

Debt Financing and Collateral: The Role of Fair-Value Adjustments*

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Abstract

Using a novel dataset of business combination disclosures, we investigate whether fair-value adjustments (FVAs) of a target's assets provide relevant information to lenders that allows the post-deal entity to enhance its borrowing activities. FVAs reflect the difference between the target's book value of net assets and the fair value of these assets at acquisition date. We find that the average corporate acquirer reports FVAs on assets other than goodwill that reflect an economically significant increase of 60 percent in the value of the target's total assets. We document that FVAs are associated with substantial new debt issuance by the combined firm during the three-year period after the acquisition. FVAs are also associated with the issuance of cheaper and longer term debt as well as debt that is secured and more likely to have balance sheet covenants. Consistent with these findings, we show that bond yields decrease during the period around the publication of FVAs. All results are driven by FVAs reported on the target's tangible assets, the main set of collateralizable assets. This evidence indicates that fair value measurements around business combinations provide a certification role for the value of a target's assets, improving lenders understanding of the collateralizable asset base.

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1. Introduction

Business combination accounting requires acquiring firms to record the *fair value* of target companies' identifiable assets and liabilities on the consolidated balance sheet through fair-value adjustments ("FVAs"). To this end, FVAs reflect the previously unrecorded economic value of the target's net assets that is not captured by the traditional historical cost reported on the balance sheet. Our paper examines whether this one-off shift from historical cost to fair value accounting provides relevant information to lenders. Specifically, we assess if reported FVAs enhance the acquiring firm's borrowing activities, as reflected in the amount and terms of the debt issued subsequent to the business combination transaction.

Reported FVAs on net assets likely inform potential lenders about the availability and value of collateralizable assets on the acquirer's balance sheet, facilitating the so called "collateral debt contracting channel" (Aghion and Bolton, 1992; Hart and Moore, 1994).¹ We thus hypothesize that FVAs change lenders' perception of the target's net assets and contribute to a relaxation of financing constraints that improves access to debt financing. Few arguments support this prediction. Reported FVAs on the target's net assets are likely to be positive given the inherent conservatism in the historical cost accounting for long-term productive assets, the underreporting of internally developed intangible assets and the incremental cash flows from transaction-related synergies. In addition, FVAs reflect current market conditions, providing more timely information than historical costs recorded on the balance sheet. More importantly, FVA information is certified by auditors that sign off on the fair value measurements associated with business combinations. Such certification reduces information frictions

¹ From a lender's perspective, collateralizable assets are assets that have a stable value over time and can be readily sold once a borrower defaults because they can be easily redeployed. Since the prices of tangible assets (e.g., land, real estate, machinery, inventories, accounts receivable, etc.) are stickier than prices of intangible assets and trade in relatively liquid secondary markets, tangible assets are usually the first collateral choice of many lenders (Berger and Udell, 1995; Gan, 2007). Some intangible assets can also potentially serve as collateral if they generate predictable and stable cash flows (e.g., patents, copyrights).

between lenders as well as between lenders and borrowers by facilitating the writing, monitoring and enforcement of debt contracts with terms that rely on balance sheet information (e.g., collateral requirements or covenants). On the other hand, FVA information might not be relevant to lenders given that FVAs are reporting adjustments in asset values that do not reflect changes in the underlying economics of the assets. Although a costly process, many sophisticated lenders are capable of assessing the value of individual assets on their own, without relying on the amounts reported on balance sheets. Also, unobservable inputs and subjective model assumptions required to determine FVAs might allow acquiring firms to report opportunistically, leading lenders to discount FVAs' reliability. Overall, these arguments suggest that it is not clear how lenders view FVA information and whether this information can enhance the acquirer's borrowing activities after the business combination.

Our tests rely on hand-collected M&A deal information in the US over the period between 2001 and 2013. The manual data collection allows us to identify FVAs pertaining to each deal as well as the FVA break down by each asset type (i.e., goodwill, non-goodwill intangibles, and tangible assets). We require our sample targets and acquirers to be publicly listed, non-financial entities, which results in a sample of 489 deals with available information. We measure FVAs as the difference between the target's reported asset fair values (other than goodwill) at the acquisition date and their book values in the most recent quarter before the deal.² Univariate descriptive statistics suggest that FVAs are positive (66 percent of the deals) and this increase in reported assets is economically meaningful relative to the size of both the target and the acquirer. On average, FVAs represent a 60 percent increase in the target's total assets excluding cash and cash equivalents. FVAs also correspond, on average, to 4.6 percent of the acquirer's market capitalization. Such significant upward net asset adjustments are typically the result of increases in the reported value of the target's tangible and non-goodwill intangible assets and

² We exclude goodwill from FVAs given that this asset is typically not part of the collateralizable asset base used by lenders. This is likely because cash flows associated with goodwill are unobservable.

are not accompanied by downward adjustments in the values of the target's liabilities which continue to be reported at face value after the business combination.

Our multivariate analysis of debt contracting outcomes during the post-acquisition period yields several results. First, we document that FVAs are associated with greater debt issuance in the post-deal period after controlling for characteristics and performance of the post deal entity, the market perceptions of the deal's synergies as well as deal characteristics. Economically, a one standard deviation increase in FVAs scaled by the acquirer's market capitalization prior to the deal results in a 8.6 percent (4.7 percent) increase in the cumulative gross (net) debt issuance over the three-year period following the deal. Larger gross debt issuance relative to net debt issuance is consistent with acquiring firms both renegotiating existing debt and issuing new debt. More importantly, we find that improvements in post-deal debt issuance are strongly associated with FVAs related to tangible assets which are more likely to be used as collateral in debt contracts. These findings are consistent with lenders using FVA information to update their views on borrowers' collateralizable asset base, suggesting that auditor certified figures on business combinations are reliable and contractible.

Second, we examine whether FVA information is associated with terms of the debt contracts. We find a significantly negative association between FVAs and the cost of debt in the post-acquisition period. A one standard deviation increase in FVAs reduces the future interest costs per dollar of borrowing by a relative magnitude of 1.2 percent. In addition, we document that acquirers with high FVAs are able to raise debt with longer maturities, three years after the deal, and are more likely to issue debt that requires collateral. All these results are driven by FVAs on tangible assets, consistent with the interpretation that reported FVAs help acquirers to meet lenders' collateral requirements. Moreover, we examine if FVAs are associated with a greater likelihood that lenders use financial covenants that rely on balance sheet information in syndicated loan contracts. Our results suggest that firms with higher

FVAs on tangible assets are subsequently more likely to use balance sheet covenants in debt contracts, indicating that lenders find reported asset fair values relevant for debt contracting. Economically, a one standard deviation increase in scaled FVAs on tangible assets increases the probability that a post-acquisition balance sheet covenant is present in a loan contract by four percent.

Third, we investigate secondary debt market reactions around the date of the publication of FVA information to shed light on the use of this information by debt market participants. We examine short-window bond market reactions to the first earnings announcement and first 10-K filing after the deal's completion, conditional on fundamentals. Given that most economic features of the deal usually become public earlier at the deal's announcement, we assume that the only significant deal-related information revealed at the first post-deal earnings announcement or the 10-K filing is the breakdown of the target's asset structure. We find a negative association between FVAs and bond yields around the first earnings announcement and the 10-K filing. A one standard deviation increase in scaled FVAs results in an 8.5 percent relative decline in bond yields. Consistent with the other findings above, the results are driven by FVAs on tangible assets suggesting that FVA information revises bond investors' assessment of the collateral base of the post-deal entity.

We further analyze how the relationship between FVAs and debt issuance varies depending on the quality of the FVA estimates. We find that in the case of deals closed in quarters when managerial equity vests thus incentivizing managers to manipulate FVAs (see Edmans, Fang, and Lewellen, 2017; Edmans, Fang, and Huang, 2018) or deals that are followed by reported asset impairments, FVAs are not associated with debt issuance. The result is similar when the combined entity reports internal control weaknesses in the post-transaction period. On the other hand, we document that auditor changes, which may indicate higher auditor scrutiny and reporting quality, enhance the association between FVA information and debt issuance. The impact of FVA on debt issuance seems to double in deals associated with auditor change. Overall, these findings show that lenders take into consideration the quality of the

FVA information provided by the acquiring firms, thus indirectly providing evidence that lenders use and understand FVA information.

Finally, we present several supplementary tests on how FVA information supports the collateral debt contracting channel. We first re-run our main specification of gross (net) debt issuance by including interaction terms that capture the type of debt issued (proportion of public bonds versus private debt) and whether or not bank lenders have a prior relationship with the acquirer. Given that bondholders and banks without prior lending relationships have access to less borrower specific information, FVAs may be more relevant to them. We do not find results consistent with these predictions suggesting that FVAs provide a *certification* of the collateralizable asset base that allows lenders to write debt contracts using balance sheet information. We also employ a propensity score matching procedure to create a matched control sample of deals that were completed using the “pooling of interest” method allowable by the prior accounting standard. Under this method, the acquirer consolidates the book value of the targets’ assets thus no FVAs are recognized. We document that acquirers who report FVAs issue significantly more debt in the post-deal period relative to the matched sample of pooling-method deals. Moreover, the difference in post-deal issuance activity is most pronounced for the subset of high FVA deals, with no significant difference for low FVA deals. These results are again consistent with the interpretation that FVAs provide contractible information about firms’ collateral to lenders.

While the evidence we provide is consistent with our predictions and interpretations, we recognize several alternative explanations and concerns. The assignment of M&A transactions may not be exogenous to debt contracting outcomes. We sidestep this issue by limiting our empirical analyses to firms that engage in acquisitions and thus comparing merged entities to one another based on the magnitude of the reported FVAs. However, even within the sample of acquirers, it is possible that high-FVA deals capture a decrease in credit risk that is correlated with the fair valuation of the target’s assets (e.g., unobservable growth or acquisition synergies that reflect growth in cash flow expectations based

on acquirers' use of these new assets). We tackle this problem by including a large set of control variables that account for transaction synergies, growth explanations, and the pre-deal borrowing and operating behavior of the target as well as the acquirer. We also control for industry-year fixed effects to account for sectoral and macroeconomic trends. Furthermore, our results on non-pricing terms (i.e., increases in collateralized debt and the usage of balance sheet covenants) indicate that FVAs provide contractible information to lenders. Finally, the main results are driven by FVAs on tangible assets as opposed to intangible assets, consistent with our interpretation that FVAs provide relevant information about the availability and magnitude of collateralizable assets. It is unclear why alternative explanations, such as unobservable growth or synergies, would predict an association between FVAs on tangible assets and improvements in all debt terms.

We contribute to the accounting literature on debt contracting by documenting how the accounting measurement of assets reported on the balance sheet impacts access to debt markets and shapes terms of debt contracts, both critical economic outcomes. While prior work has improved our understanding of how earnings quality matters for debt contracting vis-à-vis a reduction in the agency costs of debt (e.g., Watts and Zimmerman, 1978; Leftwich, 1981; Ball, Bushman, and Vasvari, 2008; Bharath, Sunder, and Sunder, 2008), there has been relatively little research investigating how specific attributes of balance sheet reporting affects access to debt financing. This type of investigation is difficult because changes in firms' balance sheets are attributable to both reporting decisions and economic activities. In our M&A experimental setting, the recognition of FVAs arising from an acquisition transaction offers a straightforward reporting change in the balance sheet values, incremental to the underlying economics of the transaction that is often captured by goodwill. Importantly, our analysis highlights how balance sheet information enhances the collateral debt

contracting channel, in contrast to the covenant focus of the prior debt contracting literature (e.g., Costello and Wittenberg-Moerman, 2011; Demerjian, 2011; Demerjian et al., 2016).

To our knowledge, we are one of the first studies to extensively collect and investigate FVAs for public companies within the United States.³ We thus complement the literature that examines the information content and reliability of revaluations of long-term assets and investment property in an international setting. Several early studies using Australian data find revaluations of tangible assets to be, in general, value-relevant but not necessarily timely (e.g. Easton et al., 1993; Barth and Clinch, 1998) while studies focusing on UK firms find that fair value estimates of tangible assets are associated with future operating performance improvements or with managerial incentives to manipulate debt ratios (e.g., Barth and Clinch, 1996; Aboody, Barth and Kasznik 1999). These studies focus solely on the effect of voluntary asset fair valuations on stock performance whereas we provide evidence on the relevance of *mandated* asset fair valuations in the debt market. Other studies such as Ball, Li and Shivakumar (2015) and Kraft and Landsman (2017) associate switches to the IFRS fair-value accounting regime with increases in credit spreads and reductions in both the frequency and intensity of accounting-based debt covenants. Our paper provides more direct evidence on the impact of fair value on debt contracting by showing that larger FVAs decrease the cost of debt and increase the likelihood of balance sheet covenant use via a collateral debt contracting channel.

Our results are also relevant to the corporate finance literature which finds that the set of collateralizable assets enlarge the debt contracting landscape by allowing borrowers to issue more debt and increase investments (Gan, 2007, Haselmann, Pistor, and Vig, 2010, Erel, Jang, and Weisbach, 2015; Campello and Larrain, 2016; Cvijanovic, 2014). Our evidence on FVAs complements these

³ Shalev, Zhang, and Zhang (2013) collect information about the purchase price allocation between goodwill and indefinitely lived intangibles, and examine the impact on CEO compensation structure on purchase price allocation decisions regarding intangibles. Lys and Yehuda (2016) use FVAs from a proprietary database and find that private targets generate higher synergies.

papers by highlighting the certifying role of accounting in debt contracting and showing that *reporting adjustments* are associated with debt contracting benefits. Also, while prior conclusions in this literature mainly pertain to a specific group of small/private borrowers, our results suggest that accounting recognition matters even for otherwise-visible public companies.

2. Institutional setting and literature

We first discuss the accounting treatment of M&A transactions and then proceed with a review of the literature on debt financing and its links to financial reporting.

