Debt covenants and asset versus equity acquisitions

Surendranath Rakesh Jory
University of Southampton
S.R.Jory@soton.ac.uk

Thanh Ngo
East Carolina University
ngot@ecu.edu

Ca Nguyen
University of Arkansas–Fort Smith
Ca.Nguyen@uafs.edu

Abstract

We examine whether the presence of loan covenants leads firms to choose either asset or equity acquisitions. Asset acquisitions involve the selective purchase of a target company's assets, and equity acquisitions involve acquisitions of common stocks. We document that firms with loan covenants are more likely to engage in asset acquisitions as opposed to equity acquisitions. Our results are robust to alternative measures of loan covenants and to endogeneity concerns. Furthermore, the association between loan covenants and asset acquisitions is stronger among firms with greater debt covenant intensity, more severe agency problems, and lower profitability. Acquirers facing more intense competition within their industries are also likely to choose asset acquisitions. Our findings suggest that acquirers' incentives to avoid wealth transfer at the expense of debtholders drive the relation between debt covenants and choice of acquisition structure.

JEL CLASSIFICATION: G32, G34

1. INTRODUCTION

Although debt constitutes an essential source of financing in mergers and acquisitions (M&As), there is limited evidence on how debt covenants drive M&A decisions.[1] M&As help assess how covenants affect debtholders and managers because they exemplify the taking of discretionary risks and the interplay of conflicts of interest that arise between these two groups. In this article, we consider how debt covenants align management's interests with those of debtholders, alter M&A activities, and protect the company's financial obligations. Specifically, we are interested in examining the impact of existing debt covenants on the choice of asset versus equity acquisitions by U.S. publicly traded firms.[2] This choice of acquisition form can redirect value from equity to debt by adding value to the acquirer's existing assets in a way that mitigates increases in firm value volatility.

We propose two possible channels through which existing debt covenants can influence bidders' choice of asset versus equity acquisitions: the collateral channel and the

[1] We focus on covenants in private debt market (loans), not public debt market (bonds).

[2] An example of asset acquisition is Alliance Healthcare Services, a provider of diagnostic imaging and radiation therapy services, which acquired the assets of OnPoint Medical Diagnostics, a healthcare information technology start-up specializing in medical imaging quality assurance technologies, in 2014 (Alliance Healthcare Services, 2014). OnPoint filed for Chapter 11 bankruptcy protection March 13 and sold its assets through an auction to Alliance May 5 for $1 million in cash, which fell short of the target company's expectations according to court filings (Grayson, 2014). An example of equity acquisition is CECO Environmental, an energy and fluid handling technology company, which acquired PMFG, a provider of engineered equipment for environmental solutions, in 2015. CECO acquired all the outstanding shares of PMFG common stock for $6.85 per share, representing a 48% premium to PMFG's closing price May 1 (CECO, 2015).

wealth transfer channel. Acquirers subject to restrictive covenants, which are an indirect cost of debt, are expected to take steps that do not violate the covenants when engaging in M&As (Daher & Ismail, 2018). Acquired physical assets are simpler to value and have more stable values than the equity acquired in a target firm (Jory et al., 2012). The acquisition of physical assets further enriches the buying firm's collateral base, which benefits debtholders in case the acquiring firm defaults. Given that most bank loans are secured debt, which affords bank lenders the right to lay claim on the borrower's assets in a bankruptcy, we conjecture that acquirers constrained by debt covenants have a stronger preference for asset acquisitions as opposed to equity acquisitions. We refer to this as the collateral channel.

An alternative channel through which existing debt covenants can influence bidders' choice of asset versus equity acquisitions is the wealth transfer channel. The literature suggests that bidders tend to overpay target firms' equity or overestimate synergistic gains (Hayward & Hambrick, 1997; Varaiya & Ferris, 1987). A combination of this overpaying behavior and the documented adverse market reaction to the announcement of such bids implies an expropriation of current debtholders' wealth (Andrade et al., 2001). In contrast, the lack of an active secondary market combined with sellers' urgent need for liquidity enhance the possibility of deep discount in asset acquisitions (Brown et al., 1994; Gilson, 1990; Madura & Susnjara, 2013; Officer, 2007). Such arguments consolidate our conjecture that acquirers with debt covenants face less adversity from their debtholders in an asset as opposed to an equity acquisition.

We test our hypotheses using a sample of 10,530 acquisitions by publicly traded acquirers of both publicly listed and private targets over 1990–2017. Using alternative measures of debt covenants, we conduct logistic regression analyses and document that firms restricted by debt covenants are more likely to engage in asset acquisitions as opposed to equity acquisitions. When an acquirer has existing debt contracts that include covenants,

ceteris paribus, the likelihood of a selective purchase of a target company's asset is approximately 1.17 times higher than that of acquiring its equity capital. We follow Billett et al. (2007) and construct a covenant index capturing covenant intensity. We find that acquirers with more covenant restrictions (e.g., higher covenant index) are less likely to engage in equity acquisitions. These results suggest that the imposition of restrictive covenants tilts the balance toward the acquisition of assets, and the intensity of the restrictive covenants magnifies that effect.

We find supporting evidence for the wealth transfer channel. The association between debt covenants and asset acquisitions is stronger for firms with higher market-to-book ratio, higher entrenchment index, and lower insider ownership. As such, covenants are more forcefully applied by acquiring firms' lenders when the threat of loss in value due to wealth transfer is the greatest. To account for reverse causation, we limit deals to those occurring after the loan package origination dates. We further use the composition of the lending syndicate and loan risk as instruments for the imposition of debt covenants. Results based on two-stage least squares (2SLS) regressions show that the relation between covenant measures and the likelihood of asset acquisitions remains positive and statistically significant under all specifications. Overall, our robustness checks confirm a high propensity of asset acquisitions as opposed to equity acquisitions among bidders with existing debt covenants.

In additional analyses, we isolate the effects of firm characteristics from covenant restrictions by examining whether profitability and volatility in earnings drive our results. The empirical evidence suggests that debt covenants bind acquirers to asset acquisitions instead of equity acquisitions, especially for acquirers with low profitability. Next, we use two systematic proxy variables to measure an increased demand for monitoring, which potentially leads to a greater likelihood of covenants in loan contracts. We find that acquirers subject to more intense competition within their industry are likely to conduct asset

acquisitions. Our results suggest that covenant enforcement plays a more critical role in the firm's investment decision in an environment characterized by a robust demand for monitoring.

Our findings contribute to different strands of the literature including M&As, capital structure, agency costs, information asymmetry, debt contracting, and lending relationships. As per the contracting literature, financial covenants play a crucial role in creditors' monitoring activities to mitigate agency costs, and our findings suggest that those activities extend to the borrowers' M&A strategies. When examining cases where covenants significantly impede borrowers' M&A choices, we find that the provisions in debt agreements, although useful in debt contracts, impose an opportunity cost on corporate investment policies and borrowers' scope in M&As.

In a study related to ours, Daher and Ismail (2018) investigate the impact of debt covenants on acquisition characteristics. They find that acquirers with covenants pay lower merger premiums, make more focused acquisitions, and engage in acquisitions with higher synergy gains and higher acquirer returns around deal announcements, relative to acquirers without debt covenants. They find that the more stringent the debt covenants, the more pronounced are the effects. The authors conclude that creditors' monitoring role through debt covenants and borrower's effective corporate governance are substitutes.

We extend Daher and Ismail's (2018) study in several important ways. First, we expand the sample of target firms to include private targets. Unlike Daher and Ismail, therefore, our sample is not limited to publicly listed targets. The distinction between the public versus private status of the target is important because the wealth effects differ (see Draper & Paudyal, 2006). Chang (1998) finds that bidder returns at the M&A announcement of a privately held target are positive, which is in sharp contrast to findings on the acquisitions of publicly traded targets. As a result, our extended sample allows us to see how

the debtholders in acquiring firms handle the differing implications for asset values based on the targets' public status.

Besides the value implications of target public status, acquisitions of privately held targets outnumber the acquisitions of publicly traded targets. Consequently, including privately held targets in the sample enriches our empirical evidence. Ang and Kohers (2001) find that the volume of acquisitions of privately held companies far exceeds that of publicly traded targets. They provide this evidence over 1984–1996 when there were more than 22,000 acquisitions of privately held targets compared to 8,000 acquisitions of publicly traded targets. In the same way, in our sample, 83% of the deals involve privately held targets compared to only 17% of publicly traded targets. By examining acquisitions of both privately held and publicly traded target firms, we hope to shed light on a broader takeover market.

We consider two types of acquisitions that we argue are central to the firm debtholders: asset acquisitions and equity acquisitions. This distinction is not possible in Daher and Ismail's (2018) study as they focus exclusively on equity acquisitions of publicly traded target firms. Moreover, excluding asset acquisitions from the M&A sample reduces the sample significantly. For instance, asset acquisitions dominate equity acquisitions in the corporate takeover market. Based on our sample, more than 60% of the acquisitions by U.S. publicly traded acquirers over 1990–2017 involve assets. Excluding asset acquisitions would leave more than half of the M&A market out of our study.

In addition to enhancing the breadth of the samples studied in the literature, we add new findings on how bank lenders influence borrower firms' investment decisions by focusing on the impact of debt covenants. Liu (2011) finds that the market reacts favorably to M&As by acquirers that have violated a debt covenant in the 4 quarters preceding the M&A announcement. According to Liu, investors value the control exercised by debtholders postviolation and reward such firms in the M&A market. Conversely, bidders that do not

breach their debt covenants but are in danger of doing so (evidenced by a violation in the same year following the M&A) experience adverse market reaction. Likewise, Becher et al. (2017) describe that violations force acquirers into making value-enhancing M&As, using more cash to finance deals, and engaging in focused acquisitions. The findings of Liu (2011) and Becher et al. (2017) suggest that the mere presence of a debt covenant is not sufficient to ensure that bidders do not engage in value-destroying M&As. Instead, a covenant violation is a defining event that triggers more control by lenders, and it is during the postviolation period that the benefits of lenders' control are realized from investors' point of view. However, the findings of Liu (2011) and Becher et al. (2017) stand in stark contrast to Daher and Ismail (2018) who claim that the threat posed by debt covenants is more telling than actual violations. In other words, it is the threat of losing control to creditors and not actually losing control that counts most in M&As. As such, more research is required to understand the corporate governance effects of debt covenants in M&A, and our research endeavors to bridge that gap.

