Fair Value Accounting and Debt Contracting: Further Evidence

Abstract

We examine how debt contracting design is affected by fair value accounting through modification of covenant definitions in private debt contracts. Prior research reports that a small proportion of lenders remove the effects of fair value accounting by modifying covenant definitions. We refer to these clauses fair value exclusion clauses (FVC). We examine the incidence of FVC in private lending agreements after the introduction of SFAS 159 and use an independently collected sample to replicate the results prior research over an extended time period. We find that just over 40% of private debt contracts contain a FVC between 2008 and 2017. Controlling for lead-lender and time effects, we find that firms that are more likely to engage in hedge accounting and contracts with liquidity covenants are less likely to have a FVC, whereas contracts with a revolving line of credit are more likely to contain a FVC. These results suggest that fair value exclusions are positively associated with agency problems in fair value accounting while negatively associated with benefits attributed to fair value accounting. Further examination suggests that lenders are more concerned about the effects of fair value estimates on earnings rather than the quantity of unreliable fair value estimates. Despite widespread concern that a lack of reliability makes fair value accounting problematic for contracting, our results indicate that lenders often find it useful, even when borrowers have only level three inputs.

Keywords: Fair value accounting; debt contracting; incomplete contracting; accounting based covenants; SFAS 159; ASC 825.

1 Introduction

The usefulness of fair value accounting (FVA) has been a topic of significant debate and discussion amongst standard setters and academics for at least four decades (e.g., see Gjesdal 1980). The 2008 Global Financial Crisis drew attention not only from accounting regulators such as the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB), but also from politicians in the US Congress and the European Commission (Laux and Leuz 2009). Advocates of fair value accounting suggest that it is useful for equity valuation, as changes are recognised in a timelier manner, thus providing more useful information for investors (e.g. Penman 2007). By contrast, critics of FVA argue that it lacks conservatism, verifiability and reliability - critical features of accounting information used for contracting and stewardship purposes (e.g., Holthausen and Watts 2001; Kothari et al. 2010).

The objective of this paper is to examine empirically how the recently expanded use of FVA affects debt contracting practices. In particular, it revisits and extends prior research by Demerjian et al. (2016) on the relationship between accounting-based debt covenants and opt-outs of the fair value accounting requirements laid out in SFAS 159 (now ASC 825). This important standard allows entities to apply fair value accounting to an expanded set of balance sheet items.

Fair value accounting can be problematic in financial contracting (such as debt contracts and executive compensation contracts) because although fair value-based estimates can be highly relevant to equity investors, they can be difficult to verify and may lack reliability for contracting purposes, particularly when mark-to-market is not available (i.e., where level 2 and level 3 inputs are required). Verifiability is regarded as a critical component of information in incomplete contracting theory when accounting-based covenants act as triggers for a shift in control rights from borrowers to lenders (Watts 2003). Since different

'states of the world' are difficult to contract upon, accounting numbers can be valuable since they are typically independently verified by auditors, prepared according to agreed-upon measurement rules in advance, and thus help capture the current state and/or performance of the firm for deciding where control rights lie.

Christensen et al. (2016) suggest that making the allocation of control rights contingent on highly subjective measures such as fair value estimates is tantamount to not contracting on accounting information. For instance, if fair value-based asset values are inflated, this may lead to inflated measures of performance and a failure for covenants to be breached when they should. Consistent with this view, Demerjian (2011) reports a sharp decline in the use of balance sheet-based covenants between 1996 and 2007. Over the same period, income statement-based covenant usage remained almost unchanged. He argues that this is due to standard setters' shift towards the "balance sheet approach" and increased use of fair value, which has led the balance sheet to be less useful for contracting. In contrast, around the same time, Christensen and Nikolaev (2012) reported a similar trend, but they then find a sharp *reversal* of capital (i.e., balance sheet-based) covenants between 2008 and 2010. One possible explanation for this change is that fair value estimates can easily be excluded from covenant calculations through tailored non-GAAP numbers being used as the accounting inputs to the covenant calculations.

