Antitakeover provisions and investment in mergers and acquisitions

Carline, Nicholas F.; Gogineni, Sridhar

DOI:
10.1016/j.jcorpfin.2021.101962

Document Version
Peer reviewed version

Citation for published version (Harvard):
Carline, NF & Gogineni, S 2021, 'Antitakeover provisions and investment in mergers and acquisitions: a causal reevaluation', *Journal of Corporate Finance*, vol. 69, 101962. https://doi.org/10.1016/j.jcorpfin.2021.101962

Antitakeover provisions and investment in mergers and acquisitions: a causal reevaluation

Nicholas F. Carline and Sridhar Gogineni

Accepted by Journal of Corporate Finance 14 April 2021
https://doi.org/10.1016/j.jcorpfin.2021.101962

HIGHLIGHTS

- Causal effects of antitakeover provisions (ATPs) on investment in mergers and acquisitions (M&A)
- Higher levels of ATPs are associated with lower propensity for investment in M&A
- Higher levels of ATPs are associated with M&A more likely to be value enhancing
- ATPs are value enhancing in M&A more likely to be personally riskier for managers
- Evidence supports the notion that ATPs can curb risk related agency conflict

Antitakeover provisions and investment in mergers and acquisitions: a causal reevaluation*

Nicholas F. Carline† and Sridhar Gogineni‡

April 14, 2021

ABSTRACT

In this study, we are the first to reevaluate causally the effects of antitakeover provisions (ATPs) on the likelihood and quality of investment in mergers and acquisitions (M&A). We do so by exploiting instrumental variables to circumvent evidential endogeneity in ATPs. Our causal analysis is new to reveal that higher levels of ATPs are associated with lower propensity for investment in M&A and, after accounting for unobservable factors that affected the decision to invest in M&A, with investment that is more likely to be both value enhancing to shareholders and personally riskier to managers. Our findings support theory and evidence in other corporate contexts that gives weight to the possibility that ATPs curb risk related agency conflict. Our collective findings of a (positive) surprise also provide substantiation for known information about ATPs having value relevance for market perception of the quality of investment in M&A.

Keywords: antitakeover provisions; mergers and acquisitions; risk related agency conflict; causality

JEL codes: G34

* The authors are grateful to seminar participants at the University of Tampa, Douglas Cumming (editor) and two anonymous referees for helpful comments and suggestions.

† Department of Finance, Birmingham Business School, University of Birmingham, Birmingham, B15 2TY, UK. Email: n.carline@bham.ac.uk.

‡ Corresponding author. Department of Finance, Sykes College of Business, University of Tampa, Tampa, FL 33606, US. Email: sgogineni@ut.edu.

Antitakeover provisions and investment in mergers and acquisitions: a causal reevaluation

1. INTRODUCTION

Risk adverse managers must invest their wealth, including human capital, heavily in the firm (Holmström, 1999). Firm level takeover defenses, or antitakeover provisions (ATPs), shield the undiversified wealth of managers from the threat of the market for corporate control (Karpoff et al, 2017; Cuñat et al, 2020).[1] The consequences however for shareholders are ambiguous. Some studies suggest that ATPs produce costly outcomes for shareholders (e.g. Gompers et al, 2003; Masulis et al, 2007; Bebchuk et al, 2009; Harford et al, 2012; Cuñat et al, 2020). This might transpire because, due to a higher self-interest (or entrenchment) value that managers attach to takeover protection, shielding them with ATPs magnifies their incentives to undertake real investment that reduces their personal risk but is suboptimal to shareholders. Consequently, these investment choices produce an agency cost and a welfare loss to shareholders (Jensen and Meckling, 1976), whilst embodying a perquisite to managers (Amihud and Lev, 1981). Yet other studies suggest that ATPs affect managerial initiative in ways that lead to beneficial outcomes for shareholders (e.g. Chemmanur et al, 2011; Humphery-Jenner, 2014; Johnson et al, 2015; Chemmanur and Tian, 2018; Drobetz and Momtaz, 2020). This might transpire because, due to a higher shareholder-interests value that managers attach to takeover protection, shielding them with ATPs is an effective means of promoting risk increasing value enhancing initiative and incentive effort (Chemmanur and Jiao, 2012).

In this study, we add to this debate by evaluating the hitherto unexplored causal effects of takeover defenses at the firm level, as distinct from takeover defenses at the state level (for

[1] ATPs include a classified board, a fair price amendment, a poison pill, and a supermajority amendment. Gompers et al (2003) and Bebchuk et al (2009) provide detailed descriptions of these and many other ATPs. Gompers et al (2003) construct an additive index that counts as many as twenty-four ATPs, whereas Bebchuk et al (2009) construct an additive index that only counts the six supposedly most potent ATPs in the Gompers et al (2003) index. The higher these indexes after circumventing endogeneity, the more protection that managers have from the threat of takeover (Karpoff et al, 2017).

which see Gormley and Matsa, 2016), on the likelihood and quality of investment in mergers and acquisitions (M&A). As one of the largest forms of real investment, and with opportunity to diversify away from the core industry of the firm, M&A have the potential to intensify risk related agency conflict. Many studies over many decades document that on average M&A produce the equivalent of non-positive net present value to shareholders of the bidding firm (see Renneboog and Vansteenkiste, 2019, for a current literature review). There nevertheless is wide variation in the unconditional market perception of the quality of investment in M&A (Fuller et al, 2002). In fact the value relevance of information about ATPs to market perception of the quality of investment in M&A ranges from significantly negative (Masulis et al, 2007; Harford et al, 2012) to significantly positive (Drobetz and Momtaz, 2020). Yet neither these studies nor the many others that document marginal or no information content in ATPs (e.g. Bauguess and Stegemoller, 2008; Giroud and Mueller, 2011; Hoechle et al, 2012; Humphery-Jenner, 2014; Phalippou et al, 2015) provide definitively causal evidence. What sets our study apart is that we reevaluate the effect of firm level takeover defenses on the quality of investment in M&A after exploiting instrumental variables proven to circumvent probable endogeneity in ATPs (Karpoff et al 2017). Endogeneity concerns arise from the potentially critical but largely unexplored role that ATPs play in the decision to invest in M&A. For instance, given that bidding firms become attractive takeover targets (Mitchell and Lehn, 1990; Phalippou et al, 2015), managers might want added protection if they have higher likelihood of investing in M&A. Another possibility is that the role of ATPs is empirically spurious because of unobservable factors that affect the decision to invest in M&A, such as economic shocks and technological changes that induce industry merger waves (Harford, 2005; Gorton et al, 2009).

We firstly evaluate the causal effect of ATPs on the likelihood of investment in M&A. If firm level takeover defenses magnify (curb) risk related agency conflict, we hypothesize a positive (negative) association between an exogenous measure of ATPs and the likelihood of investment in M&A, since other investment that is more optimal to shareholders is more (less) likely to be inhibited. For instance, this might be investment in corporate innovation (for which

see Atanassov, 2013; Chemmanur and Tian, 2018). After accounting for unobservable factors that affected the decision to invest in M&A, we next evaluate the causal effect of ATPs on the quality of all investment in M&A. If firm level takeover defenses magnify (curb) risk related agency conflict, we hypothesize a negative (positive) association between an exogenous measure of ATPs and the quality of investment in M&A. We lastly examine whether substantiation of a causal effect of ATPs on the quality of investment in M&A depends on how M&A alter the financial exposure of managers to the diversifiable (or idiosyncratic) part of firm risk. Diversifying (focusing) M&A decrease (increase) the financial exposure of managers to the idiosyncratic part of firm risk (Amihud and Lev, 1981, Shleifer and Vishny, 1989; Gormley and Matsa, 2016). If firm level takeover defenses magnify (curb) risk related agency conflict, we therefore hypothesize a negative (positive) association between an exogenous measure of ATPs and the quality of investment in M&A only on average amongst diversifying (focusing) M&A.

We use a multitude of econometric and variable specifications to ensure consistency and credibility in drawing inferences about these hypothesized causal effects from a large sample of firm observations and the M&A undertaken by these firms in the period 1993-2012. We firstly find that higher instrumented measures of ATPs are associated with lower likelihood of investment in M&A. This finding contrasts with a generally positive association documented in other studies (albeit limited to those by Bauguess and Stegemoller, 2008; Giroud and Mueller, 2011), and indeed in ours, for observed measures of ATPs. Our results from tests of exogeneity point to probable endogeneity in ATPs. In assessing possible sources of this endogeneity, we find in particular greater tendency to add a firm level takeover defense amongst firms that go on to invest in M&A. We next find that higher instrumented measures of ATPs are associated with higher quality investment in M&A, in terms of being both higher valued and more likely to produce a positive net present value (based on the abnormal return to shareholders of the bidding firm around the announcement date). This finding contrasts with a mostly non-positive association documented in other studies (as mentioned above), and indeed in ours, for observed

measures of ATPs. We lastly find a positive association between instrumented measures of ATPs and the quality of investment in M&A only on average amongst focusing M&A.

Our study contributes to a number of interrelated strands of literature. Firstly, it adds to a growing body of work in various corporate contexts suggesting that protecting managers with ATPs is an effective means of curbing risk related agency conflict. Amongst these studies, Chemmanur et al (2011) find that firms protect higher quality managers with more ATPs. They infer that this elicits the managerial initiative that enables these firms to outperform peers after initial public offering (IPO). In a similar context, Johnson et al (2015) infer that protecting managers with ATPs promotes commitment to business partners and that this leads to higher valuation at IPO and superior performance thereafter. Counterpart to the context of our study, Chemmanur and Tian (2018) find a positive effect of ATPs on investment in corporate innovation. Our evidence compliments theirs in implying that investment in M&A is less likely to inhibit investment in corporate innovation if there are more ATPs protecting managers. Yet our evidence also implies that protecting managers with more ATPs promotes risk increasing initiative and incentive effort for if value-enhancing opportunities arise for investment in M&A.

Secondly, our study adds to a large body of work that concerns the motives behind the decision to invest in M&A. Despite a well-established literature, studies are equivocal about the consequences for shareholders of protecting managers with ATPs and do not provide definitively causal evidence. On the one side, our findings are in sharp contrast to those of Masulis et al (2007) and Harford et al (2012) in not suggesting that this induces managers to make investment choices that produce an agency cost and a welfare loss to shareholders, whilst embodying an empire building perquisite to themselves. However, on the other side, our findings are closer to those of two other studies. The first by Humphery-Jenner (2014) finds that M&A by firms that are particularly susceptible to undervaluation and that protect managers with more ATPs are associated with a smaller welfare loss to shareholders. Yet a broader application of the theoretical framework of risk related agency conflict than he assumes gives plausibility to our finding of a positive effect of ATPs on the quality of all investment in M&A, but only on average amongst

focusing M&A. Humphery-Jenner (2014) corroborates his findings by using a single instrumental variable, which represents the average Gompers et al (2003) index amongst all peers incorporated in the same state as the investing firm at the time of investment. In contrast, and similar to Karpoff et al (2017), we base our joint instrumental variables on a three year (and also an earliest possible) lagged quasi-Gompers et al (2003) index for typically large and distinct cohorts of peers for the focus firm. These peers have a random and distant connection to the focus firm, and do not induce non-arbitrary variation through being in the same industries and state of incorporation as the focus firm. Out of interest, our results converge with those from using the observed measures of ATPs if we instead rely on his instrumental variable.

Our findings for all investment in M&A are much closer to those of the second study by Drobetz and Momtaz (2020). Yet our study is sharply distinct from theirs. They surmise that their corporate governance setting of Germany has historically facilitated stronger oversight of managers, as compared to the situation in the United States, and that this likely accounts for the atypical findings. Our findings however are the first of many for the United States to suggest that here too protecting managers with ATPs is historically associated with the promotion of value enhancing initiative and incentive effort in decisions to invest in M&A. They do not consider the effect of ATPs on the likelihood of investment in M&A. Our findings though for investment propensity suggest that it comes as a (positive) surprise to the market if managers protected with more ATPs decide to invest in M&A. We consequently substantiate how it is that known information about ATPs has value relevance for market perception of the quality of investment in M&A, when this would otherwise be implausible (Core et al, 2006). We are also able to ensure that our findings for the quality of investment in M&A are not a spurious result of having not accounted for unobservable factors that affected the decision to invest in M&A. Unlike we do, they do not show that protecting managers with ATPs provides risk increasing incentives for value enhancing investment in M&A. Their findings only apply to the Bebchuk et al (2009) index, whereas ours extend to an index of the less potent ATPs in the Gompers et al (2003) index, which nevertheless is effective at shielding managers from the threat of takeover (Karpoff et al, 2017).

Although Drobetz and Momtaz (2020) rule out endogeneity in ATPs, they do so without the use of instrumental variables, whereas we use proven instrumental variables to establish causal effects of ATPs on aspects of investment in M&A.

Thirdly, our study adds to a recent body of work that is causally reevaluating the associations between ATPs and various forms of corporate activity. This work postdates the extensive review by Straska and Waller (2014) of the documented consequences of ATPs for shareholders. However to date it only extends to the causal effects of ATPs on the likelihood of the threat of takeover and on the propensity for investment in corporate innovation. Karpoff et al (2017) and Cuñat et al (2020) use instrumental variables and a regression discontinuity design respectively and find that shielding managers with ATPs decreases the likelihood of the threat of takeover. Using a regression discontinuity design, Chemmanur and Tian (2018) find that protecting managers with ATPs increases their propensity for investment in corporate innovation. Our study compliments these studies in using instrumental variables to evaluate the hitherto unexplored causal effects of ATPs on the likelihood and quality of investment in M&A.

Our causal inferences conflict with those of Gormley and Matsa (2016) who in contrast explore the effect of takeover defenses at the state level. Their difference in differences design for exploiting exogeneity in a staggered passage of state antitakeover laws faces a different set of challenges compared to using either instrumental variables or a regression discontinuity design for exploiting exogeneity in ATPs. Yet the use of state antitakeover laws is perhaps the most criticized approach (see Catan and Kahan, 2016; Karpoff and Wittry, 2018, for illustrative critique). Ours however is not the only corporate context in which these two approaches have led to conflicting causal inferences (see Atanassov, 2013, and Chemmanur and Tian, 2018, for corporate innovation; Cain et al, 2017, and Cuñat et al, 2020, for takeover premiums).

The paper proceeds as follows. We discuss the theory and evidence in developing the hypotheses in section 2. We describe the sample and motivate the variables in section 3. We present the main analysis and the further analysis and robustness in sections 4 and 5 respectively. We conclude in section 6.

2. THEORY, EVIDENCE, AND HYPOTHESES

We begin with a discussion of the theory and evidence that gives weight to the possibility that takeover protection either magnifies or curbs risk related agency conflict. We first do so for corporate contexts in general and then for the specific context of investment in M&A. Based on this discussion we develop three pairs of sequential hypotheses related to the causal effects of ATPs on investment in M&A.

2.1. Takeover protection and risk related agency conflict in general

The theoretical framework that overarches our causal reevaluation of the effects of ATPs on the likelihood and quality of investment in M&A is risk related agency conflict. In general, this conflict arises because risk adverse managers, for reasons such as undiversified personal portfolios and employment risk, have incentives to forgo risk-increasing investment that is value enhancing and undertake risk-reducing investment that is suboptimal and possibly value destroying to shareholders (Jensen and Meckling, 1976; Holmström, 1999). Fear of the threat of takeover and other manifestations of managerial myopia intensify the conflict (Stein, 1988), which creates an agency cost and a welfare loss to shareholders (Jensen and Meckling, 1976), whilst embodying a perquisite to managers (Amihud and Lev, 1981). Cohn et al (2020) for instance provide evidence suggesting that myopia leads to managers setting a hurdle rate for an investment project that is higher than is required for the level of risk.

A potential solution is to shield managers from the threat of takeover and other short-term price pressures. Karpoff et al (2017) and Cuñat et al (2020) provide causal evidence that shielding managers with ATPs, and broadly defined, is an effective means of reducing the threat of takeover. Yet Cuñat et al (2020) also provide causal evidence suggesting that managers attach a higher entrenchment value to the protection afforded by ATPs, since the removal of a firm level takeover defense produces a larger premium in the event of takeover. Other benchmark studies likewise provide evidence suggesting that managers attach a higher self-interest value to the protection afforded by firm level takeover defenses, such that shielding them with more ATPs

magnifies behavior that is adverse to shareholders. Gompers et al (2003) find that a higher index of ATPs is associated with lower firm value. They create an additive index by counting a broad array of as many as twenty-four ATPs. However Bebchuk et al (2009) find that the six supposedly most potent ATPs in the Gompers et al (2003) index (including a classified board, a poison pill, and a supermajority amendment) largely account for the adverse effect on firm value. This suggests that managers attach a particularly higher entrenchment value to these ATPs. Neither though of these studies provide definitively causal evidence. Although concerned with the causal effect of takeover defenses at the state level, Atanassov (2013) finds that the passage of a state antitakeover law inhibits the risk increasing and value enhancing opportunities available overall to the firm. Specifically, his findings suggest that due to a higher self-interest value that managers attach to takeover protection, the passage of a state antitakeover law magnifies their risk aversion and induces them to decrease investment in corporate innovation.

Yet other benchmark studies provide evidence that refutes the suggestion that managers unswervingly attach a higher self-interest value to the protection afforded by ATPs. These studies instead suggest that protecting managers with ATPs is an effective means of eliciting initiative to the benefit of shareholders. Chemmanur and Jiao (2012) develop a theoretical model to formalize this notion of firm level takeover defenses as the promoters of risk increasing value enhancing initiative and incentive effort.[2] Empirical support for the notion comes from amongst others Chemmanur et al (2011) and Johnson et al (2015), who provide evidence suggesting that shielding managers from the threat of takeover and other short-term price pressures leads to superior performance because of not inhibiting high quality initiative and tighter bonding with business partners respectively. In conflict with the inferences of Atanassov (2013), Chemmanur and Tian (2018) provide causal evidence that the removal of a firm level takeover defense inhibits the risk increasing and value enhancing opportunities available overall to the firm. Specifically, their findings suggest that due to managers attaching a higher shareholder-interests value to

[2] Strictly speaking, the theoretical model of Chemmanur and Jiao (2012) applies to an atypical firm level takeover defense; namely, a dual class share structure. As such, it is typical to drop firms with these structures from evaluations of the effects of ATPs. They however extend the implications of their model to ATPs.

ATPs, the removal of a firm level takeover defense leads to managers having risk reducing incentives to the detriment of investment in corporate innovation. Although again concerned with the causal effect of takeover defenses at the state level, Cain et al (2017) find that greater takeover protection at the state level produces a larger premium in the event of takeover. In other words, and in conflict with the inferences of Cuñat et al (2020), once more the suggestion is that managers attach a higher shareholder-interests value (in this instance bargaining value) to takeover protection.

2.2. Takeover protection and risk related agency conflict in investment in M&A

M&A are one of the largest and most readily observable commitments of the limited resources of the firm. This makes these investment choices prime for evaluating whether the causal effect of takeover defenses is such that it magnifies or curbs risk related agency conflict. Yet, despite a voluminous literature, just one other study addresses this issue in this context and only from the perspective of takeover defenses at the state level. Complementing the inferences of Atanassov (2013), this study by Gormley and Matsa (2016) provides further evidence that the passage of a state antitakeover law inhibits the risk increasing and value enhancing opportunities available overall to the firm. Specifically, their findings suggest that due to a higher self-interest value that managers attach to takeover protection, the passage of a state antitakeover law magnifies their risk aversion and induces them to be more active in risk reducing M&A that are suboptimal and possibly value destroying to shareholders.

The findings of Gormley and Matsa (2016) support the supposition of many studies that managerial based motives are the primary driver of M&A (e.g. Amihud and Lev, 1981; Shleifer and Vishny, 1989; Morck et al, 1990). However most importantly their findings suggest that shielding managers more from the threat of takeover magnifies an agency cost and a welfare loss to shareholders, and a perquisite to managers, created by M&A. Managers create a perquisite through M&A that enable them to reduce that part of their risk that derives from the diversifiable part of firm risk. Amihud and Lev (1981) contend that M&A are a particularly effective way for managers to reduce their exposure to the idiosyncratic part of firm risk, although especially M&A

that diversify away from the current industries of the firm, as indeed is the suggestion of the findings of Gormley and Matsa (2016). More specifically, Shleifer and Vishny (1989) assert that diversifying M&A enable managers to lower their employment risk by broadening the industries of the firm in their area of expertise so that it is more costly for shareholders to replace them. Although potentially benefiting self-interested managers, Morck et al (1990) provide evidence suggesting that diversifying M&A create a larger agency cost and welfare loss to shareholders.

Other benchmark studies provide evidence suggesting that greater takeover protection at the firm level likewise magnifies an agency cost and a welfare loss to shareholders, and a perquisite to managers, created by M&A. Masulis et al (2007) interpret their evidence in this regard as support for the premise that protecting managers with ATPs shields them from the disciplinary power of the market for corporate control, which enables them to indulge in empire building M&A that are value destroying to shareholders. Giving further weight to this interpretation, Harford et al (2012) find that managers protected with more ATPs undertake and overpay for M&A with lower potential synergies. Yet neither study provides definitively causal evidence and two other benchmark studies refute the suggestion that managers engaged in investment in M&A unswervingly attach a higher entrenchment value to takeover protection.

The first of these studies by Humphery-Jenner (2014) provides evidence suggesting that managers in innovative industries with assets that are particularly susceptible to undervaluation attach a higher shareholder-interests value to the protection afforded by ATPs, since the M&A that they undertake create a smaller welfare loss to shareholders the greater is takeover protection at the firm level. Yet the second by Drobetz and Momtaz (2020) provides evidence suggesting that protecting managers with ATPs is an effective means of eliciting initiative in the decision to invest in M&A far beyond the limited pool of managers highlighted by Humphery-Jenner (2014), and to the actual benefit of shareholders. They also provide evidence suggesting that protecting managers with ATPs does not inhibit the risk increasing and value enhancing opportunities available overall to the bidding firm, since it additionally induces increased investment in corporate innovation. Both studies support the theory that neoclassical-based

motives are a significant driver of M&A (see Maksimovic and Phillips, 2013, for an extensive consideration of this theory). However most importantly the evidence of both suggests that shielding managers more from the threat of takeover elicits initiative in committing to use the limited resources of the firm. Again though neither study provides definitively causal evidence. In addition somewhat confounding the evidence of Drobetz and Momtaz (2020) is the overarching suggestion that it is a regime of historically stronger corporate governance in Germany and not ATPs per se that largely accounts for their atypical findings.