2.1. Accounting for M&A transactions

The financial reporting rules that govern business combinations—specifically the measurement of assets purchased and liabilities assumed—were initially covered by SFAS 141 issued in June 2001. SFAS 141 was replaced by a revised standard, SFAS 141R, which applied to reporting periods beginning on or after December 2008 (i.e. fiscal year 2009) and was the result of a joint effort by the FASB and IASB to promote international accounting convergence for business combinations.⁴ SFAS 141R (now formally known as ASC Topic 805 after the recent codification of the FASB standards) requires firms that engage in a business combination (i.e., a transaction in which the assets acquired and liabilities assumed constitute a business) to use the “acquisition method” accounting. Under this method, the acquirer should recognize, separately from goodwill, the identifiable assets acquired, the liabilities assumed, and any non-controlling interest in the target firm at their acquisition date fair values.⁵ This includes identifiable internally generated intangible assets that may not have been previously reflected in the book values of the target. The accompanying disclosures prescribed by SFAS

⁴ The M&A setting is the only setting in which the fair value for non-financial collateralizable assets is mandated under US GAAP. While IFRS allows a choice between fair value or historical cost measurement for investment properties covered by IAS 40, US GAAP does not and requires these held-for-sale assets to be valued at lower of cost or net realizable value.

⁵ US GAAP defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

141R focus on providing users of the financial statements with sufficient information to evaluate the nature and financial effects of the business combination. As such, acquirers are required to disclose, among other things: (1) the name and a description of the target; (2) the acquisition date; (3) the percentage of voting equity interests acquired; (4) the amount of goodwill recognized (including a qualitative description of any intangible assets that do not qualify for separate recognition); (5) the acquisition-date fair value of the total consideration transferred; and (6) the amount recognized as of the acquisition date (i.e. fair value) for each major class of assets acquired and liabilities assumed. In line with these requirements, firms typically tabulate the acquisition date fair values of identifiable assets and liabilities to provide a reconciliation with the purchase price and the goodwill recognized in the transaction. We present an example of such disclosures in Appendix A.

The switch from SFAS 141 to the “acquisition method” accounting, as defined in SFAS 141R, involved several significant changes in the accounting for business combinations, which warrant further discussion. First, while the “purchase method” accounting under SFAS 141 allocated restructuring and transaction-related costs to the target assets’ fair value (thus capitalizing these costs), SFAS 141R now expenses them. Consequently, reported fair values were likely larger in fiscal years up to, and including 2008, relative to post-2008, leading to potentially inflated FVA estimates in the pre-SFAS 141R period. Second, SFAS 141R prohibits firms from expensing in-process research and development (IP R&D) expenditures. Instead, it requires the determined fair value of the acquired IP R&D to be fully recognized as an indefinite-lived intangible asset, separate from goodwill. Previously, acquiring firms were required to immediately expense the fair value of IP R&D on the acquisition date. Therefore, for business combinations involving IP R&D, total reported fair values post-2008 are likely to be systemically larger than those reported in 2008 and before.⁶

⁶ While these changes have counter-balancing impacts on FVA measurements, in untabulated robustness tests we partition our main results into deals pre-2009, i.e. under SFAS 141, and those made from 2009 fiscal year, i.e. under SFAS 141R. In

Third, SFAS 141 only required that the portion of net assets acquired be fair valued, while any non-controlling interest in net assets remained at book value. In contrast, SFAS 141R requires that 100 percent of net assets be fair valued which effectively reduced the amount of goodwill recognized. Therefore, cross-sectional differences in percentage ownership of the controlling shareholders may have a differential effect on the ability of the fair values to reflect collateral value across these two accounting regimens. SFAS 141R also changed the purchase price allocation when the consideration is lower than the fair value of the net assets acquired. Under SFAS 141R the assets are still recorded at fair values with the entire amount of the difference between the purchase price and the net assets acquired recorded as a bargain purchase gain in net income. In contrast, under the previous SFAS 141 regime, the difference was recorded as a reduction in the recorded fair value of long-term tangible and intangible assets. Hence, for deals prior to 2009, any bargain purchase gains would explicitly impact the fair values assigned to tangible and non-tangible assets. To mitigate these last two concerns, we screen out any deals that result in less than 100 percent ownership, i.e., remove any business combinations with non-controlling interests, and those deals in which consideration is less than the fair value of net assets acquired.

It is important to note that, in the case of cash-only M&A transactions, the acquirer's balance sheet does not increase with the FVAs of the target's net assets as the FVAs simply reflect an *allocation* of the cash paid to acquire target's net assets. In the case of stock-financed deals, however, acquirers' balance sheet increases as a larger set of collateralizable assets is financed by more equity. In either case, FVAs likely reflect new certified information about increases in the collateralizable asset base that is useful to lenders.⁷ These increases might allow acquiring firms to partly recoup their investment in

addition, several firms that recognized IPR&D intangible assets as part of a business combination usually expensed them fully within the same fiscal year as the deal.

⁷ For example, consider an alternative regime where FVAs do not exist and a target's book values of assets are reported in the consolidated financial statements of the acquirer. In this scenario, the economic value captured by the FVAs is simply

the target by issuing additional new debt in the post transaction period.

2.2. Related literature

Financial reporting plays two major roles in debt markets: valuation and contracting. In terms of valuation, financial reports reduce the information asymmetry between borrowers and lenders by providing information relevant to the pricing of debt securities. The valuation role requires accounting numbers to reflect managers' private and forward-looking information, even if it is not immediately verifiable. In contrast, under the contracting role, financial reports provide performance metrics that can aid lenders to regularly monitor and enforce debt contracts, thereby contributing to more efficient contracting. This second role requires accounting numbers to be more reliable and independently verifiable. Reported FVAs should support both the debt contracting and valuation roles of financial reports. FVAs provide updated and timely information about the performance of a target in a business combination (i.e., serve a valuation role) and auditor certified inputs to the credit metrics embedded in financial covenants and collateral requirements (i.e., serve a contracting role).

With respect to financial reporting's valuation role, a large stream of prior research has identified several attributes of financial reporting associated with the amount of debt issued. Bharath et al. (2008) examine the choice of public debt versus private bank debt and find that firms with lower earnings quality are more likely to borrow from banks, suggesting that banks' access to private information and superior information processing abilities help them to reduce adverse selection costs. Similarly, Florou and Kosi (2015) document firms' preference for public over private debt when accounting quality improves following the mandated adoption of IFRS. In addition, Ball, Hail, and Vasvari (2017) find that non-U.S. firms are more likely to issue public bonds and bonds abroad after cross-listing their

included as part of goodwill. Given that goodwill is not commonly used by lenders for contracting purposes as it is rarely collateralizable, acquirers would report a lower collateralizable asset base.

equity on a U.S. stock exchange which improves transparency and monitoring. Our paper adds to this literature by investigating the role of balance sheet reporting changes via FVAs on debt issuance activities. We also add to the empirical literature suggesting that collateral requirements play an important role in credit allocation since collateral availability is used to select borrowers, *ex ante* (Jiménez et al., 2006; Berger et al., 2011). In this respect, we examine whether increases in available collateral facilitated by the accounting for business combinations contribute to increased debt financing. Therefore, our empirical evidence ties to the theoretical literature on the availability of collateral and decreases in credit rationing (e.g., Bester, 1985; Chan and Kanatas, 1985; Besanko and Thakor, 1987).

In terms of the role of financial reporting in contracting, prior research examined the link between accounting attributes and the cost of debt or the presence of debt covenants. For instance, extant literature has found that interest paid by borrowers is negatively related to disclosure quality (Sengupta, 1998) and accounting earnings quality (Francis et al., 2005; Bharath et al., 2008; Ahmed et al., 2002; Zhang, 2008). The lack of financial statements (Baber and Gore, 2008) or the provision of unaudited financial statements (Minnis, 2011) also increases a firm's cost of debt. Many papers also explore the role of fair value accounting in the context of IFRS on the cost of debt (e.g., see De George et al., 2016 for a review). In contrast to this prior research, our paper examines the role of *fair value* accounting arising from business combinations on the cost of debt. Demerjian et al. (2016) investigate the use of accounting-based covenants in debt contracts following the introduction of SFAS 159, which enabled financial assets and financial liabilities to be fair valued. They find no evidence of a reduction in covenant usage following the introduction of SFAS 159, but additional analyses reveal that 14.5 percent of loans *modify* covenant definitions to remove the effects of fair values on liabilities (the fair value

measurement of assets is not something that lenders seem to undo).⁸ Our analysis complements this work, as we examine whether FVA information is associated with greater debt issuance, more favorable debt terms as well as greater use of balance sheet covenants in syndicated loan contracts. Our study goes beyond the definition of fair value for financial assets by incorporating core tangible and intangible assets that lenders are likely to use as collateral.⁹

3. Research Design and Data

3.1 Research Design

To conduct our main analysis of debt contracting outcomes during the post-acquisition period, we employ the following regression framework using deal level (j) observations:

$$Debt_Outcome_j = \alpha + \beta \times FVA_j + \Gamma \times Controls + \lambda_{kt} + \varepsilon_j \quad (1)$$

In this model, j denotes individual deals, k stands for the two-digit SIC of the acquirer, and t signifies the year of the deal. *Debt_Outcome* is one of five debt market outcomes we are interested in: amount, cost, collateral, maturity, and covenants. We define all dependent variables in further detail in Appendix B. Appendix C provides a timeline indicating when our variables are measured relative to the business combination transaction.

First, we examine debt issuance, which we define as both gross debt issuance (*Gross_Issuance*), issued by the combined entity in the post-acquisition period, and net debt issuance (*Net_Issuance*), measured as *Gross_Issuance* less any repayments of debt during the relevant period. We scale both

⁸ Demerjian et al.'s (2016) inferences are conditional on using contracts that include a covenant. Complementing this study, Ertan and Karolyi (2016) provide evidence that, in the case of financial borrowers, the use of balance-sheet covenants relying on Level 3 asset fair values has significantly decreased.

⁹ A related paper by Bonacchi et al. (2015) finds that international firms are more likely to record business combinations under common control at fair value when pre-acquisition leverage is high and when they have net worth covenants on existing debt. Also, relative to a propensity-matched control sample, these firms are more likely to issue new public debt. While our study complements this prior work, it differs along several dimensions. First, we examine firms in the US where the fair value measurement of the target's assets is mandated and not a voluntary managerial choice. Second, business combinations under common control apply to a small subset of acquisitions under IFRS (the target and acquirer are already owned by the same parent company), whereas we utilize a broader set of business combinations between public US firms.

gross and net debt issuance by the pre-deal acquirer's assets. We measure debt issuance over the three-year window following the deal completion date.

Second, we examine the change in the cost of debt, as captured by the change in the implicit interest rate charged on long-term debt held by the combined entity from the pre-acquisition period to the post-acquisition period (*Change_in_interest*). Specifically, we measure the implicit interest rate as the ratio of total interest expense reported for a given fiscal year scaled by the beginning-of-year long-term debt. We measure our "pre-deal" interest rate as the computed interest rate in the year of the acquisition, i.e., the interest expense of the combined entity in year $t=0$ divided by the opening debt of both the acquirer and the target. A concern arises for deals completed post-2008 because SFAS 141R requires only post-acquisition revenue and expenses to be consolidated. In these cases, our "pre-deal" interest rate is likely to be understated for deals completed earlier in the fiscal year. However, given that we are interested in capturing the *change* in interest rates in the post-deal period, this potential bias works against our expectation.

Third, we capture the nature and terms of new borrowing by (1) the extent to which collateralized debt is issued and (2) the maturity of the debt issued. We define the extent of collateralized debt as the change in secured debt for a given time horizon scaled by the acquirer's assets. We measure debt maturity as the change in long-term debt for a given time horizon post-deal, scaled by acquirer's assets. Consistent with other debt outcomes, we measure the change in secured debt and debt maturities over the three-year window following the deal date. We also include the contemporaneous changes in unsecured debt and short-term debt as control variables when we perform the respective analyses.

Our last dependent variable is the initiation of balance sheet covenants in syndicated loan contracts. We focus only on syndicated loans issued during the post-acquisition period because bonds typically do not have financial covenants (see, for example, De Franco et al., 2016). We define an indicator variable equal to one if any post-acquisition loans taken by the combined entity—up to three years out—include a balance sheet covenant while loans issued prior to the deal did not.

Our main variable of interest, *FVA*, captures the fair value adjustments made to the target firm's assets and liabilities at the acquisition date, excluding amount of goodwill recognized. To accurately compute this amount, we need to observe both the acquisition-date fair values *and* book values of assets and liabilities. While we are able to collect fair value amounts from the business combination disclosures provided by the acquiring firm, the acquisition-date asset and liability book values of the target remain unobservable. We therefore approximate the acquisition-date book values by relying on the most recent quarterly financial statements released by targets preceding the acquisition. For example, for an acquisition that occurs on April 25, 2010, we take the book value of the target's assets and liabilities as at March 31, 2010. Consequently, the *FVA* computations are simply the acquisition-date fair values of the target's identifiable assets (excluding goodwill) less the book value of the assets reported by the target in the most recent preceding fiscal quarter.¹⁰ We collect fair value information from the business combination note from the first 10-K reported subsequent to the deal completion (i.e., $t=0$). We then review the relevant business combination disclosures from the next reported 10-K, i.e., $t+1$, to ensure we account for any measurement period adjustments. We scale our *FVA* by the acquirer's market capitalization one day prior to the deal announcement. Our main specifications employ the *FVA* on non-cash assets excluding goodwill, but we also perform several sensitivity tests with variants of *FVA* to isolate the impact of specific asset classes (*FVAs* related to tangible versus non-goodwill intangible assets).