Demerjian et al. (2016) report that 14.5% of loan contracts exclude fair value figures after the introduction of SFAS 159, although interestingly, these related almost entirely to fair value accounting for liabilities – a finding attributable to the problems created by the problems induced by own credit risk in this context. What is unclear, however, is the extent to which these results change over time as lenders get the chance to adapt to the change in accounting measurement created by SFAS 159. Day and Taylor (1995) found that accounting definition in debt contracts is strongly legalistic and highly standardised rather than economic, which

suggest that contracting mechanism can be slow in adaptation. Demerjian et al. (2016) used four years of sample subsequent to the passage of SFAS 159, an extension of sample period provides insight on how contracting mechanism evolve over a longer period of time.

In this paper, we aim first to replicate, and then, to extend the analysis of Demerjian et al. (2016). We conduct a series of analyses. The first examines whether financial covenant usage changes systematically after the introduction of the fair value standard, SFAS 159. The assumption is that if the expanded use of FVA reduced the usefulness of accounting numbers for contracting, we should observe a decline in debt covenant usage after SFAS 159 adoption. Although this question has been examined by Demerjian et al. (2016), their sample ceases in 2012, only 4 years after the introduction of SFAS 159. Because the typical duration of a loan is around 4-5 years, it is possible that the full effects of the new standard had not been felt at the time of the analysis of Demerjian et al. (2016).

Using a sample of private lending agreements collected and analysed via a Python script applied to the US SEC EDGAR database for the period 2005-2012, we observe a decline in overall financial covenant usage. However, our evidence does not point to fair value accounting as a likely culprit for this change. In particular, for 'affected covenants', i.e., those largely based on balance sheet numbers, we observe no statistically significant change following the introduction of more fair value accounting numbers into financial statements, consistent with DDL.

Descriptively, we find that 25% of debt contracts include fair value exclusion clauses (FVC) between 2008 and 2012. This is substantially higher than documented in prior research, particularly the 14.5% reported by Demerjian et al. (2016). However, this average masks important changes over time. We document an increasing trend in FVC over the duration of our sample period. This suggests that contracting parties adapt over time to accounting standards changes. An alternative explanation for this finding is an increase in

overall covenant usage. However, we find a decreasing trend in both debt contracts with covenants and the average number of covenants in debt contracts. We also find very few instances where the borrower enters into a debt contract with a FVC but does not then have one in the following contract. This evidence points to a 'stickiness' or inertia effect.

In our second analyses, we re-examine the factors associated with the inclusion of a FVC in debt contracts over the period between 2008 and 2012. Consistent with Demerjian et al. (2016), we find partial support for the idea that borrowers with more opportunity to manipulate their fair value estimates are more likely to have a FVC. Debt contracts featuring a revolving credit facility are 6% to 10% more likely to have FVC, as borrowers can time their fair value election by drawing on the revolving line of credit. Revolving line of credit is different from term loans, as term loans meets the cash flow characteristics of financial instrument at initiation, while revolver does not meet unless used upon.

The evidence of Dermerjian et al. (2016) suggests that there are circumstances where the expanded use of fair value accounting can provide useful information in debt contracting. One of the main objectives of SFAS 159 is to simplify hedge accounting and we also find that borrowers in industries that engage in hedging activities, are 4% to 6% less likely to include a FVC in their debt contracts, consistent with Demerjian et al. (2016). Fair value accounting can also provide useful information on borrowers' liquidity positions, by revealing the exit value for short-term assets and liabilities. We find that borrowers with debt contracts with liquidity covenants are less likely to opt out of fair value accounting via a FVC, consistent with Demerjian et al. (2016). Importantly, despite the significant concerns about fair value accounting being unsuitable for debt contracting due to a lack of reliability and/or verifiability (Holthausen and Watts 2001), we do not find that borrowers with above median unreliable fair value estimates are more likely to receive FVC. We also find no evidence that contracts with performance pricing provisions are more likely to exclude fair value accounting.