2.3. Development of the hypotheses

Grounded in the preceding theory and evidence, we develop three pairs of sequential hypotheses related to the causal effects of ATPs on investment in M&A. We begin from the premise that ATPs play a critical role in decision to invest in M&A. However if risk adverse managers attach a higher self-interest (shareholder-interests) value to the protection afforded by ATPs, greater exogenous takeover protection at the firm level is more (less) likely to inhibit the risk increasing and value enhancing opportunities available overall to the firm by increasing (decreasing) their propensity for investment in M&A. In turn this is more (less) likely to create an agency cost and a welfare loss to shareholders in the event of the decision to invest in M&A. At the same time it is also more (less) likely to create a perquisite to managers that is costly to shareholders because of M&A that decrease (increase) that part of their risk that derives from the diversifiable part of firm risk. Formally stated the hypotheses are as follows.

If ATPs magnify risk related agency conflict:

Hypothesis 1A: there will be a positive association between an exogenous measure of ATPs and the likelihood of investment in M&A;

Hypothesis 2A: there will be a negative association between an exogenous measure of ATPs and the quality of investment in M&A in the event of the decision to invest in M&A; and

Hypothesis 3A: there will be a negative association between an exogenous measure of ATPs and the quality of investment in M&A only on average amongst diversifying M&A.

Alternatively, if ATPs curb risk related agency conflict:

Hypothesis 1B: there will be a negative association between an exogenous measure of ATPs and the likelihood of investment in M&A;

Hypothesis 2B: there will be a positive association between an exogenous measure of ATPs and the quality of investment in M&A in the event of the decision to invest in M&A; and

Hypothesis 3B: there will be a positive association between an exogenous measure of ATPs and the quality of investment in M&A only on average amongst focusing M&A.

3. SAMPLE AND VARIABLES

3.1. Sample

The firms in the sample are at the intersection of the Center for Research in Security Prices and Compustat merged database and the RiskMetrics dataset for the Gompers et al (2003) index. For consistency with the general literature, we drop firms with (i) headquarters located outside the United States; (ii) equity not listed on the New York Stock Exchange, NYSE American, or Nasdaq; (iii) more than one class of equity; (iv) non-positive book value of equity; and (v) a primary two digit standard industrial classification (SIC) code for finance, insurance, real estate, electric, gas, or sanitary service. We use the Securities Data Company database to amass investment in M&A (or bids) announced by these firms in the period 1993-2012. For again consistency with the general literature, we drop (i) bids where the bidding firm already holds more than fifty percent of the equity of the target firm; (ii) bids where the amount paid is less than one percent of the market value of equity of the bidding firm six trading days before the announcement date; and (iii) uncompleted bids.

The sample comprises 21,382 firm observations and 5,512 bids (3,133 of which we classify as focusing) by 4,361 firms. Table 1 presents the temporal frequency distributions. Column (1) shows unique bidding firms in a given year from amongst all firms in column (2). In column (3), the overall rate of bidding firms is 20.4 percent and the yearly rates range from 13.8 percent after the financial crisis of 2008 to 23.8 percent in the merger wave of the late 1990s. We classify bids as focusing (or non-diversifying) where the bidding firm and target firm share the same primary two-digit SIC code. Our main aim is to identify investment in M&A that involves core-overlapping industries, since focusing M&A increase the financial exposure of managers to the diversifiable part of firm risk (Amihud and Lev, 1981; Shleifer and Vishny, 1989; Gormley and

Matsa, 2016). Our causal evidence nevertheless is robust to broadening the classification to any overlapping industries (the results for which are not tabulated). Column (4) shows focusing bids from amongst all bids in column (5) made by the bidding firms in a given year. In column (6), the overall rate of focusing bids is 56.8 percent and the yearly rates range from 44.4 percent to 68.3 percent, but without obvious patterns in the data.

3.2. Variables

3.2.1. Firm observations

Panel A of Table 2 presents descriptive statistics and univariate analysis for the main variables related to the firm observations in the sample. Table A1 in Appendix A contains full details of these variables. In column (6), *Bidding firm* is the dependent variable for examining the likelihood of investment in M&A. Specifically, it identifies firms that make at least one bid in a given year. *GIM index*/ *GIM dictatorship* are the alternative explanatory variables of main interest, since if instrumented these (one year lagged) variables capture the extent to which ATPs afford managers protection from the threat of takeover (Karpoff et al, 2017). *GIM index* is the additive form of the Gompers et al (2003) index of twenty four ATPs, the most frequently used measure of firm level takeover defenses (see Straska and Waller, 2014, for an extensive literature review), whereas *GIM dictatorship* identifies firms with an above median *GIM index* in a given year.

Our aim is to provide causal evidence for the effect of the Gompers et al (2003) index on the likelihood of investment in M&A. However if ATPs are partially endogenous, it will be impossible to establish causality in this regard without the use of an appropriate econometric tool. A growing body of work is causally reevaluating the associations between firm level takeover defenses and various corporate outcomes, and is suggesting that ATPs are indeed partially endogenous. For instance Karpoff et al (2017) find that a higher Gompers et al (2003) index is associated with lower likelihood of the threat of takeover, but only after they circumvent probable endogeneity in the ATPs counted therein.[3] They attribute this endogeneity to preemptive shoring

[3] Karpoff et al (2017) circumvent endogeneity by using instrumental variables, but Cuñat et al (2020) do so by using a regression discontinuity design and produce an equivalent finding. The other work in this area reevaluates the effects

up of ATPs by firms with higher likelihood of the threat of takeover. This has obvious spillover implications for our analysis. Yet given that bidding firms become attractive takeover targets (Mitchell and Lehn, 1990; Phalippou et al, 2015), it is also reasonable to surmise that preemptive shoring up of ATPs is particularly common amongst firms with higher likelihood of investment in M&A.

Karpoff et al (2017) use joint instrumental variables for the Gompers et al (2003) index, which they contend are theoretically capable of locking in to distinct exogenous components of the ATPs counted therein. We use similar instrumental variables; namely, *IPO GIM index*/ *HQ GIM index*. Each instrumental variable represents a quasi-Gompers et al (2003) index for a generally large and distinct cohort of peers for the focus firm, but after closing off endogeneity induced from economic shocks and technological changes, which lead to industry merger waves (Harford, 2005; Gorton et al, 2009), by only including peers from industries not shared with the focus firm. In terms of both relevance and a strengthened assumption of exogeneity, each of these connections between the peers and the focus firm is of a random and distant nature that nevertheless is likely to have predetermined a component of the Gompers et al (2003) index of the focus firm. The connection with respect to *IPO GIM index* only derives from time, in that the peers and focus firm experienced the same legal environment for the adoption of ATPs because of sharing the same year of initial public offering. In contrast, the connection with respect to *HQ GIM index* only derives from geography, in that the peers and focus firm are likely to have received similar legal advice on the adoption of ATPs because of sharing the same state locale of headquarters. The closure of other channels of endogeneity also derives from a summation of the fractional take ups of the individual ATPs in the Gompers et al (2003) index amongst each cohort of peers three years (and, in section 5.5, the earliest possible year) before any decision by the focus firm to make a bid in a given year. We therefore hypothesize that *IPO GIM index*/ *HQ GIM*

of ATPs on corporate innovation (Chemmanur and Tian, 2018), takeover premiums (Cuñat et al, 2020), and takeover resistance (Carline et al, 2021).

index are joint sources of positive variation in *GIM index*/ *GIM dictatorship* that are plausibly exogenous to *Bidding firm*.[4]

The other explanatory variables capture a host of firm and industry characteristics. These are also one year lagged variables, with the exception of *Industry M&A* that is concurrent to a given year. Gormley and Matsa (2016) and Karpoff et al (2017) show that the Gompers et al (2003) index is correlated with many of these variables. We therefore cannot be confident that *IPO GIM index*/ *HQ GIM index* have not only theoretical validity but also statistical validity as joint sources of exogenous variation in *GIM index*/ *GIM dictatorship* until having netted off these correlations. As a precursor to the main analysis, column (6) presents the results from regressing *Bidding firm* on one explanatory variable at a time (with a natural logarithmic transformation applied to *Size*, and clustering at the firm level), including *IPO GIM index*/ *HQ GIM index*. In particular, these probit regression results show a positive association between *GIM index*/ *GIM dictatorship* and *Bidding firm*, although the marginal effect of *GIM dictatorship* is insignificant at conventional levels. In contrast the marginal effects of *IPO GIM index*/ *HQ GIM index* point to a negative association between instrumented *GIM index*/ *GIM dictatorship* and *Bidding firm*, which suggests a need to treat observed *GIM index*/ *GIM dictatorship* as suspect endogenous variables.

3.2.2. Bids

Panel B of Table 2 presents descriptive statistics and univariate analysis for the main variables related to the bids in the sample. Table A1 in Appendix A contains full details of these variables. *CAR* is the dependent variable for examining the quality of investment in M&A. Specifically, it is the cumulative abnormal return to shareholders of the bidding firm from a given bid over a three-day trading window centered on the announcement date. Masulis et al (2007) discuss the merits of this immediate measure of bid quality, which is analogous to net present value, over noisier gradual measures based on some form of realized return. There nevertheless

[4] Our joint instrumental variables induce greater arbitrary variation than the single instrumental variable used by Humphery-Jenner (2014), since his instrumental variable for the Gompers et al (2003) index (i) includes peers that are in the same industries as the focus firm; (ii) depends on the state of incorporation of the focus firm; and (iii) is concurrent to the decision by the focus firm to make a bid.

are challenges posed in using this measure. For instance, Wang (2018) suggests that the inferences drawn derive from associations with not only bid quality but also information revelation about the standalone value of the bidding firm. Core et al (2006) contend that it is difficult to substantiate how known information about ATPs has value relevance to market perception of corporate events. To circumvent these challenges, in section 5.3, we account for unobservable factors that affected the decision to make a bid, since amongst other things these factors are likely to capture surprise related to the standalone value of the bidding firm. We also draw inferences in conjunction with market priors about the causal effect of ATPs on the decision to make a bid. The descriptive statistics for *CAR* are generally consistent with those reported by Masulis et al (2007), in that this variable is approximately mean and median centered at zero percent but with a wide interquartile range (of 5.1 percentage points), which possibly suggests widespread variation in bid quality.

GIM index/ *GIM dictatorship* are again the explanatory variables of main interest. Although most of the other explanatory variables also correspond to those for the firm observations in the sample, included now are variables that are conditional on having made a bid.[5] As a precursor to the main analysis, column (6) presents the results from regressing *CAR* on one explanatory variable at a time (with a natural logarithmic transformation applied to *Value* and *Size*, and clustering at the firm level), including the instrumental variables for *GIM index*/ *GIM dictatorship*. In particular, these ordinary least squares regression results show no association between *GIM index*/ *GIM dictatorship* and *CAR*. In contrast the marginal effects of the instrumental variables, *IPO GIM index*/ *HQ GIM index*, point to a positive association between instrumented *GIM index*/ *GIM dictatorship* and *CAR*, which again suggests a need to treat observed *GIM index*/ *GIM dictatorship* as suspect endogenous variables. In addition, columns (7) and (8) present the results

[5] The motivation for the inclusion of these variables comes from particularly (i) Karolyi et al (2015) for *Serial*; (ii) Morck et al (1990) for *Diversifying*; (iii) Moeller and Schlingemann (2005) for *Cross-border*; (iv) Hansen and Loft Jr (1996) for *Public*; and (v) Travlos (1987) for *Stock only*. As recommended by Schneider and Spalt (2019), we include bid size (*Value*) independently of firm size (*Size*, for which the motivation for inclusion comes from Moeller et al, 2004), rather than including bid size relative to firm size. Gormley and Matsa (2016) nevertheless suggest dropping variables that in particular are conditional on having made a bid because as with the Gompers et al (2003) index these variables are likely to be endogenously determined. Our causal evidence is robust to following their suggestion (the results for which are not tabulated).

from rerunning these regressions separately for focusing bids and diversifying bids respectively. The marginal effects of *IPO GIM index*/ *HQ GIM index* also point to a positive association between instrumented *GIM index*/ *GIM dictatorship* and *CAR*, although only on average amongst focusing bids.

4. MAIN ANALYSIS

4.1. ATPs and the likelihood of investment in M&A

Our first aim is to reevaluate causally the effect of ATPs on the likelihood of investment in M&A. This aim is important for two main reasons. Firstly Karpoff et al (2017) and Cuñat et al (2020) provide causal evidence that ATPs afford managers protection from the threat of takeover, whilst Chemmanur and Tian (2018) provide causal evidence suggesting that managers attach a higher shareholder-interests value to this protection as to induce them to increase investment in corporate innovation. However, in terms of the investment opportunities available overall to the firm, it is complementary to explore where this leaves the causal effect of ATPs on the likelihood of investment in M&A. The second reason is that a failure to use this first stage analysis to account for unobservable factors that affected the decision to invest in M&A might induce bias in our second aim of causally reevaluating the effect of ATPs on the quality of this investment.

4.1.1. Observed effects against instrumented effects

We begin by estimating probit regressions of *Bidding firm* on *GIM index*/ *GIM dictatorship*, the other explanatory variables for the firm observations in the sample, and an additional (one year lagged) variable; namely, *Rate spread* (full details of which are contained in Table 3). *Rate spread* serves as an inverse measure of competition in the market for commercial and industrial loans. Harford (2005) finds that this variable is negatively associated with merger waves. The marginal effect of *Rate spread* is significantly negative across the ensuing econometric specifications. We use *Rate spread* to ensure credible identification in accounting for unobservable factors that affected the decision to make a bid. Columns (1) and (2) of Table 3 present the results for the observed effects of *GIM index* and *GIM dictatorship* respectively. As with

the precursory probit regressions, the results show a positive association between *GIM index*/ *GIM dictatorship* and *Bidding firm*, although again the marginal effect of *GIM dictatorship* is insignificant at conventional levels. These results are generally consistent with those of Bauguess and Stegemoller (2008) and Giroud and Mueller (2011).

We next instrument for *GIM index*/ *GIM dictatorship*. Since these are additive/ binary variables, we have to use a different econometric specification to instrument each correctly. Specifically, we use a two stage probit model to treat *GIM index* as a suspect endogenous variable, whereas for *GIM dictatorship* it is a bi-probit model. Each specification nevertheless uses *IPO GIM index*/ *HQ GIM index* as the joint instrumental variables, and the other variables in the beginning probit regressions as controls. The benefit of these side-by-side estimations is that the first model relies on the validity of the instrumental variables but not on the correct specification of the instrumenting equation, whereas for the second model it is the reverse because this model already accounts for correlation between the error terms of the outcome and instrumenting equations. We also place weight on the results from a reduced form probit regression of *Bidding firm* on *IPO GIM index*/ *HQ GIM index* and the controls. These results are equally important because, according to Angrist and Pischke (2009, p. 213), rather than invalidating the assumption of exogeneity, to be credible a causal association must be ultimately traceable back to the instrumental variables.

Columns (3a) and (3b) of Table 3 present the results from estimating the two stage probit model. For the instrumenting equation in column (3a), the results show that the marginal effects of *IPO GIM index*/ *HQ GIM index* on *GIM index* are positive and significant at the one percent level. The drawback of using a two stage probit model (and indeed a bi-probit model) is that it precludes a comprehensive assessment of the statistical validity of the instrumental variables as exogenous sources of variation in the suspect endogenous variable. We nevertheless gain confidence from observing that these marginal effects are generally consistent with those reported by Karpoff et al (2017). Continuing with the instrumenting equation, the results show that from amongst the controls *GIM index* correlates particularly with *Liquidity* and *Stock*

volatility. Gormley and Matsa (2016) draw attention to similar correlations and to the endogeneity concerns that these pose. Yet what matters from our perspective is the suggestion that, after netting off these concurrent correlations, *IPO GIM index*/ *HQ GIM index* have not just theoretical validity but also statistical validity as joint sources of exogenous variation in *GIM index*. *GIM index* is also correlated with (one year ahead) *Industry M&A*, which attests to the importance of that part of the assumption of exogeneity behind our joint instrumental variables that derives from only including peers from industries not shared with the focus firm.

For the outcome equation in column (3b), the results show that there is a negative association between instrumented *GIM index* and *Bidding firm*. The marginal effect of instrumented *GIM index* is statistically significant at the five percent level. In terms of the predicted economic effect, a move up and fully across the interquartile range for *GIM index* (as shown in Panel A of Table 2) induces an average 5.2 percentage points decrease in the likelihood of *Bidding firm* being equal to one. This effect is substantial in comparison to the overall rate of bidding firms. At the base of the model, the chi^2 related to exogeneity is from a test of the null hypothesis that *GIM index* is likely to be exogenous to *Bidding firm* as to not require *IPO GIM index*/ *HQ GIM index* as the joint instrumental variables. Its value of 6.9 is significant at the one percent level, which means that little confidence comes from accepting the null hypothesis. We therefore place weight on the marginal effect of the instrumented *GIM index* rather than that of the observed *GIM index*.

Columns (4a) and (4b) of Table 3 present the results from estimating the bi-probit model. The results are similar, in terms of causal implication, to those from estimating the two stage probit model. However, in being binary, the instrumenting equation, in column (4a), generates instrumented *GIM dictatorship* in continuous (or probability) form for inclusion in the outcome equation, in column (4b). In terms of the predicted economic effect, a move up and fully across the probability range for *GIM dictatorship* induces an average 8.2 percentage points decrease in the likelihood of *Bidding firm* being equal to one. In addition the chi^2 related to exogeneity is from a test of the null hypothesis that correlation between the error terms of the two equations is likely

to be inconsequential as to not require the instrumenting equation. Again little confidence comes from accepting the null hypothesis. Lastly, column (5) of Table 3 presents the results from estimating the reduced form probit regression. These results give credibility to those from estimating the two stage probit and bi-probit models, since a negative association between instrumented *GIM index*/ *GIM dictatorship* and *Bidding firm* is ultimately traceable back to the joint instrumental variables, *IPO GIM index*/ *HQ GIM index*.

Our causal reevaluation of the effect of firm level takeover defenses on the likelihood of investment in M&A accords with the work on other corporate outcomes (as mentioned in footnote 3) in suggesting that ATPs are partially endogenous. Without the use of an econometric tool to circumvent this probable endogeneity, it not only makes it impossible to establish causality in this regard but also conceals the finding that greater takeover protection at the firm level is associated with lower likelihood of investment in M&A. We therefore find support for Hypothesis 1B. The causal implication is that ATPs play a critical role in the decision to invest in M&A. However if managerial based motives primarily drive investment in M&A, managers are unlikely to attach a higher self-interest value to the protection afforded by ATPs as to magnify the risk related agency conflict that typifies many of these motives in many studies (e.g. Amihud and Lev, 1981; Shleifer and Vishny, 1989; Morck et al, 1990; Gormley and Matsa, 2016).[6] Managers instead are likely to attach a higher shareholder-interests value to the protection afforded by ATPs as to have lower propensity for otherwise inhibiting real investment that is possibly more optimal to shareholders, such as increased investment in corporate innovation shown by Chemmanur and Tian (2018).[7]

4.1.2. Sources of probable endogeneity

[6] Many of these managerial based motives are associated with risk related agency conflict caused by risk reducing, but suboptimal and possibly value destroying, investment in M&A. Yet the hubris motive espoused by Roll (1986) concerns managerial overconfidence that leads to risk increasing investment in M&A, but with the same costly outcomes for shareholders.

[7] Another possibility however is that greater takeover protection enables managers to enjoy a quieter life. Yet although Bertrand and Mullainathan (2003) provide causal evidence in support of this possibility, Gormley and Matsa (2016) do so to the contrary after likewise using the passage of takeover protection at the state level.

Our use of instrumental variables circumvents the endogeneity concerns that arise from a dependence on observed measures of ATPs. We nevertheless assess possible sources of the probable endogeneity in the context of our study. One possibility is that measurement error in the residuals of the beginning probit regressions induces bias in the observed effects of *GIM index*/ *GIM dictatorship* on *Bidding firm*. This however is more of a concern for the additive measure, *GIM index*, because of the propagative assumption of a constant effect throughout the ATPs counted therein. Yet the results from these regressions show little difference between the effect of *GIM index* and that of the simple binary measure, *GIM dictatorship*.

We control for a host of firm and industry characteristics in the beginning probit regressions. Nevertheless another possibility is that unobservable factors, such as economic shocks and technological changes that lead to industry merger waves (Harford, 2005; Gorton et al, 2009), induce bias in the observed effects of *GIM index*/ *GIM dictatorship* on *Bidding firm*. Yet when our attention turns to the observed effects on *CAR*, we find no evidence that *GIM index*/ *GIM dictatorship* correlates with a measure of the aggregate strength of unobservable factors that affected the decision to make a bid. However, since this analysis only applies to the bids in the sample, we acknowledge that it is impossible to rule out unobservable factors as a source of probable endogeneity in the wider context of our study.

We also consider the possibility that the observed effects of *GIM index*/ *GIM dictatorship* on *Bidding firm* are uninformative from a causal perspective because higher likelihood of making a bid reversely causes greater takeover protection at the firm level. Karpoff et al (2017) suspect that reverse causality accounts for their findings that only after circumventing probable endogeneity in ATPs is a higher Gompers et al (2003) index associated with lower likelihood of the threat of takeover. Yet they do not provide supporting evidence. The possible repercussions in the context of our study partially resonate from the findings of Mitchell and Lehn (1990) and Phalippou et al (2015) that bidding firms, good and bad, become attractive takeover targets. It therefore is reasonable to presume that preemptive shoring up of ATPs is particularly common

amongst managers with higher likelihood of making a bid, regardless of whether they expect a bid to be value enhancing or destroying to shareholders.

