *,**, and *** refer to significance at 10%, 5% and 1% level respectively.

	(1)	(2)	(3)	(4)
Model	TGTRISK1	TGTRISK1	TGTRISK1	TGTRISK1
ACQRISK1	0.7301**	0.6806**		
	(2.583)	(2.332)		
Lagged ACQRISK1			0.7229**	
			(2.483)	
Industry ACQRISK1				0.2852**
				(2.568)
Acquirer Characteristics and Controls				
Initial Size		0.0068**	0.0083**	0.0025
		(1.984)	(2.164)	(0.903)
Initial Bank Power		0.0174	0.0248	0.0222
		(0.649)	(0.855)	(0.767)
Initial Profitability		0.0156	0.0018	-0.0750
		(0.298)	(0.032)	(-1.124)
Sales Growth		0.0206	0.0282	0.0237
		(0.846)	(0.904)	(0.721)
Earnings Smoothing		0.0194		0.0056
		(1.643)		(0.603)
Lagged Earnings Smoothing			0.0301**	
			(2.539)	
Initial Leverage		-0.0924***	-0.1008***	-0.0980**
		(-2.748)	(-2.745)	(-2.246)
Union Membership		-0.0768**	-0.0676*	-0.0045
		(-2.269)	(-1.903)	(-0.140)
Inside Ownership		-0.0498	-0.0413	-0.0564*
		(-1.506)	(-1.175)	(-1.805)
Constant	0.0403**	0.0445	0.0313	0.0764**
	(2.369)	(1.115)	(0.735)	(2.053)
Observations	414	414	397	414
Adjusted R-squared	0.074	0.118	0.128	0.098
Industry Effects	No	Yes	Yes	Yes

Table 7

Acquirer Anti-takeover Provisions and Target Anti-takeover Provisions

The table presents results from regressing acquirer anti-takeover proisions (ACQGIM) and control variables on target anti-takeover provisions (TGTGIM, dependent variable), including treatments for potential endogeneity bias of anti-takeover provisions. The sample covers all mergers from January 1990 to September 2008 with valid data (including those on anti-takeover provisions) in CRSP, Compustat, and GIM dataset maintained by Andrew Metrick at http://faculty.som.yale.edu/andrewmetrick/. Target and acquirer characteristics are measured as of merger year -1.All variables are defined in the Appendix A.1. T-statistics based on robust standard errors corrected for white (1980) are presented inside the parenthesis, *,**, and *** refer to significance at 10%, 5% and 1% level respectively.

	(1)	(2)	(3)	(4)
Model	TGTGIM	TGTGIM	TGTGIM	TGTGIM
ACQGIM	0.1061**	0.0807*		
	(2.296)	(1.702)		
Initial ACQGIM			0.0757	
			(1.506)	
Industry ACQGIM				0.6172***
				(2.810)
Acquirer Characteristics				
Log MCAP		0.1750**	0.1462*	0.1891**
		(2.060)	(1.684)	(2.258)
Market to Book		-0.1829**	-0.1878**	-0.1408*
		(-2.325)	(-2.061)	(-1.812)
Leverage		1.6897	1.5266	1.5376
		(1.110)	(0.979)	(1.017)
Return on Assets (ROA)		1.3226*	1.7467**	1.0081
		(1.662)	(2.232)	(1.289)
Deal Characteristics				
Diversifying		-0.5544*	-0.5969**	-0.6380**
		(-1.927)	(-2.044)	(-2.229)
MCAP Ratio		0.0053	0.0047	0.0044
		(1.054)	(0.936)	(0.855)
Merger of Equals		0.8249	0.8381	0.7303
		(1.125)	(1.178)	(0.972)
Tender Offer		-0.3681	-0.4133	-0.2802
		(-1.010)	(-1.115)	(-0.806)
All Cash		0.5288*	0.5378*	0.4426
		(1.783)	(1.813)	(1.535)
High Tech		-0.5858	-0.6429*	-0.3573
		(-1.598)	(-1.721)	(-0.978)
Constant	7.9578***	6.8317***	7.2219***	1.7578
	(17.571)	(7.154)	(7.371)	(0.816)
Observations	414	414	399	414
Adjusted R-squared	0.010	0.048	0.042	0.064
Other Effects				
Industry Effects	No	Yes	Yes	Yes

Table 8

Anti-takeover Provisions, Risk Taking and Likelihood to being a Bidder

The table presents probit and instrumental variable regressions to test the likelihood of a firm being involved as an acquirer (or a target) with its anti-takeover provisions (ATPs or GIM) and risk-taking (RISK1) as test variables. The dependent variable (Bidder) is an indicator variable taking a value of 1 if a firm is a bidder, 0 if it is a target. The sample covers all mergers from January 1990 to September 2008 with valid data (including those on anti-takeover provisions) in CRSP, Compustat, and GIM dataset maintained by Andrew Metrick at http://faculty.som.yale.edu/andrewmetrick/. Risk- taking (RISK1) is estimated as the standard deviation of market-adjusted annual EBITD scaled by assets (EBITDA) consistent with John et al. (2008). We follow the probit model specifications consistent with Dong et al. (2006). Market-to-Book value is estimated as of the fiscal year ending before the bid announcement date. T-statistics based on robust standard errors are presented inside the parenthesis, *,**, and *** refer to significance at 10%, 5% and 1% level respectively.