In addition to DDL's hypotheses, we expect lenders to be more concerned for potential effects on earnings from fair value estimates rather than the quantity of level 2 and level 3 fair values. This is because of the paradoxical impact of negative shocks to borrowers sometimes manifesting themselves in increases in their equity. This arises where negative credit shocks increase borrowers' discount rates, which - ceteris paribus - reduces borrowers' liabilities and increases their equity. In principle, this should not be problematic because the effects of negative shocks on discount rates for fair values for assets and liabilities should offset each other. The important assumption that both fair value assets and liabilities are equal and have the same discount rate. When borrower credit quality worsens, the loss in earnings from impaired fair value assets should neutralise the gain in earnings from impaired fair value liability. We find that borrowers with high levels of fair value assets compared to liabilities are less likely to include FVC in the contract. This may suggest that lenders are less concerned with the fair value effect on earnings if the potential loss from impaired assets is larger than potential gain from impaired liability. Lastly, prior fair value literature also suggest that lenders are concerned with the reliability of fair value. We examine this issue by examining borrowers with only level three fair value assets and/or liability and we do not find that this is the case.

Overall, our additional analysis suggests that there are instances when fair value accounting can be harmful to the debt contracting process i.e. potential effects on earnings. Removing the flexibility of fair value accounting in covenant calculations suggest that lenders may be concerned with the quality of borrowers' accounting signals (Christensen et al. 2016). In other instances, our level 3 fair value results also support the view that fair value accounting provides useful information to lenders.

This paper contributes to the accounting literature in two important ways. First, by focusing on a unique feature (FVC) in debt contracts, this paper contributes to the line of

literature on the implication of FVA. Second, we contribute to the covenant modification literature by providing further evidence of lenders removing accounting characteristics that is undesirable for contracting. We complement Demerjian et al. (2016) by replicating and extending their findings, by examining systematic time effects and lead lender effects, as well as providing a reproducible data collection method. Our findings reinforce the view that contracting parties can adapt to potentially adverse changes in accounting measurement rules, consistent with Frankel et al. (2008). The fact that a majority of firms still choose to include fair value accounting estimates suggests it can both be beneficial and harmful to the contracting process. We also show that fair value exclusion clauses are potentially sticky, but that it takes time for lenders to include the effects of new accounting standards changes in their contracts.

2 Prior Literature

2.1 Debt Covenants and Corporate Governance

The link between accounting information and financial contracting originates in agency theory. When firms are in need of extra capital, there are two principal sources of outside financing: equity or debt. Equity investors have unlimited upside gains, whereas downside losses are limited to their original capital contribution. However, debt holders have fixed upside potential (i.e., the principal loan amount and interest), while sharing the same potential downside losses as equity investors. The 'archetypal' agency costs are seen in equity financing, where shareholders provide the majority of funds and where management may engage in inefficient activities. These costs can be ameliorated by performance-linked managerial compensation packages, designed to align the interest between shareholders and managers (Jenson and Meckling 1976; Lambert 2001; 2010). In the context of agency costs involved in debt financing, debt holders are vulnerable to the risk that managers and

shareholders expropriate creditors' wealth. These 'agency costs of debt' include overpayment of dividends; asset substitution, where borrowers use less risky assets to receive favourable credit terms, but use the proceeds to engage in risky projects for higher returns; and claim dilution, where borrowers grant additional claims to the existing pool of assets, without sufficient assets to support it (Smith and Warner 1979; Armstrong et al. 2010). The main assumption in these analyses is that capital providers are also rational investors, who are aware of these conflicts of interest, and who protect themselves against these agency costs via higher prices and more stringent non-price contractual terms. According to this theoretical perspective, borrowers subject themselves to covenants in debt contracts in order to benefit from more favourable terms when they limit their own opportunistic actions and align incentives with lenders through lending agreements.

An important limitation of agency theory is that it assumes that the decision power and opportunism always lie with the borrower. It also takes the capital structure – the balance of equity and debt - as given and does not consider lender opportunism or the role of renegotiation (Christensen et al. 2016). The more recent theory of incomplete contracting extends the literature by addressing these issues and thus helping to explain the demand more fully for, and nature of, accounting based covenants (Roberts and Sufi 2009). The main assumption here is that contracts are incomplete at initiation since it is costly and difficult to include all states of nature and all possible contingencies. Future states are also uncertain, can be difficult to verify and are not easily enforceable in a court of law (Watts 2003). But the lack of specificity at contract initiation creates scope for the so-called 'holdup problem', where borrowers are aware that the commitment to contracts could lead to increased bargaining power of the lender, which in turn, may lead to underinvestment (Hart 2017). One possible solution to this problem is for cash flow rights and control rights to be treated as separate contracting instruments (Aghion and Bolton 1992). Owners can use cash flow rights

(i.e., dividends and/or interest) to attract capital investors, and since it is difficult to align incentives *ex ante*, the allocation of decision rights then becomes a key part of the contracting process.