2. LITERATURE REVIEW, HYPOTHESIS DEVELOPMENT, AND CROSS-SECTIONAL PREDICTIONS

2.1 Literature review

The literature has considered a few linkages between debtholders and borrowing firms' M&A activities though not necessarily the full effects of debt covenants. Chen et al. (2019) review some of the findings. They find that acquiring firm debtholders' claims decline in value following M&A announcements, with the adverse effect being directly proportional to the bidders' credit quality. To the degree that M&As work against debtholders' interests, we expect safeguards against borrowers' acquisition decisions in the debt covenants. Becher et al. (2017) highlight the relevance of debt covenants in M&As and find that more than a third of credit agreements they survey explicitly state a prohibition against diversifying acquisitions,

in which acquirers seek to expand outside their core businesses. Daher and Ismail (2018) find that the presence of debt covenants increases the probability of making focused acquisitions, and strict covenants impede diversifying acquisitions. Overall, the evidence shows that debt covenants restrict firms' scope in M&As.

In this article, we extend the literature by focusing a new dimension on how restrictive covenants affect the borrowing firms' subsequent M&A structure choices. Specifically, we examine how the presence of debt covenants might influence a firm's decision to choose whether the structure of the deal should be an asset acquisition versus an equity acquisition. We argue that lenders are concerned about the extent of collateral that either type of acquisition adds to the acquiring firm's asset base.

There are important differences between asset and equity acquisitions. First, asset acquisitions produce a direct effect on the collateral base of acquiring firms and provide direct ownership of the acquired assets, which allows lenders to lay claim to those assets in the event of default. Conversely, lenders have less access to a target's collateral in equity acquisitions. For instance, an equity acquisition is reported as an investment in the acquirer's balance sheet, and although the lender would request the sale of that investment in bankruptcy, it cannot repossess the investee's assets. As a result, acquirers' shareholders cannot claim ownership of a target firm's assets and place them as collateral with a lender.

Second, there is more latitude for bidders in assets acquisitions as opposed to equity acquisitions. For example, in a transaction that involves specific physical assets, acquirers can select the assets they desire. In an equity acquisition, the acquirer cannot exclude assets (which they do not require) from the deal. Jory et al. (2012) describe scenarios when asset acquisitions are advantageous. An asset acquisition allows a greater depreciation tax shield to be claimed. Good quality assets are transferred to the bidder and toxic assets stay with the selling firm. As a result, the due diligence process is focused on the assets the bidder wants,

which in turn improves the usage value of the purchased assets. Asset acquisitions are also less likely to cause antitrust issues with regulatory authorities, among others. Nonetheless, not all asset acquisitions are straightforward. Perhaps the biggest stumbling block acquirers face is the transfer of the seller's staff, their wages, pensions, and other benefits (both pecuniary and nonpecuniary). If the transfer is botched, it may expose the bidder to long-term costly legal proceedings.

2.2 Hypotheses

2.2.1 Collateral channel

Insofar as an acquirer is already operating under the restrictions of existing debt covenants, we predict that the acquiring firm will be less likely to choose an equity acquisition over an asset acquisition. With the latter, the amount paid is directly converted into tangible assets. Conversely, equity acquisition is an investment with no direct claim on the acquired entity's assets. Tang and Han (2018) envisage that compared to conventional M&As, large-scale acquisitions through material asset reorganizations generate a significant influx of assets from target firms. This raises the acquirer's asset collateral and thus reduces its debt financing frictions.

Although debt covenants are there to safeguard lenders' interests from adverse selection and moral hazard, lenders continue to monitor borrowers' operations to minimize ex post moral hazard, which can occur if borrowers make value-decreasing acquisitions. We argue that between acquisitions of tangible assets and shares of common stock, the acquisitions of tangible assets help mitigate information asymmetry and adverse selection problems concerning the net worth of the new collaterals acquired. The acquisition of assets diminishes the risk that debt covenants are violated from a collateral point of view, and control rights are shifted from borrowers to creditors as a result of the acquisition (Nini et al., 2012).

2.2.2 Wealth transfer channel

There are risks to lenders when borrowers engage in equity as opposed to asset acquisition. It is well documented that bidders overpay to wrestle control from target shareholders (Hayward & Hambrick, 1997; Varaiya & Ferris, 1987). Thus, there is a transfer of wealth from the bidder firm (and consequently from its debtholders) to the target firm shareholders in acquisitions of equity. Furthermore, successful bidders are often subject to the winner's curse hypothesis, wherein they overestimate the value of synergistic gains. If we combine this overpayment with the documented adverse market reaction to the announcement of such bids (Andrade et al., 2001), the postacquisition wealth accrued to debtholders, should things turn sour, is significantly curtailed with equity acquisitions. Debtholders will not sit on the fence and witness acquirers' wealth being expropriated to target firms' shareholders. Such arguments consolidate our assertion that acquirers with debt covenants face less adversity from their debtholders in an asset as opposed to equity acquisition.

As alluded earlier, the likelihood to overpay in equity acquisitions is a risk factor for acquiring firms' debtholders. Because the equity of a publicly listed target is traded on a stock exchange, the possibility that the target shares are underpriced at the time of the acquisition is low. Active stock market trading ensures that the target firm's stock price is not available at a bargain. This possibility is greatly diminished in the market for individual firm assets because there is no active market similar to the stock market. An asset acquisition resembles the acquisition of stand-alone private firms and subsidiaries of other firms because they are categorized as unlisted targets. These targets are traded at considerable discounts relative to comparable publicly traded assets to account for the lack of liquidity (Madura & Susnjara, 2013; Officer, 2007). As such, the prospect of finding undervalued assets is high.

Acquisitions of assets have often been studied in the context of bankruptcies, where the acquirers realize significant gains (Hotchkiss & Mooradian, 1998). In a stock acquisition,

the bidder initiates a bid for the target firm shares. Conversely, the sale of an asset is initiated by the seller. In other words, there is a higher likelihood for the need to sell in an asset sale than in an equity sale (Brown et al., 1994; Gilson, 1990). The urgency to sell plays into the hands of potential acquirers, especially if the assets are of a specialized nature. The acquirers can bid low and realize more than the synergy gains expected from the acquisition, which would be well received by the acquirers' debtholders (Clark & Ofek, 1994).

For these reasons under both the collateral channel and the wealth transfer channel, we hypothesize that firms with debt covenants are more associated with asset acquisitions as opposed to equity acquisitions, ceteris paribus.

Hypothesis 1: Acquiring firms with covenant restrictions are more likely to engage in asset acquisitions.

2.3 Cross-sectional predictions

2.3.1 Debt capacity and leverage

In their review of financing corporate mergers and acquisition, Bessler et al. (2011) infer that "managers of highly leveraged firms will actively rebalance their capital structure before a takeover to mitigate constraints from being overleveraged" (pp. 438–439). Overleveraged bidders take actions to reduce their leverage before M&As, unlike overleveraged nonbidders and underleveraged bidders (Uysal, 2011). Should they fail to adjust their leverage, they do so postacquisition. Hu and Yang (2016) find that firms adjust their capital structure postacquisition by issuing more equity if they are overleveraged.

As the literature provides evidence that bidders consider their debt capacity in their M&A decisions, we extend this research by reasoning that bidders do not undertake these considerations in a vacuum. Instead, they actively engage with their debtholders to discuss the financing they require for their acquisitions. We argue that during those negotiations, the debtholders seek assurances that the loan they made to the acquiring firm is recoverable.

Those assurances extend to the types of acquisition if one type is riskier than the other. Allen et al. (2004) state that commercial banks, based on their prior lending relationships, are well placed to gauge the impact of an M&A on their clients' business. They have private information about the borrower's cash flows, financial resources, and other exposures. Therefore, they are well placed to assess one type of acquisition over the other. Insofar as asset acquisitions are more secure with regard to collateral, bidders with low debt capacity and high leverage would be advised to consider asset acquisitions rather than equity acquisitions when a choice between the two is possible.

Financially constrained firms are also more likely to succeed with an asset acquisition (relative to an equity acquisition) because it enhances more directly the borrowing firm's collateral base, ceteris paribus. Cleary and Hossain (2020) argue that financial constraints decrease firms' likelihood of engaging in equity acquisitions (see also Hahn & Lee, 2009). For these reasons, we hypothesize that the relation between debt covenants and asset acquisitions is stronger for financially constrained firms.

As debt capacity and the conditions attached are an essential part of M&A decisions, we hypothesize that if asset acquisitions facilitate increased collateral value, the relation between covenants and asset acquisitions should be more important for firms with low debt capacity. Firms defined as having low debt capacity could be either firms with high leverage, high financial constraints, or fewer tangible collaterals. We test the hypothesis that the relation between covenants and asset acquisition are more critical for these firms.

Hypothesis 2: The impact of covenants on the choice between asset and equity acquisitions is stronger for firms with low debt capacity.

2.3.2 Agency problem

In an acquisition of a target firm's equity, the acquirer also pays for the intangible assets of the target firm. Zhang and Zhang (2017) explain that the valuation of goodwill and

identifiable intangible assets is less verifiable than of tangible assets. They also find that managers' accounting preferences affect reporting reliability when accounting measures are less verifiable despite the presence of external appraisers. Because of potential changes to their compensation contracts, managers are more likely to overvalue goodwill than other identifiable intangible assets, as the latter are subject to mandatory amortization, whereas goodwill is not subject to periodic amortization. As values of intangible assets are determined more by managers' opportunistic reporting incentives, we argue that these risks are greatly diminished in asset acquisitions because the fair value of each asset purchased is verifiable.