	Probit		
	(1)	(2)	(3)
VARIABLES	Bidder	bidder	Bidder
GIM	0.0467***		0.0317*
	(2.825)		(1.891)
RISK1		-6.2154***	-5.9454***
		(-5.527)	(-5.262)
Market to Book	0.1124***	0.1654***	0.1694***
	(3.749)	(4.951)	(5.040)
Constant	-0.6841***	0.0485	-0.2693
	(-3.858)	(0.500)	(-1.386)
Observations	828	828	828
Pseudo R-Square	0.0185	0.0515	0.0546
Wald (Regression) X^2	20.29	42.47	46.55
P-value	0.000	0.000	0.000

Table 9

ATP and Risk-Taking by Deal Characteristics

The table presents summary statistics on anti-takeover provisions (*ACQGIM* and *TGTGIM*) and risk-taking (*ACQRISK1* and *TGTRISK1)* by deal characteristics for both bidders and targets. The sample covers all mergers from January 1990 to September 2008 with valid data (including those on anti-takeover provisions) in CRSP, Compustat, and GIM dataset maintained by Andrew Metrick at http://faculty.som.yale.edu/andrewmetrick/. *ACQRISK1* and *TGTRISK1* are estimated as the standard deviation of market-adjusted annual EBITD scaled by assets (EBITDA) consistent with John et al. (2008). Deal characteristics are extracted from SDC Platinum and are defined in the Appendix A.1.

Variable	Stat	Cash	Stock	Hybrid	Tender offer	Hostile	ALL
Anti-takeover provisions							
ACQGIM	Mean	9.27	9.31	9.66	10.13	9.80	9.42
	Stdev	2.81	2.66	2.70	2.68	3.19	2.73
	Median	9.00	9.00	10.00	10.00	9.50	9.50
	N	146	124	144	82	20	414
TGTGIM	Mean	9.22	8.11	9.42	8.98	10.00	8.96
	Stdev	2.57	2.58	2.56	2.81	1.95	2.62
	Median	9.00	8.00	10.00	9.00	9.50	9.00
	N	146	124	144	82	20	414
TGTGIM-ACQGIM		-0.048	-1.194	-0.243	-1.159	0.200	-0.459
T-Stat		-0.15	-3.58	-0.78	-2.70	0.24	-2.47
Risk-Taking (RISK1)							
ACQRISK1	Mean	0.059	0.060	0.059	0.056	0.060	0.059
	Stdev	0.035	0.043	0.034	0.037	0.026	0.037
	Median	0.051	0.054	0.051	0.045	0.057	0.052
	N	146	124	144	82	20	414
TGTRISK1	Mean	0.098	0.086	0.067	0.091	0.055	0.084
	Stdev	0.134	0.092	0.043	0.154	0.023	0.098
	Median	0.064	0.059	0.055	0.060	0.052	0.060
	N	146	124	144	82	20	414
ACQRISK1-TGTRISK1		-3.87%	-2.57%	-0.83%	-3.45%	0.46%	-2.42%
T-Stat		-3.37	-2.81	-1.81	-1.97	0.58	-4.69

Table 10

Anti-takeover Provisions, Risk-Taking and Deal Characteristics

The table presents probit regressions to assess the likelihood of choosing specific deal characteristics with the difference between target and acquirer anti-takeover provisions (DGIM = ACQGIM less TGTGIM) and the difference between acquirer and target risk-taking (DRISK1 = ACQRISK1 less TGTRISK1) as test variables. The dependent variables are indicators taking a value of 1 if a specific deal characteristics given in the column heading is adopted, 0 otherwise. The sample covers all mergers from January 1990 to September 2008 with valid data (including those on anti-takeover provisions) in CRSP, Compustat, and GIM dataset maintained by Andrew Metrick at http://faculty.som.yale.edu/andrewmetrick/. Risk- taking proxies (ACQRISK1 and TGTRISK1) are estimated as the standard deviation of market-adjusted EBITD scaled by assets (EBITDA) consistent with John et al. (2008). Deal characteristics are extracted from SDC Platinum and are defined in the Appendix A.1. MCAP Raito is market value of acquirer divided by market value of target as of the fiscal year ending before the bid announcement date. A merger is defined as diversifying if the acquirer and target are not in the same Fama-French 48 industry groups. Log of Target Assets, Acquirer Leverage, Acquirer & Target Price to Book are estimated as of the fiscal year ending before the bid announcement date. T-statistics based on robust standard errors are presented inside the parenthesis, *,**, and *** refer to significance at 10%, 5% and 1% level respectively.