To isolate the impact of *FVAs* on our specified debt contracting outcomes, our empirical analysis is limited to a sample of M&A firms only. We recognize, however, that borrower, deal, and target characteristics may be associated with both *FVAs* and any changes in the post-acquisition

¹⁰ We acknowledge that this measure is imperfect given the likely changes in book values due to day-to-day business activities occurring between the most recent fiscal quarter end and the subsequent acquisition date. However, to the extent that any changes in book values are random across firms, our measure of *FVA* should be free from bias. In addition, we find no significant correlation between *FVA* and the deal time-lag, i.e. the number of days between the deal completion date and the fiscal quarter-end of the 10-Q that we use to obtain book-values for the target's assets.

contracting outcomes. Therefore, we include a set of control variables to account for the borrowing and operating behavior of the target and the acquirer, as well as the economics of the combined entity. Specifically, we include borrower size (*Size*) measured as total assets of the acquirer after the business combinations—i.e. year $t=0$ —which effectively captures the size of the combined entity; the book-to-market ratio (*BM*) measured as the ratio of total shareholders' equity to market value for fiscal year $t=0$; profitability (*profitability*) measured as the net income margin for year $t=0$; cash holdings and liquidity (*cash balance*) measured as cash and short-term investments as at fiscal year $t=0$, scaled by total assets; and indebtedness (*leverage*) measured as long-term debt at fiscal year $t=0$, scaled by total assets. This set of control variables accounts for previously documented borrower characteristics associated with debt contracting (e.g., Johnson, 2003) and controls for any changes in the economics of the consolidated entity. While these variables are measured at the first fiscal year-end immediately following the deal, i.e., $t=0$, we also include contemporaneous measures of changes in sales, the book-to-market ratio, and profitability when we estimate our model over the three-year horizon following the business combination. This procedure ensures we are also capturing post-deal changes in the fundamentals that may be unrelated to FVAs.

In addition to borrower entity-level attributes, it is possible that deal characteristics could shape access to debt capital in ways other than, but correlated with, FVAs. To this end, we control for goodwill (*Deal goodwill*) measured as the total amount of goodwill recognized as part of the specific deal scaled by total assets. We include this control variable since goodwill is generally not part of the collateralizable asset base and to control for potential synergies and changes in the economics of the combined entity. We also include an additional control for the potential synergies stemming from the business combination by including the cumulative abnormal return of the target and acquirer surrounding the deal announcement (*Deal Announcement CAR*). To the extent that variation in FVAs are correlated with synergies or a reduction in risk that lenders may price into future debt deals, we control for this factor to abstract away from any changes in fundamentals post-deal. We also include a

control for the cash component of the deal (*Deal cash component*), measured as the proportion of the purchase price paid in cash. This variable controls for differences in deal financing and the extent to which the acquirer is swapping cash for target's net assets.

Additionally, we control for the diversification impact of the deal using an indicator variable (*Cross-industry M&A*) that equals one if the target's main two-digit SIC industry is different from the acquirer, and zero otherwise. Franco, Urcan, and Vasvari (2016) document a link between corporate industrial diversification and subsequent changes in the cost of debt. We also include two controls to capture pre- and post-acquisition deal activity of the acquirer. First, *M&A_deals_count*—measured as the total number of business combinations undertaken by the acquirer in the given fiscal year—controls for the acquirer's propensity to engage in corporate deals in general and captures any other M&A deals of the firm where FVAs were unobservable (Arikan and Stulz, 2016). Second, we include an indicator variable (*If_past_debt_issuance*), which is assigned a value of one if long-term debt issuances were greater than long-term debt reductions in the fiscal year prior to the deal, and zero otherwise. This variable captures borrowers' inclination to finance its operations with debt. In addition to these variables, we also control for the size of the target relative to the acquirer (*Target to acquirer size*), measured as the ratio of a target's total assets in the quarter preceding the deal to that of the acquirer. This regressor captures the extent to which the target's risk profile and size may dominate the combined entity, i.e., change in the underlying economics of the consolidated firm.

Finally, we include industry-year fixed effects, which take into consideration time-invariant industry characteristics, as well as sectoral and macroeconomic trends. In particular, such a fixed effect structure alleviates the concern that particular years or industry periods are linked with higher/lower

FVAs, e.g., recessionary periods or financial downturns being associated with lower FVAs as well as reduced credit supply.¹¹ We also cluster our standard errors by industry and year.

3.2 Data and Summary Statistics

We obtain our data from several sources. First, we identify M&A transactions from the Thomson Reuters Securities Data Corporation (SDC) Platinum database. Given that our variable of interest, *FVA*, captures the fair value adjustment related to targets' assets and liabilities, we select deals between public acquirers and public targets to be able to collect this data. Next, we limit our attention to deals with a minimum value of \$10 million (USD) to ensure that our sample includes economically significant targets. Our initial screening results in 2,192 public-to-public deals completed between 2001 and 2013. We end our sample period in 2013 to allow for up to three years of post-acquisition time-series that are necessary for our research design. From this initial sample, we remove deals involving firms classified as regulated utilities (SIC codes 4900–4999) and those within financial industries (SIC codes 6000–6999). We also exclude targets without matching Compustat financial data for the most recent quarter preceding the acquisition date. These procedures result in a reduced sample of 1,100 deals for which we then manually collect transaction-related data from the required business combination disclosures in 10-Ks.

As discussed in section 2.1, US GAAP requires that acquiring firms provide rich disclosures, including the amounts recognized as of the acquisition date (i.e., fair value) for each major class of assets acquired and liabilities assumed (a sample disclosure is shown in Appendix A). In some instances, acquirers only disclose the fair value of *net* assets acquired, or not disclose separately the fair values of individual assets classes (e.g., PPE, intangibles, receivables, inventories, deferred taxes). We exclude deals where we are unable to observe the fair value of total assets, goodwill (or bargain purchase price)

¹¹ For example, the recent fluctuations in commodity prices affected the fundamentals of oil and gas companies as well as the market for corporate control. Developments like this can be accounted for by using industry-time fixed effects, but not industry and time fixed effects individually.

and total purchase price.¹² We note that, since some acquirers disclose assets net of cash, we ensure consistency and deduct the cash balance from asset balances and our FVA computation.

As we report in Panel A of Table 1, there are 638 deals with non-missing balances of acquired assets, transaction's goodwill, and the purchase price. We next require financial statement data—obtained from Compustat—for the newly consolidated entity for up to three fiscal years following the deal. Finally, we eliminate bargain purchase price deals (8 deals) that have negative goodwill and keep only deals where acquirers get 100 percent of the target's shares. The last requirement is necessary to ensure that acquirers follow business combination accounting and because fair valuation requirements for non-controlling interests differ between SFAS 141 and the subsequent SFAS 141R. A focus on transactions with 100 percent ownership only maintains consistency in the FVAs across the two regulatory regimes. Given these filters, the final sample used in our analysis comprises 488 deals (see details in Table 1, Panel A). In supplementary debt structure tests including collateral and financial covenants, which require additional information, we use data the Standard and Poor's Capital IQ and Thomson Reuters' DealScan while in the bond yield tests we use data from FISD Mergent.

We report the frequency of deals by calendar year and industry (using SIC codes) in Panels B and C of Table 1. We observe a fairly balanced distribution of deals across our sample period, with an uptick in the middle of the last decade, given the M&A boom (e.g., 61 deals in 2007), and a reduction during and right after the financial crisis (22 deals reported in 2009). Acquirers in the manufacturing and services sectors appear most frequently in our sample. Taken together, these businesses constitute over 70 percent of the total count, consistent with practitioner reports (e.g., Thomson Reuters and Dealogic M&A Highlights). Therefore, despite what appear as restrictive sampling criteria, our final sample is relatively representative of the entire M&A population.

¹² Shalev (2009) documents a positive association between greater levels of business combination disclosure and the acquirer's future performance. To mitigate this potential selection concern, we include future performance in several of our main specifications. Moreover, our empirical strategy relies on cross-sectional variation in FVA *within* the sample of firms with relevant data.

We include descriptive statistics on our final sample of deals in Table 2. In Panel A we provide descriptive statistics on FVAs observed in our sample: (1) total FVA inclusive of goodwill, and (2) FVA excluding goodwill. We scale these measures by the target’s book value of non-cash assets (total assets less cash) and by the acquirer’s market capitalization on the day immediately before the deal announcement. We document that total fair value adjustment inclusive of goodwill, constitute an average of 182.9 percent of the target’s book-value non-cash assets and 24.5 percent of the acquirer’s market capitalization suggesting that valuation adjustments of total assets are economically significant. Unsurprisingly, these percentages are smaller for the scaled FVAs net of goodwill. An essential condition for FVAs to affect debt contracting is an upward adjustment in the target’s *net* assets (i.e., assets relative to liabilities). Our descriptive statistics indicate that a significant proportion of FVAs are net positive (66.9 percent even when excluding goodwill). While firms may take on additional debt to help fund the business combination—making leverage reductions difficult to observe—our univariate results indicate a significant increase in the asset base of the combined entity driven by FVAs.¹³ We also note that FVAs relating to PPE only constitute 43.2 percent (6.9 percent) of the target’s (acquirer’s) fixed asset base prior to the deal, indicating the significance in step-ups on tangible fixed assets. The proportion is smaller when scaling by the acquirers’ market capitalization before the deal (2.5 percent).

We present the distributional properties of variables used in the analyses in Panel B of Table 2. The average deal size is approximately \$2.5 billion. Acquirers pay, on average, 57 percent of a deal in cash, and the total assets of the target firm are on average 34 percent of the total assets of the acquiring firm prior to the deal. We report univariate correlations in Table 3. FVAs are positively (negatively) correlated with goodwill, subsequent debt issuance and debt maturity (interest rates).

4. Empirical Results

4.1 Debt Issuance

¹³ This is consistent with a large number of deals being financed partially, or fully, by stock.

To shed light on debt-contracting outcomes of fair-value adjustments, we first examine the association between FVAs and post-deal debt issuance, conditional on firm and deal characteristics, as well as pre-deal credit issuance behavior of the combined entity. We estimate equation (1) with *Gross Issuance* and *Net Issuance* as dependent variables and present the results in Table 4.

As shown in columns (1) and (3) of Table 4, FVAs are positively associated with post-deal debt issuance, after accounting for firm and deal characteristics, including contemporaneous growth in sales, book-to-market, and profitability, as well as industry-year fixed effects. We find the coefficient on *FVA* is 0.576 for gross issuance and 0.319 for net issuances, during the three-year post-deal period.¹⁴ These statistically significant main effects are economically meaningful as well. A one standard deviation increase in *FVA* corresponds to a 10.5 (5.81) percent of an increase in the average gross (net) debt issuance over the three-year period following the deal.

The effect of FVAs on net credit issuance is an economically significant outcome, as the acquiring entity is raising additional new debt capital. The link between FVAs and debt issuance is economically and statistically more significant for *Gross Issuance*, consistent with the explanation that acquirers with high FVAs not only issue more new debt than those with low FVAs but also refinance existing debt contracts. Taken together, these results provide support for our prediction that entities with larger FVAs take advantage of the improvement in their reported assets and leverage to issue more debt during the post-deal period.

To gain further insight into the channel through which FVAs relate to future debt issuance, we decompose *FVA* into its two components (tangible assets and non-goodwill intangibles). We report these results in columns (2) and (4) of Table 4. We observe that the increased post-acquisition debt activity is driven by FVAs associated with tangible assets, rather than step-ups in intangible asset values.

¹⁴ If borrowers were opportunistic and took advantage of a short-lived increase in the collateralizable assets on the balance sheet, we would observe a reversal in the years after the deal. However, our results suggest that acquiring firms reporting high FVAs continue to issue additional debt relative to acquiring firms reporting low FVAs.

This holds for gross as well as net issuance. This finding is consistent with accounting playing a certification role for the value of these assets (Berger and Udell, 1990) but also with these assets potentially improving their future expected cash flows due to deal synergies. Tangible assets are more likely to be pledged as collateral in credit contracts and as a result, drive the relationship between FVAs and debt issuance activities.¹⁵ In summary, this cross-sectional evidence is consistent with lenders using FVA information to assess the collateral asset base of the borrower when making lending decisions.

We note that the coefficient estimates on our control variables are consistent with prior literature.¹⁶ For example, we find that small and profitable firms issue more debt following the deal (e.g., *Size* and *Profitability*), although the effect of profitability is weaker when we examine *Net Issuance*. Moreover, companies that frequently engage in acquisitions (*M&A deals count*) are also active in issuing debt—likely due to debt-financed acquisitions—in both gross and net terms. An exception is pre-deal indebtedness (*Leverage*), which has a positive (insignificant) relation with *Gross Issuance* post-deal but a negative association with *Net Issuance*. One possible explanation for this findings is that companies with a large amount of debt tend to reduce their net indebtedness and at the same time renegotiate or refinance their existing credit agreements to a significant extent.

4.2 The Cost of Debt

Having shown that lenders are willing to provide more debt when FVAs are larger, we now turn our attention to the cost of debt. If FVAs merely capture risky growth, which would predict greater debt issuance, then lenders should charge higher interest rates to high-FVA firms. Alternatively, if FVA-induced reported asset growth relaxes financing constraints, increased valuations of asset bases should lead to a *decline* in the acquiring firm's cost of debt. Notwithstanding, it is also possible that sophisticated lenders already understand the valuation of the target's assets and therefore the FVAs may

¹⁵ This is further corroborated for a smaller sub-sample of 431 deals where we are able to decompose tangible assets further into FVAs on PPE only and find qualitatively similar results.

¹⁶ Given that *Target_BM* and *Ln_TAGE* do not load significantly in any of our specifications and results remain identical to the omission of these variables, we do not report the coefficients on these variables for parsimony.

not be informative. In this case, FVAs would have no bearing on credit risk premiums, i.e., there would be no impact on the cost of debt.