We find evidence suggestive of preemptive shoring up of ATPs amongst the firm observations in the sample. Table 4 presents the evidence. It shows mean percentages of firms that add at least one provision in the Gompers et al (2003) index (GIM index), the Bebchuk et al (2009) index (BCF index), and an index of the other eighteen ATPs in the GIM index not in the BCF index (Other index). We firstly identify each added provision between consecutive updates to the RiskMetrics dataset for the GIM index and then compare bidding firms for updates before earliest bids (from 1994 onwards) to other firms and updates. The mean percentage of firms in the first group that add at least one provision in the GIM index is 35.2 percent, as compared to 30.2 percent in the second group. The difference is significant at the one percent level (after accounting for clustering at the firm level) and derives only on average from amongst the ATPs in the Other index. Although these ATPs are less potent (Bebchuk et al, 2009) and therefore possibly easier to add, it is the case that if instrumented a higher Other index is nevertheless effective in reducing the threat of takeover (Karpoff et al, 2017).

Given these possible sources of probable endogeneity, we reevaluate the effects of the GIM index (and, in section 5.2, the BCF index and Other index) using joint instrumental variables that are theoretically and statistically capable of locking in to distinct components of ATPs that are exogenous to the likelihood of making a bid. This entails evaluating the consistency and credibility of the causal effects using different econometric and variable specifications.

4.2. ATPs and the quality of investment in M&A

Ignoring for a moment the concerns about unobservable factors that affected the decision to invest in M&A, our second aim is to reevaluate causally the effect of ATPs on the quality of investment in M&A. Given our causal evidence from the first part of the main analysis, the important issue now is whether, due to managers attaching a higher shareholder-interests value to the protection afforded by ATPs, any investment in M&A is less likely to create an agency cost

and a welfare loss to shareholders, and a perquisite to managers. We in other words now examine whether ATPs curb risk related agency conflict in the event of the decision to invest in M&A.

4.2.1. All bids

We begin by estimating ordinary least squares (OLS) regressions of *CAR* on *GIM index*/ *GIM dictatorship* and the other explanatory variables for the bids in the sample. Columns (1) and (2) of Table 5 present the results for the observed effects of *GIM index* and *GIM dictatorship* respectively. As with the precursory OLS regressions, the results show no association between *GIM index*/ *GIM dictatorship* and *CAR*. The same applies if we rerun these regressions separately for focusing bids and diversifying bids. These results are presented in columns (3)/ (4) and (5)/ (6) of Table 5 for focusing bids and diversifying bids respectively. Our results contrast with a significantly negative association found by Masulis et al (2007) and Harford et al (2012), but are generally consistent with those of many other studies. In particular Bauguess and Stegemoller (2008), Hoechle et al (2012), and Phalippou et al (2015) also find no association, whilst Giroud and Mueller (2011) find a marginally negative association (t-statistic = 1.67) and one confined to bidding firms from highly concentrated industries.[8]

We next instrument for *GIM index*/ *GIM dictatorship*. Since these are additive/ binary variables, we have to use a different econometric specification to instrument each correctly. Specifically, we use a two stage least squares (2SLS) model to treat *GIM index* as a suspect endogenous variable, whereas for *GIM dictatorship* it is a specification that is prescribed by Angrist and Pischke (2009, pp. 190-192). The second specification also entails a 2SLS model, but one in which the probability of *GIM dictatorship* being equal to one is the single instrumental

[8] The use of the RiskMetrics dataset for the Gompers et al (2003) index means that these studies have similar sample criteria to our study. Rather the first part of the main analysis suggests endogeneity and particularly reverse causality as a possible explanation for the inconsistent results. This is because the closer observed measures of ATPs are to a bid the more susceptible the results are likely to be to an evidential greater tendency amongst bidding firms to add at least one provision prior to making a bid. Our observed measures of ATPs are one year lagged with respect to the year of a bid because like Bauguess and Stegemoller (2008) and Giroud and Mueller (2011) these are the corresponding measures that we firstly use to examine the effect of ATPs on the likelihood of making a bid. As mentioned at the time, our results are also generally consistent with theirs in this regard. Yet the observed measures of ATPs used by Masulis et al (2007) and Harford et al (2012) are concurrent to the year of a bid. Notwithstanding the inconsistent results, ours is the only study to go on to use an econometric tool to circumvent reverse causality and other sources of probable endogeneity in ATPs.

variable computed from a preliminary probit regression that contains the joint instrumental variables, *IPO GIM index*/ *HQ GIM index*, for *GIM index* in the first specification. Each specification nevertheless uses the other variables in the beginning OLS regressions as controls. The benefit of these side-by-side estimations is that the first (or conventional) specification permits a test of no over identification as a means of partially assessing the assumption of exogeneity underpinning the instrumental variables, whereas the second (or augmented) specification effectively fits a just identified model. We also place weight on the results from a reduced form OLS regression of *CAR* on *IPO GIM index*/ *HQ GIM index* and the controls.

Columns (1a) and (1b) of Table 6 present the results from estimating the conventional 2SLS model. For the instrumenting equation in column (1a), the results show that the marginal effects of *IPO GIM index*/ *HQ GIM index* on *GIM index* are almost identical to those for the first part of the main analysis. This is despite having now incorporated the effects of the controls that are conditional on having made a bid. Foremost amongst these is a positive correlation between *GIM index* and (one year ahead) *Diversifying*, which Gormley and Matsa (2016) draw particular attention to in conveying endogeneity concerns that arise in the context of our study from a dependence on the Gompers et al (2003) index in observed form. Presented at the base of this model are the statistics from a comprehensive set of diagnostic tests in relation to instrumenting for *GIM index*. We rely on the partial-F for the instrumental variables to test the null hypothesis that *IPO GIM index*/ *HQ GIM index* alone have no joint effect on *GIM index*. Its value of 44.0 exceeds the recommended minimum value of 10.0 (Angrist and Pischke, 2009, p. 213) and is significant at the one percent level, which means that we confidently reject the null hypothesis. We rely on the partial-R^2 for the instrumental variables to gauge the extent to which the joint variation in *IPO GIM index*/ *HQ GIM index* alone explains the overall variation in *GIM index*. Despite no recommended minimum value, its value of 6.4 percent is reasonable given our rationale for *IPO GIM index*/ *HQ GIM index* having theoretical validity as joint sources of variation in *GIM index*. These statistics therefore suggest that *IPO GIM index*/ *HQ GIM index* also have statistical validity as joint sources of variation in *GIM index*.

For the outcome equation in column (1b), the results show that there is a positive association between instrumented *GIM index* and *CAR*. The marginal effect of instrumented *GIM index* is statistically significant at the one percent level. In terms of the predicted economic effect, a move up and fully across the interquartile range for *GIM index* (as shown in Panel B of Table 2) produces an average increase of 2.1 percentage points in *CAR*. This effect is substantial in comparison to the interquartile range for *CAR*. Returning to the statistics at the base of the model, we rely on the chi^2 for no over identification to test the null hypothesis that at least one of the instrumental variables is likely to be exogenous to *CAR*. Unsurprisingly its value of 0.0 is insignificant at conventional levels, which means that we confidently accept the null hypothesis and have some confidence that *IPO GIM index*/ *HQ GIM index* have not only theoretical validity but also statistical validity as joint exogenous sources of variation in *GIM index*. We rely on the F-statistic for exogeneity to test the null hypothesis that *GIM index* is likely to be exogenous to *CAR* as to not require *IPO GIM index*/ *HQ GIM index* as the joint instrumental variables. Its value of 13.8 is significant at the one percent level, which means that little confidence comes from accepting the null hypothesis. As for the first part of the main analysis, we therefore place weight on the marginal effect of the instrumented *GIM index* rather than that of the observed *GIM index*.

Columns (2a) and (2b) of Table 6 present the results from estimating the augmented 2SLS model. There is no chi^2 for no over identification because, as mentioned above, this specification starts with a preliminary probit regression, in column (2a), and finishes with a second stage equation for *CAR*, in column (2b), after effectively fitting a just identified model. The results are similar, in terms of causal implication, to those from estimating the conventional 2SLS model. In terms of the predicted economic effect, a move up and fully across the probability range for *GIM dictatorship* produces an average increase of 3.1 percentage points in *CAR*. Lastly, column (3) of Table 6 presents the results from estimating the reduced form OLS regression. These results give credibility to those from estimating the conventional and augmented 2SLS models, since a positive association between instrumented *GIM index*/ *GIM dictatorship* and *CAR* is ultimately traceable back to the joint instrumental variables, *IPO GIM index*/ *HQ GIM index*.

Our causal reevaluation of the effect of firm level takeover defenses on the quality of investment in M&A accords with the first part of the main analysis in suggesting that ATPs are partially endogenous. Without the use of an econometric tool to circumvent endogeneity that arises from the decision to invest in M&A, it again not only makes it impossible to establish causality but also conceals the follow on finding that greater takeover protection at the firm level is more likely to produce higher valued M&A if opportunities arise. We therefore find support for Hypothesis 2B. The causal implication is that managers are indeed likely to attach a higher shareholder-interests value to the protection afforded by ATPs as to be less likely to create an agency cost and a welfare loss to shareholders in the event of the decision to invest in M&A.

Drobetz and Momtaz (2020) draw a similar conclusion from their study of bidding firms in Germany. Yet our evidence differs from theirs in three key respects. Firstly, they attribute this induced managerial initiative to not only ATPs but also a historically stronger framework of corporate governance in Germany. We in contrast attribute probable endogeneity in ATPs to otherwise concealing similar induced managerial initiative in the United States. Secondly, they do not examine the effect of ATPs on the likelihood of investment in M&A. Our causal evidence in this regard suggests that ATPs play a critical role in the decision to invest in M&A, and specifically that the market is likely to have lower expectation of M&A the more protected are managers. This (positive) surprise is crucial for substantiating how it is plausible for known information about ATPs to have value relevance for market perception of the quality of investment M&A, when this would otherwise be improbable (Core et al, 2006).[9] Thirdly, they discount endogeneity in ATPs but do so without the use of instrumental variables, which means that their evidence is less definitively causal than is ours.

4.2.2. Focusing bids against diversifying bids

For the causal analysis encompassing all bids, we included *Diversifying* to account for bids that do not involve core-overlapping industries. This is because diversifying bids, as distinct from

[9] However another possibility is that known information about ATPs has value relevance for market perception of the quality of investment in M&A only because we are yet to account for unobservable factors that affected the decision to invest in M&A and the extent to which the market unanticipated this investment.

focusing bids, create a larger agency cost and welfare loss to shareholders (Morck et al, 1990), whilst embodying a valuable perquisite to managers by enabling them to decrease their financial exposure to the idiosyncratic part of firm risk (Amihud and Lev, 1981; Shleifer and Vishny, 1989; Gormley and Matsa, 2016). However Fuller et al (2002) suggest using homogenized samples of bids to an extent that it enables a specific focus on the drivers of main interest to bid quality. We therefore replicate the causal analysis for bid quality separately for focusing bids and diversifying bids to examine whether substantiation of a positive causal effect of ATPs on bid quality depends on how bids alter the financial exposure of managers to the idiosyncratic part of firm risk. Specifically, if managers attach a higher shareholder-interests value to the protection afforded by ATPs, greater exogenous takeover protection at the firm level is less likely to create a perquisite to managers that is costly to shareholders and primarily because of bids that increase that part of their risk that derives from the diversifiable part of firm risk.

The results are presented in columns (1a)-(3) and (4a)-(6) of Table 7 for focusing bids and diversifying bids respectively. The results for focusing bids are similar, in terms of causal implication, to those from examining all bids. However this is not the case for diversifying bids because the marginal effects of instrumented *GIM index*/ *GIM directorship* on *CAR* are insignificant, and nothing shows up for the instrumental variables, *IPO GIM index*/ *HQ GIM index*, in the reduced form results. Crucially this has nothing to do with statistical validity of the instrumental variables because the statistics in this regard are little different from those for focusing bids. Yet only for focusing bids does the F-statistic for exogeneity suggest placing weight on the marginal effects of instrumented *GIM index*/ *GIM directorship* rather than those of observed *GIM index*/ *GIM directorship*.

In finding a positive association between exogenous measures of ATPs and the quality of investment in M&A only on average amongst focusing M&A, we therefore find support for Hypothesis 3B. Since protecting managers with more ATPs is likely to promote risk increasing initiative and incentive effort to the benefit of shareholders if higher valued opportunities arise

for investment M&A, our causal evidence suggests that firm level takeover defenses indeed curb risk related agency conflict in the event of the decision to invest in M&A.

5. FURTHER ANALYSIS AND ROBUSTNESS

5.1. Likelihood of value enhancing M&A

Our main causal evidence suggests that protecting managers with more ATPs produces higher valued bids, and that in general these are focusing bids and so likely to be personally riskier to managers. However only 54.2 percent of the bids in the sample produce a positive *CAR*. A therefore important follow on issue concerns whether ATPs curb risk related agency conflict to an extent whereby focusing bids are particularly more likely to be value enhancing to shareholders. To address this issue, we replace our continuous measure of bid quality with a measure that identifies if *CAR* is positive for a given bid. Since the dependent variable is now binary, we convert to a two stage probit (bi-probit) model to treat *GIM index* (*GIM dictatorship*) as a suspect endogenous variable, as well as to a reduced form probit regression. We used these types of models for obtaining the instrumented effects of ATPs on the likelihood of making a bid.

Table 8 presents the results. These are similar, in terms of causal implication, to our main results. Yet our causal evidence now suggests that having more ATPs indeed curbs risk related agency conflict to an extent whereby focusing bids are particularly more likely to be value enhancing to shareholders. In terms of the predicted economic effect and based on instrumented *GIM dictatorship*, a move up and fully across the probability range for *GIM dictatorship* produces an average 26.4 percentage points increase in the likelihood of a positive *CAR*. This effect is substantial in comparison to the overall rate of bids with a positive *CAR*.

5.2. Alternative measures of ATPs

Since our main causal evidence derives from two forms of the Gompers et al (2003) index (GIM index), it assumes that managers attach protective value to a broad array of ATPs. However Bebchuk et al (2009) make a case for an index (BCF index) of only six of these ATPs as being credible for managerial entrenchment. Drobetz and Momtaz (2020) find that their results that

show a positive effect of ATPs on bid quality only derive from this BCF index. Yet, notwithstanding the superior deterrent strength of a higher BCF index, Karpoff et al (2017) find an index consisting of the other eighteen provisions in the GIM index (Other index) to be not far behind in the power stakes for reducing the threat of takeover. Therefore, to assess the generalizability of our main causal evidence with regard to bid quality, we alternatively substitute the additive form of the GIM index with the BCF index and Other index. Since the explanatory variables of main interest are now subparts of the GIM index, we also split our joint instrumental variables for the GIM index in to corresponding subparts.

Tables 9 and 10 present the results for the BCF index and Other index respectively. Irrespective of the sub-index, these are similar, in terms of causal implication, to our main results. However, after accounting for a wider interquartile range for the Other index, the predicted economic effect on bid quality, and based on focusing bids, is larger for the BCF index. Table 9 also presents reduced form results for the classified board component of our joint instrumental variables for the BCF index. This is for consistency with Masulis et al (2007) because they find observed instances of this component, and not just observed levels of the BCF index, to be negatively associated with bid quality. Yet again our results suggest the opposite, at least as far as focusing bids are concerned.

5.3. Unobservable factors that affected the decision to invest in M&A

Our main causal evidence is in two parts. The first part concerns the effect of ATPs on the likelihood of making a bid, whilst the second part concerns the effect of ATPs on bid quality. Since the second part is conditional on the first part, this might induce bias in our main causal evidence for the second part. As articulated by Certo et al (2016), this potential for bias derives from the decision to make a bid having taken place in the presence of unobservable factors that are likely to be both firm specific and industry related, including factors that might be relevant for a determination of the standalone value of the bidding firm. These factors might correlate with not only bid quality but also ATPs. In not accounting for these factors, we might be inducing bias in our main causal evidence concerning the effect of ATPs on bid quality.

To address this concern, we add a variable to our joint instrumental variables based econometric specifications for bid quality that accounts for unobservable factors that affected the decisions of firms to become bidding firms from the firm observations in the sample. This variable measures the aggregate strength of unobservable factors that affected the decision of a given firm to become a bidding firm in a given year. Yet another way of conceptualizing it is as a measure of the extent to which a bid by that firm in that year is unanticipated by the market. Specifically, we follow a method prescribed by Wooldridge (2010, pp. 809-813) and compute an inverse Mills ratio (or a lambda) for the reduced form probit regression for explaining the likelihood of making a bid. Computing a lambda for this joint instrumental variables based regression ensures that we are able to account for the effect of firm level takeover defenses on the decisions of firms to become bidding firms after circumventing the evidential endogeneity in ATPs at this stage. We use *Rate spread* in the reduced form probit regression to ensure credible identification in computing a lambda. Although there is credible reason not to doubt the relevance of this variable as a general determinant of the likelihood of making a bid, we have no reason also to suppose that competition in the market for commercial and industrial loans has relevance for explaining the cross-sectional variation in bid quality.

Tables B1 and B2 in Appendix B present the results for all bids and separately for focusing bids and diversifying bids respectively. These are similar, in terms of causal implication, to our main results. Essentially lambda correlates with neither bid quality nor the observed measures of ATPs in the instrumenting stages.

5.4. Alternative classification of focusing bids

Our reliance on standard industrial classification (SIC) for identifying bids that are likely to be personally riskier to managers because of involving overlapping industries is consistent with many other studies that are interested in risk related agency conflict in the context of bidding firms (e.g. Morck et al, 1990; Hoechle et al, 2012; Gormley and Matsa, 2016). Nevertheless, to ensure that our main causal evidence with regard to bid quality is not an artifact of SIC, we reclassify bids as focusing (diversifying) where the bidding firm and target firm share (do not

share) the same primary industry amongst the forty nine Fama French industries. This also requires that we convert our two industry related explanatory variables to the Fama French industries, as well as substitute our joint instrumental variables for the Gompers et al (2003) index with those used by Karpoff et al (2017) because theirs are purged of peers in the same Fama French industries as the focus firm. This however restricts the sample period to 1996-2009 because their joint instrumental variables have a five-year lag for the period 1995-2008. Table B3 in Appendix B presents the results. These are similar, in terms of causal implication, to our main results.

5.5. Earliest values of the instrumental variables for ATPs

Part of the assumption of exogeneity behind our joint instrumental variables for ATPs derives from lagging the values many years behind any decision by the focus to make a bid in a given year. Our main causal evidence derives from lagging the values three years behind any such decision. The lag doubled in substituting our joint instrumental variables with those of Karpoff et al (2017). However, as a further assessment of the robustness of our main causal evidence with regard to bid quality, we push things even closer to the extreme in only relying on the earliest values of our joint instrumental variables. These are typically the values computed from the earliest data for the Gomper et al (2003) index in the RiskMetrics dataset. Table B4 in Appendix B presents the results. These are similar, in terms of causal implication, to our main results.

5.6. Other robustness

The robustness of our main causal evidence with regard to bid quality is further evident from the results presented in Table B5 in Appendix B. For reasons of brevity, these only show results for *GIM index* and the second stages of the two stage least squares models. Yet still presented at the base of each model are a comprehensive set of statistics related to instrumenting for *GIM index*. We firstly widen and then minimize the event window for our measure of bid quality. In the latter case and for focusing bids, a substantial part of the value relevance of instrumented *GIM index* to market perception of bid quality occurs on the announcement date. Although not tabulated, results are also little different if we change our measure of bid quality to

one based on market adjusted returns (replacing market model adjusted returns) or one that relies on a value weighted index (replacing an equally weighted index) of stocks in the Center for Research in Security Prices database. For the other models that have tabulated results, we firstly add identifiers for all individual years in the sample period and then an identifier for the mass of years after the Sarbanes Oxley Act of 2002 (SOX). This is because Smith (2019) provides causal evidence suggesting in general that additions of ATPs after SOX generate a higher wealth effect to shareholders around the adoption date.

6. CONCLUSION

In this study, we reevaluate the effects of ATPs on the likelihood and quality of investment in M&A. What however sets our study apart from the many studies in this area is that we reevaluate these effects after circumventing probable endogeneity in ATPs. We achieve this by exploiting joint instrumental variables, which are capable from theoretical and statistical standpoints of locking in to distinct components of ATPs that are exogenous to the likelihood of investment in M&A, and by evaluating the consistency and credibility of the causal effects using different econometric and variable specifications.

The first part of our causal analysis reveals that higher instrumented levels of ATPs are associated with lower propensity for investment in M&A. This contrasts with a positive association that other studies, and indeed we, find if placing reliance on observed levels of ATPs. One implication is that if managerial based motives are the primary driver of investment in M&A then ATPs are unlikely to magnify the risk related agency conflict that characterizes many of these motives in many studies. Another implication however is that it complements existing causal evidence suggesting that managers attach a higher shareholder-interests value to the protection afforded by ATPs as to be less likely to inhibit risk increasing and value enhancing investment in corporate innovation. We also assess possible sources of the probable endogeneity in ATPs and find in particular greater tendency to shore up firm level takeover defenses amongst firms that go on to invest in M&A.

The second part of our causal analysis reveals that, in the event of the decision to invest in M&A and after accounting for unobservable factors that affected this decision, higher instrumented levels of ATPs are associated with higher valued M&A that are also more likely to be value enhancing to shareholders. This contrasts with a mostly non-positive association that other studies, and indeed we, find if placing reliance on observed levels of ATPs. We also find that in general these value-enhancing M&A involve core-overlapping industries, which suggests that these M&A are likely to be personally riskier to managers. The implication is that managers are likely to attach a higher shareholder-interests value to the protection afforded by ATPs as to provide them with risk increasing incentives for if value-enhancing opportunities arise for investment in M&A. Overall our causal evidence supports theory and evidence that gives weight to the possibility that ATPs curb, rather than magnify, risk related agency conflict in this and other corporate contexts.

Our study is not the first to reevaluate the effects of takeover defenses on investment in M&A with an econometric tool to circumvent endogeneity concerns. It however is the first to do so for takeover defenses at the firm level. Gormley and Matsa (2016) in contrast exploit a staggered passage of takeover defenses at the state level. Contrary to what we find, they find that firms in states that pass an antitakeover law are associated with both higher propensity for investing in M&A and lower valued M&A, although in the latter case they do not account for unobservable factors that affected the decision to invest in M&A. Notwithstanding this conflicting causal evidence, only for our study do the collective findings of a (positive) surprise provide substantiation for known information about takeover defenses having value relevance to market perception of the quality of investment in M&A. Yet investment in M&A is not the only context in which causal reevaluation of the effects of takeover defenses at the firm and state levels have led to conflicting evidence (e.g. see Atanassov, 2013; Chemmanur and Tian, 2018, for corporate innovation). Understanding why this is so and how takeover defenses at the firm and state levels interact are future challenges for researchers in this growing area of work.