Managers are incentivized to maximize shareholders' wealth in ways that expropriate wealth from debtholders (Jensen & Meckling, 1976; Smith & Warner, 1979). For example, significant premiums paid in acquisitions of target firms' equity (unlike the discounts available on asset purchases to compensate for their specificity and illiquidity) put the future interest and principal payments to a firm's existing debtholders at higher risk. To ensure continued control and any benefits associated with that control, managers substitute acquisitions of equity, which triggers the transfer of control rights to debtholders, by acquisitions of assets. According to Chava and Roberts (2008), when agency and information problems are relatively severe, the transfer of control rights alters the way a firm undertakes capital expenditure. Chava and Roberts explain three ways creditors exercise their controls after a covenant violation. First, they may start interfering in the firms' investment decisions. Second, they may require the firm to incur additional reporting and monitoring costs. Third, they may tighten credit, for example, by increasing borrowing costs or reducing the loan facility.

The previously mentioned issues are severe at firms with agency issues. For example, the payment of outsized premiums and the exercise of managerial discretions in equity acquisitions are more severe at firms with more corporate governance agency issues. This is

consistent with the finding that stockholders of target firms earn substantial excess returns upon the announcement of takeovers (Jarrell et al., 1988; Jensen & Ruback, 1983). Those gains represent a transfer of wealth from acquirers to targets. Although the evidence suggests that acquirers do not necessarily benefit from takeovers resulting from investments in other firms' securities (Mikkelson & Ruback, 1985), there is evidence that their benefits are more apparent in asset acquisitions (Hite et al., 1987; Jain, 1985; Jory & Madura, 2009; Jory & Ngo, 2015).

To account for agency costs, we split the sample into two subsamples based on the sample median values of market-to-book ratio, the entrenchment index, and the percentage of common stock held by acquirers' insider executives. Harvey et al. (2004) examine whether the ability of debt to mitigate agency costs depends on the likelihood that a business faces overinvestment problems. They find that the interaction between debt and cash-flow rights leverage is positive and significant for companies with high market-to-book ratio or more opportunities for growth. Harvey et al. suggest that debt is particularly useful in alleviating agency problems when companies are likely to suffer from overinvestment, that is, companies with a high market-to-book ratio.[3]

[3] The idea that stock prices affect merger activity is not new (Bouwman et al., 2007), and merger activities tend to boom when stock prices are high (Harford, 2005; Nelson, 1959). The use of the market-to-book ratio allows us to capture the irrationality on M&A activities engendered by market exuberance. The assumption is that high numbers of acquisitions are observed during periods of high valuations (i.e., high observed market-to-book ratios) and that lofty valuations attenuate some of the effects because of the intensity or rigor of the debt covenants faced by the acquirer. We further use the market-to-book ratio as a proxy for firm growth uncertainty. Lower market-to-book ratios reflect higher uncertainty about the firm's future growth opportunities (Orens et al., 2009).

The entrenchment index, developed by Bebchuck et al. (2009), captures four constitutional provisions and two takeover readiness provisions that prevent a majority of shareholders from taking control over management. Intuitively, the higher the index, the weaker is the corporate governance. Jensen et al. (1992) argue that the financial interests between managers and shareholders are better aligned when managers allocate a larger portion of their wealth to the firm. As a result, we expect better managed firms to be associated with higher insider ownership. In each case, we test the hypothesis that debt covenants are associated with more acquisitions of assets at firms with low-quality governance structure, that is, high market-to-book, high entrenchment index, and low insider ownership.

Hypothesis 3: The impact of covenants on the choice between asset and equity acquisitions is stronger for firms with more severe agency problems.

We now empirically examine our assertion that in the presence of covenants, borrowers are inclined to choose asset purchases over equity purchases in M&As. We start with the definition of our data set.

3. DATA AND METHODOLOGY

We obtain all announced and completed M&As between 1990 and 2017 from the Securities Data Corporation (SDC) Mergers and Acquisitions database. We exclude all financial (Standard Industrial Classification [SIC] codes 6000–6999) and utility (SIC codes 4900–4949) acquirers and targets because of the regulated nature of the industries. Following Daher and Ismail (2018), we limit the sample to acquisitions with deal values above $1 million.

We identify whether the acquirers in the resulting sample engage in a syndicated loan transaction in the Loan Pricing Corporation's (LPC) DealScan database. We require that the announcement date of the acquisition falls between the loan package initiation date and maturity date (similar to Daher & Ismail, 2018; Devos et al., 2017). DealScan lists entries by

facility, and several facilities could be entered by the same borrower under the same package. For this article, we group all facilities and associated covenants by the corresponding package and merge these packages with the M&A data.

Finally, we complement our sample with accounting and financial information from Compustat and share price information from the Center for Research in Security Prices (CRSP) database. All the variables are winsorized at the 1% and 99% levels to mitigate the effects of outliers. The resulting sample consists of 10,530 acquisitions by publicly traded acquirers of publicly traded and privately held targets from 1990 to 2017.

3.1 Debt covenant variables

We use three main explanatory variables to capture the effects of debt covenants in our analysis. The first, COVDUMMY, is a dummy variable equal to 1 if the acquirer has at least one existing covenant of any type at the time of the acquisition announcement, and 0 otherwise. The second and third principal explanatory variables serve the same purpose of conveying how restrictive an existing debt contract is to borrowers in terms of covenants but are constructed differently. COVINDEX1 is based on Bradley and Roberts's (2015) method. It consists of adding 1 for the availability of each of the following covenants: security provision, dividend restriction, more than two financial covenants, asset sweep, equity sweep, and debt sweep; COVINDEX1, therefore, takes values between 0 and 6. COVINDEX2 is computed following Billett et al. (2007) by counting the number of covenants in a particular contract and scaling by the total number of possible covenants (34). The index can range between 0 and 1. Following Voon et al. (2016), we use the natural logarithm of COVINDEX1 as the dependent variable and use COVINDEX2 as in Billett et al. (2007) and Devos et al. (2017).

In additional tests, instead of using the covenant dummy and aggregate measures of covenant intensity, we employ individual covenants and different covenant categories as our

main independent variables. We choose the covenants that are most recurrent in the debt contracts: INTEREST COVERAGE COVENANT and DEBT-TO-EBITDA COVENANT. We further use four covenant categories: FINANCIAL COVENANT, GENERAL COVENANT, CAPITAL COVENANT, and PERFORMANCE COVENANT (Christensen & Nikolaev, 2012; Voon et al., 2016). The construction of the four covenant categories is explained in the Appendix. We calculate the natural logarithm of 1 plus each of the four covenant categories in our subsequent analyses and label them LNFINANCIAL COVENANT, LNGENERAL COVENANT, LNCAPITAL COVENANT, and LNPERFORMANCE COVENANT.

3.2 Summary statistics

We report the sample distribution in Table 1. In Panel A, the distribution is by announcement year of the M&As. The acquisition of assets comprises more than 60% of the sample, most of which are held by private firms preceding the sale. In Panels B and C, we report the distribution of the targets' and acquirers' industries, respectively. We employ the Fama–French 48-sector classification to define industries.[4] Business services (i.e., BUSSV) tops the list for both sets of firms.

In Panel D of Table 1, we report the distribution of the number of syndicate loan transactions (e.g., packages) per M&A deal. In about 43% of the deals (4534 deals), the acquirer is involved in one syndicate loan transaction between the loan package initiation date and maturity date. In about 14% of the deals (1519 deals), the acquirer is involved in three syndicate loan transactions between the loan package initiation date and maturity date. The number of syndicated loans at a bidder firm at the time of M&A ranges between 1 and 20.

[4] Fama-French 48 sector classification can be found in Dr. Kenneth R. French's website (https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_48_ind_port.html)

In Panel E of Table 1, we report the summary of the M&A characteristics and acquirer characteristics. On average, the deal value is $480 million, and the average acquirer asset is $6980 million. We also present summary statistics for the following variables. PURE CASH is a dummy variable equal to 1 for deals in which 100% of the payment is made in cash, and 0 otherwise (mean of 33.2%).[5] MIXED PAYMENT is a dummy variable equal to 1 for deals in which the payment is made in cash and stock combination, and 0 otherwise (mean of 57.7%). INDUSTRY RELATEDNESS is a dummy variable equal to 1 for deals in which the acquirer and the target share the same 4-digit SIC codes, and 0 otherwise (38.9% of the sample). TOEHOLD is a dummy variable representing deals in which the acquirer has at least 5% ownership in the target firm before the acquisition (3.8% of the sample). COMPETING is a dummy variable equal to 1 for deals with more than one bidder, and 0 otherwise (0.9% of the sample). ACQUIRER MARKET-TO-BOOK, ACQUIRER DEBT, and ACQUIRER PROFITABILITY are the acquirer's market-to-book ratio (mean of 3.42), total debt ratio (mean of 54.1%), and return on assets (average of 3.9%), respectively, at the end of the year preceding the M&A.

3.3 Univariate comparison of covenants between asset and equity acquirers

In Table 2, we compare the covenant measures between asset acquisitions and equity acquisitions. Except for CAPITAL COVENANT, acquirers with more covenants conduct more asset acquisitions than equity acquisitions, and the difference between the two types of acquisitions is statistically significant at the 1% level in each case. Both the mean and median values of the following covenants are higher in asset acquisitions than in equity acquisitions, and the difference is statistically significant at the 1% level: COVDUMMY, LNCOVINDEX1, LNCOVINDEX2, INTEREST COVERAGE, DEBT-TO-EBITDA, LNPERFORMANCE COVENANT, LNFINANCIAL COVENANT, and LNGENERAL

[5] All the variables used in the present study are defined in the Appendix.

COVENANT. As hypothesized, because physical assets, as compared to equity ownership in a target firm, tend to be easier to value while limiting the wealth transfer at the expense of acquirers' existing debtholders, acquirers subject to more restrictive covenants are more likely to pursue asset acquisitions than equity acquisitions.

3.4 Multivariate logistic regressions of choice between asset and equity acquisitions

To estimate the incremental effect of covenant restrictions on the choice between asset and equity acquisitions, we use the following logistic model:

$$\Pr\left(Asset\ Acquisition_{i,t}\right) = \phi\left(\alpha + \boldsymbol{\beta} \times Covenant\ Measures + \boldsymbol{\Gamma} \times X'_{i,t} + \boldsymbol{\Omega} \times Y'_{i,t-1} + Fixed\ Effects\right) \quad (1)$$

where $X'_{i,t}$ is the set of M&A deal characteristics and $Y'_{i,t-1}$ is the set of acquirer characteristics, measured with a 1-year lag. We control for year and industry fixed effects. We also calculate the significance levels of the coefficients based on the standard errors corrected for clustering effects among observations by the same acquirers.