Consistent with our tests of debt *issuance*, which effectively capture the change in debt levels pre- versus post-deal, we evaluate the change in the interest charged on long-term debt in the pre-acquisition period to the post-acquisition period (*Change in interest*). Table 5 presents the results from the estimation of equation (1) with *Change in interest* as the dependent variable. The main takeaway from this analysis is that the average interest charged to the acquirer goes down after deals with large FVAs (column (1)). In particular, the coefficient on *FVA* is -0.08, suggesting that a one standard deviation increase in FVAs reduces the future interest costs (per dollar of borrowing) by about 1.5 percent.

As with the results concerning debt issuance, we continue to find that the effects of FVAs on the cost of debt to be economically more significant for tangible assets than intangible assets (column (2)). Furthermore, we re-estimate our regressions using the level of interest as the dependent variable (columns (3) and (4)). While we do not have a strong *ex ante* prediction about the sign and magnitude of the coefficient on *FVA* in these tests, we observe economically meaningful (albeit statistically weaker) coefficient estimates. Taken together, these results are consistent with FVAs benefiting borrowers through leverage relief, as lenders are willing to accept lower credit risk premiums.

4.3 Collateral and maturity

The findings that high FVAs issue more and cheaper debt do not explain whether the design of the debt contracts may be changing in the post-acquisition period. Moreover, non-pricing terms, such as collateral, maturity, and covenants could be plausible mechanisms at work. Accordingly, we first explore collateral requirements since this is a potential channel through which FVAs' impact on issuance and cost of debt may operate. Specifically, by enlarging the base of their recognized pledgable assets, borrowers could obtain more and cheaper financing (e.g., Berger and Udell, 1990; Campello and Larrain, 2016; Calomiris et al., 2017). The results presented in Panel A of Table 6 provide support for

this narrative. *FVA* is positively associated with both *Change in secured debt* as well as *Secured debt level*, after controlling for firm and deal characteristics, as well as the contemporaneous change in unsecured debt issuance. Economically, a one standard deviation increase in *FVAs* translates to an increase in secured debt of about three percent in the post-deal period. This increase constitutes almost a quarter of the sample standard deviation of *Change in secured debt*, which is 12 percent. When we break down *FVA* into tangible and non-goodwill intangible components, we observe similar coefficients for both categories.

Overall, these results suggest that the acquirer prioritizes collateralized debt issuance when *FVAs* boost the reported value of borrowers' pledgeable assets. This behavior is consistent with to relying on reported balance sheet values even though they could independently examine and value the collateral. We note that this finding also helps to mitigate concerns that our *FVA* measure is capturing omitted economic fundamentals rather than pure accounting adjustments. For example, even if a post-deal improvement in economic fundamentals, which could be captured with noise by *FVA*, may predict an increase in debt issuance and a reduction in debt costs, it is unclear how these confounding factors could explain the disproportionate propensity to issue collateralized debt by high-*FVA* relative to low-*FVA* acquirers.

Debt maturity is another critical contracting characteristic that could be affected by *FVAs*. To shed light on this issue, we next investigate changes in maturity. We re-estimate our main regression model using on the RHS *LT debt level* and *Change in LT debt*, i.e., the level of and change in long-term debt. These controls include our main controls vector and industry-year fixed effects as well as concurrent growth in short-term debt (*Change in ST debt*) and previous level of long-term debt (*LT debt level $t=0$*). Collectively, the estimation results presented in Panel B of Table 6 are consistent with *FVAs* being associated with an increase in post-deal debt maturity. As before, the shift in the maturity structure of corporate debt that is associated with the magnitude of reported *FVAs* especially when these adjustments pertain to tangible assets. Economically, a one standard deviation increase in *FVA* suggests

an increase of 4.44 percent in long-term debt over the three-year period after the deal, and a marginally significant 2.71 percent in the subsequent *growth* in long-term debt. In sum, these inferences suggest that lenders assign considerable importance to reported assets and deem the balance sheet of the combined entity safer as a result of FVA-induced increases in the asset base (e.g., Barclay and Smith, 1995).

4.4 *Balance sheet covenants*

While the focus of our paper is the examination of fair values in the context of the collateral channel, another channel whereby accounting improvements in asset measurement may be of direct use to lenders is through financial covenants—the state-contingent contractual clauses that provide a monitoring mechanism in loan contracts by allocating control rights (Smith and Warner, 1979; Aghion and Bolton, 1992; Christensen et al., 2016). If lenders do indeed use FVA information, then FVAs should increase the likelihood of explicit contracting on balance sheet values via balance sheet covenants. To answer this empirical question, we estimate equation (1) as a linear probability model with our dependent variable, *Balance sheet covenant introduction*, which equals one if the borrower uses a balance-sheet covenant in loan contracts after the deal but not before, and zero otherwise. In keeping with Christensen and Nikolaev (2012), our definition of balance-sheet covenants includes net worth, minimum net worth to total assets, tangible net worth, maximum debt to tangible net worth, maximum net debt to assets, minimum equity to assets, and maximum leverage ratio. We identify all syndicated loans taken by our sample firms in the three years before and three years after a deal. We exclude the six-month period immediately before and after the deal completion date to avoid capturing deal-related funding. This results in a reduced sample of 544 loan facilities for 281 deals pertaining to 223 unique firms.

Table 7 reports the results of the regressions estimated at the loan facility level. Our inferences are based on two different control groups. In columns (1) and (2), the control group includes loans without a balance sheet covenant usage change, i.e., when the acquirer has a balance-sheet covenant in loans issued both pre- and post-deal or has no such covenants in both periods. In columns (3) and (4),

we restrict the control group to acquirers whose loans have balance-sheet covenants neither before nor after the transaction. Columns (1) and (3) show a significant association between FVAs and the likelihood of a balance-sheet covenant initiation. A one standard deviation increase in FVAs is associated with about a three percent increase in the probability that the combined entity starts using balance-sheet covenants in loan contracts during the post-deal period. For context, the sample mean of the dummy variable, *Balance sheet covenant introduction*, is 7 percent (Panel B of Table 2).

Columns (2) and (4) underscore the importance of asset tangibility in debt contracting. *FVA Tangibles* has a significantly larger effect on the propensity to initiate a balance-sheet covenant than do intangible asset bases, denoted by *FVA Intangibles net of goodwill*. The finding that the preference towards balance sheet covenants is isolated to firms with higher FVAs over tangible assets adds to Demerjian et al. (2016).¹⁷ On the other hand, we recognize that Christensen and Nikolaev (2013) find very limited evidence from the UK and Germany on firms' election of the fair-value option. Our results, however, are compatible with these inferences provided by prior work. Unlike the permanent nature of fair value elections under IFRS, FVAs are a one-off mandatory update in asset values. FVAs are not susceptible to the costs associated with the fair value option, including the increased volatility of reported numbers and the burden of continuous independent verification of line items. Furthermore, our evidence allows us to conclude that FVAs provide auditor certified information that contractible through covenants, but we cannot and do not argue that firms engage in business combinations primarily to enjoy the benefits of FVAs.

4.5 Bond yields

Our evidence thus far suggests that FVAs influence corporate debt contracting through various dimensions, including issuance amounts, costs, and non-pricing terms. One lingering concern is that

¹⁷ In their examination of financial covenants in loan contracts of firms who adopt SFAS 159, Demerjian et al. (2016) find no change in the frequency of covenants before and after firms adopt SFAS 159, and moreover, while some lenders modify covenants to remove the fair value adjustments pertaining to liabilities, they do no such thing for asset values.

FVAs might reflect correlated omitted variables on transaction fundamentals that could drive these results. To further allay these issues and to shed light on debtholders' views on FVAs, we examine public bond markets. Specifically, we analyze changes in bond yields around the first date on which fair-value-adjusted asset values become public information (i.e., the first earnings announcement after the deal). We posit that all of the value-relevant information about the deal, in terms of underlying economics, has been impounded when the deal is announced, discussed, and finalized, and over the period between the effective date of the deal and the first post-deal earnings announcement. That is, at the time of the first earnings announcement post-acquisition, the secondary bond market prices have priced in all economic factors, such as deal synergies, growth options, and changes in market power. Accordingly, the information released on the first post-deal earnings announcement, conditional on fundamental performance indicators, should reflect the market's assessment of the restructured asset base of the combined entity, which is highlighted by FVA disclosures.¹⁸ If the bond market views FVAs favorably, incremental to other economic factors, bond yields around the first post-deal earnings announcement should be a declining function of *FVAs*.

We collect data on bond trading and bond characteristics from FISD Mergent and keep all deals for which there is at least one bond traded in the month before and the month after the first post-deal earnings announcement. We exclude nine deals for which the acquirers completed multiple deals in the relevant quarter. This results in a reduced sample of around 700 bonds that are associated with 161 deals and 123 firms' earnings announcements. Using this sample, we estimate equation (1) with *Change in bond yield* as the dependent variable at the bond level. To better capture the market's assessment of FVAs, we revise our definition of this variable slightly. We use *FVA (from first 10-K)*, which is the FVA values as of the first 10-K following the deal, rather than finalized values.

¹⁸ For example, Applied Materials Inc. acquired Semitool Inc. on 21 December 2009 during Q1 of fiscal 2010. Applied Materials Q1 earnings release discussed the acquisition in detail and provided a Balance Sheet with accounts that reflected the FVAs of the target's assets. Moreover, a review of the conference call transcript on the day of the earnings release reveals a discussion about fair value adjustments to inventory balances.

As shown in Table 8, we find that FVAs are associated with a reduction in bond yields around the first post-deal earnings announcement. In the first two columns, we find, conditional an extensive vector of bond-related and deal-related control variables, we observe statistically and economically significant negative coefficients on fair-value adjustments. As before, this finding is stronger for tangible fixed assets, which is consistent with our predictions that the collateral and covenant benefits of FVAs are particularly relevant for tangible assets. Economically, a one standard deviation increase in *FVA (FVA Tangibles)* results in a relative decline in bond spreads by a relative magnitude of 0.103 (0.176).

We recognize that some post-deal earnings announcements could pertain to 10-Qs, which could be associated with a partial release of FVAs beforehand. To address this issue, we introduce a dummy variable, *if early EA*, which switches on for bonds that belong to acquirers, which in the post-deal period first interim earnings before annual earnings. We present the estimation results in columns (3) and (4) of Table 8, Panel A. Consistent with interim earnings announcements conveying to the market valuable information about the revised asset base of the combined entity, we observe that the yield-reducing effects of FVAs disappear when *if early EA* equals one. That said, our findings hold for the cases in which 10-K releases are not preceded by earnings announcements.

We supplement these tests by investigating whether the market reacts to FVA revisions, which could happen if the company revises their valuation adjustments in its subsequent annual reports. We find insignificant results for revisions of FVA (Panel B of Table 8). In sum, the negative association between FVAs and changes in bond yields around the first post-deal earnings announcement reinforce our primary argument that creditors favor the contracting benefits of FVAs and accounting, incremental to other potentially omitted economic benefits of business combinations.

4.6 Additional Cross-Sectional Analyses

To add credibility to our inferences and improve our investigation of the mechanisms at work, we analyze the cross-sectional variation in the main effects. In particular, we examine how the

relationship between FVAs and debt issuance varies with managerial incentives to manipulate valuation adjustments and with internal control and audit quality.

Panel A of Table 9 presents the results of the regressions testing the mediating role of managerial incentives. In the spirit of Edmans, Fang, and Lewellen (2017) and Edmans, Fang, and Huang (2018), we hypothesize that the purchase price allocation of 89 deals completed in quarters in which the managerial equity vests is strategic/subject to manipulation. To complement this test and to compensate for the reduction in our sample size due to stringent data requirements relating to equity-vesting, we also explore ex-post impairments, which is a potential indicator of misvaluation of fair-valued assets. The intuition is similar to that of our equity-vesting tests: the positive impact of FVAs on debt issuance should be muted when these assets are impaired subsequently. Specifically, we define *if_impairment* as an indicator variable for 71 deals for which acquirers reported goodwill or other intangible asset impairment over the three years after the deal. In line with our predictions, we find that in cases with managerial equity vesting and ex-post asset impairments, the debt-issuance effect of FVAs are effectively zero.

In the second part of our investigation, we employ internal control weaknesses (*ICW*) and auditor changes (*auditor change*) as conditioning variables. In line with the conclusions in the internal control literature (e.g., Costello and Wittenberg-Moerman 2011), we anticipate internal control weaknesses to reduce the positive effect of FVAs since lenders would rely on these values to a lesser extent. On the flipside, since new auditors would be associated with enhanced scrutiny and verification, we expect an even larger effect of FVA in these cases. Panel B of Table 9 includes the relevant estimation results. We define *IWC* as an indicator variable equal to one for 41 deals in which the acquirer reported an internal control weakness during or within two fiscal years prior to the deal completion. The *auditor change* is an indicator variable equal to one for 58 deals for which acquirers changed their auditor over two years preceding the deal completion. Again, our main effect, the coefficient on *FVA*, continues to be significant, on average. Further, this effect is reversed to an economically significant

extent when the combined entity has internal control weaknesses (columns (1) and (2)). On the other hand, we find that auditor changes seem to enhance the main effect. The impact of FVA on debt issuance seems to double in deals associated with auditor change.

4.7 Robustness

In the final section of our results section, we discuss our findings from several robustness tests. Overall, these analyses mainly corroborate our primary findings that lenders use FVAs to assess the collateralizable asset base of borrowers. Our first sensitivity test focuses on investor sophistication. If FVAs represent new information, we expect to find stronger results for unsophisticated investors, i.e., those lenders who may not have the resources or knowledge to assess the fair value of the collateral. To empirically capture lender sophistication, we follow prior studies that argue public debt market participants are less sophisticated than private lenders like banks (e.g., Ball et al., 2015; and Ball et al., 2017). We extend our main specifications in Table 4 by including an indicator variable set to one for acquirers who issue high amounts of public debt in the post-deal period (i.e., top quintile of bond issuance) and interact it with our FVA variable. We expect the interaction term to be positive if FVAs are more useful to unsophisticated lenders. Columns (1) and (2) of Table 10, Panel A report these estimation results. We find no evidence suggesting that this is the case, as the interaction coefficients are economically and statistically insignificant.