To resolve the hold-up problem, Grossman and Hart (1986) suggest allocating control rights to the contracting party with the most firm-value maximising incentives. Accordingly, when the borrowing firm is performing well, management should remain in control. This is because, firstly, lenders are only concerned with maximising the value of fixed claims instead of firm value, and when given control rights in this state, they may choose to liquidate the project when continuation is more efficient. Secondly, under US corporate law, when a creditor exercises control over a firm, it loses its limited liability (Bratton 2006). This liability risk means that creditors are unlikely to seek direct control when the firm is performing well. However, if the firm is performing sub-optimally, control rights should be assigned to creditors, since they are entitled to a portion of future cash flow, they have an incentive to maximise firm value. This transfer in control rights is dependent on contractible signals that summarise non-contractible future states and Aghion and Bolton (1992) suggested that future profitability measured by expected future cash flow is the natural signal. They argue that debt financing with accounting-based covenants represents the optimal contract design with state contingent allocation of control rights. This allows owners to enjoy monetary and non-monetary benefits while offering adequate protection to debt investors. Since contracts are incomplete *ex ante*, and thus inefficient at contract initiation, accounting based covenants establish the point of disagreement. Renegotiation *ex post* can help restore efficiency by incorporating into the new information in the original contract.

There are two main types of covenants: affirmative and negative (e.g., Bratton 2006). Affirmative covenants set out the actions that the borrower must take, such as provide notice of material events and deliver certificates of compliance. On the other hand, negative

covenants are the actions that the borrower must avoid taking, such as a negative pledge, which prevents the borrower from any taking additional debt that could threaten the original priority claim (Wight, Cooke and Gray 2009). Negative covenants directly constrain managers' actions and protect lenders from agency costs. In addition, financial covenants (also referred to as "maintenance covenants") require the borrower to maintain a predetermined level of performance, measured by a particular financial ratio, over the duration of the loan (Christensen et al. 2016).

Consistent with incomplete contracting theory, Roberts and Sufi (2009) find that in 82% of private credit agreements, renegotiation occurs without covenant violation or payment default. Renegotiations are often triggered by changes in macro-economic conditions, changes in credit and equity market conditions, and both improvement and decline in borrower credit quality. Nini et al. (2012) also suggest that creditors exert influence over management in anticipation of a state of default. They report that after covenant violations, creditors' interference improves operating performance and equity valuation. This is consistent with incomplete contract theory, where covenant violation is the point of renegotiation and represents the signal for an optimal shift in control rights. When a firm's performance is suboptimal, creditors impose even stricter control over governance of the borrower, as it is here that they have the most incentive to monitor, which in turn benefits shareholders. Similarly, Nini et al. (2009) report that lenders are more likely to impose capital expenditure restrictions when borrowers' credit quality deteriorates, and this in turn yields positive effects on borrowers' equity valuations.

An important feature of the use of accounting information in debt covenants is that accounting measurement rules often differ from GAAP measurement. For instance, definitions of accounting variables and ratios in covenants are typically modified to restrict management's scope to avoid covenant violation through inappropriate accounting methods.

Citron (1992a) found that UK private debt contracts frequently modify the definition of net worth, borrowing and interests to a more conservative manner, by restricting opportunistic changes of accounting methods. Li (2016) also reports that in debt contracts, profits are often measured in a way that excludes the effects of investment.

As discussed above, a major reason for excluding certain measurement rules is because GAAP numbers may include figures that are difficult to verify, with intangibles being a good example. Watts (2006) suggests that because goodwill is less verifiable, lenders tend to exclude it since allowing goodwill changes may affect covenant compliance and thus increase agency costs. Alternatively, Frankel et al. (2008) found that if allowing goodwill changes trigger or relax covenant compliance, contracts use *tangible* net worth covenants instead of (total, or GAAP) net worth covenants, since tangible net worth bypasses, or avoid, goodwill adjustments. Nevertheless, Frankel et al. (2008) still find many instances where goodwill is included in net worth definitions, suggesting that there are some cases where the lack of verifiability is offset by the informativeness of intangibles in capturing future profits and cash flows.