	(1)	(2)	(3)	(4)	(5)
Model	allcash	allstock	Hybrid	tenderoffer	Hostile
DGIM	0.0333	-0.0552***	0.0085	-0.0425*	0.0260
	(1.638)	(-2.800)	(0.434)	(-1.919)	(0.914)
DRISK1	-0.8697	0.0906	1.9726	-1.5968*	6.4631**
	(-1.034)	(0.123)	(1.494)	(-1.927)	(2.214)
Control Variables					
MCAP Ratio	-0.0056	0.0325*	-0.0303	-0.0096	-0.4429**
	(-0.334)	(1.821)	(-0.951)	(-1.020)	(-2.437)
Log Target Assets	-0.2392***	0.0212	0.1907***	-0.0503	0.3210***
	(-4.099)	(0.358)	(3.220)	(-0.809)	(3.258)
Diversifying Merger	0.1842	-0.1787	0.0101	0.3643**	0.4421*
	(1.235)	(-1.121)	(0.065)	(2.186)	(1.763)
Acquirer Leverage	0.5466	-1.7860**	0.8133	0.6566	-0.8800
	(0.668)	(-1.989)	(1.021)	(0.787)	(-1.001)
Acquirer Price to Book	-0.0119	0.0891*	-0.1056*	-0.0229	-0.0869
	(-0.239)	(1.714)	(-1.865)	(-0.354)	(-0.927)
Target Price to Book	-0.2349***	0.1396*	0.0708	-0.2016**	0.0711
	(-3.015)	(1.812)	(1.008)	(-2.444)	(0.595)
Constant	1.1865**	-0.9033*	-2.0263***	-0.3365	-8.2924***
	(2.357)	(-1.713)	(-3.845)	(-0.645)	(-8.785)
Observations	414	414	414	414	414
Chi Square	105.1	84.40	72.49	76.67	1020
Pseudo R-squared	0.211	0.185	0.162	0.202	0.234
Year Dummies	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes

Table 11

Takeover Announcement Abnormal Returns, Risk-Taking and Governance Transfer

The table presents results from regressing the difference between target and acquirer anti-takeover provisions (DGIM = ACQGIM less TGTGIM), the difference between acquirer and target risk-taking (DRISK1 = ACQRISK1 less TGTRISK1) and control variables on bid announcement abnormal returns (PCAR11, ACAR11 and TCAR11). The sample covers all mergers from January 1990 to September 2008 with valid data (including those on anti-takeover provisions) in CRSP, Compustat, and GIM dataset maintained by Andrew Metrick at http://faculty.som.yale.edu/andrewmetrick/. Risk- taking proxies (ACQRISK1 and TGTRISK1) are estimated as the standard deviation of market-adjusted EBITD scaled by assets (EBITDA) consistent with John et al. (2008). Cumulative abnormal returns are estimated using standard event study methodology over an event window 11days surrounding bid announcement. PCAR11 is a value-weighted average of ACAR11 and TCAR11. Target and Acquirer characteristics are measured as of fiscal year ending before bid announcement. Deal characteristics are extracted from SDC Platinum and are defined in the Appendix A.1. T-statistics based on robust standard errors (corrected for heteroskedasticity (White (1980) and clustering (where stated)) are presented inside the parenthesis, *,**, and *** refer to significance at 10%, 5% and 1% level respectively.

	(1)	(2)
Model	PCAR11	PCAR11
DRISK1		0.0591**
		(2.414)
Target & Acquirer Combined Characteristics		
DGIM	0.0022*	0.0022*
	(2.358)	(2.310)
MCAP Ratio	-0.0003	-0.0003
	(-0.952)	(-0.950)
Acquirer Characteristics		
Market to Book	-0.0093***	-0.0098***
	(-9.894)	(-10.203)
Leverage	0.0741	0.0752
	(0.960)	(0.972)
Return on Assets (ROA)	0.0276	0.0321
	(0.585)	(0.688)
Target Characteristics		
Market to Book	-0.0056**	-0.0042
	(-2.690)	(-1.692)
Leverage	-0.0819	-0.0832
	(-1.768)	(-1.821)
Return on Assets (ROA)	0.0088	0.0033
	(0.486)	(0.168)
Deal Characteristics		
Diversifying	0.0036	0.0035
	(0.328)	(0.310)
Merger of Equals	-0.0440	-0.0435
	(-1.127)	(-1.134)
Tender Offer	0.0106	0.0119
	(0.678)	(0.707)
All Cash	-0.0131	-0.0129
	(-1.277)	(-1.287)
High Tech	-0.0199**	-0.0190*
	(-2.488)	(-2.310)
Constant	0.0619***	0.0613***
	(4.329)	(4.155)
Observations	414	414
Adjusted R-squared	0.053	0.054
Other Effects		
Clustering	Yes	Yes
Year Effects	Yes	Yes