4. RESULTS

4.1 Baseline analysis

In Table 3, we report the results from the logistic regressions of choice between asset acquisitions and equity acquisitions on the aggregate covenant measures COVDUMMY, COVINDEX1, and COVINDEX2. Consistent with the univariate results in Table 2, the coefficients on COVDUMMY, COVINDEX1, and COVINDEX2 are positive and significant at the 1% level, confirming that acquirers subject to more restrictive covenants are more likely to choose asset acquisitions as opposed to equity acquisitions. The odds ratio on COVDUMMY in Column (1) is 1.17, suggesting that the odds that an acquirer with a covenant restriction on existing syndicated loans will engage in asset acquisition (as opposed to equity acquisition) is 1.17 times that of an acquirer without such covenant restriction. The effect is economically much stronger when we consider the continuous measure of COVINDEX2 in Column (3), which captures the number of covenants in a particular contract

and is scaled by the total number of possible covenants. An acquirer with more restrictive covenants on existing loans is 3.65 times more likely to engage in asset acquisition (as opposed to equity acquisition) compared to an acquirer with a smaller number of restrictive covenants. We also find acquisitions of assets to be positively related to cash payments, industry relatedness, and acquirer debt. Conversely, the decision to acquire assets as opposed to equity is inversely related to toehold acquisitions, competitive bids, target size, and acquirer market-based valuation.

4.2 Types of covenants

In this section, we examine whether different types of covenants have different effects on a firm's acquisition choice. We decompose covenants into six types: debt-to-EBITDA (earnings before interest, taxes, depreciation, and amortization) covenants, interest coverage covenants, financial covenants, performance covenants, capital covenants, and general covenants. In Table 4, we report the results from the logistic regressions of the choice between asset and equity acquisitions on the different covenant measures. Consistent with the univariate results in Table 2, except for LNCAPITAL COVENANT, the coefficients on INTEREST COVERAGE, DEBT-TO-EBITDA, LNPERFORMANCE COVENANT, LNFINANCIAL COVENANT, and LNGENERAL COVENANT are positive and significant at the 1% level. Our results show that the coefficients of most covenant types, except for capital covenants, are statistically significant at the 5% level or more. The economic impact of the different types of acquisition choices is strong. For example, acquirers with a debt-to-EBITDA covenant and interest coverage covenant are 1.37 times and 1.43 times,[6] respectively, more

[6] The coefficient on DEBT-TO-EBITDA in Model (1) of Table 4 is 0.318. The odds ratio is calculated as an exponential of 0.318 or 1.37. Similarly, the coefficient on INTEREST COVERAGE in Model (2) of Table 4 is 0.36. The odds ratio is calculated as an exponential of 0.36 or 1.43.

likely to engage in asset acquisitions as opposed to equity acquisitions compared to acquirers without the covenants.

4.3 Debt capacity and leverage

Asset acquisitions allow firms to tap directly into an accessible and fairly valued collateral base. To the extent that having stronger collateral enhances firms' prospects of securing capital in the credit market at a lower cost of borrowing, we may find the association between debt covenants and asset acquisitions to be more pronounced in firms with low debt capacity. We employ three alternative proxies for debt capacity: leverage ratio, size-age index, and tangibility ratio. The leverage ratio is defined as the sum of long-term debt and long-term debt in current liabilities divided by total assets (ACQUIRER DEBT). Acquirer financial constraint is measured as the size-age index (ACQUIRER SIZE-AGE INDEX) developed by Hadlock and Pierce (2010). The size-age index is calculated as $-0.737\text{SIZE} + 0.043\text{SIZE}^2 - 0.040\text{AGE}$, where SIZE is the natural logarithm of inflation-adjusted total assets and AGE is the number of years since the initial public offering (IPO) or the number of years the firm appears in Compustat (if no IPO date is available). Following Hadlock and Pierce (2010), we replace firm size with log($4.5 billion) and age with 37 years if the actual values exceed these thresholds. Higher values of the size-age index indicate more financially constrained firms. The ratio of tangible assets to total assets is defined as the total of plant, property, and equipment (PPE), cash, receivables, and inventories divided by total assets (ACQUIRER TANGIBILITY).

In Table 5, we run the same logistic regression (as in Table 3) separately for the subsamples of acquirers with lower and higher levels of leverage (Panel A), financial constraints (Panel B), and tangibility (Panel C). The dividing point is the sample median value in each case. For each panel, we perform the Chow test to evaluate whether the differences in coefficients between Columns (1) and (4), Columns (2) and (5), and Columns

(3) and (6) are economically robust. The chi-square statistics and corresponding *p*-values are reported in Columns (1)–(3). Our results show that the differences in coefficients are all statistically insignificant in Panels A–C of Table 5. Thus, the impact of covenants on asset acquisition is similar across the subsamples.

Based on the preceding, we do not find support for Hypothesis 2, which suggests the collateral-enhancing role of debt covenants for firms with low debt capacity. The impact of debt covenants on the choice of the M&A structure is independent of debt capacity and financial constraints. Hence, the results are not driven by confounding firm-level leverage characteristics; the mere presence of debt covenants is associated with a higher likelihood of acquirers using asset acquisitions (as opposed to equity acquisitions).

4.4 Agency problem

In this section, we analyze the importance of debt covenants in protecting the debtholders' stake and limiting the wealth transfer in favor of equityholders using asset acquisitions as opposed to equity acquisitions. In asset acquisitions, lenders have a more direct claim on firm assets in default while insulating themselves from the possibility of overpaying in equity acquisitions. Hence, we expect a stronger link between covenants and asset acquisitions in firms with a more severe conflicts of interest between debtholders and equity holders.

In Table 6, we perform the logistic regression by various subsamples. We divide the sample into two subsamples based on the sample median market-to-book ratio in Panel A, the median entrenchment index in Panel B, and median insider ownership in Panel C. We run the logistic regressions separately for each subsample. The market-to-book ratio is defined as the market value of equity divided by book value of equity. The entrenchment index, developed by Bebchuck et al. (2009), captures four constitutional provisions and two takeover readiness provisions that prevent a majority of shareholders from taking control over management. Intuitively, the higher the index, the weaker is corporate governance. Insider ownership is

measured as the number of shares owned by firms' executives divided by the total shares outstanding.

Panel A of Table 6 shows that acquiring firms with higher market-to-book ratios are more likely to choose asset acquisitions in the presence of debt covenants.[7] We observe similar results for firms with higher entrenchment index and lower insider ownership. To compare the economic significance of coefficients between subsamples, we use a Chow test and report the test statistics in Columns (1)–(3). The differences are statistically significant at the 5% or 10% level. Our results support Hypothesis 3, which suggests that debt covenants play a more influential monitoring role for firms with greater sensitivity to agency problems, as evidenced by the increased likelihood of choosing asset acquisitions over equity acquisitions.

5. ADDRESSING ENDOGENEITY

Our analysis might be subject to reverse causation when the acquisition choice influences the covenant design. Assuming that asset acquisitions are safer for debtholders than are equity acquisitions, we expect debtholders to reward asset acquirers with looser covenants, causing the association between covenants and asset acquisition to turn negative. To address this possibility, we limit deals to those occurring after the loan package origination dates. Another potential concern is that our analysis might suffer from omitted variables that influence both covenant design and acquisition choice concomitantly. We employ instrumental variable analyses using lending syndicate and loan risk as instruments to address this issue.

[7] Given the association is statistically significant only for high market-to-book ratios, we also argue that during merger waves and bullish markets, firms are more likely to be associated with high market-to-book ratios. Given lofty valuations during such periods, high market-to-book firms might engage in overvalued M&As. As such, covenants are more forcefully applied by the acquirers' borrowers during such periods.

5.1 Instrumental variable regression with lending syndicate

We employ two measures to describe a lending syndicate. First, we use DealScan's institutional types to identify bank and nonbank lenders. Lenders are classified as commercial banks if their DealScan institutional label is "US Bank," "African Bank," "Asian-Pacific Bank," "Foreign Bank," "Eastern Europe/Russian Bank," "Middle Eastern Bank," "Western European Bank," or "Thrift/S&L." To identify investment banks, we start with lenders that are labeled by DealScan as "Investment Bank." Furthermore, we use SIC to reclassify the lenders. For example, we recognize lenders as commercial banks if their SIC codes range from 6011 to 6082 or if their SIC codes are 6712, 6719, 5942, 1311, 2329, 2253, or 7374, and investment banks if their SIC code is 6211. Next, we check lenders' names for keywords. For example, if a lender's name includes "securities," "capital markets," or "financial markets," we classify the lender as an investment bank. After distinguishing commercial banks and investment banks from other nonbank institutions, we create NONBANK, an indicator variable equal to 1 if at least one nonbank lender participates in a loan syndicate. Second, we count the number of lenders as a measure of lending syndicate (NUM_LENDER).

For the measures of lending syndicate to be valid instrumental variables, they must meet both relevance and exclusion conditions. The literature reports a strong link between syndicate structure and covenant design (Berlin et al., 2020; Dass et al., 2020). In addition, Demiroglu and James (2010) provide evidence that the expected costs of loan renegotiation, proxied by lending syndicate size, is negatively related to the degree of covenant restrictions. Hence, we believe that our instruments meet the relevance condition.

We argue that a firm's choice of acquisition is not influenced by either the presence of a nonbank lender in the syndicate or the total number of participating lenders. It is difficult to see how a lender affects the borrower's M&A decision based solely on its status as a banking or nonbanking entity. Likewise, the link between the number of lenders in a loan syndicate

and a firm's M&A decision does not appear to be material. A large number of lenders could enable a firm to raise more capital for its M&A, which potentially affects the size of acquisition but not necessarily the type of acquisition. As such, we argue that our measures of lending syndicate structure meet the exclusion condition to be reliable instruments.

Table 7 presents our estimates for the 2SLS regressions based on the assumption that NONBANK (i.e., the presence of a nonbank lender) and NUM_LENDER (i.e., the number of lenders) are not correlated with the error in the type of acquisition equation but explain the covenant measures.