In sum, prior literature shows that accounting-based covenants represent an important contracting device to resolve conflicts between debt and equity capital providers. However, over time, this important role for accounting information has been emphasised less by accounting standard setters. The following section discusses this issue in more detail.

2.2 Fair value, past and present

2.2.1 Balance sheet approach

The origins of fair value accounting can be traced back at least as far as the Savings and Loan crisis in the US in the 1980s, where market values of banks' assets fell below their liabilities (Ball 2008). Yet these banks continued to operate since their assets were recognised

in historical cost, and thus were solvent according to their reported numbers. By the mid-1990s, $500 billion of assets had failed and cost US taxpayers an estimated $124 billion - a situation aggravated by untimely impairment recognition (Curry and Shibut 2000). Between 1978 and 2000, the US Financial Accounting Standards Board (FASB) placed more emphasis on setting the conceptual foundation of accounting measurement by releasing seven concept statements, which provided important guidance in shaping accounting standards (Dichev 2017). Within its conceptual foundation, the FASB had set the primary objective of financial reporting as equity investment and the main users as equity investors (e.g., Barth et al. 2001). Since a primary use of accounting numbers was to provide inputs to equity valuation models, the valuation of assets and liabilities became the principal focus of accounting standards (e.g. Cascino et al. 2014).

This trend is referred as the "balance sheet" approach, where determination of assets, changes to them and claims on those resources became the key element, while income statement subsequently became the secondary concern (Penman 2007; Dichev 2017). In the extreme form of the balance sheet approach, market prices are used as benchmark for value in company accounting, and the income statement captures the net changes in fair value gains and losses. Valuation under historical cost requires estimation of future earnings as well as required return. On the other hand, valuation under 'ideal' fair value accounting assumes that the book value of both assets and liabilities are measured at market price, hence estimation of future earnings is not required (Scott 2003). However, US GAAP, like IFRS, sometimes permits 'dirty surplus' accounting flows which allow balance sheet adjustments to bypass the income statement directly to equity through recognition in other comprehensive income. Demerjian (2011) suggests that the exclusion of dirty surplus item allows the income statement to better represent the current performance of the firm. He further indicates that because the stewardship function often lies with the balance sheet, dirty surplus items are

reported in the balance sheet as they could be informative about the net asset value of the firm.

2.2.2 Introducing SFAS 159

The FASB issued Statement of Financial Accounting Standards No 157 (SFAS 157) "Fair Value Measurement" in September 2006, and it set the framework and increased the disclosure requirement for recognising assets and liabilities at fair value. SFAS 157 classifies fair value measurement in three levels, ranging from quoted prices from active market (level 1) to measurement using significant unobservable inputs (level 3). Level 1 and 2 are considered 'marked to market accounting' whereas level 3 is considered 'marked to model accounting', as it is based on managerial assumptions, and internal valuation models. Within six months of SFAS 157 being issued, FASB issued SFAS 159 "The Fair Value Option for Financial Assets and Financial Liabilities", which permits entities to choose to measure an expanded set of financial instruments at fair value, effective from November 2007. This fair value option only applies to individual financial instruments and once elected, the decision is irrevocable, unless there is a change in business combination or significant modification of debt. In 2009, the FASB renamed SFAS 157 and 159 ASC 820 and ASC 825 respectively.

2.2.3 Fair Value and Valuation

Proponents of fair value accounting argue that it is more timely, since prices can provide the most up to date information about the value of assets and liabilities (Barth 1994, Penman 2007). This timeliness makes FVA more relevant in assessing firms' current performance, compared with historical cost accounting. FVA is also in line with the FASB's move towards a more principles-based standard. When applied to financial instruments, fair value accounting reduces the complexity of financial reporting, such as hedge accounting

(Landsman 2007). Barth (1994) finds that the fair value of banks' investment securities is more relevant to investors compared with historical cost. Barth (2006) argues that the purpose of financial reporting is not earnings prediction, but its ability to predict future cash flows. She further contends that incorporating more relevant estimates provides more useful information to users for that exact purpose.