Second, for a subset of deals wherein the acquirer had private debt before and after the deal, we re-estimate our main specifications in Table 4 with an indicator variable, *Prior relationship*, which we interact with *FVA*. *Prior relationship* captures whether the current lender previously acted as a lead arranger in a prior deal for the acquirer. We would expect that lenders with a prior lending relationship are better placed to assess the collateralizable asset base of the borrower and therefore FVAs may be less useful in terms of providing new information. Columns (3) and (4) of Table 10, Panel A report these results. The results are inconsistent with this prediction, given, again, the economically and statistically insignificant coefficients on the interaction term for both gross and net issuance. Overall,

the evidence presented in the above tests is more consistent with the certification role of FVAs. FVAs do not seem to reflect new information to more sophisticated lenders but instead provide a certification of the collateralizable asset base, allowing for better monitoring and contract enforcement, as well as allowing for easier loan syndication or on-selling in the secondary market.

In addition, we utilize a propensity score matching (PSM) procedure to create a matched “control” sample of deals that were completed using the “pooling of interest” method that was allowable prior to SFAS-141. Under the pooling method, the acquirer combines the *book value* of the target’s assets, not their fair value, meaning fair values are effectively ignored for accounting purposes. The purpose of our matching procedure is to provide a control sample of deals with the same increase in the collateralizable asset base but no reported FVA. This allows us to test for differences in post-deal debt issuance activity between acquirers that report FVAs and a matched control sample of acquirers that do not recognize FVAs.¹⁹ As shown in Panel B of Table 10, we document that acquirers who report FVAs are associated with significantly greater debt issuance in the post-deal period relative to the matched sample of pooling-method acquirers. We then partition the sample into High versus Low FVAs based on the FVA within-sample median. We find that the difference in post-deal issuance activity is most pronounced for the subset of high FVA deals and there is no significant difference for low FVA deals. These results suggest that the reporting of FVAs is potentially the driver of the additional debt contracting space, consistent with our collateral channel arguments.

Lastly, we conduct several additional sensitivity analyses, which we leave untabulated for brevity. We note that our conclusions remain identical if we examine the measurement period year-by-year instead of focusing on the average of the three years. In particular, we observe a gradual increase

¹⁹ Our PSM procedure uses a caliper of 0.1, without replacement. We include the following deal and post-deal characteristics in our first stage logit to match: Target’s assets, Cash deal proportion, Target to acquirer asset ratio, Cross-industry indicator, Size, Book to market, Profitability, Leverage, Cash balance, Number of M&A deals in the year, pre-deal debt issuance and industry fixed effects. We ensure all continuous variables are balanced, i.e., the variables’ means of the matching and matched subsamples are not statistically different from each other.

in the effect of FVAs on debt issuance over time. In addition, we split our sample period pre- and post-2008 to account for the update in the accounting standards governing fair-value adjustments, in particular, the switch from FAS 141 to FAS 141R. We find similar results in before and after 2008. A final concern is that our results may be driven by periods of low interest rates. For example, when interest rates are low, FVAs could be higher (due to lower discount rates), and firms' expectations of cheaper funding could lead to more borrowing. To mitigate such concerns, we include an indicator variable set to one for low-interest periods (i.e., between June 2003-June 2004, and post-2008), and interact this with our FVA variable. The interaction term of FVA and low-interest-rate-period is statistically insignificant in all specifications (p-value >0.3).

5. Conclusions

We investigate the role played by the fair value adjustments (FVAs) of assets arising from business combinations on firms' debt issuing activities. FVAs reflect requirements of current accounting rules to record the fair value of the target's identifiable assets and liabilities when a merger or acquisition takes place. Using a large hand-collected sample of business combination disclosures provided by non-financial US acquirers, we measure FVAs on targets' assets tangible and intangible assets (excluding goodwill) to examine whether these accounting adjustments provide relevant information to lenders and improve debt contracting terms in the period after the transaction.

We document that FVAs significantly increase the target's assets excluding goodwill and cash by 60 percent relative to the book values reported by the target before the transaction. This figure corresponds to 4.6 percent of the acquirer's pre-deal market capitalization. Such adjustments potentially allow the combined firm to report more collateralizable assets, relative to what the combined entity would report prior to the deal by adding the target's and the acquirer's book value of assets. We also show that this larger collateral base enables firms with greater FVAs to issue more and cheaper debt during the three year period after the deal. We also find a negative association between FVAs and the cost of debt in the post-acquisition period and that high FVAs are associated with longer debt maturities

and a greater likelihood of issuing secured debt and debt with balance sheet covenants. The results are mainly driven by FVAs on tangible assets suggesting that FVAs allow firms to report collateralizable asset values which were previously unrecognized due to conservative accounting practices.

Our evidence indicates that fair valuations around business combinations bring debt financing benefits to the combined entity by allowing firms to increase the value of the reported collateral on their balance sheet. To the extent that lenders rely on reported numbers in the financial statements, the recognition of fair value step-ups better aligns reported asset values to their economic values, and as such allows firms to increase borrowings at terms that are more favorable.

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Appendix A: Sample 10-K Disclosure on Fair Value Adjustments (Ashland Inc, FY2009)

NOTE B – ACQUISITIONS

On November 13, 2008, Ashland completed its acquisition of Hercules. The acquisition creates a defined core for Ashland composed of three specialty chemical businesses which includes specialty additives and ingredients, paper and water technologies, and specialty resins. The acquisition also creates a leadership position in attractive and growing renewable/sustainable chemistries.

The merger was recorded by Ashland using the purchase method of accounting in accordance with applicable U.S. GAAP whereby the total purchase price, including qualifying transaction-related expenses, were allocated to tangible and intangible assets and liabilities acquired based upon their respective fair values.

The total merger consideration for outstanding Hercules Common Stock was \$2,096 million in cash and \$450 million in Ashland Common Stock. Each share of Hercules Common Stock issued and outstanding immediately prior to the effective date of the Hercules acquisition was converted into the right to receive \$18.60 in cash and 0.0930 of a share of Ashland Common Stock, subject to the payment of cash in lieu of fractional shares of Ashland Common Stock. Ashland exchanged 10.5 million shares of Ashland common shares for the 112.7 million shares of outstanding Hercules Common Stock on November 13, 2008.

The purchase price of Hercules, excluding debt assumed, was \$2,594 million, including expenses incurred in connection with the transaction, and consisted of the following items:

Purchase price (in millions)	
Cash consideration for stock	\$ 2,096 (a)
Stock consideration	450 (b)
Cash consideration for Restricted Stock Units (RSUs)	5 (c)
Options	
Cash-out options	15 (d)
Fair value of Hercules stock options converted into stock options for Ashland shares	10 (e)
Transaction costs	18 (f)
Total purchase price	<u>\$ 2,594</u>

Appendix A (continued): Sample 10-K Disclosure on Fair Value Adjustments (Ashland Inc, FY2009)

The following table summarizes the values of the assets acquired and liabilities assumed at the date of acquisition, as well as adjustments that have been made as a result of ongoing valuations.

Purchase price allocation (in millions)	At November 13 2008
Assets:	
Cash	\$ 54
Accounts receivable	355
Inventory	261
Other current assets	57
Intangible assets	1,116
Goodwill	1,806
Asbestos receivable	118
Property, plant and equipment	1,059
Purchased in-process research and development	10
Other noncurrent assets	164
Liabilities:	
Accounts payable	(231)
Accrued expenses	(215)
Debt	(799)
Pension and other postretirement obligations	(316)
Environmental	(100)
Asbestos	(494)
Deferred tax - net	(129)
Other noncurrent liabilities	(122)
Total purchase price	\$ 2,594

As of September 30, 2009, the purchase price allocation for the acquisition was essentially completed. Adjustments to the current fair value estimates may occur as valuations are finalized for Hercules asbestos receivables and reserves. For additional information, see Note P.

Appendix B: Variable definitions

Appendix B reports our variable definitions and associated data sources, i.e. SDC, Capital IQ, Compustat, CRSP, I/B/E/S, LPC Dealscan, FISD Mergent, and 10-K financial reports. All continuous variables are log-transformed and winsorized in the extreme 2.5 percentiles.

Deal characteristics	Definition	Source
<i>FVA (Fair Value Adjustment)</i>	Total fair value of assets (net of cash) and excluding amount recognized as goodwill reported in business combination note, less <i>Target assets</i> , scaled by the acquirer's market capitalization one day prior to deal's announcement;	Acquirer's 10-K business combination footnote. (<i>t=0 and t+1</i>)
<i>FVA on Tangibles</i>	Total fair value of assets (net of cash) of the target reported in business combination note, less <i>Target assets</i> , less fair value of intangible assets of the target reported in the business combination note and goodwill recognized, scaled by the acquirer's market capitalization one day prior to deal's announcement;	Acquirer's 10-K business combination footnote, (<i>t=0 and t+1</i>)
<i>FVA on Intangibles net of GW</i>	Total fair value of intangible assets (other than goodwill) of the target reported in business combination note, less target intangible assets (other than goodwill) as reported in the quarter preceding the deal, scaled by the acquirer's market capitalization one day prior to deal's announcement;	Acquirer's 10-K business combination footnote. (<i>t=0 and t+1</i>)
<i>Cross-industry M&A</i>	If the target's main two-digit SIC industry is different from the acquirer's one;	SDC Platinum
<i>M&A deals count</i>	Total number of takeovers completed in the deal's calendar year;	SDC Platinum
<i>Target assets</i>	Target's book-value of total assets, as reported in the quarter preceding the deal;	Compustat
<i>Acquirer assets</i>	Acquirer's total assets, as reported in the quarter preceding the deal;	Compustat
<i>Deal goodwill</i>	Amount of goodwill recognized, scaled by the acquirer's market capitalization one day prior to deal's announcement;	Acquirer's 10-K business combination footnote (<i>t=0 and t+1</i>)
<i>Deal cash component</i>	Proportion of the purchase price paid in cash;	SDC Platinum
<i>Deal announcement CAR</i>	Sum of acquirer and target's three-day cumulative abnormal returns (4-factor risk model) centered at the announcement date;	CRSP and Kenneth French's factors database
<i>Target to acquirer size</i>	Ratio of the <i>Target assets</i> to <i>Acquirer assets</i> .	Compustat

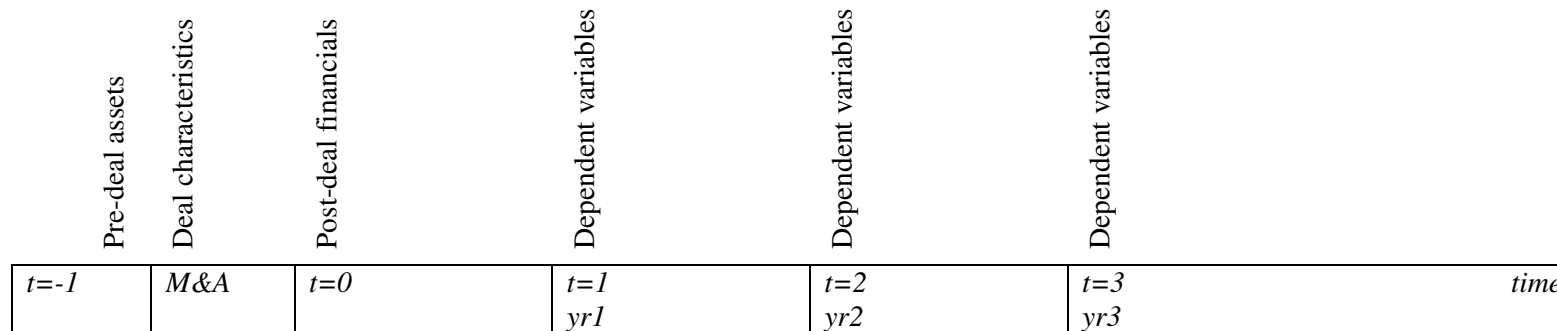
Post-deal acquirer characteristics	Definition	Source
<i>Size t=0</i>	Total assets in fiscal year of business combination, i.e. year t=0;	Compustat
<i>BM t=0</i>	Ratio of total shareholder's equity to market value at fiscal year-end;	Compustat/CRSP
<i>Profitability t=0</i>	Ratio of net income to total revenue at fiscal year t=0;	Compustat
<i>Cash balance t=0</i>	Cash and short-term investments at fiscal year t=0, scaled by <i>Size</i> ;	Compustat
<i>Leverage t=0</i>	Total debt at fiscal year t=0, scaled by <i>Size</i> ;	Compustat
<i>Change in sales 3 year</i>	Change in total revenue from year 0 to year 3;	Compustat
<i>Change in BM 3 year</i>	Change in ratio of total shareholder's equity to market value at fiscal year-end from year 0 to year 3;	Compustat
<i>Change in profitability 3 year</i>	Change in ratio of net income to total revenue at fiscal year-end from year 0 to year 3;	Compustat
<i>Change in unsecured debt 3 yr</i>	Change in unsecured debt from year 0 to year 3, scaled by <i>Size</i> ;	Capital IQ
<i>Secured debt level t=0</i>	Secured debt at fiscal year t=0, scaled by <i>Size</i>	
<i>Change in ST debt 3 yr</i>	Change in short-term debt from year 0 to year 3, scaled by <i>Size</i> ;	Capital IQ
<i>LT debt level t=0</i>	Long-term debt at fiscal year t=0, scaled by <i>Size</i>	
<i>Past gross debt issuance</i>	Sum of long-term debt issuances in the two fiscal years prior to the deal;	Compustat
<i>Past net debt issuance</i>	Sum of long-term debt issuances less long-term debt reductions in the two fiscal years prior to the deal;	
<i>Past interest rate</i>	Interest rate in year 0 (ratio of interest and related expense in fiscal year 0 to average of long-term debt level of combined entity and long-term debt level of acquirer and target in the quarter preceding the deal);	Compustat
Loan characteristics	Definition	Source
<i>Loan size</i>	Amount of the facility committed by the facility's lenders;	LPC DealScan
<i>Loan maturity</i>	Number of months from the signing date to loan expiration date;	LPC DealScan
<i>General covenants count</i>	Number of cash flow sweeps (asset sale, debt issuance, equity issuance, excess cash flow, insurance proceeds) and a dividend restriction in the loan contract;	LPC DealScan
<i>Revolver loan (Yes=1)</i>	Indicator variable assigned value one if the loan type is a revolver, and zero otherwise;	LPC DealScan
<i>Unrated (Yes=1)</i>	Indicator variable assigned value one if the loan is not rated, and zero otherwise;	LPC DealScan
<i>Previous loan relationship (Yes=1)</i>	Indicator variable assigned value one if the current lead arranger was a lead arranger for the same borrower in a previous deal, and zero otherwise;	LPC DealScan
<i>Secured loan (Yes=1)</i>	Indicator variable assigned value one if the facility is secured, and zero otherwise;	LPC DealScan