Our first-stage results show that NONBANK is positively and significantly related to all three covenant measures COVDUMMY, COVINDEX1, and COVINDEX2. Thus, nonbank lenders display risk-mitigating attributes similar to their bank counterparts (see also Berlin et al., 2020). Next, there is a strong and positive association between the number of lenders and covenant measures. Loans with a greater number of lenders may also be larger, and as a result, more covenants are needed. Our second-stage results show that the coefficients of covenant measures remain positive and statistically significant under all specifications. Thus, our instrumental variable analyses provide additional support for our argument that loan markets' restrictions motivate firms to engage in asset acquisitions as opposed to equity acquisitions.

5.2 Instrumental variable regression with loan risk

In this section, we use loan risk as an instrument of the covenant design. Riskier loans are subject to more covenant restrictions and hence loan risk meets the first condition for a valid instrument (Demiroglu & James, 2010). Furthermore, the riskiness of a firm's debt financing is not directly related to its choice of acquisition type. It is possible that loan risk factors into a firm's cost of capital, but it should not affect the attractiveness of the acquisition and the channel through which the acquisition is made. Hence, we follow Daher and Ismail (2018)

and use the debt credit rating as an instrument to represent loan risk. In addition, we use DealScan's market segment for leveraged loans as an alternative measure of loan risk.

Table 8 reports our estimates of 2SLS regressions using speculative debt credit rating (JUNK) and a dummy variable for loans issued in the leveraged market (LEVERAGE_SEG) as instrumental variables. Our first-stage results show that riskier loans are more likely than low-risk loans to have covenants, and the degree of covenant intensity is significant. Our second-stage results show that the positive impact of covenant measures on a firm's preference for asset-based acquisitions remains robust.

5.3 Additional analyses

In this section, we isolate the effects of firm profitability and earnings volatility from covenant restrictions in their association with acquisition choice. In addition, we are interested in how the impact of covenant design on firms' acquisition decisions changes in an environment that calls for more stringent monitoring. If the effect of restrictive covenants on the preference for asset acquisition stays significant across different subsamples or on additional systematic conditions, we can show that the results from the baseline regression are robust.

5.3.1 Profitability and earnings volatility

The literature argues that firms constrained by debt covenants are likely to engage in earnings manipulation and smoothing (i.e., lower volatility due to managed earnings; DeFond & Jiambalvo, 1994; Dichev & Skinner, 2002). We test whether profitability and volatility in earnings drive our results. In Table 9, we perform the same logistic regression as in Table 3 separately for the subsamples of firms with lower and higher levels of profitability ratio (Panel A) and EBITDA volatility (Panel B) based on the median value of each measure. The profitability ratio is the acquirer's return on assets ratio, defined by net income divided by

total assets. EBITDA volatility is measured by the standard deviation of the acquirer's EBITDA relative to its assets over the 8 quarters preceding the acquisition date.

In Panel A of Table 9, we find that the impact of covenant restrictions on a firm's likelihood of choosing an asset acquisition is more pronounced in the subsample of low-profitability firms. The coefficients of the variables representing the debt covenants are positive, larger, and statistically significant in the low-profitability subsample. In Panel B, the coefficients of the variables representing the debt covenants are positive in both the low- and high-earnings-volatility subsamples. We repeat the Chow test to evaluate the difference between subsamples and present the test statistics in Columns (1)–(3). The differences are statistically significant in Panel A, providing support for our argument that the impact of debt covenants is more pronounced for less profitable acquirers. Overall, the empirical evidence suggests that debt covenants bind acquirers to asset acquisitions as opposed to equity acquisitions, especially among low-profitability acquirers.

5.3.2 Systematic increase in covenant restrictions

In this section, we examine the systematic conditions that accentuate the relation between covenant design and acquisition choice. Specifically, we test the effect of covenants on a firm's investment decision in an environment that calls for more stringent monitoring. For example, credit supply declines dramatically during a financial crisis, and loan officers tighten their lending standards. We are interested in understanding whether a more constrained credit market increases the enforcement features of debt covenants and eventually gives the borrowing firm a more definite reason to choose asset over equity acquisitions. In addition, if a firm operates in a highly competitive product market, it could be subject to more oversight from lenders and, as a result, have stronger incentives to conduct asset as opposed to equity acquisitions.

We use two systematic proxy variables to measure an increased demand for monitoring. The first variable is the net percentage of domestic banks tightening standards for commercial and industrial loans to large and middle-market firms. The data are obtained from the senior loan officer opinion survey on bank lending practices, managed by the Board of Governors of the Federal Reserve. The second measure is product market fluidity, which is obtained from Hoberg et al. (2014). A tightening in loan standards could force leveraged acquirers to conduct asset acquisitions as opposed to equity acquisitions. Likewise, product market fluidity captures changes in rival firms' products relative to the firm's products (Hoberg et al., 2014). A higher index value suggests that the firm faces more intense competition from its rivals. A competitive environment suggests that the industry's threats of exit due to product failure are high; therefore, creditors would scrutinize the firm's M&A decisions more closely. Based on this discussion, the positive association between debt covenants and the borrower's likelihood of acquiring assets as opposed to target firm equity may be more prevalent when loan standards are tighter and competition is more intense, as captured by high values of the product market fluidity index.

In Table 10, we run the same logistic regression as in Table 3 separately for the subsamples of firms with lower and higher levels of exposure to stringent lending standards (Panel A) and product market competition (Panel B). We also conduct a Chow test to assess the difference in coefficients between the subsamples. The results in Panel A show that coefficients are positive and statistically significant for both subsamples. The insignificant Chow test statistics suggest that acquirers restricted by debt covenants are more likely to choose asset acquisitions regardless of lending standards. The mere existence of debt covenants, rather than lending standards, renders a significant impact on the choice of asset versus equity acquisitions. In Panel B, although the difference tests indicate no economic difference in the coefficients between the two subsamples, we find that that the debt

covenants hold greater explanatory power for the subsample of firms subject to high product market competition. This observation provides marginal support for our argument that in an environment characterized by more severe market competition, the enforcement of covenants plays a more important role in the firm's investment decision.

6. CONCLUSION

We examine whether the presence of debt covenants causes firms to conduct asset acquisitions or equity acquisitions. We examine 10,530 asset and equity acquisitions of both publicly listed and private targets from 1990 to 2017. Acquirers include U.S. publicly listed firms.

We find strong evidence that firms with existing debt covenants are more likely to engage in asset acquisitions as opposed to equity acquisitions. When using a range of alternative covenant variables including the raw count of covenants and the type of covenants, our results suggest that the covenant variables are positively and significantly related to asset acquisitions. We break down the aggregate covenant variables into their constituent parts and document the same association between asset acquisitions and covenants for most constituent measures. Our results are robust to instrumental variables that predict covenants, including the presence of a nonbank lender, number of lenders, borrower's credit rating, and leveraged status of the acquirers' loans.

We propose the collateral and wealth transfer hypotheses as the key channels through which covenant restrictions influence a firm's choice between asset and equity acquisitions, and we provide supporting evidence for the latter. In terms of firm characteristics, we find that the association between debt covenants and the likelihood of choosing an asset acquisition over an equity acquisitions is higher among firms facing agency problems and low profitability. In terms of systematic factors, we observe that the association is stronger when competition within the industry is more intense.

Overall, our findings show a high propensity of asset acquisitions (as opposed to equity acquisitions) among bidders with covenants. The results highlight the preventative role of debt covenants in corporate governance and suggest that the threat of loss of control to creditors affects bidders' choice of acquisition method.

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Appendix: Variable Definitions

Variable	Definition
ASSETACQ	Dummy variable equal to 1 for asset acquisitions and 0 for equity acquisitions
COVDUMMY	Dummy variable indicating whether the acquirer had at least one covenant of any type at the time of the acquisition announcement
LNCOVINDEX1	Natural logarithm of 1 plus COVINDEX1, which is based on Bradley and Roberts's (2015) method. It adds 1 for the availability of each of the following covenants: security provision, dividend restriction, more than two financial covenants, asset sweep, equity sweep, and debt sweep; therefore, it can take values between 0 and 6 at most
LNCOVINDEX2	Natural logarithm of 1 plus COVINDEX2, which is computed following Billett et al. (2007) by counting the number of covenants in a particular contract and scaling by the total number of possible covenants (34). The index can range between 0 and 1
INTEREST COVERAGE COVENANT	Dummy variable equal to 1 if there is covenant on interest coverage
DEBT-TO-EBITDA COVENANT	Dummy variable equal to 1 if there is covenant on debt to earnings before interest, taxes, depreciation, and amortization (EBITDA)
LNCAPITAL COVENANT	Natural logarithm of 1 plus CAPITAL COVENANT, which includes maximum leverage, maximum senior leverage, maximum debt to equity, maximum loan to value, tangible net worth, net worth, maximum debt to tangible net worth, minimum current ratio, and minimum quick ratio covenants
LNPERFORMANCE COVENANT	Natural logarithm of 1 plus PERFORMANCE COVENANT, which includes debt to EBITDA, maximum senior debt to EBITDA, minimum fixed charge coverage, minimum interest coverage; minimum debt service coverage, and minimum cash interest coverage covenants
LNFINANCIAL COVENANT	Natural logarithm of 1 plus FINANCIAL COVENANT, which includes interest coverage ratio, debt service, fixed charge, cash interest, leverage ratio, debt to cash flow, senior debt to cash flow, debt to equity, debt to tangible net worth, current ratio, net worth, tangible net worth, and loan to value covenants (Voon et al., 2016)
LNGENERAL COVENANT	Natural logarithm of 1 plus GENERAL COVENANT, which includes excess cash flow sweep, asset sales sweep, debt issuance sweep, equity issuance sweep, percentage of excess cash flow, percentage of net income, dividend restriction, required lenders, term changes, and collateral release covenants (Voon et al., 2016).
PURE CASH	Dummy variable equal to 1 for deals in which 100% of the payment is made in cash, and 0 otherwise
MIXED PAYMENT	Dummy variable equal to 1 for deals in which the payment is made in cash and stock combination, and 0