Fair value accounting can increase transparency and encourage users to make more timely decisions. Laux and Leuz (2009) argue that HCA could have made the global financial crisis potentially worse by incentivising 'gains trading'. Since a decline in value is not recognised unless sold under HCA, financial institutions have no incentives to sell undervalued assets and liabilities, as this would affect their statutory equity capital. Financial institutions would instead sell assets with the largest unrealised gains to raise their net income; such gains trading could continue for many periods and may worsen the transparency problem (Ryan 2008).

Banks and financial institutions, in theory, stand to benefit most from fair value accounting, since the majority of their balance sheet is composed of investment securities, financial instruments and derivatives. Prior to FAS 115 in 1993, assets generally could not be revalued upwards. FVA allows changes in the underlying marketable investment securities to be recognised and since these securities trade in secondary markets, market value is a better measure of liquidation value than HCA (Kothari et al. 2010). Barth (1994) finds that the average difference between book value and fair value is around 56% of the market value of equity, suggesting that fair value has additional explanatory power beyond what is provided by historical costs. Nissim and Penman (2007) find that financial instruments are approximately 90% of reported assets and almost all reported liabilities for bank holding companies. They also conclude that the expanded application of FVA is unlikely to improve accounting quality, as it does not fully account for economic assets and liabilities due to errors

and biases in measurement.

Critics of FVA suggests that it caused excessive write downs during the financial crisis. Banks are alleged to have been forced to sell their assets in illiquid markets below their fundamental price; these prices in turn becomes relevant for other banks and financial institutions, causing them to also write down similar assets (Laux and Leuz 2010). However, Ball (2008) argues that FVA is not to blame. He suggests two fundamental factors that led to undervalued balance sheet: uncertainty and the decline in credit quality, which subsequently led to a reduction in expected future cash flow and sharp increase in discount rates. He concluded that managers of financial institutions were to blame, since it was them who invested heavily in mortgage-backed securities in exchange for high leverage, creating a risk that ultimately did not pay off.

2.3 Fair Value and Debt Contracting

Verifiability is a key element in incomplete contract theory since the incompleteness at contract initiation is due to future states being difficult to verify and describe in a way for the contract to be enforceable in a court of law. Contract efficiency is improved through the use of accounting-based measures because accounting information is verifiable and therefore the signals it provides are contractible. Note that the value of accounting information here does not arise because of its information content (Christensen et al. 2016). Christensen et al. (2016) indicate that if control allocation is based on highly subjective accounting measures, then the purpose of accounting-based covenants is lost. This is consistent with the principles of conservatism, which require more verification for recognising gains than losses (Watts, 2003). Watts (2003) further states that the demand for conservatism is due to managers having limited tenure and liability, so a lack of verifiability in estimates presents an opportunity for exploitation. Kothari et al. (2010) suggest that the unconditional

conservativism in accounting standards originates from debt holder demands that balance sheets should reflect the liquidation value of assets. Nini et al. (2012) find that firms have more conservative financial policy and investment policy after breaching accounting covenants, confirming the idea of strong demand for accounting conservatism by lenders.

Under agency theory, the quality of accounting measures depends on its ability to capture managers' effort, as managerial compensation can align incentives *ex ante*. Under incomplete contract theory, quality of accounting signal also depends on how well it captures future states *ex post*. The main concern with FVA is over its potential lack of reliability in measurement for assets and liabilities in illiquid markets, i.e.: level 2 and 3 fair value. Managers are best placed to estimate the 'true' economic value of the underlying financial asset or liability, and in the absence of a secondary market, they are the ones charged with making such estimates. But as a consequence of this, fair values based on internal measurement models may be prone to manipulation, leading to increased information asymmetry between contracting parties. Landsman (2007) suggests that the solution to this problem is to require extensive disclosure of the underlying assumptions. However, the level of aggregation in many large companies' financial statements is likely to make this prohibitive. Aside from managerial manipulation, Barth (2004) also suggest that measurement error in the fair value of assets and liabilities can lead to fair value deviating from its true economic value, while Landsman (2007) – usually a proponent of fair value – concedes that when estimates are incorporated into fair values, informativeness declines.