Earnings announcement characteristics	Definition	Source
<i>Earnings' surprise</i>	Difference between the actual reported EPS and the median analyst consensus for EPS for the current quarter in the month prior to an earnings announcement, scaled by the price at the end of the fiscal quarter;	I/B/E/S/ and Compustat
<i>If loss (Yes=1)</i>	Indicator variable assigned value one if the company announced a negative EPS, and zero otherwise;	I/B/E/S/
<i>Number of analysts</i>	Number of distinct analysts' estimates in the month prior to the earnings announcement.	I/B/E/S/
<i>Change in FED rate</i>	Difference between the average 10-year constant maturity US bond yield over one month after less the average yield over one month before the first earnings announcement of combined entity;	Global Financial Data
<i>Change in debt amount</i>	Difference between the debt level at the first earnings announcement of combined entity less the debt level at the quarter prior to the earnings announcement, scaled by <i>Size</i> ;	Compustat
<i>Change in next quarter analysts' consensus</i>	Difference between the median analyst consensus for EPS for the next quarter less the median estimate for EPS for the next quarter in the month after the current quarter earnings announcement, scaled by the price at the end of the current fiscal quarter;	I/B/E/S/
Bond characteristics	Definition	Source
<i>Bond rating</i>	Bond rating in the month prior to the earnings announcement converted to an ordinal scale from 1 to 23, where 1 is S&P/Fitch "AAA" or Moody's "Aaa", 2 is S&P/Fitch "AA+" or Moody's "Aa1" etc., and 23 for a unrated bond or a missing rating;	FISD Mergent
<i>Bond unrated (Yes=1)</i>	Indicator variable assigned value one if the bond is not rated, and zero otherwise;	FISD Mergent
<i>Bond amount</i>	Bond's original issuance amount;	FISD Mergent
<i>Bond maturity left</i>	Number of years from the earnings announcement until bond's maturity date.	FISD Mergent

Dependent variables	Definition	Source
<i>Gross Debt Issuance</i>	Sum of long-term debt issuances in years 1 to 3, scaled by <i>Acquirer assets</i> ;	Compustat
<i>Net Debt Issuance</i>	Sum of net debt issuances in years 1 to 3, scaled by <i>Acquirer assets</i> ;	Compustat
<i>Change in interest</i>	Debt-weighted mean interest rate in years 1 to 3 less interest rate in year 0 (ratio of interest and related expense in fiscal year 0 to long-term debt level of acquirer and target in the quarter preceding the deal);	Compustat
<i>Interest level</i>	Debt-weighted mean interest rate in years 1 to 3	
<i>Change in secured debt</i>	Mean secured debt in years 1 to 3 less secured debt in year 0, scaled by <i>Acquirer assets</i> ;	Capital IQ
<i>Secured debt level 3 yr</i>	Secured debt at fiscal year t=3, scaled by <i>Acquirer assets</i>	
<i>Change in LT debt</i>	Mean long-term debt in years 1 to 3 less long-term debt in year 0, scaled by <i>Acquirer assets</i>	Capital IQ
<i>LT debt level 3 yr</i>	Long-term debt at fiscal year t=3, scaled by <i>Acquirer assets</i>	
<i>Balance sheet covenant introduction (Yes=1)</i>	Indicator variable assigned value one if the acquirer issued a loan after an M&A that contains a balance sheet covenant and the most recent pre-deal loan has no balance sheet covenants, and zero otherwise. Balance sheet covenants include: net worth, minimum net worth to total assets, tangible net worth, maximum debt to tang net worth, maximum net debt to assets, minimum equity to assets, and maximum leverage ratio. Loans are issued in the period excluding 180 days around the M&A deal's effective date and no further than 3 years around the date.	LPC DealScan
<i>Change in bond yield</i>	Difference between the average bond yield over one month after less the average yield over one month before an event period;	FISD Mergent

Appendix C: Timeline

Appendix C presents a timeline that details when variables are calculated relative to the merger or acquisition.



Example: Suppose that an acquirer has a December fiscal year-end and that the M&A transaction is completed in November 2006. We retrieve target and acquirer pre-deal assets from October 2006 (third quarter) financial statements. We collect FVA, deal goodwill and size from acquirer's business combination notes in the 10-K dated December 2006 ($t=0$) and measurement period adjustments reported in the subsequent 10-K (i.e. December 2007), if any. Most of post-deal acquirer characteristics are extracted as of December 2006. Our forward-looking dependent variables use amounts from subsequent financial statements in December 2007 ($t=1$), December 2008 ($t=2$), and so on.

Figure 1: Debt Issuance pre and post the acquisition

This figure illustrates the debt issuance of acquiring firms during the years before and after the acquisition for targets with high and low reported FVAs. The vertical axis shows the amount of debt issued relative to the book value of the acquirer's assets prior to the deal while the horizontal axis shows the year relative to the acquisition year (year 0).

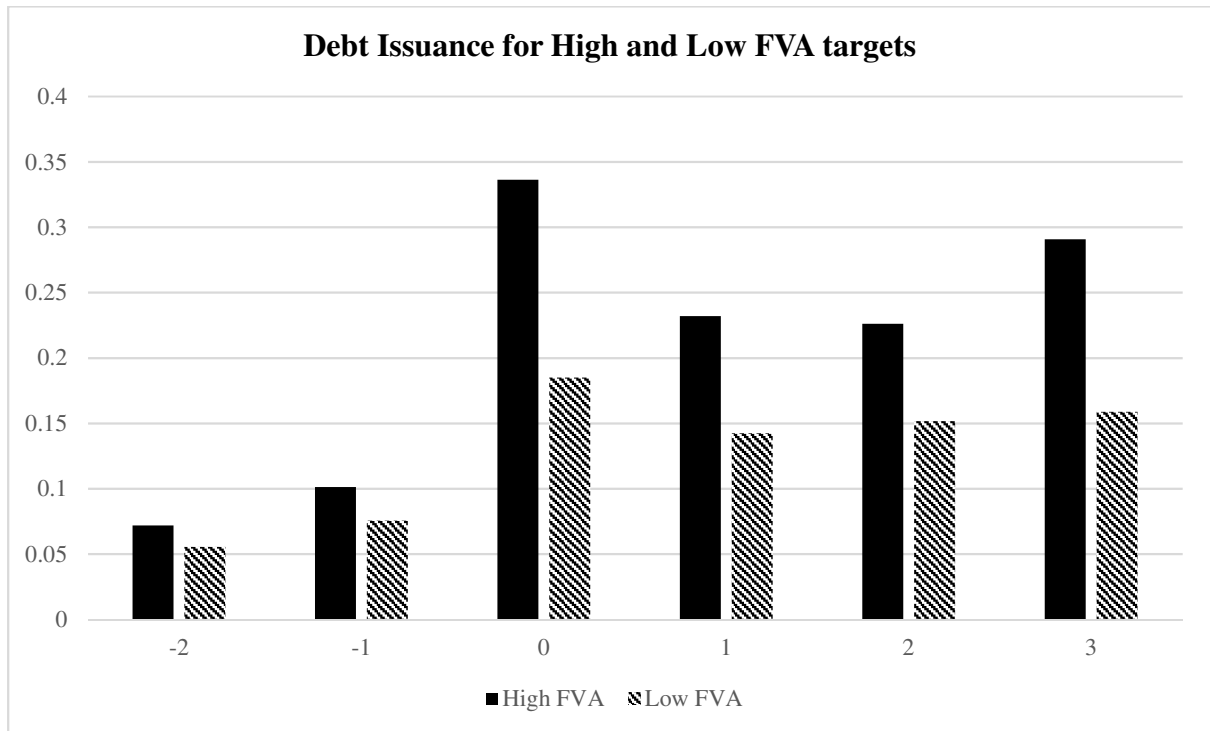


Table 1: Sample Selection and Structure

This table presents information on sample selection and structure. The unit of observation is a deal. Panel A details the sample selection procedure for the main analyses. Panel B and C describe the yearly and industry breakdown of the sample, respectively.

Panel A. Sample Selection	
SDC sample	2192
less financials and utilities	(765)
	1427
less missing link to Compustat	(213)
	1214
less no recent target financials	(114)
	1100
less missing target assets	(23)
	1077
less uncollected disclosures	(439)
	638
less missing controls and dependent variables	(133)
	505
less bargain price purchase	(8)
	497
less deals involving non-controlling interest	(9)
final sample	488

Panel B. Distribution of Sample Deals by Year			
Year	Frequency	Percent	Cumulative
2001	30	6.15	6.15
2002	37	7.58	13.73
2003	46	9.43	23.16
2004	35	7.17	30.33
2005	53	10.86	41.19
2006	46	9.43	50.61
2007	61	12.50	63.11
2008	34	6.97	70.08
2009	22	4.51	74.59
2010	40	8.20	82.79
2011	26	5.33	88.11
2012	31	6.35	94.47
2013	27	5.53	100.00
Total	488	100	

Panel C. Distribution of Sample Deals by SIC

SIC industries	Frequency	Percent
Manufacturing (SIC 3)	152	31.15
Services (SIC 7)	104	21.31
Manufacturing (SIC 2)	93	19.06
Transportation, Communications, Electric, Gas and Sanitary service (SIC 4)	50	10.25
Mining and Construction (SIC 1)	41	8.40
Wholesale and Retail Trade (SIC 5)	31	6.35
Services (SIC 8)	17	3.48
Total	488	100

Table 2: Descriptive statistics

This table reports descriptive statistics for our sample. The unit of observation is a deal. Panel A details our measures of FVA, scaled by the target's book value of non-cash assets (total assets less cash) and by the acquirer's market capitalization on the day immediately prior to the deal announcement. We report FVA calculated as (1) the total fair value adjustments on assets other than cash, and (2) the fair value adjustments on assets other than cash less goodwill recognized in the deal. This is our main variable interest in empirical tests. Panel B presents summary statistics of the main regression variables. All variables are defined in Appendix B.

Panel A. Fair Value Adjustments (%)							
	N	% positive	mean	sd	p25	p50	p75
Total FVA as % of	488	92.2					
Target's TA less cash			182.3	220.5	42.0	111.3	224.7
Acquirer's market capitalization			24.5	33.3	3.0	11.7	32.3
FVA (net of goodwill) as % of	488	66.4					
Target's TA less cash			60.3	127.2	-10.6	20.2	72.4
Acquirer's market capitalization			4.6	18.2	-1.0	1.4	8.4

Panel B. Main Regression Variables

<i>Dependent variables</i>	N	mean	sd	p25	p50	p75
<i>Gross Debt Issuance</i>	488	0.37	0.43	0.06	0.21	0.52
<i>Net Debt Issuance</i>	488	0.07	0.23	-0.05	0.01	0.14
<i>Change in secured debt</i>	488	0.02	0.17	-0.01	0	0.03
<i>Secured debt 3 yr</i>	488	0.13	0.20	0.00	0.01	0.17
<i>Change in LT debt</i>	488	0.06	0.24	-0.06	0.01	0.15
<i>LT debt level 3 yr</i>	488	0.30	0.24	0.13	0.25	0.43
<i>Change in interest</i>	424	-0.02	0.08	-0.02	0.00	0.01
<i>Interest level</i>	424	0.07	0.05	0.04	0.06	0.07
<i>Balance sheet covenant introduction (Yes=1)</i>	544	0.07	0.26	0	0	0
<i>Change in bond yield</i>	693	0.017	0.362	-0.174	-0.032	0.120
<hr/>						
<i>Deal characteristics</i>	N	mean	sd	p25	p50	p75
<i>FVA</i>	488	0.04	0.15	-0.01	0.01	0.08
<i>FVA on Tangibles</i>	488	0.01	0.10	-0.02	0.00	0.02
<i>FVA on Intangibles net of GW</i>	488	0.04	0.09	0.00	0.01	0.06
<i>Deal goodwill</i>	488	0.16	0.19	0.03	0.10	0.23
<i>Target to acquirer size</i>	488	0.26	0.25	0.05	0.17	0.38
<i>Cross-industry M&A</i>	488	0.32	0.47	0	0	1
<i>M&A deals count</i>	488	1.58	0.99	1	1	2
<i>Target Assets (pre-deal) in \$m</i>	488	1657.8	3488.3	87.9	368.9	1317.8
<i>Acquirer Assets (pre-deal) in \$m</i>	488	11646.0	22191.7	631.4	2693.2	10055.7
<i>Deal announcement CAR * 100</i>	488	0.05	0.20	-0.06	0.06	0.18
<i>Deal cash component</i>	488	0.57	0.43	0	0.64	1
<hr/>						
<i>Post-deal acquirer characteristics</i>	N	mean	sd	p25	p50	p75
<i>Size t=0 in \$m</i>	488	16077.1	33117	1001.4	3793.0	14045.2
<i>Acquirer BM t=0</i>	488	5.49	1.73	4.54	5.70	6.77
<i>Profitability t=0</i>	488	-0.13	1.15	-0.01	0.05	0.10
<i>Cash balance t=0</i>	488	0.12	0.12	0.03	0.08	0.18
<i>Leverage t=0</i>	488	0.20	0.13	0.10	0.20	0.30
<i>Change in sales 3 years</i>	488	4.29	5.06	3.94	6.12	7.50
<i>Change in BM 3 years</i>	488	1.20	5.02	-4.16	3.38	5.60
<i>Change in leverage 3 years</i>	488	0.02	0.22	-0.04	0.01	0.05
<i>Past gross debt issuance</i>	488	0.09	0.12	0	0.04	0.14
<i>Past net debt issuance</i>	488	0.01	0.07	-0.02	0	0.04
<i>Past interest rate</i>	424	0.05	0.03	0.03	0.05	0.06
<i>Change in unsecured debt 3 yr</i>	488	0.02	0.14	0	0	0
<i>Change in ST debt 3 yr</i>	488	0.03	0.14	-0.02	0	0.03
<i>Long-term debt t=0</i>	488	0.18	0.13	0.07	0.17	0.26
<i>Secured debt t=0</i>	488	0.10	0.17	0	0.00	0.14