	otherwise
INDUSTRY RELATEDNESS	Dummy variable equal to 1 for deals in which the acquirer and target share the same 4-digit Standard Industrial Classification (SIC) code
TOEHOLD	Dummy variable equal to 1 for deals in which the acquirer has at least 5% ownership in the target firm before the acquisition
COMPETING	Dummy variable equal to 1 for deals with more than one bidder, and 0 otherwise
LN(DEAL VALUE)	Natural logarithm of the deal value
LN(ACQUIRER ASSETS)	Natural logarithm of the acquirer's total assets at the end of the fiscal year preceding the acquisition announcement date
ACQUIRER MARKET-TO-BOOK	Acquirer's market-to-book ratio at the end of the fiscal year preceding the acquisition announcement date
ACQUIRER DEBT	Acquirer's total debt ratio at the end of the fiscal year preceding the acquisition announcement date
ACQUIRER PROFITABILITY	Acquirer's return on assets (ROA) at the end of the fiscal year preceding the acquisition announcement date
ACQUIRER SIZE-AGE INDEX	Acquirer's size-age index developed by Hadlock and Pierce (2010) and calculated as $-0.737 \times \text{Size} + 0.043 \times \text{Size}^2 - 0.040 \times \text{Age}$, where size is the log of inflation adjusted (to 2010) book assets and age is the number of years the firm has been on Compustat with a nonmissing stock price at the end of the fiscal year preceding the acquisition announcement date
ACQUIRER TANGIBILITY	Acquirer's total of plant, property, and equipment (PPE), cash, receivables, and inventories divided by total assets at the end of the fiscal year preceding the acquisition announcement date
ACQUIRER ENTRENCHMENT INDEX	Acquirer's entrenchment index developed by Bebchuck et al. (2009)
ACQUIRER INSIDER OWNERSHIP	Number of shares owned by the acquirer's executives divided by the total shares outstanding at the end of the fiscal year preceding the acquisition announcement date
ACQUIRER EBITDA VOLATILITY	Standard deviation of changes in acquirer's quarterly EBITDA/assets over the past 8 quarters preceding the acquisition announcement date
NONBANK	Dummy variable equal to 1 if at least one nonbank lender participates in a loan syndicate
NUM_LENDER	Number of lenders in the lending syndicate
JUNK	Dummy variable equal to 1 if the acquirer's S&P long-term credit rating is below BBB at the end of the fiscal year preceding the acquisition announcement date
LEVERAGE_SEG	Dummy variable equal to 1 if the loan package is in DealScan's market segment for leveraged loans
LENDING_STANDARD	Net percentage of domestic banks tightening standards for commercial and industrial loans to large and middle-market firms at the end of the fiscal year preceding the acquisition announcement date. The data are generated

	from the senior loan officer opinion survey on bank lending practices, managed by the Board of Governors of the Federal Reserve System
PRODMKTFLUID	Acquirer's product market fluidity obtained from Hoberg et al. (2014) at the end of the fiscal year preceding the acquisition announcement date

TABLE 1 Sample distribution

Panel A. Announcement Year Distribution			Panel B. Target Industry Distribution			Panel C. Acquirer Industry Distribution		
Announcement year	***N***	**Percent**	**Target industry**	***N***	**Percent**	**Acquirer industry**	***N***	**Percent**
1990	114	1.08	AERO	86	0.82	AERO	130	1.23
1991	125	1.19	AGRIC	43	0.41	AGRIC	27	0.26
1992	168	1.60	AUTOS	124	1.18	AUTOS	160	1.52
1993	274	2.60	BEER	7	0.07	BEER	8	0.08
1994	316	3.00	BLDMT	231	2.19	BLDMT	245	2.33
1995	395	3.75	BOOKS	88	0.84	BOOKS	118	1.12
1996	526	5.00	BOXES	29	0.28	BOXES	40	0.38
1997	668	6.34	BUSSV	2083	19.78	BUSSV	1460	13.87
1998	719	6.83	CHEM	193	1.83	CHEM	222	2.11
1999	593	5.63	CHIPS	515	4.89	CHIPS	569	5.40
2000	526	5.00	CLTHS	84	0.80	CLTHS	97	0.92
2001	400	3.80	CNSTR	167	1.59	CNSTR	164	1.56
2002	391	3.71	COAL	38	0.36	COAL	40	0.38
2003	409	3.88	COMPS	302	2.87	COMPS	492	4.67
2004	421	4.00	DRUGS	318	3.02	DRUGS	340	3.23
2005	443	4.21	ELCEQ	130	1.23	ELCEQ	140	1.33
2006	455	4.32	FABPR	61	0.58	FABPR	34	0.32
2007	466	4.43	FOOD	183	1.74	FOOD	204	1.94
2008	351	3.33	FUN	174	1.65	FUN	172	1.63
2009	251	2.38	GOLD	16	0.15	GOLD	19	0.18
2010	305	2.90	GUNS	15	0.14	GUNS	33	0.31
2011	316	3.00	HLTH	522	4.96	HLTH	529	5.02
2012	329	3.12	HSHLD	153	1.45	HSHLD	135	1.28
2013	313	2.97	LABEQ	197	1.87	LABEQ	233	2.21
2014	346	3.29	MACH	347	3.3	MACH	424	4.03
2015	335	3.18	MEALS	237	2.25	MEALS	248	2.36

2016	308	2.92	MEDEQ	394	3.74	MEDEQ	377	3.58
2017	267	2.54	MINES	31	0.29	MINES	35	0.33
Total	10,530	100.00	OIL	980	9.31	OIL	1002	9.52
			OTHER	39	0.37	OTHER	31	0.29
Form	**Frequency**	**Percent**	PAPER	98	0.93	PAPER	104	0.99
Equity acquisitions	4,163	39.53	PERSV	160	1.52	PERSV	123	1.17
Asset acquisitions	6,367	60.47	RTAIL	419	3.98	RTAIL	405	3.85
			RUBBR	93	0.88	RUBBR	79	0.75
			SHIPS	18	0.17	SHIPS	27	0.26
			SMOKE	2	0.02	SMOKE	2	0.02
			SODA	37	0.35	SODA	28	0.27
			STEEL	169	1.60	STEEL	215	2.04
			TELCM	800	7.60	TELCM	902	8.57
			TOYS	73	0.69	TOYS	72	0.68
			TRANS	327	3.11	TRANS	304	2.89
			TXTLS	59	0.56	TXTLS	56	0.53
			WHLSL	488	4.63	WHLSL	485	4.61

Panel D. Number of Loans per M&A Deal Distribution

No. syndicate loan transactions per M&A deal	**No. M&A deals**	**Percent**
1	4534	43.06
2	2928	27.81
3	1519	14.43
4	802	7.62
5	357	3.39
6	186	1.77
7	82	0.78
8	38	0.36
9	23	0.22
10	15	0.14
11	16	0.15
12	12	0.11
13	6	0.06

14	4	0.04
15	1	0.01
16	3	0.03
19	3	0.03
20	1	0.01

Panel E. Summary Statistics

Variables	***N***	**Mean**	**Median**	**10th pctl.**	**90th pctl.**	**Std. dev.**
DEAL VALUE ($ million)	10,530	480.124	55.000	5.400	714.090	2984.180
PURE CASH	10,530	0.332	0.000	0.000	1.000	0.471
MIXED PAYMENT	10,530	0.577	1.000	0.000	1.000	0.494
INDUSTRY RELATEDNESS	10,530	0.389	0.000	0.000	1.000	0.488
TOEHOLD	10,530	0.038	0.000	0.000	0.000	0.192
COMPETING	10,530	0.009	0.000	0.000	0.000	0.093
ACQUIRER ASSETS ($ million)	10,428	6980.260	933.455	86.847	12,885.000	30,988.360
ACQUIRER MARKET-TO-BOOK	10,422	3.420	2.486	1.038	6.622	4.291
ACQUIRER DEBT	10,426	0.541	0.538	0.259	0.800	0.213
ACQUIRER PROFITABILITY	10,419	0.039	0.048	-0.039	0.120	0.092

Note. This table reports the distribution and summary statistics for 10,530 merger and acquisition (M&A) deals during 1990–2017. Panels A presents the trends in the distribution of M&A deals across year. Panels B and C present the distribution of deals across target industry and acquirer industry (Fama-French 48 sector classification), respectively. Panel D presents the distribution of syndicated loan deals used to finance the M&A deals. Panel E presents the summary statistics for M&A characteristics. Definitions of the variables are provided in the Appendix.

TABLE 2 Univariate comparison of covenant measures

	Equity acquisition		Asset acquisition		Difference			
Variable	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**	***t*-stat.**	**Wilcoxon stat.**
COVDUMMY	0.571	0.667	0.629	0.800	0.058	0.133	6.77***	6.18***
LNCOVINDEX1	0.435	0.000	0.523	0.347	0.087	0.347	7.7***	8.1***
LNCOVINDEX2	0.085	0.081	0.101	0.098	0.016	0.017	9.94***	9.68***
INTEREST COVERAGE	0.140	0.000	0.181	0.000	0.041	0.000	8.12***	8.66***
DEBT-TO-EBITDA	0.221	0.000	0.280	0.173	0.059	0.173	9.97***	10.13***
LNCAPITAL COVENANT	0.232	0.000	0.230	0.000	-0.002	0.000	-0.29	0.57
LNPERFORMANCE COVENANT	0.438	0.314	0.549	0.549	0.112	0.235	11.67***	11.49***
LNFINANCIAL COVENANT	0.577	0.549	0.677	0.693	0.100	0.144	9.21***	8.96***
LNGENERAL COVENANT	0.783	0.732	0.900	1.006	0.118	0.274	8.07***	8.04***

Note. This table shows the differences in various attributes between equity acquisitions and asset acquisitions in our sample. Definitions of the variables are provided in the Appendix.