Another of the main criticisms of fair value accounting is that it merely reflects the transitory shocks to the financial statements (Holthausen and Watts, 2001). Dichev (2008) suggests that market prices are unpredictable, hence mark to market earnings will also be volatile. He further indicates that the balance sheet approach leads to less informative earnings, as its predictive power declines. He argues that predicting future changes in net

assets is less useful than recurring earnings and simply reflects noise. In support of this, the survey conducted by Graham et al. (2005) shows that earnings is the most important metric reported to outside investors; moreover, managers prefer smooth and persistent earnings because (a) it is more useful to predict future earnings, and (b) outside investors might (mis)interpret volatile earnings as risk. Ball (2016) echoes this view, suggesting that a reduction in earnings usefulness renders it a poor predictor for future debt servicing capacity, especially for longer-term debt. Interestingly, Li (2016) finds that EBITDA, not net income (or GAAP earnings) is the typical performance measure used in earnings-based covenants, although it is less useful than EBIT or bottom-line earnings in explaining changes in credit risk. He suggests that EBITDA is used by lender in contracts in order to focus on operating activities, rather than on investing activities.

A less appreciated criticism of fair value accounting in the context of its use in debt contracting is the effect of recognition in changes in the fair value of liabilities, as highlighted in the case study of (Lipe 2002). When a firm experiences negative shocks, discount rates increase, and as a consequence, *ceteris paribus*, the fair value of its liabilities *decreases*, since lenders may become wary of the firm's ability to meet its obligations. All else equal, this decline in liabilities (which, recall, originates in a *negative* shock) *improves* the firm's leverage and leads to an *increase* in firm's earnings. Users of financial statements would typically interpret this as a positive signal, when in fact it is very much a negative one. In the event that an interest coverage or leverage covenant is written on such information, this would have the counterintuitive – and problematic – effect that negative shocks will reduce the likelihood of firms breaching covenants. Ball (2016) emphasises that debt is not an agreement to repay at fair value, but at the historically contracted rate. He suggests that accounting-based covenants that act as trip wires becomes less effective if liabilities can be recognised at fair value when credit quality declines.

So far, there have been few empirical studies of the effects of standard setters' changes in accounting measurement on debt contracting. In an influential study, Demerjian (2011) examines covenant use in debt contracts arising from the increased emphasis by standard setters on the balance sheet, rather than the income statement. He reports a substantial decline in balance sheet-based covenants from 80% of lending agreements to 32%, between 1996 and 2007. Using a volatility measure consisting of book value and net earnings, he finds that borrowers with greater volatility are less likely have balance sheet-based covenants. However, during the same time period, the usage of income sheet-based covenants remained constant. Demerjian (2011) attributes this to the fact that balance sheet changes are recognised in other comprehensive income, suggesting that the balance sheet has become less useful for debt contracting parties.

2.4 Covenant Modification

One way of contracting parties adapting to changes in accounting standards that are inconvenient for contracting is to adapt the accounting measurement rules in response. Definitions are seen as the fundamental building block of covenants in credit agreements (Wight, Cooke and Gray 2009) and they are often modified to enhance the precision of accounting signals, as well as removing discretionary items that distort the state of the firm (Christensen et al. 2016). El Gazzar and Pastena (1990) find that lenders often tailor income-based covenants to convert equity-based income to cost based, since non-cash GAAP income does not reflect borrower's solvency risk. They also found that 62% of the sample tailors shareholders equity to exclude intangibles and goodwill, which is consistent with lender's accounting demand to be closer to a cash flow basis and more reliable.

On the other hand, the benefits from using standardised or "boiler plate" provisions include time and cost savings, as well as lower contracting costs (Kahan and Klausner 1997,

Day and Taylor 1998). This is because the validity and meaning of prior covenants had been interpreted and enforced by judicial courts, new covenants need to be reviewed and approved by the underwriter and its legal counsels which takes time and legal fees (Choi and Triantis 2012).