REFERENCES

Amihud, Y. and B. Lev, 1981, Risk reduction as a managerial motive for conglomerate mergers, Bell Journal of Economics, 12, 605-617.

Angrist, J.D. and J.-S. Pischke, 2009, Mostly Harmless Econometrics: An Empiricist's Companion, Princeton University Press.

Atanassov, J., 2013, Do hostile takeovers stifle innovation? Evidence from antitakeover legislation and corporate patenting, Journal of Finance, 68, 1097-1131.

Bauguess, S. and M. Stegemoller, 2008, Protective governance choices and the value of acquisition activity, Journal of Corporate Finance, 14, 550-566.

Bebchuk, L., A. Cohen, and A. Ferrell, 2009, What matters in corporate governance?, Review of Financial Studies, 22, 783-827.

Bertrand, M. and S. Mullainathan, 2003, Enjoying the quiet life? Corporate governance and managerial preferences, Journal of Political Economy, 111, 1043-1075.

Cain, M.D., S.B. McKeon, and S.D. Solomon, 2017, Do takeover laws matter? Evidence from five decades of hostile takeovers, Journal of Financial Economics, 124, 464-485.

Carline, N.F., S. Gogineni, and P.K. Yadav, 2021, Post-bid takeover resistance: antitakeover provisions, initial offer quality, and managerial motivations, Unpublished working paper.

Catan, E.M. and M. Kahan, 2016, The law and finance of antitakeover statutes, Stanford Law Review, 68, 629-680.

Certo, S.T., J.R. Busenbark, H.-S. Woo, and M. Semadeni, 2016, Sample selection bias and Heckman models in strategic management research, Strategic Management Journal, 37, 2639-2657.

Chemmanur, T.J. and Y. Jiao, 2012, Dual class IPOs: a theoretical analysis, Journal of Banking and Finance, 36, 305-319.

Chemmanur, T.J., I. Paeglis, and K. Simonyan, 2011, Management quality and antitakeover provisions, Journal of Law and Economics, 54, 651-692.

Chemmanur, T.J. and X. Tian, 2018, Do antitakeover provisions spur corporate innovation? A regression discontinuity analysis, Journal of Financial and Quantitative Analysis, 53, 1163-1194.

Cohn, J.B., U.G. Gurun, and R. Moussawi, 2020, A project level analysis of value creation in firms, Financial Management, 49, 423-446.

Core, J.E., W.R. Guay, and T. Rusticus, 2006, Does weak governance cause weak stock returns? An examination of firm operating performance and investors' expectations, Journal of Finance, 61, 655-687.

Cuñat, V., M. Giné, and M. Guadalupe, 2020, Price and probability: decomposing the takeover effects of antitakeover provisions, Journal of Finance, 75, 2591-2629.

Drobetz, W. and P.P. Momtaz, 2020, Antitakeover provisions and firm value: new evidence from the M&A market, Journal of Corporate Finance, 62, 1-26.

Fuller, K., J. Netter, and M. Stegemoller, 2002, What do returns to acquiring firms tell us? Evidence from firms that make many acquisitions, Journal of Finance, 57, 1763-1793.

Giroud, X. and H.M. Mueller, 2011, Corporate governance, product market competition, and equity prices, Journal of Finance, 66, 563-600.

Gompers, P., J. Ishii, and A. Metrick, 2003, Corporate governance and equity prices, Quarterly Journal of Economics, 118, 107-155.

Gormley, T.A. and D.A. Matsa, 2016, Playing it safe? Managerial preferences, risk, and agency conflicts, Journal of Financial Economics, 122, 431-455.

Gorton, G., M. Kahl, and R.J. Rosen, 2009, Eat or be eaten: a theory of mergers and firm size, Journal of Finance, 64, 1291-1344.

Hansen, R.G. and J.R. Loft Jr, 1996, Externalities and corporate objectives in a world with diversified shareholders/ consumers, Journal of Financial and Quantitative Analysis, 31, 43-68.

Harford, J., 2005, What drives merger waves?, Journal of Financial Economics, 77, 529-560.

Harford, J., M. Humphery-Jenner, and R. Powell, 2012, The sources of value destruction in acquisitions by entrenched managers, Journal of Financial Economics, 106, 247-261.

Hoechle, D., M. Schmid, I. Walter, and D. Yermack, 2012, How much of the diversification discount can be explained by corporate governance?, Journal of Financial Economics, 103, 41-60.

Holmström, B., 1999, Managerial incentive problems: a dynamic perspective, Review of Economic Studies, 66, 169-182.

Humphery-Jenner, M, 2014, Takeover defenses, innovation, and value creation: evidence from acquisition decisions, Strategic Management Journal, 35, 668-690.

Jensen, M.C. and W.H. Meckling, 1976, Theory of the firm: managerial behavior, agency costs, and ownership structure, Journal of Financial Economics, 3, 305-360.

Johnson, W.C., J.M. Karpoff, and S. Yi, 2015, The bonding hypothesis of takeover defenses: evidence from IPO firms, Journal of Financial Economics, 117, 307-322.

Karolyi, G.A., R.C. Liao, and G. Loureiro, 2015, The decreasing returns of serial acquirers around the world, Unpublished working paper.

Karpoff, J.M., R.J. Schonlau, and E.W. Wehrly, 2017, Do takeover defense indices measure takeover deterrence?, Review of Financial Studies, 30, 2359-2412.

Karpoff, J.M. and M.D. Wittry, 2018, Institutional and legal context in natural experiments: the case of state antitakeover laws, Journal of Finance, 73, 657-714.

Maksimovic, V. and G.M. Phillips, 2013, Conglomerate firms, internal capital markets, and the theory of the firm, Annual Review of Financial Economics, 5, 225-244.

Masulis, R.W., C. Wang, and F. Xie, 2007, Corporate governance and acquirer returns, Journal of Finance, 62, 1851-1889.

Mitchell, M.L. and K. Lehn, 1990, Do bad bidders becomes good targets?, Journal of Political Economy, 98, 372-398.

Moeller, S.B. and F.P. Schlingemann, 2005, Global diversification and bidder gains: a comparison between cross-border and domestic acquisitions, Journal of Banking and Finance, 29, 533-564.

Moeller, S.B., F.P. Schlingemann, and R.M. Stulz, 2004, Firm size and the gains from acquisitions, Journal of Financial Economics, 73, 201-228.

Morck, R., A. Shleifer, and R.W. Vishny, 1990, Do managerial objectives drive bad acquisitions?, Journal of Finance, 45, 31-48.

Phalippou, L., F. Xu, and H. Zhao, 2015, Acquiring acquirers, Review of Finance, 19, 1489-1541.

Renneboog, L. and C. Vansteenkiste, 2019, Failure and success in mergers and acquisitions, Journal of Corporate Finance, 58, 650-699.

Roll, R., 1986, The hubris hypothesis of corporate takeovers, Journal of Business, 59, 197-216.

Schneider, C. and O. Spalt, 2019, Why does size matter for bidder announcement returns?, Unpublished working paper.

Shleifer, A. and R.W. Vishny, 1989, Management entrenchment: the case of manager-specific investments, Journal of Financial Economics, 25, 123-139.

Smith, E.E., 2019, Are antitakeover amendments good for shareholders? Evidence from the adoption of antitakeover provisions in the post-SOX era, Quarterly Journal of Finance, 9, 1-40.

Stein, J.C., 1988, Takeover threats and managerial myopia, Journal of Political Economy, 96, 61-80.

Straska, M. and H.G. Waller, 2014, Antitakeover provisions and shareholder wealth: a survey of the literature, Journal of Financial and Quantitative Analysis, 49, 933-956.

Travlos, N.G., 1987, Corporate takeover bids: methods of payment and bidding firms' stock returns, Journal of Finance, 42, 943-963.

Wang, W., 2018, Bid anticipation, information revelation, and merger gains, Journal of Financial Economics, 128, 320-343.

Wooldridge, J.M., 2010, Econometric Analysis of Cross Section and Panel Data, MIT Press.

MAIN TABLES

Table 1

Temporal frequency distributions for the sample

This table presents temporal frequency distributions for the sample. Firms are at the intersection of the Center for Research in Security Prices and Compustat merged database and RiskMetrics dataset for the Gompers et al (2003) index. Excluded from a given year but with a one-year lag are firms with (i) headquarters located outside the United States; (ii) equity not listed on the New York Stock Exchange, NYSE American, or Nasdaq; (iii) more than one class of equity; (iv) non-positive book value of equity; and (v) a primary two-digit standard industrial classification (SIC) code for finance, insurance, real estate, electric, gas, or sanitary service. Bids made by these firms are from the Securities Data Company database. Excluded from a given year are (i) bids where the bidding firm already holds in excess of fifty-percent of the equity of the target firm; (ii) bids where the amount paid is less than one-percent of the market value of equity of the bidding firm six trading days before the announcement date; and (iii) uncompleted bids. Column (1) is for unique bidding firms in a given year from amongst all firms in column (2). Column (4) is for focusing bids from amongst all bids in column (5) made by these firms in a given year. Bids are classified as focusing where the bidding firm and target firm share the same primary two-digit SIC code.

	Bidding firms	All firms	Percentage	Focusing bids	All bids	Percentage
Year	(1)	(2)	(3)	(4)	(5)	(6)
1993	118	753	15.7	67	151	44.4
1994	150	854	17.6	104	207	50.2
1995	171	845	20.2	113	220	51.4
1996	196	899	21.8	136	261	52.1
1997	194	876	22.2	134	258	51.9
1998	208	873	23.8	155	295	52.5
1999	275	1,193	23.1	222	352	63.1
2000	228	1,070	21.3	173	289	59.9
2001	201	1,052	19.1	177	259	68.3
2002	196	1,008	19.4	156	248	62.9
2003	262	1,264	20.7	186	324	57.4
2004	285	1,243	22.9	226	359	63.0
2005	308	1,344	22.9	218	372	58.6
2006	301	1,279	23.5	199	359	55.4
2007	276	1,306	21.1	194	355	54.7
2008	206	1,203	17.1	157	256	61.3
2009	156	1,134	13.8	105	177	59.3
2010	209	1,099	19.0	157	265	59.3
2011	202	1,064	19.0	126	243	51.9
2012	219	1,023	21.4	128	262	48.9
Overall	4,361	21,382	20.4	3,133	5,512	56.8

Table 2

Descriptive statistics and univariate analysis for the main variables

This table presents descriptive statistics and univariate analysis for the main variables. Panel A is for all firms and years and Panel B is for bidding firms and all bids. Table 1 describes the sample and Table A1 in Appendix A contains the definitions for the main variables. *Bidding firm* equals one where the focus firm makes at least one bid in a given year and zero otherwise. Column (6) in Panel A is for results from a probit model in which *Bidding firm* is regressed on one other variable at a time. Columns (6)-(8) in Panel B is for results from ordinary least squares models in which *CAR* is regressed on one other variable at a time. Column (6) is for all bids and column (7) [(8)] is for focusing [diversifying] bids. Bids are classified as focusing (diversifying) where the bidding firm and target firm share (do not share) the same primary two-digit standard industrial classification code. Natural logarithmic transformations apply to *Value*/ *Size* in the univariate analysis and statistical significance of the marginal effects derives from robust standard errors clustered at the firm level. ***, **, and * denote one-, five-, and ten-percent significance respectively.

Panel A: All firms and years

	Descriptive statistics					Univariate analysis: Bidding firm
	Mean	25th percentile	50th percentile	75th percentile	Observations	Marginal effect
Variable	(1)	(2)	(3)	(4)	(5)	(6)
GIM index	9.0	7.0	9.0	11.0	21,382	0.0034**
GIM dictatorship	0.423				21,382	0.0104
IPO GIM index	9.0	8.2	8.9	9.9	21,256	-0.0022
HQ GIM index	9.1	8.5	9.1	9.7	21,060	-0.0094**
Size	5,647.1	479.3	1,221.2	3,568.7	21,367	0.0143***
Leverage	0.180	0.024	0.162	0.282	21,364	-0.0199
Market-to-book	1.934	1.204	1.549	2.174	21,346	0.0080***
Tangibility	0.552	0.261	0.470	0.771	21,248	-0.0884***
Liquidity	0.225	0.070	0.204	0.354	21,367	0.0091
Sales growth	0.088	-0.029	0.048	0.142	21,340	0.0047
ROA	0.133	0.088	0.135	0.187	21,302	0.1364***
Stock return	-0.168	-0.388	-0.145	0.078	21,365	0.0499***
Stock volatility	0.025	0.016	0.022	0.030	21,365	-1.9009***
Industry concentration	0.107	0.055	0.074	0.129	21,371	-0.3286***
Industry M&A	0.053	0.005	0.026	0.075	21,382	0.3442***

Table 2 (continued)

Panel B: Bidding firms and all bids								
						Univariate analysis		
						All bids	Focusing bids	Diversifying bids
	Descriptive statistics – All bids					CAR	CAR	CAR
	Mean	25th percentile	50th percentile	75th percentile	Observations	Marginal effect	Marginal effect	Marginal effect
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CAR	0.372	-2.141	0.385	2.963	5,506			
GIM index	9.2	7.0	9.0	11.0	5,512	0.0137	0.0339	-0.0038
GIM dictatorship	0.442				5,512	-0.0621	0.1032	-0.2287
IPO GIM index	9.0	8.2	8.8	9.9	5,477	0.1790**	0.2997***	0.0477
HQ GIM index	9.0	8.4	9.0	9.7	5,431	0.2285**	0.2852*	0.1563
Serial	0.653				5,512	-0.4162**	-0.3349	-0.5224*
Diversifying	0.432				5,512	-0.2150		
Cross-border	0.207				5,512	-0.0554	0.0396	-0.1897
Public	0.240				5,512	-2.3266***	-2.6082***	-1.9508***
Stock only	0.106				5,512	-1.5895***	-1.9554***	-1.0627*
Value	1,035.8	54.2	165.3	505.4	5,512	-0.3784***	-0.4030***	-0.3582***
Size	5,895.6	614.6	1,528.6	3,971.5	5,510	-0.4234***	-0.4547***	-0.3827***
Leverage	0.183	0.042	0.169	0.279	5,509	0.8269	-0.2563	2.5838**
Market-to-book	2.030	1.312	1.646	2.218	5,509	-0.1840	-0.1190	-0.4180***
Tangibility	0.493	0.206	0.383	0.681	5,495	0.1795	0.0380	0.4009
Liquidity	0.223	0.077	0.200	0.349	5,510	0.5246	1.2500*	-0.5144
Sales growth	0.107	-0.014	0.069	0.184	5,506	-0.9889***	-0.9927**	-1.0529
ROA	0.141	0.098	0.140	0.186	5,503	-2.6412**	-2.2364	-3.5458
Stock return	-0.117	-0.333	-0.104	0.109	5,510	-0.3225	-0.1937	-0.5283
Stock volatility	0.024	0.016	0.021	0.029	5,510	6.4476	1.4004	12.4425
Industry concentration	0.094	0.053	0.069	0.110	5,509	1.1375	2.5360	0.5350
Industry M&A	0.061	0.011	0.040	0.083	5,512	-3.6319***	-3.1580*	-5.6735**

Table 3

Multivariate analysis for the likelihood of investment in mergers and acquisitions with observed and instrumented measures of firm level takeover defenses

This table presents multivariate analysis for the likelihood of investment in mergers and acquisitions (*Bidding firm*) with observed and instrumented measures of firm level takeover defenses (*GIM index*/ *GIM dictatorship*). Table 1 describes the sample and Table A1 in Appendix A contains the definitions for the main variables. *Bidding firm* equals one where the focus firm makes at least one bid in a given year and zero otherwise. Column (1) [(2)] is for results from a probit model in which *GIM index* [*GIM dictatorship*] is not treated as a suspect endogenous variable. Columns (3a) and (3b) are for first- and second-stage results respectively from an instrumental variables (IV) probit model in which *GIM index* is treated as a suspect endogenous variable. *IPO GIM index*/ *HQ GIM index* are the joint IV. Columns (4a) and (4b) are for first- and second-equation results from a bi-probit model in which *GIM dictatorship* is treated as a suspect endogenous variable. *IPO GIM index*/ *HQ GIM index* are again the joint IV. Column (5) is for results from a reduced form probit model in which *Bidding firm* is regressed on *IPO GIM index*/ *HQ GIM index* and all control variables. *Rate spread* is the one-year lagged quarterly average of commercial and industrial loan rate spreads over the federal funds rate (from https://federalreserve.gov/releases/e2/e2chart.htm). A natural logarithmic transformation applies to *Size*. Robust standard errors clustered at the firm level are in parentheses below what are marginal effects. ***, **, and * denote one-, five-, and ten-percent statistical significance respectively.

	Bidding firm	**Bidding firm**	**GIM index**	**Bidding firm**	**GIM dictatorship**	**Bidding firm**	**Bidding firm**
Variables	**(1)**	**(2)**	**(3a)**	**(3b)**	**(4a)**	**(4b)**	**(5)**
GIM index	0.0025*						
	(0.0015)						
Instrumented GIM index				-0.0129**			
				(0.0060)			
GIM dictatorship		0.0077					
		(0.0076)					
Instrumented GIM dictatorship						-0.0823**	
						(0.0381)	
IPO GIM index			0.5525***		0.0854***		-0.0044
			(0.0525)		(0.0091)		(0.0038)
HQ GIM index			0.2951***		0.0481***		-0.0099**
			(0.0600)		(0.0107)		(0.0042)
ln(Size)	0.0127***	0.0129***	0.0921*	0.0146***	0.0090	0.0142***	0.0128***
	(0.0028)	(0.0028)	(0.0476)	(0.0031)	(0.0084)	(0.0031)	(0.0029)
Leverage	0.0127	0.0132	0.6248*	0.0222	0.1220**	0.0243	0.0162
	(0.0237)	(0.0237)	(0.3228)	(0.0247)	(0.0572)	(0.0248)	(0.0238)
Market-to-book	-0.0053*	-0.0056*	-0.0777**	-0.0069**	-0.0097	-0.0066**	-0.0061*
	(0.0031)	(0.0031)	(0.0330)	(0.0032)	(0.0075)	(0.0032)	(0.0032)
Tangibility	-0.0946***	-0.0940***	0.1968	-0.0866***	0.0396	-0.0851***	-0.0890***
	(0.0128)	(0.0128)	(0.1613)	(0.0136)	(0.0292)	(0.0140)	(0.0128)
Liquidity	0.0010	0.0001	-0.8355***	-0.0108	-0.1533***	-0.0128	-0.0019
	(0.0221)	(0.0220)	(0.2939)	(0.0233)	(0.0557)	(0.0238)	(0.0220)
Sales growth	0.0028	0.0027	-0.0309*	0.0023	-0.0184	0.0021	0.0027
	(0.0027)	(0.0027)	(0.0171)	(0.0027)	(0.0159)	(0.0028)	(0.0028)

Table 3 (continued)

	Bidding firm	Bidding firm	GIM index	Bidding firm	GIM dictatorship	Bidding firm	Bidding firm
Variables	**(1)**	**(2)**	**(3a)**	**(3b)**	**(4a)**	**(4b)**	**(5)**
ROA	0.1126***	0.1125***	-0.2420	0.1091***	-0.0314	0.1088***	0.1190***
	(0.0423)	(0.0423)	(0.3717)	(0.0423)	(0.0817)	(0.0421)	(0.0432)
Stock return	0.0387***	0.0389***	0.0916**	0.0393***	0.0052	0.0383***	0.0384***
	(0.0073)	(0.0073)	(0.0444)	(0.0073)	(0.0087)	(0.0073)	(0.0074)
Stock volatility	-1.1002***	-1.1384***	-13.6979***	-1.5088***	-2.4861***	-1.5451***	-1.3701***
	(0.3026)	(0.3018)	(2.8435)	(0.3328)	(0.5558)	(0.3425)	(0.3084)
Industry concentration	-0.2498***	-0.2506***	-0.7342	-0.2461***	-0.0838	-0.2429***	-0.2381***
	(0.0620)	(0.0622)	(0.5882)	(0.0637)	(0.1042)	(0.0630)	(0.0619)
Industry M&A	0.2437***	0.2450***	1.3652**	0.2767***	0.1953*	0.2750***	0.2598***
	(0.0483)	(0.0484)	(0.5918)	(0.0500)	(0.1057)	(0.0499)	(0.0488)
Rate spread	-0.0220***	-0.0221***	-0.0088	-0.0253***	-0.0139	-0.0267***	-0.0257***
	(0.0064)	(0.0064)	(0.0555)	(0.0065)	(0.0109)	(0.0066)	(0.0065)
Constant	0.2050***	0.2050***	1.2574	0.2089***	0.4219***	0.2102***	0.2051***
	(0.0039)	(0.0039)	(0.7880)	(0.0050)	(0.0109)	(0.0059)	(0.0039)
Chi^2	250.7***	246.4***	246.6***		486.7***		255.4***
Pseudo R^2	2.1	2.1					2.1
Chi^2 from test of exogeneity			6.9***		5.3**		
Observations	21,163	21,163	20,723		20,723		20,723

Table 4

Mean percentages of firms adding antitakeover provisions

This table presents mean percentages of firms adding at least one antitakeover provision in the Gompers et al (2003) index (GIM index), the Bebchuk et al (2009) index (BCF index), and an index of the eighteen provisions in the GIM index not in the BCF index (Other index). Table 1 describes the sample. Added provisions are ascertained between consecutive updates to the RiskMetrics dataset for the GIM index. Column (1) is for bidding firms for updates before earliest bids. Earliest bids are from 1994 onwards. Column (2) is for all other firms and updates. Statistical significance of the differences in column (3) derives from clustering at the firm level. ***, **, and * denote one-, five-, and ten-percent significance respectively.