Panel B. Main Regression Variables (continued)

<i>Loan characteristics</i>	N	mean	sd	p25	p50	p75
<i>Loan size</i>	544	20.2	1.31	19.3	20.4	21.1
<i>Loan maturity</i>	544	3.74	0.62	3.61	4.11	4.11
<i>Revolver loan (Yes=1)</i>	544	0.01	0.07	0	0	0
<i>Unrated (Yes=1)</i>	544	0.75	0.43	1	1	1
<i>Previous loan relationship (Yes=1)</i>	544	0.69	0.46	0	1	1
<i>General covenants count</i>	544	0.85	1.59	0	0	1
<i>Secured loan (Yes=1)</i>	544	0.32	0.47	0	0	1
<i>Loan size</i>	544	20.2	1.31	19.3	20.4	21.1

<i>Earnings announcement characteristics</i>	N	mean	sd	p25	p50	p75
<i>Change in debt amount</i>	693	0.007	0.009	0.000	0.003	0.010
<i>Change in next quarter analysts' consensus</i>	693	0.000	0.003	0.000	0.000	0.001
<i>Earnings' surprise</i>	693	0.001	0.002	0.000	0.001	0.002
<i>Loss announced</i>	693	0.03	0.17	0	0	0
<i>Number of analysts</i>	693	16.09	6.14	12	17	21
<i>Change in FED rate</i>	693	-0.03	0.20	-0.18	-0.03	0.14

<i>Bond characteristics</i>	N	mean	sd	p25	p50	p75
<i>Bond rating</i>	693	7.42	3.55	5.00	6.00	10.00
<i>Bond non-rated (Yes=1)</i>	693	0.02	0.13	0	0	0
<i>Bond amount in \$m</i>	693	682.19	525.98	300.00	500.00	900.00
<i>Bond maturity left</i>	693	10.82	9.50	3	7	17

Table 3: Correlations

This table presents univariate (Pearson) correlations among the main regression variables. All variables are defined in Appendix B.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 <i>FVA</i>	1															
2 <i>FVA on Tangibles</i>	0.65	1														
3 <i>FVA on Intangibles net of GW</i>	0.57	-0.10	1													
4 <i>Deal goodwill</i>	0.13	0.00	0.25	1												
5 <i>Gross Debt Issuance</i>	0.23	0.19	0.10	0.16	1											
6 <i>Net Debt Issuance</i>	0.08	0.08	0.02	-0.07	0.55	1										
7 <i>Change in Interest</i>	-0.15	-0.12	-0.05	-0.03	-0.01	-0.01	1									
8 <i>Size t=0</i>	0.06	0.07	-0.03	-0.10	-0.15	-0.07	0.06	1								
9 <i>BM t=0</i>	0.19	0.28	-0.08	-0.01	0.05	-0.01	-0.01	0.30	1							
10 <i>Profitability t=0</i>	0.02	0.08	-0.10	-0.01	0.08	0.00	-0.06	0.09	0.21	1						
11 <i>Cash balance t=0</i>	-0.16	-0.24	0.09	-0.23	-0.30	0.03	0.02	-0.15	-0.42	-0.27	1					
12 <i>Leverage t=0</i>	0.17	0.15	0.04	0.24	0.31	-0.11	-0.13	0.01	0.23	0.16	-0.52	1				
13 <i>Target to acquirer size</i>	0.10	0.07	0.17	0.64	0.26	0.03	0.07	-0.15	-0.11	-0.03	-0.12	0.10	1			
14 <i>Deal cash component</i>	0.09	0.19	-0.10	-0.24	-0.01	-0.03	-0.15	0.04	0.26	0.26	-0.15	0.17	-0.33	1		
15 <i>M&A deals count</i>	0.00	-0.02	0.01	-0.18	0.00	0.13	-0.09	0.17	0.07	0.05	-0.03	0.02	-0.27	0.14	1	
16 <i>Deal announcement CAR</i>	-0.01	0.04	-0.05	0.03	0.05	-0.02	-0.01	-0.12	-0.03	-0.04	0.00	0.00	0.05	-0.06	0.01	1

Table 4: FVAs and Debt issuance

This table reports the results of OLS regressions of gross debt issuance following an M&A transaction on the reported FVAs attributable to non-cash assets, excluding goodwill (*FVA*). Observations enter our analysis at the deal level. Our dependent variables, *Gross Issuance* and *Net Issuance*, are computed as gross and net long-term debt issuance over three-years following the deal, scaled by the acquirer assets as of quarter preceding the M&A transaction. Columns (2) and (4) show results for the reported FVAs on tangible non-cash assets only (*FVA on Tangibles*) and reported FVAs on intangible assets other than goodwill (*FVA on Intangibles net of GW*). All control variables are defined in Appendix B. T-statistics (reported in parentheses under our coefficient estimates) are robust to within-industry and within-year correlation and heteroscedasticity. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	<i>Gross Issuance</i>		<i>Net Issuance</i>	
<i>FVA</i>	0.576***		0.319***	
	(3.60)		(2.77)	
<i>FVA on Tangibles</i>		0.545**		0.299*
		(2.48)		(1.86)
<i>FVA on Intangibles net of GW</i>		0.383		0.008
		(1.66)		(0.05)
<i>Size t=0</i>	-0.071***	-0.073***	-0.043***	-0.045***
	(-5.85)	(-6.11)	(-4.52)	(-4.55)
<i>BM t=0</i>	-0.003	-0.003	0.013	0.013
	(-0.18)	(-0.22)	(1.51)	(1.39)
<i>Profitability t=0</i>	0.219**	0.222**	0.013	0.004
	(2.07)	(2.04)	(0.19)	(0.06)
<i>Cash balance t=0</i>	-0.420**	-0.470**	-0.085	-0.092
	(-2.32)	(-2.48)	(-0.63)	(-0.66)
<i>Leverage t=0</i>	0.269	0.261	-0.297**	-0.292**
	(1.35)	(1.28)	(-2.64)	(-2.50)
<i>Past debt issuance</i>	1.455***	1.456***	0.437**	0.457**
	(6.24)	(6.08)	(2.24)	(2.24)
<i>M&A deals count</i>	0.128**	0.129**	0.131***	0.135***
	(2.47)	(2.41)	(3.22)	(3.26)
<i>Cross-industry M&A</i>	0.017	0.017	0.025	0.026
	(0.50)	(0.48)	(1.00)	(1.03)
<i>Deal goodwill</i>	-0.669***	-0.134	-0.454**	-0.130
	(-2.81)	(-0.77)	(-2.60)	(-1.15)
<i>Deal cash component</i>	0.004	0.000	-0.003	-0.004
	(0.36)	(0.03)	(-0.45)	(-0.65)
<i>Target to acquirer size</i>	0.495***	0.486***	0.091	0.087
	(4.33)	(3.91)	(1.04)	(0.92)
<i>Deal announcement CAR</i>	-0.695	-1.293	-8.666*	-10.009*
	(-0.08)	(-0.15)	(-1.68)	(-1.97)
<i>Change in sales 3yr</i>	0.012***	0.011***	0.008***	0.007***
	(3.25)	(3.18)	(3.32)	(3.29)
<i>Change in BM 3yr</i>	-0.006	-0.005	-0.002	-0.001
	(-1.19)	(-0.96)	(-0.48)	(-0.30)
<i>Change in profitability 3yr</i>	0.098	0.108	0.029	0.039
	(0.84)	(0.92)	(0.40)	(0.55)
Observations	488	488	488	488
Adjusted R-squared	0.435	0.425	0.178	0.161
Industry-Year FE	YES	YES	YES	YES

Table 5: Cost of Debt

This table reports results of our analysis of FVA on the changes in the cost of debt following the M&A transaction. Observations are at the deal level. We restrict our sample to public-to-public deals available on SDC from 2001 – 2013. In columns (1) and (2) we report results for the changes in the average interest rate over the three-year window following the M&A. We define *Change in interest* as the debt-weighted mean interest rate in years 1 to 3 less interest rate in year 0, where interest rate is equal to the ratio of interest and related expense in fiscal year 0 to long-term debt level of acquirer and target in the quarter preceding the deal. In columns (3) and (4) we report results for *Interest level*, measured as the debt-weighted mean interest rate in years 1 to 3. Our estimation includes all control variables as reported in Table 4, along with two additional controls: *Change in leverage 3yr*, and *Past interest rate*. All other variables are defined in Appendix B. T-statistics (reported in parentheses under our coefficient estimates) are robust to within-industry and within-year correlation and heteroscedasticity. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	<i>Change in Interest</i>		<i>Interest level</i>	
<i>FVA</i>	-0.080** (-2.37)		-0.009 (-0.62)	
<i>FVA on Tangibles</i>		-0.072* (-1.76)		-0.034 (-1.62)
<i>FVA on Intangibles net of GW</i>		-0.066 (-1.05)		-0.039 (-1.49)
<i>Change in leverage 3 yr</i>	0.006 (0.19)	0.006 (0.19)	0.053** (2.28)	0.054** (2.28)
<i>Past interest rate</i>			0.556*** (4.49)	0.573*** (4.88)
All Previous Controls	YES	YES	YES	YES
Observations	424	424	424	424
Adjusted R-squared	0.184	0.174	0.291	0.298
Industry-Year FE	YES	YES	YES	YES

Table 6: Debt Structure

This table reports the results of our analysis of FVA on the changes in debt structure following the M&A transaction. Observations are at the deal level. We restrict our sample to public-to-public deals available on SDC from 2001 – 2013. Panel A reports our analysis of the changes in the composition of collateralized debt. In columns (1) and (2) we report results of *Secured debt level*, measured as secured debt as at fiscal year $t=3$, scaled by acquirer assets as of the quarter preceding the M&A transaction. In columns (3) and (4) we report results examining the *changes in secured debt*, measured as the mean secured debt in years $t+1$ through $t+3$, less secured debt in year $t=0$, scaled by acquirer assets as of the quarter preceding the M&A transaction. Panel B reports results of our examination of changes in the long-term debt. Columns (1) and (2) report analysis using the *LT Debt level* as the dependent variable, while columns (3) and (4) report results examining FVA impacts on the *Change in LT debt*, measured as the mean secured debt over years $t+1$ through $t+3$, less secured debt in year $t=0$, scaled by acquirer assets. Our estimation includes all control variables as reported in Table 4, along with two additional controls: Change in unsecured debt 3 yr, and *Secured debt $t=0$* , i.e. fiscal year of deal completion. All variables are defined in Appendix B in further detail. T-statistics (reported in parentheses under our coefficient estimates) are robust to within-industry and within-year correlation and heteroscedasticity. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels.