*** denotes significance at the 1% level.

TABLE 3 Logistic regressions of the choice between asset acquisitions and equity acquisitions on composite covenant measures

	(1)		(2)		(3)	
Variable	**Coefficient**	**Odds ratio**	**Coefficient**	**Odds ratio**	**Coefficient**	**Odds ratio**
COVDUMMY	0.157**	1.170				
	(0.073)					
LNCOVINDEX1			0.141***	1.151		
			(0.051)			
LNCOVINDEX2					1.295***	3.652
					(0.370)	
PURE CASH	1.991***	7.325	1.984***	7.273	1.984***	7.271
	(0.105)		(0.105)		(0.105)	
MIXED PAYMENT	2.009***	7.454	2.002***	7.407	2.002***	7.406
	(0.102)		(0.102)		(0.102)	
INDUSTRY RELATEDNESS	0.148***	1.160	0.143***	1.154	0.144***	1.155
	(0.054)		(0.054)		(0.054)	
TOEHOLD	-6.790***	0.00113	-6.789***	0.001	-6.790***	0.001
	(1.003)		(1.002)		(1.003)	
COMPETING	-1.432***	0.239	-1.432***	0.239	-1.432***	0.239
	(0.332)		(0.331)		(0.331)	
LN(DEAL VALUE)	-0.311***	0.733	-0.310***	0.733	-0.311***	0.733
	(0.020)		(0.020)		(0.020)	
LN(ACQUIRER ASSETS)	-0.004	0.996	-0.002	0.998	0.003	1.003
	(0.023)		(0.023)		(0.023)	
ACQUIRER MARKET-TO-BOOK	-0.018***	0.982	-0.018***	0.982	-0.018***	0.983
	(0.007)		(0.007)		(0.007)	
ACQUIRER DEBT	0.357**	1.429	0.311**	1.365	0.320**	1.378
	(0.143)		(0.143)		(0.142)	
ACQUIRER PROFITABILITY	0.293	1.341	0.319	1.375	0.280	1.324
	(0.310)		(0.310)		(0.310)	
Constant	-1.256*	0.285	-1.247*	0.287	-1.276*	0.279
	(0.678)		(0.696)		(0.704)	
Observations	10,391		10,391		10,391	
Pseudo R^2	0.172		0.172		0.173	
% correct classification	72.17%		72.04%		72.24%	
Year fixed effects	Yes		Yes		Yes	
Industry fixed effects	Yes		Yes		Yes	

Clustered standard error by acquirers	Yes	Yes	Yes

Note. This table presents the logistic regression coefficient estimates and odds ratios of Equation (1). The dependent variable is an indicator variable equal to 1 for asset acquisitions and 0 for equity acquisitions. The variables of interest are debt covenant variables: COVDUMMY, COVINDEX1, and COVINDEX2. All specifications include year and industry fixed effects. The analysis is conducted at the merger and acquisition deal level. Standard errors are clustered at acquirer level and reported in parentheses. Definitions of all variables are provided in the Appendix.
***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

TABLE 4 Logistic regressions of the choice between asset acquisitions and equity acquisitions on types of covenants

Variable	(1)	(2)	(3)	(4)	(5)	(6)
DEBT-TO-EBITDA COVENANT	0.318***					
	(0.097)					
INTEREST COVERAGE COVENANT		0.360***				
		(0.108)				
LNFINANCIAL COVENANT			0.149**			
			(0.059)			
LNGENERAL COVENANT				0.132***		
				(0.040)		
LNPERFORMANCE COVENANT					0.210***	
					(0.063)	
LNCAPITAL COVENANT						-0.019
						(0.092)
PURE CASH	1.972***	1.982***	1.987***	1.982***	1.973***	1.986***
	(0.105)	(0.106)	(0.105)	(0.105)	(0.105)	(0.106)
MIXED PAYMENT	1.994***	2.000***	2.006***	2.002***	1.992***	2.004***
	(0.102)	(0.103)	(0.103)	(0.102)	(0.102)	(0.103)
INDUSTRY RELATEDNESS	0.151***	0.148***	0.151***	0.142***	0.151***	0.151***
	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)
TOEHOLD	-6.787***	-6.782***	-6.784***	-6.790***	-6.786***	-6.787***
	(1.002)	(1.002)	(1.002)	(1.003)	(1.003)	(1.002)
COMPETING	-1.423***	-1.430***	-1.430***	-1.434***	-1.429***	-1.422***
	(0.333)	(0.333)	(0.332)	(0.332)	(0.332)	(0.331)
LN(DEAL VALUE)	-0.312***	-0.311***	-0.311***	-0.311***	-0.311***	-0.310***
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
LN(ACQUIRER ASSETS)	0.000	-0.008	0.001	-0.004	0.005	-0.012
	(0.022)	(0.023)	(0.023)	(0.022)	(0.023)	(0.023)
ACQUIRER MARKET-TO-BOOK	-0.018***	-0.018***	-0.018***	-0.018***	-0.017***	-0.019***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
ACQUIRER DEBT	0.357**	0.332**	0.363**	0.320**	0.341**	0.345**
	(0.142)	(0.142)	(0.142)	(0.142)	(0.142)	(0.144)
ACQUIRER PROFITABILITY	0.240	0.273	0.262	0.285	0.235	0.310
	(0.312)	(0.312)	(0.311)	(0.310)	(0.312)	(0.313)
Constant	-1.221*	-1.160*	-1.295*	-1.223*	-1.279*	-1.177*
	(0.708)	(0.702)	(0.688)	(0.690)	(0.702)	(0.682)

Observations	10,360	10,360	10,360	10,360	10,360	10,360
Pseudo R^2	0.173	0.173	0.172	0.173	0.173	0.172
% correct classification	72.50%	72.61%	72.50%	72.43%	72.59%	72.63%
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustered standard error by acquirers	Yes	Yes	Yes	Yes	Yes	Yes

Note. This table presents the logistic regression coefficient estimates of Equation (1). The dependent variable is an indicator variable equal to 1 for asset acquisitions and 0 for equity acquisitions. The variables of interest are indicators for different types of covenants: DEBT-TO-EBITDA, INTEREST COVERAGE, LNFINANCIAL COVENANT, LNGENERAL COVENANT, LNPERFORMANCE COVENANT, and LNCAPITAL COVENANT. All specifications include year and industry fixed effects. The analysis is conducted at the merger and acquisition deal level. Standard errors are clustered at acquirer level and reported in parentheses. Definitions of the variables are provided in the Appendix.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

TABLE 5 Debt capacity and leverage

Panel A. Subsample Analysis by Acquirer Debt						
	Low debt			**High debt**		
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
COVDUMMY	0.194**			0.225**		
	(0.094)			(0.091)		
LNCOVINDEX1		0.133*			0.152**	
		(0.071)			(0.071)	
LNCOVINDEX2			1.670***			1.019**
			(0.533)			(0.507)
Chow test chi-square	0.132	0.330	1.852			
Prob > chi-square	0.717	0.566	0.174			
Observations	5029	5029	5029	5172	5172	5172
Pseudo R^2	0.145	0.145	0.147	0.178	0.178	0.178
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Panel B. Subsample Analysis by Acquirer Size-Age Index						
	Low size-age index			**High size-age index**		
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
COVDUMMY	0.147			0.196**		
	(0.095)			(0.092)		
LNCOVINDEX1		0.106			0.155**	
		(0.083)			(0.065)	
LNCOVINDEX2			1.145**			1.300***
			(0.583)			(0.476)
Chow test chi-square	0.326	0.293	0.159			
Prob > chi-square	0.568	0.589	0.690			
Observations	4447	4447	4447	5673	5673	5673
Pseudo R^2	0.121	0.121	0.121	0.178	0.178	0.178
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Panel C. Subsample Analysis by Acquirer Tangibility						
	Low tangibility			**High tangibility**		
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
COVDUMMY	0.180*			0.176**		
	(0.096)			(0.088)		
LNCOVINDEX1		0.169**			0.116*	
		(0.075)			(0.067)	
LNCOVINDEX2			1.821***			0.786
			(0.509)			(0.509)
Chow test chi-square	0.502	0.392	0.666			
Prob > chi-square	0.479	0.531	0.414			
Observations	4792	4792	4792	5396	5396	5396
Pseudo R^2	0.140	0.140	0.141	0.184	0.184	0.184
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes	Yes

Note. This table presents the logistic regression coefficient estimates of Equation (1) for the subsamples of acquiring firms based on debt capacity and leverage. Panel A reports the results for the subsamples of firms with lower and higher leverage ratio than the sample median statistics. Panel B reports the results for the subsamples of firms with lower and higher size-age index than the sample median statistics. Panel C reports the results for the subsamples of firms with lower and higher tangibility than the sample median statistics. The dependent variable is an indicator

variable equal to 1 for asset acquisitions and 0 for equity acquisitions. The variables of interest are debt covenant variables: COVDUMMY, COVINDEX1, and COVINDEX2. All specifications include year and industry fixed effects. In Columns (1), (2), and (3), the Chow test chi-square statistics and their corresponding *p*-values indicate the significance of differences in coefficients between the subsamples presented in Columns (1) and (4), (2) and (5), and (3) and (6), respectively. The analysis is conducted at the merger and acquisition deal level. Standard errors are clustered at acquirer level and reported in parentheses. Definitions of the variables are provided in the Appendix.
***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

TABLE 6 Agency problem

Panel A. Subsample Analysis by Acquirer Market to Book						
	Low market to book			**High market to book**		
Variable	**(1)**	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
COVDUMMY	0.047			0.269***		
	(0.095)			(0.091)		
LNCOVINDEX1		0.079			0.189***	
		(0.070)			(0.070)	
LNCOVINDEX2			0.794			1.591***
			(0.516)			(0.504)
Chow test chi-square	3.053*	1.849	2.143			
Prob > chi-square	0.081	0.174	0.143			
Observations	4961	4961	4961	5174	5174	5174
Pseudo R^2	0.103	0.104	0.104	0.190	0.190	0.190
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Panel B. Subsample Analysis by Acquirer Entrenchment Index						
	Low entrenchment index			**High entrenchment index**		
Variable	**(1)**	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
COVDUMMY	0.249			0.165**		
	(0.383)			(0.066)		
LNCOVINDEX1		0.160			0.135***	
		(0.309)			(0.052)	
LNCOVINDEX2			2.327			1.192***
			(2.606)			(0.374)
Chow test chi-square	3.430*	1.182	3.571*			
Prob > chi-square	0.064	0.277	0.059			
Observations	319	319	319	10,002	10,002	10,002
Pseudo R^2	0.339	0.338	0.340	0.168	0.168	0.168
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Panel C. Subsample Analysis by Acquirer Insider Ownership						
	Low insider ownership			**High insider ownership**		
Variable	**(1)**	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
COVDUMMY	0.160			0.104		
	(0.108)			(0.086)		
LNCOVINDEX1		0.163*			0.093	
		(0.097)			(0.061)	
LNCOVINDEX2			1.771**			0.717
			(0.730)			(0.444)
Chow test chi-square	1.095	0.404	4.410**			
Prob > chi-square	0.295	0.525	0.036			
Observations	2946	2946	2946	7269	7269	7269
Pseudo R^2	0.151	0.151	0.152	0.168	0.168	0.168
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes	Yes