	Bidding firms for updates before earliest bids	**All other firms and updates**	**Difference**	**Observations**
Mean percentages of firms	**(1)**	**(2)**	**(3)**	**(4)**
That add at least one provision in the GIM index	35.2	30.2	5.1***	6,285
That add at least one provision in the BCF index	14.3	15.6	-1.2	6,285
That add at least one provision in the Other index	26.4	19.6	6.8***	6,285

Table 5

Multivariate analysis for the quality of investment in mergers and acquisitions with observed measures of firm level takeover defenses

This table presents multivariate analysis for the quality of investment in mergers and acquisitions (*CAR*) with observed measures of firm level takeover defenses (*GIM index*/ *GIM dictatorship*). Table 1 describes the sample and Table A1 in Appendix A contains the variable definitions. Columns (1)/ (2) are for results from ordinary least squares (OLS) models for all bids and columns (3)/ (4) [(5)/ (6)] are for results from OLS models for focusing [diversifying] bids. Bids are classified as focusing (diversifying) where the bidding firm and target firm share (do not share) the same two-digit standard industrial classification code. Natural logarithmic transformations apply to *Value*/ *Size*. Robust standard errors clustered at the firm level are in parentheses below what are marginal effects. ***, **, and * denote one-, five-, and ten-percent statistical significance respectively.

	All bids		**Focusing bids**		**Diversifying bids**	
	CAR	**CAR**	**CAR**	**CAR**	**CAR**	**CAR**
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
GIM index	0.0263		0.0449		-0.0096	
	(0.0335)		(0.0423)		(0.0540)	
GIM dictatorship		0.0017		0.2163		-0.3340
		(0.1764)		(0.2258)		(0.2897)
Serial	-0.3680*	-0.3655*	-0.2696	-0.2678	-0.5094*	-0.5006
	(0.1946)	(0.1946)	(0.2432)	(0.2434)	(0.3085)	(0.3088)
Diversifying	-0.4187**	-0.4075**				
	(0.1858)	(0.1863)				
Cross-border	-0.2115	-0.2077	-0.2358	-0.2438	-0.1846	-0.1840
	(0.1782)	(0.1786)	(0.2423)	(0.2431)	(0.2690)	(0.2696)
Public	-1.9590***	-1.9577***	-2.2872***	-2.2916***	-1.5114***	-1.5124***
	(0.2520)	(0.2520)	(0.3233)	(0.3237)	(0.3796)	(0.3792)
Stock only	-0.8819**	-0.8829**	-1.1781**	-1.1758**	-0.3699	-0.3906
	(0.3857)	(0.3859)	(0.4956)	(0.4961)	(0.6048)	(0.6035)
ln(Value)	0.1235	0.1242	0.1795	0.1793	0.0819	0.0812
	(0.0993)	(0.0993)	(0.1282)	(0.1282)	(0.1530)	(0.1533)
ln(Size)	-0.4407***	-0.4393***	-0.4500***	-0.4482***	-0.4507***	-0.4485***
	(0.1032)	(0.1031)	(0.1339)	(0.1339)	(0.1646)	(0.1647)
Leverage	0.7168	0.7140	-0.3913	-0.3882	2.2176**	2.2004**
	(0.6879)	(0.6878)	(0.8230)	(0.8235)	(1.0846)	(1.0827)
Market-to-book	-0.0296	-0.0325	-0.0046	-0.0082	-0.1917	-0.1962
	(0.1449)	(0.1448)	(0.1613)	(0.1608)	(0.1934)	(0.1933)
Tangibility	-0.0611	-0.0385	0.0593	0.0682	-0.2120	-0.1733
	(0.2798)	(0.2815)	(0.3492)	(0.3522)	(0.4606)	(0.4604)
Liquidity	-0.4915	-0.5251	0.3749	0.3844	-1.6060	-1.7403*
	(0.6740)	(0.6745)	(0.8904)	(0.8905)	(1.0317)	(1.0320)
Sales growth	-0.4790	-0.4884	-0.4847	-0.4883	-0.3174	-0.3176
	(0.3474)	(0.3480)	(0.4229)	(0.4234)	(0.6343)	(0.6381)
ROA	-1.4773	-1.5019	-1.2691	-1.2476	-0.7334	-0.7593
	(1.3048)	(1.3045)	(1.4682)	(1.4734)	(2.5560)	(2.5564)
Stock return	-0.0555	-0.0560	-0.0122	-0.0154	-0.1754	-0.1925
	(0.2822)	(0.2823)	(0.3752)	(0.3765)	(0.4245)	(0.4244)
Stock volatility	-3.6487	-4.6455	-4.8656	-5.3009	-0.7235	-2.2609
	(13.6272)	(13.6675)	(16.1696)	(16.2480)	(25.4940)	(25.4143)
Industry concentration	1.2992	1.2753	3.1272**	3.1527**	0.2674	0.1787
	(0.9315)	(0.9279)	(1.5260)	(1.5214)	(1.2140)	(1.2026)
Industry M&A	-2.0607	-2.0628	-1.4054	-1.3597	-3.2114	-3.2854
	(1.3591)	(1.3550)	(1.6585)	(1.6598)	(2.3333)	(2.3290)
Constant	4.2243***	4.4775***	3.5832***	3.8918***	4.6931***	4.8245***
	(0.8396)	(0.7888)	(1.0827)	(1.0257)	(1.4250)	(1.3258)
F	9.4***	9.4***	7.5***	7.5***	3.4***	3.5***
R^2	3.7	3.6	4.5	4.5	3.3	3.4
Observations	5,477	5,477	3,108	3,108	2,369	2,369

Table 6

Multivariate analysis for the quality of investment in mergers and acquisitions with instrumented measures of firm level takeover defenses: all bids

This table presents multivariate analysis for the quality of investment in mergers and acquisitions (*CAR*) with instrumented measures of firm level takeover defenses (*GIM index*/ *GIM dictatorship*). Table 1 describes the sample and Table A1 in Appendix A contains the variable definitions. Each column is for all bids. Columns (1a) and (1b) are for first- and second-stage results respectively from a two-stage least squares (2SLS) instrumental variables (IV) model in which *GIM index* is treated as a suspect endogenous variable. *IPO GIM index*/ *HQ GIM index* are the joint IV in this model. Column (2b) is for second-stage results from a 2SLS IV model in which *GIM dictatorship* is treated as a suspect endogenous variable. The probability of *GIM dictatorship* equaling one is the single IV in this model and is computed from results in column (2a) from a probit model containing *IPO GIM index*/ *HQ GIM index* and all control variables. Column (3) is for results from a reduced form ordinary least squares model in which *CAR* is regressed on *IPO GIM index*/ *HQ GIM index* and all control variables. Natural logarithmic transformations apply to *Value*/ *Size*. Robust standard errors clustered at the firm level are in parentheses below what are marginal effects. ***, **, and * denote one-, five-, and ten-percent statistical significance respectively.

	All bids				
	GIM index	CAR	GIM dictatorship	CAR	CAR
Variables	(1a)	(1b)	(2a)	(2b)	(3)
Instrumented GIM index		0.5222***			
		(0.1536)			
Instrumented GIM dictatorship				3.1385***	
				(0.9089)	
IPO GIM index	0.5584***		0.0883***		0.2944***
	(0.0675)		(0.0124)		(0.0843)
HQ GIM index	0.2747***		0.0492***		0.1363
	(0.0868)		(0.0167)		(0.1072)
Serial	0.0949	-0.4335**	0.0144	-0.4317**	-0.3841*
	(0.1036)	(0.2018)	(0.0174)	(0.2019)	(0.1961)
Diversifying	0.3224***	-0.6368***	0.0666***	-0.6802***	-0.4684**
	(0.1120)	(0.2035)	(0.0184)	(0.2092)	(0.1882)
Cross-border	0.0729	-0.3136*	0.0323*	-0.3723*	-0.2753
	(0.1003)	(0.1879)	(0.0187)	(0.1935)	(0.1806)
Public	0.0879	-2.0552***	0.0124	-2.0456***	-2.0101***
	(0.1064)	(0.2638)	(0.0206)	(0.2666)	(0.2561)
Stock only	-0.0989	-0.8820**	-0.0370	-0.8234**	-0.9334**
	(0.1598)	(0.3949)	(0.0289)	(0.3990)	(0.3869)
ln(Value)	0.0251	0.1186	0.0035	0.1234	0.1317
	(0.0369)	(0.1026)	(0.0074)	(0.1030)	(0.1009)
ln(Size)	-0.0141	-0.4614***	-0.0042	-0.4613***	-0.4695***
	(0.0630)	(0.1097)	(0.0113)	(0.1109)	(0.1044)
Leverage	0.0596	0.7684	-0.0234	0.8535	0.8003
	(0.5025)	(0.7433)	(0.0990)	(0.7499)	(0.7020)
Market-to-book	-0.0923**	0.0182	-0.0166	-0.0074	-0.0301
	(0.0396)	(0.1554)	(0.0121)	(0.1425)	(0.1462)
Tangibility	0.6029**	-0.5338	0.1009**	-0.5632	-0.2181
	(0.2616)	(0.3262)	(0.0413)	(0.3437)	(0.2867)
Liquidity	-1.3688***	0.1536	-0.2875***	0.3377	-0.5638
	(0.4143)	(0.7375)	(0.0777)	(0.7541)	(0.6835)
Sales growth	-0.1624	-0.2132	-0.0073	-0.2632	-0.2975
	(0.1446)	(0.3362)	(0.0337)	(0.3466)	(0.3289)
ROA	-0.8683	-0.9406	-0.2070	-0.6837	-1.3876
	(0.6123)	(1.3688)	(0.1315)	(1.4104)	(1.2847)
Stock return	0.0323	-0.0314	0.0180	-0.0563	-0.0147
	(0.1113)	(0.2893)	(0.0228)	(0.2912)	(0.2849)
Stock volatility	-23.7945***	16.9289	-3.5609***	15.4746	4.4651
	(6.2365)	(15.5931)	(1.1433)	(15.5317)	(13.8559)
Industry concentration	-1.3014	1.8940*	-0.2907*	2.1382*	1.2105
	(0.9109)	(1.0845)	(0.1624)	(1.1339)	(0.9377)

Table 6 (continued)

	All bids				
	GIM index	CAR	GIM dictatorship	CAR	CAR
Variables	**(1a)**	**(1b)**	**(2a)**	**(2b)**	**(3)**
Industry M&A	0.7778	-1.8759	-0.0128	-1.4170	-1.4710
	(0.9769)	(1.5187)	(0.1699)	(1.5247)	(1.3640)
Constant	2.4225**	-0.6623	0.4406***	2.7128***	0.6488
	(1.1201)	(1.7751)	(0.0151)	(1.0202)	(1.4975)
Chi^2	158.0***		167.2***	156.5***	
F					9.6***
Pseudo R^2			10.3		
R^2					4.0
Partial F for IV	44.0***			69.8***	
Partial R^2 for IV	6.4			5.2	
Chi^2 from test of no over-identification	0.0				
F from test of exogeneity	13.8***			15.5***	
Observations	5,362		5,362	5,362	5,362

Table 7

Multivariate analysis for the quality of investment in mergers and acquisitions with instrumented measures of firm level takeover defenses: focusing bids against diversifying bids

This table presents multivariate analysis for the quality of investment in mergers and acquisitions (*CAR*) with instrumented measures of firm level takeover defenses (*GIM index*/ *GIM dictatorship*). Table 1 describes the sample and Table A1 in Appendix A contains the variable definitions. Columns (1a)-(3) [(4a)-(6)] are for focusing [diversifying] bids. Bids are classified as focusing (diversifying) where the bidding firm and target firm share (do not share) the same primary two-digit standard industrial classification code. Columns (1a)/ (4a) and (1b)/ (4b) are for first- and second-stage results respectively from two-stage least squares (2SLS) instrumental variables (IV) models in which *GIM index* is treated as a suspect endogenous variable. *IPO GIM index*/ *HQ GIM index* are the joint IV in these models. Columns (2b)/ (5b) are for second-stage results from 2SLS IV models in which *GIM dictatorship* is treated as a suspect endogenous variable. The probability of *GIM dictatorship* equaling one is the single IV in these models and is computed from results in columns (2a)/ (5a) from probit models containing *IPO GIM index*/ *HQ GIM index* and all control variables. Columns (3)/ (6) are for results from reduced form ordinary least squares models in which *CAR* is regressed on *IPO GIM index*/ *HQ GIM index* and all control variables. Natural logarithmic transformations apply to *Value*/ *Size*. Robust standard errors clustered at the firm level are in parentheses below what are marginal effects. ***, **, and * denote one-, five-, and ten-percent statistical significance respectively.

	Focusing bids					**Diversifying bids**				
	GIM index	**CAR**	**GIM dictatorship**	**CAR**	**CAR**	**GIM index**	**CAR**	**GIM dictatorship**	**CAR**	**CAR**
Variables	**(1a)**	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
Instrumented GIM index		0.6825***					0.2553			
		(0.1870)					(0.2383)			
Instrumented GIM dictatorship				4.2820***					1.2878	
				(1.1458)					(1.3565)	
IPO GIM index	0.5737***		0.0888***		0.3907***	0.5405***		0.0878***		0.1422
	(0.0716)		(0.0134)		(0.1070)	(0.0909)		(0.0155)		(0.1365)
HQ GIM index	0.2269**		0.0409**		0.1569	0.3441***		0.0617***		0.0772
	(0.0925)		(0.0180)		(0.1386)	(0.1165)		(0.0208)		(0.1683)
Serial	0.1080	-0.3254	0.0091	-0.2958	-0.2516	0.0568	-0.5726*	0.0180	-0.5813*	-0.5583*
	(0.1229)	(0.2524)	(0.0209)	(0.2557)	(0.2426)	(0.1473)	(0.3159)	(0.0243)	(0.3154)	(0.3146)
Cross-border	0.1333	-0.4069	0.0675***	-0.6060**	-0.3161	0.0021	-0.2206	-0.0135	-0.1992	-0.2197
	(0.1280)	(0.2629)	(0.0244)	(0.2816)	(0.2442)	(0.1437)	(0.2747)	(0.0272)	(0.2721)	(0.2757)
Public	-0.0054	-2.3267***	0.0130	-2.3778***	-2.3301***	0.2183	-1.6217***	0.0106	-1.5788***	-1.5668***
	(0.1381)	(0.3384)	(0.0263)	(0.3490)	(0.3273)	(0.1489)	(0.4065)	(0.0292)	(0.3934)	(0.3887)
Stock only	0.0419	-1.2811**	0.0001	-1.2594**	-1.2524**	-0.3068	-0.2712	-0.0884*	-0.2333	-0.3484
	(0.1882)	(0.5057)	(0.0344)	(0.5127)	(0.4955)	(0.2657)	(0.6312)	(0.0458)	(0.6428)	(0.6139)
ln(Value)	0.0078	0.1841	0.0048	0.1729	0.1895	0.0416	0.0765	0.0001	0.0866	0.0873
	(0.0458)	(0.1333)	(0.0089)	(0.1344)	(0.1300)	(0.0537)	(0.1555)	(0.0107)	(0.1569)	(0.1565)
ln(Size)	0.0201	-0.5049***	-0.0045	-0.4832***	-0.4910***	-0.0658	-0.4535***	-0.0038	-0.4654***	-0.4717***
	(0.0770)	(0.1434)	(0.0134)	(0.1443)	(0.1362)	(0.0807)	(0.1700)	(0.0146)	(0.1697)	(0.1680)

Table 7 (continued)

	Focusing bids					Diversifying bids				
	GIM index	CAR	GIM dictatorship	CAR	CAR	GIM index	CAR	GIM dictatorship	CAR	CAR
Variables	**(1a)**	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
Leverage	0.0758	-0.2892	-0.0121	-0.2081	-0.2379	0.0030	2.2330**	-0.0435	2.2715**	2.2323**
	(0.5981)	(0.9000)	(0.1034)	(0.9140)	(0.8384)	(0.6482)	(1.1350)	(0.1336)	(1.1273)	(1.1111)
Market-to-book	-0.1280***	0.0786	-0.0207	0.0364	-0.0088	-0.0159	-0.1800	-0.0151	-0.1736	-0.1845
	(0.0345)	(0.1719)	(0.0133)	(0.1561)	(0.1623)	(0.0954)	(0.2048)	(0.0166)	(0.1997)	(0.1961)
Tangibility	0.7557**	-0.6378	0.1184***	-0.6787	-0.1222	0.3445	-0.3996	0.0721	-0.4041	-0.3109
	(0.3249)	(0.4154)	(0.0459)	(0.4465)	(0.3545)	(0.2924)	(0.5009)	(0.0575)	(0.5048)	(0.4751)
Liquidity	-0.6696	0.6301	-0.1659*	0.8806	0.1739	-2.3745***	-0.8892	-0.4629***	-0.9126	-1.4998
	(0.4781)	(0.9297)	(0.0888)	(0.9361)	(0.9051)	(0.5229)	(1.2354)	(0.0972)	(1.2807)	(1.0476)
Sales growth	-0.2070	-0.1225	-0.0314	-0.1134	-0.2639	-0.0958	-0.2260	0.0394	-0.3113	-0.2489
	(0.1528)	(0.4016)	(0.0329)	(0.4196)	(0.3941)	(0.2755)	(0.6349)	(0.0702)	(0.6296)	(0.6383)
ROA	-0.5720	-0.4799	-0.2164	0.0656	-0.8715	-1.2495	-0.8712	-0.1090	-0.9680	-1.1743
	(0.6485)	(1.5374)	(0.1425)	(1.6715)	(1.4289)	(1.0825)	(2.6334)	(0.2054)	(2.6210)	(2.6134)
Stock return	0.2441*	-0.1174	0.0721***	-0.2118	0.0492	-0.2965	-0.0580	-0.0607*	-0.0636	-0.1342
	(0.1300)	(0.3842)	(0.0267)	(0.3965)	(0.3780)	(0.1837)	(0.4435)	(0.0363)	(0.4445)	(0.4291)
Stock volatility	-22.4530***	22.0585	-3.4093***	20.9055	6.7452	-23.7687***	7.8097	-3.2837**	5.4893	1.6911
	(6.2701)	(17.4888)	(1.2284)	(18.1603)	(16.2881)	(9.0309)	(28.4678)	(1.6156)	(27.6589)	(26.0042)
Industry concentration	-0.5791	3.3516**	-0.2124	3.8235**	2.9577*	-1.6248	0.7342	-0.3349*	0.7747	0.3142
	(1.2756)	(1.6570)	(0.2517)	(1.7320)	(1.5190)	(1.1904)	(1.2777)	(0.1943)	(1.3069)	(1.2370)
Industry M&A	1.5249	-1.6561	0.0833	-0.9283	-0.6146	-0.6136	-2.7122	-0.1888	-2.6387	-2.8672
	(1.1303)	(1.8868)	(0.1889)	(1.9043)	(1.6671)	(1.1929)	(2.4143)	(0.2225)	(2.4416)	(2.3722)
Constant	2.2202*	-2.4122	0.4015***	1.8267	-0.9102	2.9375**	1.9447	0.4924***	3.8066**	2.7640
	(1.2451)	(2.0188)	(0.0166)	(1.2274)	(1.8032)	(1.4768)	(3.1002)	(0.0188)	(1.7601)	(2.6204)
Chi^2	114.8***		123.7***	111.9***		54.8***		113.4***	55.7***	
F					7.5***					3.3***
Pseudo R^2			9.8					10.9		
R^2					4.9					3.4
Partial F for IV	37.9***			54.9***		24.5***			44.5***	
Partial R^2 for IV	6.6			5.3		6.1			5.3	
Chi^2 from test of no over-identification	0.0					0.0				
F from test of exogeneity	15.1***			17.2***		1.4			1.6	
Observations	3,055		3,055	3,055	3,055	2,307		2,307	2,307	2,307

Table 8

Multivariate analysis for the likelihood of value enhancing investment in mergers and acquisitions with instrumented measures of firm level takeover defenses

This table presents multivariate analysis for the likelihood of value enhancing investment in mergers and acquisitions (*CAR [positive]*) with instrumented measures of firm level takeover defenses (*GIM index*/ *GIM dictatorship*). Table 1 describes the sample and Table A1 in Appendix A contains the definitions for the main variables. *CAR [positive]* equals one where *CAR* is positive and zero otherwise. Columns (1a)-(3) [(4a)-(6)] are for focusing [diversifying] bids. Bids are classified as focusing (diversifying) where the bidding firm and target firm share (do not share) the same primary two-digit standard industrial classification code. Columns (1a)/ (4a) and (1b)/ (4b) are for first- and second-stage results respectively from instrumental variables (IV) probit models in which *GIM index* is treated as a suspect endogenous variable. *IPO GIM index*/ *HQ GIM index* are the joint IV. Columns (2a)/ (5a) and (2b)/ (5b) are for first- and second-equation results from bi-probit models in which *GIM dictatorship* is treated as a suspect endogenous variable. *IPO GIM index*/ *HQ GIM index* are again the joint IV. Columns (3)/ (6) are for results from reduced form probit models in which *CAR [positive]* is regressed on *IPO GIM index*/ *HQ GIM index* and all control variables. Natural logarithmic transformations apply to *Value*/ *Size*. Robust standard errors clustered at the firm level are in parentheses below what are marginal effects. ***, **, and * denote one-, five-, and ten-percent statistical significance respectively.