Panel A. FVA and Collateral				
	(1)	(2)	(3)	(4)
	<i>Secured debt level</i>	<i>Secured debt level</i>	<i>Change in secured debt</i>	<i>Change in secured debt</i>
<i>FVA</i>	0.128**		0.163**	
	(2.46)		(2.09)	
<i>FVA on Tangibles</i>		0.138*		0.150
		(1.68)		(1.23)
<i>FVA on Intangibles net of GW</i>		0.202**		0.195
		(2.21)		(1.49)
<i>Change in unsecured debt 3 yr</i>	0.003	-0.001	0.029	0.026
	(0.05)	(-0.02)	(0.32)	(0.28)
<i>Secured debt $t=0$</i>	0.762***	0.758***		
	(14.50)	(14.27)		
All Previous Controls	YES	YES	YES	YES
Observations	488	488	488	488
Adjusted R-squared	0.661	0.663	0.094	0.089
Industry-Year FE	YES	YES	YES	YES

Panel B. FVA and Debt Maturity

	(1)	(2)	(3)	(4)
	<i>LT debt level</i>	<i>LT debt level</i>	<i>Change in LT debt</i>	<i>Change in LT debt</i>
<i>FVA</i>	0.244*** (4.24)		0.149 (1.53)	
<i>FVA on Tangibles</i>		0.284*** (3.56)		0.360** (2.46)
<i>FVA on Intangibles net of GW</i>		0.247** (2.25)		0.022 (0.12)
<i>Change in ST debt 3 yr</i>	-0.092 (-1.12)	-0.089 (-1.04)	-0.392*** (-2.92)	-0.378*** (-2.79)
<i>LT debt level t=0</i>	0.744*** (4.82)	0.713*** (4.46)		
All Previous Controls	YES	YES	YES	YES
Observations	488	488	488	488
Adjusted R-squared	0.673	0.671	0.224	0.231
Industry-Year FE	YES	YES	YES	YES

Table 7: Covenants

This table reports the results of our analysis of FVAs on the initiation of balance sheet covenants around an M&A transaction. Observations are at the loan facility level. We restrict our sample to public-to-public deals available on SDC from 2001 – 2013. In columns (1) and (3), we estimate the regressions on the reported FVAs attributable to non-cash assets excluding goodwill (*FVA*). Columns (2) and (4) show results for the reported FVAs on tangible non-cash assets only (*FVA on Tangibles*) and reported FVAs on intangible assets only other than goodwill (*FVA on Intangibles net of GW*). Across all columns, our dependent variable is whether a balance sheet covenant is introduced in debt contracts. This indicator variable takes value one if the post-transaction loan includes a balance sheet covenants while the most recent pre-deal loan has no such covenant. We require pre-deal (post-deal) debt securities to be issued at least 180 days before (after) the M&A deal's effective date and no earlier (no later) than 3 years before (after) the date. In columns (1) and (2) the control group includes loans without a balance sheet covenant usage change, i.e., when the acquirer has balance sheet covenants in loans issued both pre- and post-deal, as well as has no such covenants in both periods. In columns (3) and (4), we restrict the control group to acquirers whose loans do not have balance sheet covenants neither before nor after the transaction. Our estimation includes all controls as reported in Table 4. All variables are defined in Appendix B. T-statistics (reported in parentheses under our coefficient estimates) are robust to within-acquirer correlation and heteroscedasticity. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)
	<i>Balance sheet covenant introduction (YES=1)</i>			
If sample includes deals with no change in B/S covenant usage	YES	YES	NO	NO
<i>FVA</i>	0.171* (1.88)		0.176* (1.75)	
<i>FVA on Tangibles</i>		0.259* (1.88)		0.280* (1.78)
<i>FVA on Intangibles net of GW</i>		0.065 (0.40)		0.051 (0.27)
All Previous Controls	YES	YES	YES	YES
Observations	544	544	492	492
Adjusted R-squared	0.125	0.125	0.127	0.128
Other Controls	YES	YES	YES	YES
Industry-Year FE	YES	YES	YES	YES

Table 8: Bond yields

This table reports short-window bond market reactions to the first earnings announcement after the deal. Observations enter our analysis at the bond level. In Panel A, the dependent variable is the *change in bond yields* around earnings announcements and the release of first 10-Ks, as denoted in the column headings. In all specifications, our FVA measures (*FVA*, *FVA Tangibles* and *FVA Intangibles net of GW*) are computed using data from the first 10-K subsequent to the deal completion only, i.e. we do not adjust our FVAs for measurement period adjustments, if any. *If_early_EA* is an indicator variable set to 1 for bonds that belong to acquirers, which in the post-deal period first interim earnings before annual earnings. We then examine bond market reactions around FVA revisions in Panel B, all specifications in Panel B include all control variables reported in Panel A. All variables are defined in Appendix B. T-statistics (reported in parentheses under our coefficient estimates) are robust to within-acquirer correlation and heteroscedasticity. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Bond Market Reaction to FVAs				
event period:	(1)	(2)	(3)	(4)
	<i>change in bond yield</i>		<i>change in bond yield</i>	
	first EA	first EA	first 10-K	first 10-K
<i>FVA</i>	-0.564*** (-3.09)		-0.290* (-1.71)	
<i>if_early_EA</i> × <i>FVA</i>			0.362 (1.18)	
<i>FVA Tangibles</i>		-0.966*** (-3.48)		-0.455* (-1.65)
<i>if_early_EA</i> × <i>FVA Tangibles</i>				-0.006 (-0.02)
<i>FVA Intangibles net of GW</i>		-0.506* (-1.76)		-0.262 (-0.73)
<i>if_early_EA</i> × <i>FVA Intangibles net of GW</i>				0.921* (1.86)
<i>if_early_EA</i>			-0.013 (-0.18)	-0.031 (-0.37)
<i>Earnings surprise</i>	-34.04*** (-2.75)	-32.53*** (-2.77)	0.121 (0.02)	0.047 (0.01)
<i>If loss (Yes=1)</i>	-0.156 (-1.00)	-0.116 (-0.72)	-0.054 (-0.39)	-0.015 (-0.10)
<i>Number of analysts</i>	0.234*** (3.33)	0.245*** (3.64)	0.106 (1.64)	0.125* (1.86)
<i>Change in FED rate</i>	0.403*** (4.26)	0.435*** (4.89)	0.477*** (2.96)	0.452*** (2.80)
<i>Bond rating</i>	0.032** (2.12)	0.035** (2.27)	0.002 (0.20)	0.004 (0.38)
<i>Bond non-rated (YES=1)</i>	-0.266 (-0.96)	-0.309 (-1.10)	0.048 (0.18)	-0.029 (-0.11)
<i>Bond amount</i>	-0.008 (-0.37)	-0.010 (-0.48)	0.013 (1.01)	0.015 (1.12)
<i>Bond maturity left</i>	-0.045** (-2.15)	-0.045** (-2.16)	0.023* (1.91)	0.023* (1.88)
<i>Cross-industry M&A</i>	-0.040 (-1.04)	-0.045 (-1.16)	-0.036 (-1.05)	-0.041 (-1.18)

<i>Deal cash component</i>	-0.031*	-0.029	-0.000	-0.001
	(-1.82)	(-1.61)	(-0.01)	(-0.03)
<i>Deal announcement CAR</i>	-15.780	-13.788	2.600	5.732
	(-0.96)	(-0.79)	(0.16)	(0.33)
<i>Deal goodwill</i>	-0.175	-0.256	-0.164	-0.311
	(-0.78)	(-1.24)	(-0.89)	(-1.59)
<i>Target to acquirer size</i>	0.115	0.081	0.134	0.151
	(0.61)	(0.52)	(0.93)	(1.10)
<i>Change in debt amount</i>	-48.953	-41.747	-5.008	-10.360
	(-1.57)	(-1.44)	(-0.15)	(-0.31)
<i>Change in next quarter analysts' consensus</i>	6.065	5.066	5.237	9.098
	(0.53)	(0.43)	(0.43)	(0.87)
Observations	693	693	684	684
Adjusted R-squared	0.269	0.272	0.275	0.287
Industry-Year FE	YES	YES	YES	YES

Panel B. Bond Market Reaction to FVA Revisions

	(1)	(2)	(3)	(4)
<i>FVA</i>	-0.101			
	(-0.56)			
<i>FVA on Tangibles</i>			-0.326	
			(-1.03)	
<i>FVA on Intangibles net of GW</i>			0.673*	
			(1.68)	
<i>Revision of FVA</i>	0.472	0.334		
	(0.07)	(0.05)		
<i>Revision of FVA Tangibles</i>			0.371	0.087
			(0.42)	(0.11)
<i>Revision of FVA Intangibles</i>			13.01	17.30
			(0.93)	(1.25)
All previous bond controls	YES	YES	YES	YES
Observations	770	770	770	770
Adjusted R-squared	0.226	0.227	0.235	0.228
Industry-Year FE	YES	YES	YES	YES

Table 9: Additional Analyses

This table reports results of additional cross-sectional analyses. In Panel A, we examine the potential mediating role of managerial incentives in FVA measurement. We re-run our main specifications of *Gross Issuance*, and *Net Issuance* from Table 4, with the inclusion of an interaction term that captures deals for which managers are more likely to manipulate FVA measurement. In Columns (1) and (2) we include the variable *if_vesting*, an indicator variable set to one if the FVA relates to a deal that was completed in quarters when the managerial equity vests (89 deals), and zero otherwise. We then interact this with our FVA variable. In columns (3) and (4) we include *if_impairment*, an indicator variable switched on for 71 deals for which acquirers reported a goodwill and/or other intangible asset impairment over the three years after the deal, and zero otherwise. We then interact this variable with FVA. In Panel B we examine the impact of internal control weaknesses and auditor changes on FVA. In columns (1) and (2) we include an indicator variable *if_ICW* which is switched on for 41 deals whose acquirer reported an internal control weakness during or within two fiscal years prior to the deal completion. We then interact this with our FVA variable. In columns (3) and (4) we include an indicator variable, *if_auditor_change*, which is switched on for 58 deals in which the acquirer changed an auditor during two years preceding the deal completion, and interact this with our FVA variable. All specification include the same control variables as reported in Table 4. All variables are defined in Appendix B.

Panel A. Managerial Incentives for FVA Manipulation and Main Effects				
	(1)	(2)	(3)	(4)
	<i>Gross Issuance</i>	<i>Net Issuance</i>	<i>Gross Issuance</i>	<i>Net Issuance</i>
<i>FVA</i>	0.608** (2.25)	0.335** (2.67)	0.510*** (3.28)	0.242* (1.89)
<i>if_vesting</i> × <i>FVA</i>	-0.817** (-2.08)	-0.399* (-1.86)		
<i>if_vesting</i>	-0.001 (-0.02)	-0.043 (-1.63)		
<i>if_impairment</i> × <i>FVA</i>			-0.194 (-0.47)	-0.283 (-1.27)
<i>if_impairment</i>			-0.009 (-0.16)	0.031 (0.73)
All previous controls	YES	YES	YES	YES
Observations	197	197	488	488
Adjusted R-squared	0.389	0.231	0.428	0.163
Industry and Year FE	YES	YES		
Industry-Year FE			YES	YES

Panel B. Internal Controls, Auditing, and the Effects of FVA

	(1)	(2)	(3)	(4)
	<i>Gross Issuance</i>	<i>Net Issuance</i>	<i>Gross Issuance</i>	<i>Net Issuance</i>
<i>FVA</i>	0.508***	0.269**	0.501***	0.274**
	(2.75)	(2.45)	(2.80)	(2.22)
<i>if_icw</i> × <i>FVA</i>	-0.299	-0.363		
	(-0.49)	(-0.73)		
<i>if_icw</i>	0.005	0.049		
	(0.07)	(0.90)		
<i>if_auditor_change</i> × <i>FVA</i>			0.507**	0.349*
			(2.06)	(1.82)
<i>if_auditor_change</i>			-0.071	-0.010
			(-1.05)	(-0.22)
All previous controls	YES	YES	YES	YES
Observations	375	375	488	488
Adjusted R-squared	0.407	0.190	0.439	0.189
Industry-Year FE	YES	YES	YES	YES

Table 10: Robustness Tests

This table reports results to several sensitivity tests. In Panel A we re-run our main specifications of Gross and Net Issuance from Table 4, with the inclusion of an interaction term that captures lender characteristics. In Columns (1) and (2) we include the variable *public lender*, an indicator variable for the top quintile bond issuance (i.e. 76 deals), zero otherwise. We then interact this with our FVA variable to capture whether our results are stronger for public debt issuance. Columns (3) and (4) we include a measure of previous loan relationship assigned a value one if the current lead arranger was a lead arranger for the same borrower in a previous deal, and zero otherwise. We then interact this variable with FVA to capture whether our main results are attenuated for lenders with a previous lending relationship. All specifications include the same regressors as our main tests, and all control variables are defined in the Appendix. Panel B reports results sample means of our issuance variables (i.e. debt issuance over three years post-deal, scaled by acquirer assets) for a matched sample of our acquisition method deals to deals completed under the Pooling method allowable pre-SFAS 141. We use propensity score matching procedure with no replacement and caliper of 0.1. The first stage logit includes the following matching characteristics: Deal (Target assets, Cash deal proportion, Target to acquirer assets ratio, Cross-industry indicator), Post-deal t=0 (Size, B/M, Profitability, Leverage, Cash balance, Number of M&A deals in the year), pre-deal debt issuance and industry FE. All continuous variables are balanced, i.e. the variables' means of the matching and matched subsamples are not statistically different from each other. We define "High" FVA as those above the within-sample median FVA of 0.008.

Panel A. Lender sophistication and relationship lending

	(1)	(2)	(3)	(4)
	<i>Gross</i>	<i>Net</i>	<i>Gross</i>	<i>Net</i>
	<i>Issuance</i>	<i>Issuance</i>	<i>Issuance</i>	<i>Issuance</i>
<i>FVA</i>	0.471***	0.309**	0.598*	0.442**
	(2.80)	(2.60)	(1.79)	(2.21)
<i>Public lender</i> × <i>FVA</i>	0.381	-0.098		
	(1.57)	(-0.63)		
<i>Public lender</i> (<i>Yes=1</i>)	0.135*	0.222***		
	(1.89)	(5.53)		
<i>Prior relationship</i> × <i>FVA</i>			-0.025	-0.160
			(-0.09)	(-0.85)
<i>Prior relationship</i> (<i>Yes=1</i>)			0.072	0.065
			(1.01)	(1.45)
Other control variables	YES	YES	YES	YES
Observations	488	488	315	315
Adjusted R-squared	0.467	0.258	0.491	0.200
Industry-Year FE	YES	YES	YES	YES

Panel B. Matched Sample: Pooling vs. Acquisition Method

Variable	N	FVA sample deals	matched pooling of interest deals	difference	significance
1+2+3yr Gross Debt Issuance					
High FVA	41	1.239	0.609	0.630	***
Low FVA	41	0.291	0.365	-0.065	
Total	82	0.765	0.487	0.278	**
1+2+3yr Net Debt Issuance					
High FVA	41	0.154	0.105	0.049	
Low FVA	41	0.035	0.041	-0.006	
Total	82	0.094	0.073	0.021	