Note. This table presents the logistic regression coefficient estimates of Equation (1) for the subsamples of acquiring firms based on the severity of agency problem. Panel A reports the results for the subsamples of firms with lower and higher market-to-book ratio than the sample median statistics. Panel B reports the results for the subsamples of

firms with entrenchment index lower and higher than the sample median statistics. Panel C reports the results for the subsamples of firms with lower and higher insider ownership than the sample median statistics. The dependent variable is an indicator variable equal to 1 for asset acquisitions and 0 for equity acquisitions. The variables of interest are debt covenant variables: COVDUMMY, COVINDEX1, and COVINDEX2. All specifications include year and industry fixed effects. In Columns (1), (2), and (3), the Chow test chi-square statistics and their corresponding *p*-values indicate the significance of differences in coefficients between the subsamples presented in Columns (1) and (4), (2) and (5), and (3) and (6), respectively. The analysis is conducted at the merger and acquisition deal level. Standard errors are clustered at acquirer level and reported in parentheses. Definitions of the variables are provided in the Appendix.
***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

TABLE 7 Instrumental variable regression with lending syndicate

Variable	(1)	(2)	(3)
Panel A. IV Regression with Nonbank Dummy			
Second stage			
COVDUMMY	0.560**		
	(0.240)		
LNCOVINDEX1		0.593**	
		(0.246)	
LNCOVINDEX2			4.304**
			(1.797)
First stage			
NONBANK	0.143***	0.131***	0.018***
	(0.015)	(0.020)	(0.003)
Observations	10,360	10,360	10,360
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Other controls	Yes	Yes	Yes
Panel B. IV Regression with Number of Lender			
Second stage			
COVDUMMY	0.421**		
	(0.188)		
LNCOVINDEX1		0.320**	
		(0.141)	
LNCOVINDEX2			1.802**
			(0.816)
First stage			
NUM_LENDER	0.013***	0.017***	0.003***
	(0.002)	(0.002)	(0.000)
Observations	10,360	10,360	10,360
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Other controls	Yes	Yes	Yes

Note. This table presents the two-stage instrumental logistic regression coefficient estimates. We instrument each covenant variable using measures of lending syndicate. In Panel A, the instrument variable is NONBANK, which is an indicator variable equal to 1 if at least one nonbank lender participates in the lending syndicate. In Panel B, the instrument variable is NUM_LENDER, which is the number of lenders in the lending syndicate. In the first stage, the dependent variables are COVDUMMY, LNCOVINDEX, and LNCOVINDEX2, corresponding to Columns (1), (2), and (3), respectively. In the second stage, the dependent variable is an indicator variable equal to 1 for asset acquisitions and 0 for equity acquisitions. All specifications include year and industry fixed effects. The analysis is conducted at the merger and acquisition deal level. Standard errors are clustered at acquirer level and reported in parentheses. Definitions of the variables are provided in the Appendix.

*** and ** denote significance at the 1% and 5% levels, respectively.

TABLE 8 Instrumental variable regression with loan risk

	(1)	(2)	(3)
Panel A. IV Regression with Junk Dummy			
Second stage			
COVDUMMY	1.543***		
	(0.280)		
LNCOVINDEX1		0.586***	
		(0.124)	
LNCOVINDEX2			4.648***
			(0.983)
First stage			
JUNK	0.095***	0.286***	0.036***
	(0.016)	(0.022)	(0.003)
Observations	10,360	10,360	10,360
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Other controls	Yes	Yes	Yes
Panel B. IV Regression with Leverage Segment Dummy			
Second stage			
COVDUMMY	0.796***		
	(0.303)		
LNCOVINDEX1		1.235***	
		(0.393)	
LNCOVINDEX2			6.987***
			(2.434)
First stage			
LEVERAGE_SEG	0.163***	0.086***	0.017***
	(0.025)	(0.031)	(0.004)
Observations	10,360	10,360	10,360
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Other controls	Yes	Yes	Yes

Note. This table presents the two-stage instrumental logistic regression coefficient estimates. We instrument each covenant variable using measures of loan risk. In Panel A, the instrument variable is JUNK, which is an indicator variable equal to 1 if the acquirer's S&P long-term credit rating is below BBB. In Panel B, the instrument variable is LEVERAGE_SEG, which indicates if the loan is classified in the leverage segment by DealScan. In the first stage, the dependent variables are COVDUMMY, LNCOVINDEX, and LNCOVINDEX2, corresponding to Columns (1), (2), and (3), respectively. In the second stage, the dependent variable is an indicator variable equal to 1 for asset acquisitions and 0 for equity acquisitions. All specifications include year and industry fixed effects. The analysis is conducted at the merger and acquisition deal level. Standard errors are clustered at acquirer level and reported in parentheses. Definitions of the variables are provided in the Appendix.
***denotes significance at the 1% level.

TABLE 9 Profitability and earnings volatility

Panel A. Subsample Analysis by Acquirer Profitability						
	Low profitability			**High profitability**		
Variable	**(1)**	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
COVDUMMY	0.180*			0.168*		
	(0.095)			(0.089)		
LNCOVINDEX1		0.239***			0.007	
		(0.073)			(0.069)	
LNCOVINDEX2			1.703***			0.563
			(0.521)			(0.515)
Chow test chi-square	0.336	6.148**	3.626*			
Prob > chi-square	0.562	0.013	0.057			
Observations	4955	4955	4955	5176	5176	5176
Pseudo R^2	0.123	0.125	0.125	0.177	0.176	0.176
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Panel B. Subsample Analysis by Acquirer EBITDA Volatility						
	Low EBITDA volatility			**High EBITDA volatility**		
Variable	**(1)**	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
COVDUMMY	0.175*			0.214**		
	(0.099)			(0.089)		
LNCOVINDEX1		0.124			0.154**	
		(0.077)			(0.066)	
LNCOVINDEX2			1.221**			1.360***
			(0.587)			(0.472)
Chow test chi-square	0.175	0.002	0.103			
Prob > chi-square	0.676	0.962	0.748			
Observations	5009	5009	5009	5165	5165	5165
Pseudo R^2	0.177	0.177	0.177	0.142	0.142	0.143
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes	Yes

Note. This table presents the logistic regression coefficient estimates of Equation (1) for the subsamples of acquiring firms based on profitability and earnings volatility. Panel A reports the results for the subsamples of firms with lower and higher profitability ratio than the sample median statistics. Panel B reports the results for the subsamples of firms with earnings before interest, taxes, depreciation, and amortization (EBITDA) volatility lower and higher than the sample median statistics. The dependent variable is an indicator variable equal to 1 for asset acquisitions and 0 for equity acquisitions. The variables of interest are debt covenant variables: COVDUMMY, COVINDEX1, and COVINDEX2. All specifications include year and industry fixed effects. In Columns (1), (2), and (3), the Chow test chi-square statistics and their corresponding *p*-values indicate the significance of differences in coefficients between the subsamples presented in Columns (1) and (4), (2) and (5), and (3) and (6), respectively. The analysis is conducted at the merger and acquisition deal level. Standard errors are clustered at acquirer level and reported in parentheses. Definitions of the variables are provided in the Appendix.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

TABLE 10 Systematic increase in covenant restrictions

Panel A. Subsample Analysis by Lending Standard						
	Low lending standard			**High lending standard**		
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
COVDUMMY	0.180**			0.204**		
	(0.082)			(0.090)		
LNCOVINDEX1		0.147**			0.137**	
		(0.065)			(0.062)	
LNCOVINDEX2			1.172**			1.357***
			(0.480)			(0.454)
Chow test chi-square	0.973	0.491	1.071			
Prob > chi-square	0.324	0.483	0.301			
Observations	4961	4961	4961	5230	5230	5230
Pseudo R^2	0.124	0.124	0.124	0.191	0.191	0.192
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Panel B. Subsample Analysis by Product Market Competition						
	Low product market competition			**High product market competition**		
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
COVDUMMY	0.124			0.238***		
	(0.101)			(0.077)		
LNCOVINDEX1		0.070			0.189***	
		(0.073)			(0.057)	
LNCOVINDEX2			0.834			1.655***
			(0.534)			(0.424)
Chow test chi-square	1.174	2.394	2.051			
Prob > chi-square	0.278	0.122	0.152			
Observations	3835	3835	3835	6250	6250	6250
Pseudo R^2	0.155	0.155	0.155	0.144	0.144	0.145
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes	Yes

Note. This table presents the logistic regression coefficient estimates of Equation (1) for the subsamples of acquiring firms based on profitability and earnings volatility. Panel A reports the results for the subsamples of acquisitions completed when the lending standard is lower or higher than the sample median statistics. Lending standard is measured as the net percentage of domestic banks tightening standards for commercial and industrial loans to large and middle-market firms. Panel B reports the results for the subsamples of acquisitions completed when the acquirer's exposure to product market competition is lower or higher than the sample median statistics. Product market fluidity is developed by Hoberg et al. (2014). The dependent variable is an indicator variable equal to 1 for asset acquisitions and 0 for equity acquisitions. All specifications include year and industry fixed effects. In Columns (1), (2), and (3), the Chow test chi-square statistics and their corresponding *p*-values indicate the significance of differences in coefficients between the subsamples presented in Columns (1) and (4), (2) and (5), and (3) and (6), respectively. The analysis is conducted at the merger and acquisition deal level. Standard errors are clustered at acquirer level and reported in parentheses. Definitions of all variables are provided in the Appendix.
*** and ** denote significance at the 1% and 5% levels, respectively.