	Focusing bids					**Diversifying bids**				
	GIM index	**CAR [positive]**	**GIM dictatorship**	**CAR [positive]**	**CAR [positive]**	**GIM index**	**CAR [positive]**	**GIM dictatorship**	**CAR [positive]**	**CAR [positive]**
Variables	**(1a)**	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
Instrumented GIM index		0.0427***					0.0242			
		(0.0121)					(0.0167)			
Instrumented GIM dictatorship				0.2635***					0.1283	
				(0.0688)					(0.0916)	
IPO GIM index	0.5737***		0.0876***		0.0256***	0.5405***		0.0886***		0.0158
	(0.0716)		(0.0135)		(0.0090)	(0.0909)		(0.0151)		(0.0108)
HQ GIM index	0.2269**		0.0412**		0.0129	0.3441***		0.0602***		0.0026
	(0.0925)		(0.0172)		(0.0108)	(0.1165)		(0.0206)		(0.0132)
Serial	0.1080	-0.0221	0.0077	-0.0196	-0.0189	0.0568	-0.0029	0.0172	-0.0038	-0.0016
	(0.1229)	(0.0191)	(0.0209)	(0.0189)	(0.0198)	(0.1473)	(0.0235)	(0.0243)	(0.0235)	(0.0240)
Cross-border	0.1333	-0.0188	0.0689***	-0.0307	-0.0143	0.0021	-0.0003	-0.0141	0.0018	0.0000
	(0.1280)	(0.0219)	(0.0244)	(0.0219)	(0.0227)	(0.1437)	(0.0255)	(0.0271)	(0.0254)	(0.0260)
Public	-0.0054	-0.1018***	0.0135	-0.1024***	-0.1102***	0.2183	-0.0607**	0.0113	-0.0565**	-0.0574**
	(0.1381)	(0.0246)	(0.0263)	(0.0247)	(0.0248)	(0.1489)	(0.0286)	(0.0292)	(0.0285)	(0.0290)
Stock only	0.0419	-0.0691**	0.0062	-0.0666**	-0.0728**	-0.3068	-0.0538	-0.0886*	-0.0496	-0.0623
	(0.1882)	(0.0294)	(0.0343)	(0.0296)	(0.0315)	(0.2657)	(0.0398)	(0.0457)	(0.0400)	(0.0386)
ln(Value)	0.0078	0.0032	0.0048	0.0025	0.0039	0.0416	-0.0058	0.0001	-0.0048	-0.0048
	(0.0458)	(0.0078)	(0.0088)	(0.0077)	(0.0083)	(0.0537)	(0.0094)	(0.0107)	(0.0094)	(0.0095)
ln(Size)	0.0201	-0.0193**	-0.0041	-0.0175**	-0.0198**	-0.0658	-0.0076	-0.0037	-0.0087	-0.0102
	(0.0770)	(0.0091)	(0.0134)	(0.0089)	(0.0093)	(0.0807)	(0.0115)	(0.0146)	(0.0113)	(0.0115)
Leverage	0.0758	-0.0422	-0.0201	-0.0361	-0.0426	0.0030	0.0694	-0.0440	0.0733	0.0705
	(0.5981)	(0.0649)	(0.1031)	(0.0637)	(0.0649)	(0.6482)	(0.0846)	(0.1342)	(0.0851)	(0.0826)

Table 8 (continued)

	Focusing bids					Diversifying bids				
	GIM index	CAR [positive]	GIM dictatorship	CAR [positive]	CAR [positive]	GIM index	CAR [positive]	GIM dictatorship	CAR [positive]	CAR [positive]
Variables	**(1a)**	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
Market-to-book	-0.1280***	0.0062	-0.0249*	0.0035	0.0008	-0.0159	-0.0032	-0.0141	-0.0025	-0.0040
	(0.0345)	(0.0098)	(0.0140)	(0.0091)	(0.0099)	(0.0954)	(0.0152)	(0.0166)	(0.0144)	(0.0143)
Tangibility	0.7557**	-0.0549*	0.1156**	-0.0562*	-0.0248	0.3445	-0.0523	0.0707	-0.0534	-0.0447
	(0.3249)	(0.0308)	(0.0458)	(0.0310)	(0.0290)	(0.2924)	(0.0408)	(0.0572)	(0.0411)	(0.0400)
Liquidity	-0.6696	0.0434	-0.1669*	0.0582	0.0169	-2.3745***	0.1116	-0.4645***	0.1129	0.0533
	(0.4781)	(0.0586)	(0.0883)	(0.0575)	(0.0620)	(0.5229)	(0.0844)	(0.0969)	(0.0856)	(0.0738)
Sales growth	-0.2070	0.0030	-0.0296	0.0036	-0.0064	-0.0958	-0.0135	0.0399	-0.0215	-0.0153
	(0.1528)	(0.0293)	(0.0330)	(0.0293)	(0.0311)	(0.2755)	(0.0492)	(0.0694)	(0.0491)	(0.0493)
ROA	-0.5720	-0.0520	-0.2054	-0.0166	-0.0840	-1.2495	0.0678	-0.1162	0.0592	0.0474
	(0.6485)	(0.1184)	(0.1449)	(0.1246)	(0.1197)	(1.0825)	(0.1671)	(0.2034)	(0.1666)	(0.1682)
Stock return	0.2441*	-0.0175	0.0729***	-0.0230	-0.0076	-0.2965	0.0093	-0.0621*	0.0092	0.0019
	(0.1300)	(0.0223)	(0.0265)	(0.0225)	(0.0241)	(0.1837)	(0.0295)	(0.0363)	(0.0297)	(0.0290)
Stock volatility	-22.4530***	0.5312	-3.3696***	0.4601	-0.4495	-23.7687***	-0.5262	-3.2920**	-0.7039	-1.1633
	(6.2701)	(1.0401)	(1.2220)	(1.0144)	(0.9834)	(9.0309)	(1.4362)	(1.6047)	(1.3738)	(1.2620)
Industry concentration	-0.5791	0.1652	-0.2054	0.1892	0.1534	-1.6248	-0.0454	-0.3343*	-0.0393	-0.0902
	(1.2756)	(0.1465)	(0.2501)	(0.1455)	(0.1486)	(1.1904)	(0.1071)	(0.1958)	(0.1124)	(0.1129)
Industry M&A	1.5249	-0.1476	0.0929	-0.0989	-0.0881	-0.6136	-0.0236	-0.1864	-0.0146	-0.0390
	(1.1303)	(0.1288)	(0.1886)	(0.1271)	(0.1289)	(1.1929)	(0.2007)	(0.2230)	(0.2008)	(0.1995)
Constant	2.2202*	0.5418***	0.4014***	0.5406***	0.5457***	2.9375**	0.5377***	0.4926***	0.5376***	0.5387***
	(1.2451)	(0.0097)	(0.0166)	(0.0099)	(0.0093)	(1.4768)	(0.0113)	(0.0188)	(0.0113)	(0.0111)
Chi^2	73.2***		240.9***		70.1***	23.9		152.7***		23.9
Pseudo R^2					1.7					0.8
Chi^2 from test of exogeneity	10.5***		9.4***			2.8*		3.0*		
Observations	3,055		3,055		3,055	2,307		2,307		2,307

Table 9

Multivariate analysis for the quality of investment in mergers and acquisitions with an instrumented measure of firm level takeover defenses: Bebchuk et al (2009) index

This table presents multivariate analysis for the quality of investment in mergers and acquisitions (*CAR*) with an instrumented measure of firm level takeover defenses (*BCF index*). Table 1 describes the sample and Table A1 in Appendix A contains the definitions for the main variables. *BCF index* is the number of antitakeover provisions out of a possible six in *GIM index* also in the Bebchuk et al (2009) index (BCF index). Columns (1a)-(3) [(4a)-(6)] are for focusing [diversifying] bids. Bids are classified as focusing (diversifying) where the bidding firm and target firm share (do not share) the same primary two-digit standard industrial classification code. Columns (1a)/ (4a) and (1b)/ (4b) are for first- and second-stage results respectively from two-stage least squares instrumental variables (IV) models in which *BCF index* is treated as a suspect endogenous variable. *IPO BCF index*/ *HQ BCF index* are the joint IV and as subparts of *IPO GIM index*/ *HQ GIM index* sum only fractional take-ups of the individual provisions in the BCF index. Columns (2)/ (5) [(3)/ (6)] are for results from reduced form ordinary least squares models in which *CAR* is regressed on *IPO BCF index*/ *HQ BCF index* [*IPO classified board*/ *HQ classified board*] and all control variables. *IPO classified board*/ *HQ classified board* are as subparts of *IPO BCF index*/ *HQ BCF index* fractional take-ups of a classified board. Natural logarithmic transformations apply to *Value*/ *Size*. Robust standard errors clustered at the firm level are in parentheses below what are marginal effects. ***, **, and * denote one-, five-, and ten-percent statistical significance respectively.

	Focusing bids				**Diversifying bids**			
	BCF index	**CAR**	**CAR**	**CAR**	**BCF index**	**CAR**	**CAR**	**CAR**
Variables	**(1a)**	**(1b)**	**(2)**	**(3)**	**(4a)**	**(4b)**	**(5)**	**(6)**
Instrumented BCF index		2.6505**				0.0098		
		(1.3166)				(0.9542)		
IPO BCF index	0.2147**		0.5811*		0.1910*		0.2250	
	(0.1070)		(0.3068)		(0.1096)		(0.3398)	
HQ BCF index	0.2415**		0.6313**		0.3139***		-0.1215	
	(0.0945)		(0.3080)		(0.1129)		(0.3451)	
IPO classified board				0.9317				0.4074
				(0.9057)				(1.1064)
HQ classified board				2.7492***				-0.4934
				(0.8707)				(1.0550)
Serial	-0.0031	-0.2418	-0.2499	-0.2904	0.0075	-0.5534*	-0.5527*	-0.5532*
	(0.0537)	(0.2697)	(0.2436)	(0.2447)	(0.0638)	(0.3136)	(0.3152)	(0.3151)
Cross-border	0.1068	-0.5986*	-0.3151	-0.3004	0.0099	-0.2046	-0.2076	-0.1991
	(0.0671)	(0.3367)	(0.2432)	(0.2431)	(0.0709)	(0.2748)	(0.2756)	(0.2738)
Public	0.0260	-2.3585***	-2.2899***	-2.2889***	0.0330	-1.5628***	-1.5664***	-1.5666***
	(0.0660)	(0.3744)	(0.3272)	(0.3271)	(0.0755)	(0.3898)	(0.3864)	(0.3874)
Stock only	-0.1009	-0.8613	-1.1290**	-1.2235**	-0.1374	-0.3160	-0.3203	-0.3201
	(0.0904)	(0.5815)	(0.5042)	(0.4956)	(0.1336)	(0.6635)	(0.6209)	(0.6148)
ln(Value)	-0.0146	0.2333	0.1946	0.1828	0.0136	0.0855	0.0872	0.0873
	(0.0220)	(0.1451)	(0.1299)	(0.1293)	(0.0260)	(0.1556)	(0.1572)	(0.1568)

Table 9 (continued)

	Focusing bids				Diversifying bids			
	BCF index	**CAR**	**CAR**	**CAR**	**BCF index**	**CAR**	**CAR**	**CAR**
Variables	**(1a)**	**(1b)**	**(2)**	**(3)**	**(4a)**	**(4b)**	**(5)**	**(6)**
ln(Size)	-0.0499	-0.3042*	-0.4370***	-0.3938***	-0.1001**	-0.4595**	-0.4692***	-0.4679***
	(0.0358)	(0.1788)	(0.1359)	(0.1354)	(0.0395)	(0.1951)	(0.1678)	(0.1704)
Leverage	0.0835	-0.4926	-0.2703	-0.3666	-0.3019	2.1769*	2.1780*	2.1503*
	(0.2834)	(1.1274)	(0.8457)	(0.8337)	(0.3001)	(1.1422)	(1.1118)	(1.1131)
Market-to-book	-0.0781***	0.1985	-0.0084	-0.0086	-0.0790*	-0.1939	-0.1975	-0.1985
	(0.0190)	(0.1857)	(0.1631)	(0.1659)	(0.0415)	(0.2037)	(0.1950)	(0.1967)
Tangibility	0.2984**	-0.8058	-0.0147	0.0250	0.1609	-0.2402	-0.2411	-0.2438
	(0.1158)	(0.6097)	(0.3597)	(0.3648)	(0.1366)	(0.4861)	(0.4710)	(0.4709)
Liquidity	-0.2044	0.8100	0.2651	0.4253	-0.8938***	-1.5597	-1.5763	-1.5704
	(0.2399)	(1.1048)	(0.9086)	(0.8992)	(0.2689)	(1.4520)	(1.0488)	(1.0508)
Sales growth	-0.1121	0.0062	-0.2910	-0.3641	-0.1645	-0.3220	-0.2933	-0.3235
	(0.0844)	(0.4798)	(0.3955)	(0.4017)	(0.1538)	(0.6644)	(0.6422)	(0.6430)
ROA	-0.1753	-0.3463	-0.8061	-1.2106	0.0750	-1.0823	-0.9810	-0.9373
	(0.3618)	(1.8747)	(1.4425)	(1.4606)	(0.5734)	(2.6091)	(2.6220)	(2.6123)
Stock return	0.1347**	-0.3454	0.0119	0.0186	-0.0114	-0.1420	-0.1453	-0.1432
	(0.0654)	(0.4264)	(0.3779)	(0.3774)	(0.0864)	(0.4270)	(0.4279)	(0.4297)
Stock volatility	-10.9792***	33.5560	4.4892	0.1791	-12.6903***	-1.5914	-1.0609	-2.1208
	(3.3063)	(24.3820)	(16.1608)	(16.2538)	(4.0521)	(28.8976)	(25.5072)	(25.2507)
Industry concentration	-0.1302	3.6287*	3.2809**	3.1395**	-1.3293**	0.3921	0.3398	0.4114
	(0.6215)	(2.0837)	(1.5350)	(1.5549)	(0.5196)	(1.7172)	(1.2300)	(1.2168)
Industry M&A	0.5611	-2.1705	-0.6820	-0.8857	-0.1322	-3.0245	-2.9648	-2.9931
	(0.5288)	(2.2585)	(1.6767)	(1.6710)	(0.5891)	(2.3926)	(2.3822)	(2.3727)
Constant	2.0242***	-4.6313	0.7292	1.2880	2.7382***	4.7213	4.5531**	4.8500***
	(0.5094)	(4.3946)	(1.5021)	(1.2613)	(0.5066)	(4.1441)	(1.9073)	(1.7210)
Chi^2	81.8***				56.7***			
F			7.1***	7.0***			3.2***	3.2***
R^2			4.7	4.8			3.4	3.4
Partial F for IV	16.9***				16.0***			
Partial R^2 for IV	1.1				1.3			
Chi^2 from test of no over-identification	0.0				0.6			
F from test of exogeneity	7.3***				0.0			
Observations	3,055		3,055	3,055	2,307		2,307	2,307

Table 10

Multivariate analysis for the quality of investment in mergers and acquisitions with an instrumented measure of firm level takeover defenses: Other index

This table presents multivariate analysis for the quality of investment in mergers and acquisitions (*CAR*) with an instrumented measure of firm level takeover defenses (*Other index*). Table 1 describes the sample and Table A1 in Appendix A contains the definitions for the main variables. *Other index* is the number of antitakeover provisions out of a possible eighteen in *GIM index* not in the Bebchuk et al (2009) index (Other index). Columns (1a)-(2) [(3a)-(4)] are for focusing [diversifying] bids. Bids are classified as focusing (diversifying) where the bidding firm and target firm share (do not share) the same primary two-digit standard industrial classification code. Columns (1a)/ (3a) and (1b)/ (3b) are for first- and second-stage results respectively from two-stage least squares instrumental variables (IV) models in which *Other index* is treated as a suspect endogenous variable. *IPO Other index*/ *HQ Other index* are the joint IV and as subparts of *IPO GIM index*/ *HQ GIM index* sum only fractional take-ups of the individual provisions in the Other index. Columns (2)/ (4) are for results from reduced form ordinary least squares models in which *CAR* is regressed on *IPO Other index*/ *HQ Other index* and all control variables. Natural logarithmic transformations apply to *Value*/ *Size*. Robust standard errors clustered at the firm level are in parentheses below what are marginal effects. ***, **, and * denote one-, five-, and ten-percent statistical significance respectively.

	Focusing bids			**Diversifying bids**		
	Other index	**CAR**	**CAR**	**Other index**	**CAR**	**CAR**
Variables	**(1a)**	**(1b)**	**(2)**	**(3a)**	**(3b)**	**(4)**
Instrumented Other index		0.7105***			0.3089	
		(0.1899)			(0.2544)	
IPO Other index	0.6782***		0.5644***	0.6281***		0.1759
	(0.0775)		(0.1426)	(0.0839)		(0.1725)
HQ Other index	0.2860***		0.0123	0.4184***		0.1717
	(0.0914)		(0.1857)	(0.1094)		(0.2292)
Serial	0.1051	-0.3385	-0.2653	0.0437	-0.5750*	-0.5610*
	(0.0913)	(0.2512)	(0.2425)	(0.1056)	(0.3158)	(0.3144)
Cross-border	0.0210	-0.3284	-0.3137	-0.0014	-0.2159	-0.2171
	(0.0900)	(0.2530)	(0.2448)	(0.1054)	(0.2740)	(0.2747)
Public	-0.0372	-2.3237***	-2.3611***	0.1774*	-1.6282***	-1.5718***
	(0.0993)	(0.3323)	(0.3281)	(0.1069)	(0.4038)	(0.3901)
Stock only	0.1026	-1.3859***	-1.3004***	-0.2117	-0.3124	-0.3846
	(0.1324)	(0.4972)	(0.4955)	(0.1751)	(0.6180)	(0.6194)
ln(Value)	0.0223	0.1735	0.1865	0.0216	0.0769	0.0828
	(0.0322)	(0.1316)	(0.1299)	(0.0373)	(0.1551)	(0.1559)
ln(Size)	0.0663	-0.5434***	-0.5068***	0.0397	-0.4834***	-0.4667***
	(0.0549)	(0.1409)	(0.1363)	(0.0585)	(0.1700)	(0.1680)
Leverage	-0.0300	-0.2533	-0.2246	0.3141	2.1416*	2.2417**
	(0.4282)	(0.8601)	(0.8374)	(0.4575)	(1.1347)	(1.1108)
Market-to-book	-0.0499*	0.0244	-0.0094	0.0634	-0.2054	-0.1854
	(0.0287)	(0.1755)	(0.1621)	(0.0689)	(0.2004)	(0.1966)
Tangibility	0.4270*	-0.4353	-0.1209	0.1385	-0.3828	-0.3425
	(0.2578)	(0.3812)	(0.3502)	(0.2148)	(0.4920)	(0.4792)
Liquidity	-0.4206	0.4987	0.1663	-1.4329***	-1.0294	-1.4578
	(0.3413)	(0.9131)	(0.9008)	(0.3697)	(1.1220)	(1.0385)
Sales growth	-0.0912	-0.2104	-0.2584	0.0364	-0.2720	-0.2670
	(0.1054)	(0.3921)	(0.3938)	(0.1939)	(0.6306)	(0.6342)
ROA	-0.5459	-0.6542	-0.9472	-1.3950*	-0.7476	-1.2131
	(0.4822)	(1.4740)	(1.4277)	(0.7632)	(2.6145)	(2.6079)
Stock return	0.1128	-0.0294	0.0492	-0.2547**	-0.0364	-0.1118
	(0.0931)	(0.3841)	(0.3776)	(0.1272)	(0.4405)	(0.4290)
Stock volatility	-12.0561***	13.2481	4.3527	-11.6052*	5.0973	1.5849
	(4.1806)	(16.6220)	(16.3736)	(6.3424)	(27.0429)	(25.9102)
Industry concentration	-0.4741	3.2598**	2.8296*	-0.2533	0.4080	0.3479
	(0.9410)	(1.6304)	(1.5144)	(0.8048)	(1.2446)	(1.2341)
Industry M&A	0.9170	-1.4212	-0.7756	-0.4989	-2.7042	-2.8613
	(0.7728)	(1.8019)	(1.6640)	(0.8600)	(2.3814)	(2.3669)
Constant	-0.0277	-0.4065	0.3904	0.0080	2.5950	2.4039
	(0.8240)	(1.5191)	(1.6923)	(0.9897)	(2.3435)	(2.5040)
Chi^2	121.3***			56.3***		

Table 10 (continued)

	Focusing bids			Diversifying bids		
	Other index	CAR	CAR	Other index	CAR	CAR
Variables	**(1a)**	**(1b)**	**(2)**	**(3a)**	**(3b)**	**(4)**
F			7.5***			3.3***
R^2			5.0			3.5
Partial F for IV	56.0***			42.3***		
Partial R^2 for IV	10.9			9.8		
Chi^2 from test of no over-identification	1.4			0.1		
F from test of exogeneity	14.5***			1.2		
Observations	3,055		3,055	2,307		2,307

APPENDIX A

Table A1

Definitions for the main variables

This table contains definitions for the main variables. Table 1 describes the sample.

Variable	Definition
CAR	Measure of the quality of investment in mergers and acquisitions. Cumulative abnormal return to the shareholders of the bidding firm from a given bid over a three-day window centered on the announcement date. Raw percentage returns are normalized using a market model with a Center for Research in Security Prices equally weighted index. A maximum (minimum) of two- (one-) hundred observations ending six trading days before the announcement date are required for the estimation period and a raw return must not be missing for the announcement date.
GIM index	Observed additive measure of firm level takeover defenses of the focus firm. One-year lagged number of antitakeover provisions (ATPs) in place out of a possible twenty-four in the Gompers et al (2003) index (GIM index). RiskMetrics data for the individual provisions is carried forward between consecutive updates and after the final update.
GIM dictatorship	Observed binary measure of firm level takeover defenses of the focus firm. Equals one where *GIM index* exceeds the median *GIM index* for all sample firms in the same year and zero otherwise.
IPO GIM index	Initial public offering (IPO) peers derived instrumental variable for *GIM index*/ *GIM dictatorship* of the focus firm. Three-year lagged sum of fractional take-ups of the individual ATPs in the GIM index amongst peers in the sample. Peers share the same IPO year or Center for Research in Security Prices start year as the focus firm (with 1950 and earlier years treated as the same) but not the same primary two-digit standard industrial classification code. A minimum of three peers are required.
HQ GIM index	Headquarters (HQ) peers derived instrumental variable for *GIM index*/ *GIM dictatorship* of the focus firm. Three-year lagged sum of fractional take-ups of the individual ATPs in the GIM index amongst peers in the sample. Peers have HQ located within a one-hundred mile same state radius as the focus firm (based on zone improvement plan codes from Compustat and latitudes/ longitudes from https://aggdata.com/free/united-states-zip-codes) but not the same primary two-digit standard industrial classification code. A minimum of three peers are required.
Serial	Identifies serial investment in mergers and acquisitions. Equals one where the bidding firm makes a given bid within one-thousand-and-ninety-five days of having made at least one earlier bid meeting the sample criteria and zero otherwise.
Diversifying	Identifies diversifying investment in mergers and acquisitions. Equals one where the bidding firm and target firm do not share the same primary two-digit standard industrial classification code and zero otherwise.
Cross-border	Identifies cross-border investment in mergers and acquisitions. Equals one where headquarters of the target firm are located outside the United States and zero otherwise.
Public	Identifies investment in a publicly traded but non-subsidiary firm. Equals one where the target firm is an independent entity with publicly traded equity and zero otherwise.
Stock only	Identifies investment in mergers and acquisitions paid for wholly with an exchange of equity. Equals one where the method of payment in a given bid consists only of an exchange of equity and zero otherwise.
Value	Size of the investment in mergers and acquisitions. Amount paid in a given bid expressed in millions of dollars and real terms at the end of the sample period.
Size	Size of the focus firm. One-year lagged book value of assets expressed in millions of dollars.