Table 12

Abnormal Returns and Risk Taking (Instrumental Variable Regressions)

The table presents instrumental variable regression estimates on the link between bid announcement abnormal returns (PCAR11, dependent variable) and the difference between target and acquirer anti-takeover provisions (DGIM = ACQGIM less TGTGIM), the difference between acquirer and target risk-taking (DRISK1 = ACQRISK1 less TGTRISK1) and control variables. The sample covers all mergers from January 1990 to September 2008 with valid data (including those on anti-takeover provisions) in CRSP, Compustat, and GIM dataset maintained by Andrew Metrick at http://faculty.som.yale.edu/andrewmetrick/. Risk- taking proxies (ACQRISK1 and TGTRISK1) are estimated as the standard deviation of market-adjusted EBITD scaled by assets (EBITDA) consistent with John et al. (2008). Cumulative abnormal returns are estimated using standard event study methodology over an event window 11days surrounding bid announcement. PCAR11 is a value-weighted average of bidder and target abnormal returns. In the first column, DRISK1 is instrumented with DSIZE (defined as the difference between the log of acquirer size and of target size) and DGIM. In the third column, the alternative pair of instruments for DRISK1 includes industry average DRISK1 and DGIM. All controls variables follow Wang and Xie (2009) specifications. Target and Acquirer characteristics are measured as of fiscal year ending before bid announcement. Deal characteristics are extracted from SDC Platinum and are defined in the Appendix A.1. T-statistics based on robust standard errors (corrected for heteroskedasticity (White (1980) are presented inside the parenthesis, *,**, and *** refer to significance at 10%, 5% and 1% level respectively.

	Model1	
	1St	2nd
VARIABLES	DRISK1	PCAR11
Instruments		
Log ACQ SIZE-Log TGT SIZE	-0.0121***	
	(-3.383)	
DGIM	0.0001	
	(0.112)	
Instrumented DRISK1		1.0711**
		(2.513)
Acquirer and Target Combined Characteristics		
MCAP Ratio	-0.0009***	-0.0002
	(-3.183)	(-1.004)
Acquirer Characteristics		
Market to Book	0.0073***	-0.0197***
	(3.289)	(-3.293)
Leverage	-0.0178	0.0925
	(-0.516)	(1.311)
Returns on Assets (ROA)	-0.0628**	0.1088**
	(-2.203)	(1.997)
Target Characteristics		
Market to Book	-0.0181***	0.0180*
	(-4.329)	(1.704)
Leverage	-0.0007	-0.1066*
	(-0.020)	(-1.804)
Returns on Assets (ROA)	0.0766	-0.0912
	(1.633)	(-1.437)
Deal Characteristics		
Diversifying	0.0035	0.0013

	(0.319)	(0.092)
Merger of Equals	-0.0183*	-0.0361
	(-1.913)	(-0.916)
Tender Offer	-0.0189	0.0306
	(-0.750)	(1.075)
All Cash	0.0077	-0.0079
	(0.760)	(-0.576)
High Tech	-0.0077	-0.0046
	(-0.598)	(-0.265)
Constant	0.0491**	0.0165
	(2.396)	(0.436)
Observations	414	414
R-Square	0.212	
Adjusted R-squared	0.148	
Regression F-Stat	2.599	
P-Value F-Stat	0.000	
Year Effects	Yes	Yes
Predictive Power of Excluded Instruments & Under/Weak Identification		
Partial R Square	0.0339	
Angrist-Pischke multivariate F test of excluded instruments (Weak Identification)	7.11	
P-Value	0.0009	
Angrist-Pischke X^2 *Test of Under-identification*	15.42	
P-Value	0.0004	
Kleibergen Paap- LM Test (Chi-Square) of Under-identification	14.19	
P-Value	0.0008	
Test of Over-identifying Restrictions		
Hansen J Statistics	1.358	
P-Value	0.244	
Second Stage Tests		
Second Stage Regression F-Statistics		2.17
P-Value		0.0005
Wu-Hauseman Test of Endogeneity		
F-Statistics		*12.50*
P-Value		*0.0005*