Table A1 (continued)

Variable	Definition
Leverage	Leverage ratio of the focus firm. One-year lagged book value of long-term debt to book value of assets.
Market-to-book	Market to book ratio of the focus firm. One-year lagged market value of assets to book value of assets.
Tangibility	Tangibility ratio of the focus firm. One-year lagged book value of property, plant, and equipment to book value of assets.
Liquidity	Liquidity ratio of the focus firm. One-year lagged working capital to book value of assets.
Sales growth	Sales growth of the focus firm. One-year lagged fractional change in sales revenue between the latest two fiscal year ends.
ROA	Return on assets of the focus firm. One-year lagged operating income before depreciation to book value of assets.
Stock return	Equity performance of the focus firm. One-year lagged compounded abnormal return over the latest fiscal year. Raw fractional daily total returns are normalized using a Center for Research in Security Prices equally weighted index. A maximum (minimum) of two-hundred-and-sixty (one-hundred-and-thirty) observations are required.
Stock volatility	Equity volatility of the focus firm. Standard deviation for the abnormal returns used for *Stock return*.
Industry concentration	Concentration within the industry of the focus firm. One-year lagged Herfindahl Hirschman index based on fractional sales revenue for sample firms in the same year. A minimum of three other firms sharing the same primary two-digit standard industrial classification code as the focus firm are required.
Industry M&A	Intensity of investment in mergers and acquisitions by firms sharing the same industry as the focus firm. Total amount paid in bids by sample firms in the same industry and year as a fraction of the total amount paid in bids by all sample firms in the same year. A minimum of three other firms sharing the same primary two-digit standard industrial classification code as the focus firm are required.

APPENDIX B

Table B1

Multivariate analysis for the quality of investment in mergers and acquisitions with instrumented measures of firm level takeover defenses and correction for unobservable factors that affected the decision to invest: all bids

This table presents multivariate analysis for the quality of investment in mergers and acquisitions (*CAR*) with instrumented measures of firm level takeover defenses (*GIM index*/ *GIM dictatorship*) and correction for unobservable factors that affected the decision to invest (*Bidding firm lambda*). Table 1 describes the sample and Table A1 in Appendix A contains the definitions for the main variables. *Bidding firm lambda* is the inverse Mills ratio computed from the results in column (5) of Table 3 from the reduced form probit model and from which *Rate spread* is excludable from models below. Each column is for all bids. Columns (1a) and (1b) are for first- and second-stage results respectively from a two-stage least squares (2SLS) instrumental variables (IV) model in which *GIM index* is treated as a suspect endogenous variable. *IPO GIM index*/ *HQ GIM index* are the joint IV in this model. Column (2b) is for second-stage results from a 2SLS IV model in which *GIM dictatorship* is treated as a suspect endogenous variable. The probability of *GIM dictatorship* equaling one is the single IV in this model and is computed from results in column (2a) from a probit model containing *IPO GIM index*/ *HQ GIM index* and all control variables. Column (3) is for results from a reduced form ordinary least squares model in which *CAR* is regressed on *IPO GIM index*/ *HQ GIM index* and all control variables. Natural logarithmic transformations apply to *Value*/ *Size*. Robust standard errors clustered at the firm level are in parentheses below what are marginal effects. ***, **, and * denote one-, five-, and ten-percent statistical significance respectively.

	All bids				
	GIM index	CAR	GIM dictatorship	CAR	CAR
Variables	(1a)	(1b)	(2a)	(2b)	(3)
Instrumented GIM index		0.4735***			
		(0.1567)			
Instrumented GIM dictatorship				2.8424***	
				(0.9268)	
IPO GIM index	0.5725***		0.0905***		0.2815***
	(0.0703)		(0.0130)		(0.0859)
HQ GIM index	0.3132***		0.0557***		0.1012
	(0.0955)		(0.0174)		(0.1242)
Serial	0.0888	-0.4220**	0.0134	-0.4203**	-0.3786*
	(0.1041)	(0.2030)	(0.0174)	(0.2030)	(0.1975)
Diversifying	0.3211***	-0.6193***	0.0664***	-0.6584***	-0.4672**
	(0.1118)	(0.2023)	(0.0183)	(0.2085)	(0.1883)
Cross-border	0.0770	-0.3155*	0.0329*	-0.3686*	-0.2790
	(0.1003)	(0.1864)	(0.0187)	(0.1916)	(0.1804)
Public	0.0804	-2.0398***	0.0112	-2.0311***	-2.0033***
	(0.1063)	(0.2628)	(0.0207)	(0.2649)	(0.2567)
Stock only	-0.1264	-0.8581**	-0.0415	-0.8051**	-0.9083**
	(0.1578)	(0.3983)	(0.0285)	(0.4010)	(0.3940)
ln(Value)	0.0221	0.1232	0.0030	0.1275	0.1344
	(0.0367)	(0.1029)	(0.0075)	(0.1032)	(0.1013)
ln(Size)	-0.0584	-0.4117***	-0.0115	-0.4115***	-0.4291***
	(0.0737)	(0.1252)	(0.0135)	(0.1270)	(0.1256)
Leverage	-0.0370	0.8714	-0.0398	0.9485	0.8885
	(0.5133)	(0.7588)	(0.0982)	(0.7623)	(0.7290)
Market-to-book	-0.0682	-0.0118	-0.0127	-0.0350	-0.0521
	(0.0455)	(0.1556)	(0.0131)	(0.1466)	(0.1468)
Tangibility	0.9746**	-0.9045	0.1632**	-0.9313	-0.5571
	(0.4310)	(0.6384)	(0.0833)	(0.6503)	(0.6673)
Liquidity	-1.3359***	0.0621	-0.2817***	0.2280	-0.5938
	(0.4154)	(0.7411)	(0.0781)	(0.7576)	(0.6872)
Sales growth	-0.1822	-0.2023	-0.0106	-0.2477	-0.2794
	(0.1462)	(0.3336)	(0.0345)	(0.3429)	(0.3285)
ROA	-1.4353*	-0.4025	-0.3013*	-0.1694	-0.8706
	(0.8570)	(1.5745)	(0.1756)	(1.6140)	(1.5874)
Stock return	-0.1270	0.1409	-0.0087	0.1186	0.1305
	(0.2036)	(0.3889)	(0.0374)	(0.3950)	(0.3930)

Table B1 (continued)

	All bids				
	GIM index	CAR	GIM dictatorship	CAR	CAR
Variables	**(1a)**	**(1b)**	**(2a)**	**(2b)**	**(3)**
Stock volatility	-17.9769**	9.6791	-2.5715	8.3301	-0.8398
	(8.7362)	(18.7454)	(1.6504)	(18.6758)	(17.4552)
Industry concentration	-0.2419	0.7145	-0.1132	0.9331	0.2444
	(1.4476)	(2.0667)	(0.2721)	(2.1415)	(2.0694)
Industry M&A	-0.2883	-0.6959	-0.1906	-0.2783	-0.4988
	(1.5240)	(2.2767)	(0.2714)	(2.2645)	(2.2805)
Bidding firm lambda	-1.5373	1.6428	-0.2577	1.6456	1.4019
	(1.5769)	(2.4860)	(0.2938)	(2.4957)	(2.6545)
Constant	4.0496**	-2.4502	0.4405***	0.6086	-0.8349
	(1.9209)	(3.4293)	(0.0151)	(3.4197)	(3.2867)
Chi^2	160.6***		167.2***	159.7***	
F					9.2***
Pseudo R^2			10.3		
R^2					4.0
Partial F for IV	38.7***			59.0***	
Partial R^2 for IV	5.5			4.5	
Chi^2 from test of no over-identification	0.2				
F from test of exogeneity	11.0***			12.2***	
Observations	5,362		5,362	5,362	5,362

Table B2

Multivariate analysis for the quality of investment in mergers and acquisitions with instrumented measures of firm level takeover defenses and correction for unobservable factors that affected the decision to invest: focusing bids against diversifying bids

This table presents multivariate analysis for the quality of investment in mergers and acquisitions (*CAR*) with instrumented measures of firm level takeover defenses (*GIM index*/ *GIM dictatorship*) and correction for unobservable factors that affected the decision to invest (*Bidding firm lambda*). Table 1 describes the sample and Table A1 in Appendix A contains the definitions for the main variables. *Bidding firm lambda* is the inverse Mills ratio computed from the results in column (5) of Table 3 from the reduced form probit model and from which *Rate spread* is excludable from models below. Columns (1a)-(3) [(4a)-(6)] are for focusing [diversifying] bids. Bids are classified as focusing (diversifying) where the bidding firm and target firm share (do not share) the same primary two-digit standard industrial classification code. Columns (1a)/ (4a) and (1b)/ (4b) are for first- and second-stage results respectively from two-stage least squares (2SLS) instrumental variables (IV) models in which *GIM index* is treated as a suspect endogenous variable. *IPO GIM index*/ *HQ GIM index* are the joint IV in these models. Columns (2b)/ (5b) are for second-stage results from 2SLS IV models in which *GIM dictatorship* is treated as a suspect endogenous variable. The probability of *GIM dictatorship* equaling one is the single IV in these models and is computed from results in columns (2a)/ (5a) from probit models containing *IPO GIM index*/ *HQ GIM index* and all control variables. Columns (3)/ (6) are for results from reduced form ordinary least squares models in which *CAR* is regressed on *IPO GIM index*/ *HQ GIM index* and all control variables. Natural logarithmic transformations apply to *Value*/ *Size*. Robust standard errors clustered at the firm level are in parentheses below what are marginal effects. ***, **, and * denote one-, five-, and ten-percent statistical significance respectively.

	Focusing bids					**Diversifying bids**				
	GIM index	**CAR**	**GIM dictatorship**	**CAR**	**CAR**	**GIM index**	**CAR**	**GIM dictatorship**	**CAR**	**CAR**
Variables	**(1a)**	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
Instrumented GIM index		0.5188***					0.3404			
		(0.1855)					(0.2528)			
Instrumented GIM dictatorship				3.1689***					1.7930	
				(1.0881)					(1.4854)	
IPO GIM index	0.5918***		0.0938***		0.3335***	0.5459***		0.0866***		0.1744
	(0.0753)		(0.0139)		(0.1085)	(0.0940)		(0.0162)		(0.1391)
HQ GIM index	0.2746**		0.0547***		0.0067	0.3598***		0.0579***		0.1694
	(0.1083)		(0.0194)		(0.1635)	(0.1244)		(0.0221)		(0.1924)
Serial	0.0975	-0.2759	0.0061	-0.2497	-0.2186	0.0557	-0.5835*	0.0184	-0.5969*	-0.5647*
	(0.1246)	(0.2509)	(0.0210)	(0.2514)	(0.2445)	(0.1474)	(0.3190)	(0.0242)	(0.3188)	(0.3156)
Cross-border	0.1374	-0.4006	0.0686***	-0.5474**	-0.3289	0.0041	-0.2092	-0.0139	-0.1796	-0.2080
	(0.1280)	(0.2556)	(0.0244)	(0.2700)	(0.2439)	(0.1437)	(0.2766)	(0.0272)	(0.2746)	(0.2764)
Public	-0.0121	-2.2964***	0.0110	-2.3315***	-2.3091***	0.2143	-1.6634***	0.0116	-1.6080***	-1.5903***
	(0.1376)	(0.3321)	(0.0263)	(0.3384)	(0.3272)	(0.1492)	(0.4085)	(0.0295)	(0.3955)	(0.3889)
Stock only	0.0075	-1.1742**	-0.0097	-1.1488**	-1.1439**	-0.3181	-0.2955	-0.0857*	-0.2415	-0.4149
	(0.1884)	(0.5120)	(0.0342)	(0.5156)	(0.5092)	(0.2623)	(0.6367)	(0.0454)	(0.6468)	(0.6221)
ln(Value)	0.0047	0.1959	0.0039	0.1886	0.1991	0.0399	0.0655	0.0006	0.0787	0.0776
	(0.0456)	(0.1326)	(0.0089)	(0.1331)	(0.1307)	(0.0533)	(0.1571)	(0.0106)	(0.1581)	(0.1569)

Table B2 (continued)

	Focusing bids					Diversifying bids				
	GIM index	CAR	GIM dictatorship	CAR	CAR	GIM index	CAR	GIM dictatorship	CAR	CAR
Variables	**(1a)**	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
ln(Size)	-0.0346	-0.3376**	-0.0203	-0.3070*	-0.3188*	-0.0841	-0.5439***	0.0006	-0.5637***	-0.5795***
	(0.0905)	(0.1634)	(0.0159)	(0.1629)	(0.1630)	(0.0983)	(0.1972)	(0.0179)	(0.2023)	(0.2015)
Leverage	-0.0470	0.0467	-0.0482	0.1361	0.1489	-0.0348	2.0415*	-0.0344	2.0902*	2.0096*
	(0.6096)	(0.9053)	(0.1049)	(0.9125)	(0.8799)	(0.6679)	(1.1850)	(0.1327)	(1.1759)	(1.1502)
Market-to-book	-0.0979**	-0.0277	-0.0125	-0.0682	-0.1035	-0.0064	-0.1341	-0.0173	-0.1226	-0.1285
	(0.0474)	(0.1730)	(0.0144)	(0.1625)	(0.1641)	(0.0958)	(0.2132)	(0.0177)	(0.2081)	(0.2017)
Tangibility	1.2104**	-1.8170**	0.2507***	-1.9509**	-1.5542*	0.4993	0.3317	0.0347	0.3473	0.6001
	(0.5390)	(0.8563)	(0.0931)	(0.8731)	(0.9287)	(0.5589)	(0.9093)	(0.1141)	(0.9160)	(0.9595)
Liquidity	-0.6397	0.4732	-0.1567*	0.6452	0.0796	-2.3565***	-0.6186	-0.4675***	-0.6094	-1.3944
	(0.4793)	(0.9088)	(0.0889)	(0.9081)	(0.9062)	(0.5227)	(1.2678)	(0.0980)	(1.3405)	(1.0501)
Sales growth	-0.2301	-0.0945	-0.0379	-0.0851	-0.1910	-0.1058	-0.2599	0.0419	-0.3756	-0.3080
	(0.1540)	(0.3929)	(0.0331)	(0.4029)	(0.3912)	(0.2757)	(0.6355)	(0.0709)	(0.6321)	(0.6385)
ROA	-1.2733	1.3568	-0.4194**	1.9216	1.3373	-1.4775	-1.8103	-0.0543	-1.9730	-2.5164
	(0.9985)	(1.8586)	(0.1906)	(1.9071)	(1.8813)	(1.2975)	(2.9150)	(0.2547)	(2.9548)	(3.0018)
Stock return	0.0487	0.4772	0.0152	0.4593	0.6647	-0.3630	-0.3605	-0.0448	-0.3766	-0.5257
	(0.2478)	(0.5236)	(0.0452)	(0.5392)	(0.5344)	(0.2933)	(0.5402)	(0.0545)	(0.5347)	(0.5623)
Stock volatility	-15.4946	-0.9369	-1.3419	-3.7767	-15.1694	-21.2448*	21.9756	-3.8956*	19.7461	16.5479
	(9.9093)	(22.9375)	(1.8103)	(23.1671)	(22.2927)	(11.9540)	(32.0560)	(2.2872)	(31.7300)	(30.0420)
Industry concentration	0.6738	-0.2360	0.1518	-0.2001	-0.9882	-1.1698	3.0765	-0.4444	3.2427	2.9925
	(1.8683)	(2.8595)	(0.3677)	(2.9254)	(2.9801)	(1.8592)	(2.7437)	(0.3297)	(2.9028)	(2.8287)
Industry M&A	0.2251	2.3153	-0.2937	3.2006	3.4788	-1.0627	-4.8506	-0.0812	-4.8194	-5.5106
	(1.8499)	(2.9600)	(0.3056)	(2.9058)	(3.0606)	(1.9688)	(3.4068)	(0.3707)	(3.3887)	(3.5492)
Bidding firm lambda	-1.8678	5.3057	-0.5445	5.7694*	5.8825	-0.6500	-3.1818	0.1564	-3.3090	-3.8260
	(1.9554)	(3.3962)	(0.3426)	(3.3713)	(3.7378)	(2.0968)	(3.3499)	(0.3961)	(3.4543)	(3.6225)
Constant	4.1919*	-8.2403*	0.4013***	-5.6181	-7.1196	3.6299	5.3872	0.4925***	7.9888*	6.8400
	(2.2608)	(4.5133)	(0.0166)	(4.5958)	(4.4728)	(2.6777)	(5.0209)	(0.0188)	(4.8309)	(4.7906)
Chi^2	121.2***		125.2***	121.0***		54.1***		115.2***	55.1***	
F					7.3***					3.1***
Pseudo R^2			9.9					10.9		
R^2					5.0					3.5
Partial F for IV	32.9***			52.7***		21.2***			33.8***	
Partial R^2 for IV	5.7			4.8		5.2			4.2	

Table B2 (continued)

	Focusing bids					Diversifying bids				
	GIM index	CAR	GIM dictatorship	CAR	CAR	GIM index	CAR	GIM dictatorship	CAR	CAR
Variables	**(1a)**	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
Chi^2 from test of no over-identification	0.9					0.1				
F from test of exogeneity	8.4***			9.2***		2.3			2.4	
Observations	3,055		3,055	3,055	3,055	2,307		2,307	2,307	2,307

Table B3

Multivariate analysis for the quality of investment in mergers and acquisitions with instrumented measures of firm level takeover defenses: Fama French industries

This table presents multivariate analysis for the quality of investment in mergers and acquisitions (*CAR*) with instrumented measures of firm level takeover defenses (*GIM index*/ *GIM dictatorship*). Table 1 describes the sample and Table A1 in Appendix A contains the definitions for the main variables. Columns (1a)-(3) [(4a)-(6)] are for focusing [diversifying] bids. Bids are classified as focusing (diversifying) where the bidding firm and target firm share (do not share) the same primary industry from amongst the forty-nine Fama French industries [from https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_49_ind_port.html]. Columns (1a)/ (4a) and (1b)/ (4b) are for first- and second-stage results respectively from two-stage least squares (2SLS) instrumental variables (IV) models in which *GIM index* is treated as a suspect endogenous variable. *IPO GIM index [FF]*/ *HQ GIM index [FF]* replace *IPO GIM index*/ *HQ GIM index* as the joint IV in these models. These are the five-year lagged initial public offering/ geography peers derived IV for the Gompers et al (2003) index from Karpoff et al (2017) [from https://faculty.washington.edu/karpoff/research_index.htm] where peers are excluded based on Fama French industries rather than standard industrial classification. Columns (2b)/ (5b) are for second-stage results from 2SLS IV models in which *GIM dictatorship* is treated as a suspect endogenous variable. The probability of *GIM dictatorship* equaling one is the single IV in these models and is computed from results in columns (2a)/ (5a) from probit models containing *IPO GIM index [FF]*/ *HQ GIM index [FF]* and all control variables. Columns (3)/ (6) are for results from reduced form ordinary least squares models in which *CAR* is regressed on *IPO GIM index [FF]*/ *HQ GIM index [FF]* and all control variables. *Industry concentration [FF]*/ *Industry M&A [FF]* replace *Industry concentration*/ *Industry M&A* in also being based on Fama French industries rather than standard industrial classification. Natural logarithmic transformations apply to *Value*/ *Size*. Robust standard errors clustered at the firm level are in parentheses below what are marginal effects. ***, **, and * denote one-, five-, and ten-percent statistical significance respectively.

	Focusing bids					**Diversifying bids**				
	GIM index	**CAR**	**GIM dictatorship**	**CAR**	**CAR**	**GIM index**	**CAR**	**GIM dictatorship**	**CAR**	**CAR**
Variables	**(1a)**	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
Instrumented GIM index		0.6783**					-0.0390			
		(0.2711)					(0.2764)			
Instrumented GIM dictatorship				4.0345**					0.3236	
				(1.6904)					(2.0187)	
IPO GIM index [FF]	0.5626***		0.0875***		0.3552**	0.5641***		0.0814***		0.3338*
	(0.0917)		(0.0169)		(0.1601)	(0.1284)		(0.0205)		(0.1990)
HQ GIM index [FF]	0.2520**		0.0353*		0.2181	0.4549***		0.0522**		-0.4515**
	(0.1150)		(0.0194)		(0.1497)	(0.1276)		(0.0222)		(0.2025)
Serial	0.1004	-0.3582	-0.0033	-0.2899	-0.2887	0.2678	-0.7708*	0.0538*	-0.7989*	-0.7329*
	(0.1456)	(0.3136)	(0.0256)	(0.3156)	(0.3025)	(0.1873)	(0.4377)	(0.0299)	(0.4564)	(0.4159)
Cross-border	0.1752	-0.4028	0.0751**	-0.5815	-0.2841	0.0090	-0.4179	-0.0142	-0.4172	-0.4286
	(0.1557)	(0.3399)	(0.0299)	(0.3780)	(0.3168)	(0.1753)	(0.3552)	(0.0331)	(0.3505)	(0.3567)
Public	-0.0772	-2.5101***	0.0057	-2.5762***	-2.5586***	0.2203	-1.6030***	-0.0141	-1.6032***	-1.6407***
	(0.1826)	(0.4033)	(0.0340)	(0.4133)	(0.3868)	(0.1991)	(0.5018)	(0.0368)	(0.4899)	(0.4927)
Stock only	0.0562	-1.4665**	-0.0016	-1.4095**	-1.4237**	-0.0364	-1.0595	-0.0711	-1.0462	-1.0335
	(0.2434)	(0.5970)	(0.0449)	(0.5980)	(0.5778)	(0.3478)	(0.8637)	(0.0579)	(0.8672)	(0.8624)

Table B3 (continued)

	Focusing bids					Diversifying bids				
	GIM index	CAR	GIM dictatorship	CAR	CAR	GIM index	CAR	GIM dictatorship	CAR	CAR
Variables	**(1a)**	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
ln(Value)	0.0312	0.0905	0.0076	0.0836	0.1126	0.0181	-0.1254	0.0009	-0.1259	-0.1271
	(0.0574)	(0.1653)	(0.0108)	(0.1651)	(0.1612)	(0.0701)	(0.1923)	(0.0124)	(0.1932)	(0.1937)
ln(Size)	-0.0091	-0.3351*	-0.0045	-0.3327*	-0.3360*	-0.0895	-0.3501	-0.0092	-0.3485	-0.4127*
	(0.0923)	(0.1945)	(0.0163)	(0.1969)	(0.1889)	(0.1044)	(0.2187)	(0.0180)	(0.2207)	(0.2282)
Leverage	0.7730	0.4154	0.1432	0.3436	0.9030	0.9427	2.7915*	0.0760	2.7509*	2.8768*
	(0.6854)	(1.1845)	(0.1136)	(1.2224)	(1.0963)	(0.8841)	(1.5026)	(0.1444)	(1.4979)	(1.4854)
Market-to-book	-0.1410***	0.1682	-0.0177	0.1122	0.0732	0.0056	0.0702	-0.0160	0.0793	0.0434
	(0.0358)	(0.1535)	(0.0127)	(0.1358)	(0.1382)	(0.0880)	(0.2299)	(0.0181)	(0.2331)	(0.2315)
Tangibility	0.1835	-0.2399	0.0715	-0.4172	-0.1309	0.6731	0.4111	0.1558**	0.2956	0.4812
	(0.3245)	(0.4736)	(0.0512)	(0.5454)	(0.4298)	(0.4227)	(0.7162)	(0.0698)	(0.7902)	(0.6398)
Liquidity	-0.5680	1.3149	-0.1127	1.3785	0.9353	-1.6815***	-0.4520	-0.3520***	-0.2369	-0.5341
	(0.5773)	(1.1864)	(0.1058)	(1.1859)	(1.1487)	(0.6509)	(1.2744)	(0.1187)	(1.3740)	(1.2341)
Sales growth	-0.0769	0.1028	-0.0274	0.1830	0.0370	-0.3440	-0.4003	-0.0006	-0.3665	-0.3274
	(0.1687)	(0.4676)	(0.0388)	(0.4996)	(0.4743)	(0.3515)	(0.8529)	(0.0624)	(0.8443)	(0.8530)
ROA	-0.5792	-0.4998	-0.3121*	0.4131	-0.9300	-0.9948	-1.6332	0.0936	-1.6521	-0.9384
	(0.6502)	(1.7255)	(0.1609)	(2.0192)	(1.6473)	(1.4281)	(3.3499)	(0.2480)	(3.3621)	(3.3277)
Stock return	0.2152	0.3223	0.0898***	0.1487	0.4715	-0.2810	-0.5336	-0.0289	-0.5206	-0.4350
	(0.1660)	(0.4715)	(0.0339)	(0.5117)	(0.4611)	(0.1974)	(0.5223)	(0.0393)	(0.5243)	(0.5253)
Stock volatility	-42.2729***	16.1759	-6.4581***	12.5641	-12.3229	-39.5191***	-21.2531	-4.2645**	-18.2674	-16.0398
	(7.9230)	(23.4677)	(1.4686)	(25.4905)	(21.6561)	(11.9562)	(31.8708)	(1.8374)	(30.2506)	(26.1167)
Industry concentration [FF]	-0.5376	-0.6632	-0.2169	-0.1570	-1.0407	-2.7548**	-0.8056	-0.4500**	-0.5851	-0.7055
	(0.9432)	(1.6820)	(0.1883)	(1.7560)	(1.5232)	(1.1596)	(1.3399)	(0.1830)	(1.5068)	(1.3052)
Industry M&A [FF]	0.1919	-4.1488*	-0.1768	-3.2827	-3.9966*	-1.2052	-0.9973	-0.2252	-0.8142	-0.6602
	(1.2634)	(2.4876)	(0.2440)	(2.6131)	(2.1546)	(2.1358)	(3.4054)	(0.3379)	(3.5053)	(3.3816)
Constant	3.0565**	-3.2670	0.4066***	1.3009	-1.4169	1.9773	4.9668	0.5028***	4.3320**	5.9204**
	(1.4869)	(2.8094)	(0.0188)	(1.5270)	(2.1308)	(1.8761)	(3.3743)	(0.0210)	(2.0663)	(2.9970)
Chi^2	86.2***		90.7***	84.9***		57.5***		87.9***	56.1***	
F					5.9***					3.6***
Pseudo R^2			8.9					9.9		
R^2					5.9					5.0
Partial F for IV	21.8***			31.9***		14.8***			20.1***	
Partial R^2 for IV	5.3			3.9		6.3			3.5	

Table B3 (continued)

	Focusing bids					Diversifying bids				
	GIM index	CAR	GIM dictatorship	CAR	CAR	GIM index	CAR	GIM dictatorship	CAR	CAR
Variables	**(1a)**	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
Chi^2 from test of no over-identification	0.1					9.0***				
F from test of exogeneity	7.0***			6.9***		0.0			0.2	
Observations	1,938		1,938	1,938	1,938	1,512		1,512	1,512	1,512

Table B4

Multivariate analysis for the quality of investment in mergers and acquisitions with instrumented measures of firm level takeover defenses: earliest values for the instrumental variables

This table presents multivariate analysis for the quality of investment in mergers and acquisitions (*CAR*) with instrumented measures of firm level takeover defenses (*GIM index*/ *GIM dictatorship*). Table 1 describes the sample and Table A1 in Appendix A contains the definitions for the main variables. Columns (1a)-(3) [(4a)-(6)] are for focusing [diversifying] bids. Bids are classified as focusing (diversifying) where the bidding firm and target firm share (do not share) the same primary two-digit standard industrial classification code. Columns (1a)/ (4a) and (1b)/ (4b) are for first- and second-stage results respectively from two-stage least squares (2SLS) instrumental variables (IV) models in which *GIM index* is treated as a suspect endogenous variable. *IPO GIM index [earliest]*/ *HQ GIM index [earliest]* are the joint IV in these models and are earliest values for *IPO GIM index*/ *HQ GIM index*. Columns (2b)/ (5b) are for second-stage results from 2SLS IV models in which *GIM dictatorship* is treated as a suspect endogenous variable. The probability of *GIM dictatorship* equaling one is the single IV in these models and is computed from results in columns (2a)/ (5a) from probit models containing *IPO GIM index [earliest]*/ *HQ GIM index [earliest]* and all control variables. Columns (3)/ (6) are for results from reduced form ordinary least squares models in which *CAR* is regressed on *IPO GIM index [earliest]*/ *HQ GIM index [earliest]* and all control variables. Natural logarithmic transformations apply to *Value*/ *Size*. Robust standard errors clustered at the firm level are in parentheses below what are marginal effects. ***, **, and * denote one-, five-, and ten-percent statistical significance respectively.

	Focusing bids					**Diversifying bids**				
	GIM index	**CAR**	**GIM dictatorship**	**CAR**	**CAR**	**GIM index**	**CAR**	**GIM dictatorship**	**CAR**	**CAR**
Variables	**(1a)**	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
Instrumented GIM index		0.5677***					0.4094*			
		(0.1707)					(0.2216)			
Instrumented GIM dictatorship				3.4387***					2.2350*	
				(1.0219)					(1.2885)	
IPO GIM index [earliest]	0.6476***		0.1025***		0.4249***	0.6847***		0.1080***		0.2339
	(0.0814)		(0.0148)		(0.1155)	(0.1008)		(0.0164)		(0.1528)
HQ GIM index [earliest]	0.2603**		0.0437**		0.0040	0.3653***		0.0628***		0.2829
	(0.1117)		(0.0200)		(0.1491)	(0.1292)		(0.0220)		(0.1803)
Serial	0.1219	-0.3185	0.0107	-0.2937	-0.2512	0.0717	-0.5842*	0.0195	-0.6018*	-0.5571*
	(0.1249)	(0.2491)	(0.0209)	(0.2508)	(0.2432)	(0.1459)	(0.3201)	(0.0239)	(0.3193)	(0.3145)
Cross-border	0.1297	-0.3868	0.0672***	-0.5432**	-0.3106	-0.0042	-0.2305	-0.0145	-0.1954	-0.2335
	(0.1281)	(0.2567)	(0.0244)	(0.2690)	(0.2450)	(0.1420)	(0.2769)	(0.0270)	(0.2750)	(0.2749)
Public	-0.0123	-2.3308***	0.0118	-2.3725***	-2.3497***	0.1792	-1.6575***	0.0050	-1.5908***	-1.5695***
	(0.1376)	(0.3350)	(0.0262)	(0.3416)	(0.3282)	(0.1457)	(0.4091)	(0.0286)	(0.3970)	(0.3904)
Stock only	0.0111	-1.2754**	-0.0049	-1.2570**	-1.2701**	-0.3207	-0.2433	-0.0911**	-0.1713	-0.3939
	(0.1835)	(0.5015)	(0.0337)	(0.5060)	(0.4962)	(0.2622)	(0.6368)	(0.0446)	(0.6450)	(0.6176)
ln(Value)	0.0099	0.1861	0.0047	0.1774	0.1897	0.0476	0.0711	0.0008	0.0874	0.0895
	(0.0455)	(0.1321)	(0.0088)	(0.1325)	(0.1300)	(0.0531)	(0.1566)	(0.0105)	(0.1583)	(0.1563)

Table B4 (continued)

	Focusing bids					Diversifying bids				
	GIM index	CAR	GIM dictatorship	CAR	CAR	GIM index	CAR	GIM dictatorship	CAR	CAR
Variables	**(1a)**	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
ln(Size)	0.0031	-0.4936***	-0.0078	-0.4742***	-0.5016***	-0.0896	-0.4494***	-0.0077	-0.4690***	-0.4720***
	(0.0780)	(0.1412)	(0.0136)	(0.1409)	(0.1364)	(0.0807)	(0.1726)	(0.0145)	(0.1728)	(0.1676)
Leverage	0.1293	-0.3030	0.0013	-0.2403	-0.2101	-0.0173	2.2688*	-0.0442	2.3435**	2.2879**
	(0.6012)	(0.8756)	(0.1027)	(0.8809)	(0.8382)	(0.6352)	(1.1640)	(0.1292)	(1.1606)	(1.1116)
Market-to-book	-0.1205***	0.0623	-0.0187	0.0256	-0.0070	-0.0043	-0.1711	-0.0130	-0.1579	-0.1683
	(0.0351)	(0.1711)	(0.0127)	(0.1572)	(0.1599)	(0.0953)	(0.2113)	(0.0163)	(0.2028)	(0.1976)
Tangibility	0.7492**	-0.5211	0.1164**	-0.5341	-0.0786	0.2715	-0.4968	0.0611	-0.5259	-0.4048
	(0.3450)	(0.3934)	(0.0472)	(0.4201)	(0.3594)	(0.2866)	(0.5076)	(0.0568)	(0.5168)	(0.4728)
Liquidity	-0.6890	0.5685	-0.1731**	0.7591	0.1306	-2.3648***	-0.4791	-0.4636***	-0.4302	-1.3952
	(0.4695)	(0.9136)	(0.0872)	(0.9140)	(0.9030)	(0.5228)	(1.2008)	(0.0963)	(1.2432)	(1.0432)
Sales growth	-0.1594	-0.1620	-0.0249	-0.1615	-0.2400	-0.0786	-0.1667	0.0391	-0.3019	-0.2256
	(0.1454)	(0.3992)	(0.0321)	(0.4122)	(0.3948)	(0.2668)	(0.6316)	(0.0680)	(0.6318)	(0.6274)
ROA	-0.5880	-0.5825	-0.2189	-0.1620	-0.8520	-1.3112	-0.7453	-0.1202	-0.8858	-1.4655
	(0.6397)	(1.5088)	(0.1395)	(1.6070)	(1.4319)	(1.0667)	(2.6569)	(0.2004)	(2.6481)	(2.6097)
Stock return	0.2187*	-0.0975	0.0684***	-0.1698	0.0287	-0.2920	-0.0074	-0.0602*	-0.0061	-0.1237
	(0.1288)	(0.3813)	(0.0265)	(0.3902)	(0.3777)	(0.1810)	(0.4494)	(0.0355)	(0.4493)	(0.4306)
Stock volatility	-20.8289***	17.8144	-3.1614**	16.1639	5.3979	-21.8244**	13.5747	-3.0775*	10.8070	4.9990
	(6.3312)	(17.1794)	(1.2336)	(17.7155)	(16.3675)	(9.0210)	(28.6755)	(1.5904)	(27.8315)	(26.0789)
Industry concentration	-0.5433	3.3386**	-0.2078	3.7153**	2.9689*	-1.6246	0.9484	-0.3310*	1.0655	0.3366
	(1.2571)	(1.6051)	(0.2490)	(1.6342)	(1.5238)	(1.2134)	(1.3431)	(0.1972)	(1.3845)	(1.2348)
Industry M&A	1.4674	-1.5842	0.0791	-0.9875	-0.7974	-0.3797	-2.5225	-0.1462	-2.3535	-2.6352
	(1.1193)	(1.8276)	(0.1864)	(1.8328)	(1.6663)	(1.1958)	(2.4580)	(0.2233)	(2.4938)	(2.3610)
Constant	1.3188	-1.3669	0.4012***	2.2157*	0.2656	1.5496	0.2449	0.4922***	3.1048*	-0.0099
	(1.3866)	(1.8620)	(0.0166)	(1.1660)	(1.8364)	(1.6314)	(2.9211)	(0.0186)	(1.7218)	(2.7397)
Chi^2	119.5***		135.4***	119.2***		53.7***		125.1***	54.7***	
F					7.6***					3.4***
Pseudo R^2			10.4					11.7		
R^2					4.9					3.6
Partial F for IV	36.7***			57.0***		27.9***			50.6***	
Partial R^2 for IV	7.4			6.0		7.7			6.3	
Chi^2 from test of no over-identification	1.2					0.8				
F from test of exogeneity	12.2***			12.8***		4.5**			4.9**	

Table B4 (continued)

	Focusing bids					Diversifying bids				
	GIM index	CAR	GIM dictatorship	CAR	CAR	GIM index	CAR	GIM dictatorship	CAR	CAR
Variables	**(1a)**	**(1b)**	**(2a)**	**(2b)**	**(3)**	**(4a)**	**(4b)**	**(5a)**	**(5b)**	**(6)**
Observations	3,055		3,055	3,055	3,055	2,307		2,307	2,307	2,307

Table B5

Multivariate analysis for the quality of investment in mergers and acquisitions with an instrumented measure of firm level takeover defenses: other robustness

This table presents multivariate analysis for the quality of investment in mergers and acquisitions (M&A) with an instrumented measure of firm level takeover defenses (*GIM index*). Table 1 describes the sample and Table A1 in Appendix A contains the definitions for the main variables. Columns (1)-(4) [(5)-(8)] are for focusing [diversifying] bids. Bids are classified as focusing (diversifying) where the bidding firm and target firm share (do not share) the same primary two-digit standard industrial classification code. Each column is for second-stage results from a two-stage least squares instrumental variables (IV) model in which *GIM index* is treated as a suspect endogenous variable. *IPO GIM index*/ *HQ GIM index* are the joint IV. *CAR [-5 to +5]* in columns (1)/ (5) is the cumulative abnormal return over an eleven-day window centered on the announcement date (requiring an estimation period ending eleven trading days before the announcement date) and *CAR [0]* in columns (2)/ (6) is the abnormal return on the announcement date. These are the only changes to the main measure of the quality of investment in M&A (*CAR*) in the other columns. Columns (3)/ (7) [(4)/ (8)] include individual year controls [*Post-SOX*]. *Post-SOX* equals one for the mass of years after the Sarbanes Oxley Act of 2002 and zero otherwise. Natural logarithmic transformations apply to *Value*/ *Size*. Robust standard errors clustered at the firm level are in parentheses below what are marginal effects. ***, **, and * denote one-, five-, and ten-percent statistical significance respectively.

	Focusing bids				**Diversifying bids**			
	CAR [-5 to +5]	**CAR [0]**	**CAR**	**CAR**	**CAR [-5 to +5]**	**CAR [0]**	**CAR**	**CAR**
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Instrumented								
GIM index	0.7811***	0.4160***	0.6826***	0.6789***	0.3763	0.0082	0.2095	0.2349
	(0.2110)	(0.1251)	(0.1927)	(0.1913)	(0.2539)	(0.1448)	(0.2437)	(0.2475)
Serial	-0.3213	-0.1742	-0.2778	-0.3268	-0.4582	-0.2163	-0.5864*	-0.5670*
	(0.2932)	(0.1710)	(0.2537)	(0.2532)	(0.3614)	(0.1982)	(0.3142)	(0.3155)
Cross-border	-0.4696	-0.0785	-0.3990	-0.4064	0.0182	-0.1134	-0.1855	-0.2207
	(0.3090)	(0.1693)	(0.2635)	(0.2627)	(0.3376)	(0.1660)	(0.2740)	(0.2748)
Public	-2.3226***	-1.4996***	-2.2831***	-2.3284***	-1.8556***	-0.9447***	-1.6175***	-1.6252***
	(0.3770)	(0.2432)	(0.3370)	(0.3384)	(0.4436)	(0.2866)	(0.4048)	(0.4051)
Stock only	-1.3361**	-0.6185*	-1.2442**	-1.2925**	-0.5700	-0.0163	-0.6484	-0.3313
	(0.5412)	(0.3470)	(0.5391)	(0.5226)	(0.6956)	(0.4102)	(0.6664)	(0.6650)
ln(Value)	0.0539	0.1271	0.1979	0.1832	0.0621	0.0881	0.0196	0.0719
	(0.1488)	(0.0947)	(0.1338)	(0.1345)	(0.1766)	(0.0965)	(0.1534)	(0.1566)
ln(Size)	-0.4678***	-0.2821***	-0.5670***	-0.5029***	-0.4174**	-0.3080***	-0.2835*	-0.4431***
	(0.1577)	(0.0994)	(0.1523)	(0.1463)	(0.1925)	(0.1014)	(0.1704)	(0.1719)
Leverage	-0.7217	-0.3525	-0.3410	-0.3039	2.1345	1.9158***	2.2357*	2.1750*
	(1.0679)	(0.5633)	(0.9027)	(0.9113)	(1.3777)	(0.6833)	(1.1443)	(1.1435)
Market-to-book	0.0839	0.0382	0.0815	0.0775	-0.3792	-0.1584	-0.2252	-0.1823
	(0.1323)	(0.0883)	(0.1735)	(0.1734)	(0.2457)	(0.1066)	(0.1970)	(0.2037)
Tangibility	-0.6760	-0.4912*	-0.6056	-0.6386	-0.5717	-0.0795	-0.5584	-0.4292
	(0.4732)	(0.2769)	(0.4152)	(0.4149)	(0.5744)	(0.2966)	(0.5074)	(0.4984)
Liquidity	0.7126	0.0281	0.4175	0.6354	0.1991	-0.8616	-1.0594	-0.8767
	(0.9996)	(0.5757)	(0.9282)	(0.9321)	(1.3544)	(0.7547)	(1.2158)	(1.2319)
Sales growth	0.1610	-0.3270	-0.0162	-0.1253	-0.2456	0.0534	-0.2753	-0.2456
	(0.5328)	(0.2144)	(0.4065)	(0.4013)	(0.7384)	(0.3264)	(0.6401)	(0.6322)

Table B5 (continued)

	Focusing bids				Diversifying bids			
	CAR [-5 to +5]	CAR [0]	CAR	CAR	CAR [-5 to +5]	CAR [0]	CAR	CAR
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ROA	-1.4007	-1.2865	-0.3530	-0.5142	1.4474	-0.9168	0.0216	-1.0460
	(2.0728)	(0.8972)	(1.5129)	(1.5191)	(2.9520)	(1.6231)	(2.7020)	(2.6640)
Stock return	-0.3610	-0.1843	-0.1218	-0.1145	-0.3121	-0.4115	0.2311	-0.0450
	(0.4328)	(0.2450)	(0.4054)	(0.3883)	(0.5063)	(0.2778)	(0.4453)	(0.4427)
Stock volatility	18.2636	33.4450***	22.4121	21.6184	21.7984	-2.6797	47.6468	6.1479
	(19.6861)	(10.9226)	(20.0642)	(17.7722)	(29.2607)	(14.6931)	(33.6874)	(28.8268)
Industry concentration	4.3961**	2.6871**	3.6303**	3.3450**	0.3493	0.2065	0.9784	0.7304
	(1.9690)	(1.2186)	(1.6873)	(1.6552)	(1.3373)	(0.8891)	(1.2660)	(1.2689)
Industry M&A	-3.0036	-1.3691	-1.1819	-1.6349	-3.2450	-1.7214	-2.3502	-2.6612
	(2.1971)	(1.3863)	(1.9100)	(1.9023)	(2.6780)	(1.3798)	(2.3840)	(2.4007)
Post-SOX				-0.0352				-0.1738
				(0.2849)				(0.3349)
Constant	-2.6042	-2.0076	-0.3903	-2.3485	0.3824	2.5542	1.1884	2.2690
	(2.3326)	(1.3341)	(2.0197)	(2.1035)	(3.2112)	(1.8321)	(3.2878)	(3.2488)
Year controls	No	No	Yes	No	No	No	Yes	No
Chi^2	120.3***	94.8***	142.0***	115.0***	56.2***	61.5***	87.9***	55.4***
Partial F for IV	37.9***	37.9***	37.4***	37.9***	24.5***	24.5***	23.1***	23.2***
Partial R^2 for IV	6.6	6.6	6.3	6.5	6.1	6.1	5.6	5.5
Chi^2 from test of no over-identification	0.0	0.0	0.0	0.0	0.1	0.4	0.2	0.0
F from test of exogeneity	15.2***	12.2***	13.8***	14.1***	3.1*	0.2	0.9	1.2
Observations	3,055	3,055	3,055	3,055	2,307	2,307	2,307	2,307