De Franco (2013) suggest the quality of legal counsel is lower due to the lack of familiarity and the uncertainty in regard to judicial opinion on the new provision. De Franco et al. (2011) also found that increased comparability reduces information acquisition cost of bond securities analyst. Using a sample of US public bonds, De Franco (2013) shows that covenant restrictiveness is explained largely by the borrower's prior use of the same underwriter and legal counsels. Similarly, private debt contracts in the Europe exhibit similar properties. Using a sample of private debt contracts of the 200 of the largest firms in UK, Moir and Sudarsanam (2007) show that choice of covenant inclusion only depends on the size and covenants are not tailored based on borrower's characteristics. They hypothesise that size as a measure financial strength and negotiating power while using the reputation of borrower to address for potential agency problems. Based on interviews with UK bank officers, Day and Taylor (1997) suggest the reduced contracting costs from standardisation is due to drafting efficiency and even for non-standard contract, they are sourced from a common basis. Their results echo this hypothesis where 70% of their sample exhibit some degree of standardisation. In sum, the covenants in the current corporate debt contracts have survived and are expected to be the "fittest", as prior literature suggest there is a systematic tendency to keep efficient contracting terms.

In response to an increased reliance by standard setters on the balance sheet, rather than the income statement, lenders are able to exclude some earnings and balance sheet components from contractual definitions. Li (2010) finds that no covenants use comprehensive income in place of earnings, and when net income is used in covenants, it

generally excludes transitory components. This is consistent with efficient contract theory, where debt contracting parties chooses more efficient variables depending on their usefulness for the contracting task.

More recently, and directly relevant to our study, Demerjian et al. (2016) examine the effects of an important US fair value accounting standard - SFAS 159 - on debt contract design. They observe that if contracting parties find fair value accounting to be problematic for contracting, then they should modify the definition of the accounting information to exclude it. For instance, if equity or profits are artificially inflated by increases in unverifiable and imprudent fair values, contracting parties should modify the measurement bases for assets and profits to remove fair values. In their analysis of contracts issued in the four years after the introduction of SFAS 159, however, they find that only a limited number of contracts exclude assets measured at fair value. In contrast, they find numerous examples of contracts excluding fair value effects in liabilities.

3 Research Objectives

3.1 Demerjian et al. (2016) Replication and Extension

In order to reassess the response of contracting parties to fair value accounting, our first aim is to re-examine the study of Demerjian et al. (2016) (henceforth DDL). using the same approach to measuring fair value exclusion clauses. We denote their measurement FVC_{DDL} and the aim of this measure is to get as close as possible to their results. We also compare their results using an expanded vocabulary for capturing FVCs, which we denote $FVC_{MCRL.}$[1] In this analysis, we use the same sample period as DDL, i.e., from 2008 to 2012.

Although we attempt to employ exactly the same vocabulary in our replication exercise, we note that the method of data collection is very different, hence we expect some

[1] The regular expressions we use and the differences in vocabulary we search for appear in Appendix A.

differences.[2] Secondly, we also re-examine the same model using a extended sample period between 2008 and 2017. If fair value exclusion clauses are efficient for contracting, we expect them to remain in contracts in future periods – and to be increasingly adopted over time. We therefore expect year effects to be significant and increasing over time.

The three main hypotheses tested by Demerjian et al. (2016) main hypotheses are:

$H1_{DDL}$: Debt contracts are more likely to exclude the effects of SFAS 159 if borrowers have greater opportunities to exploit the effects of fair value accounting.

$H2_{DDL}$: Debt contracts are more like to exclude the effects of SFAS 159 if borrowers have greater incentives to manipulate fair value estimates.

$H3_{DDL}$: Borrowers who are more likely to be engaged in hedging activities or have debt contracts with liquidity covenants are less likely to have SFAS 159 effects excluded from their covenants.

The idea behind $H1_{DDL}$ is that revolving lines of credit must meet the contractual cash flow characteristics criteria and the probability of exercise is deemed not remote in order to be elected fair value. This means that the timing of fair value election for revolving line of credit can be exploited, unlike other types of loan commitment, such as term loan, where fair value election must be at initiation. Secondly, level 2 and 3 fair value estimates are less reliable that market-based level 1 fair value and also because model inputs are only known internally within the firm.

In respect of $H2_{DDL,}$ performance pricing provisions (PPPs) are often used in conjunction with accounting-based covenants, with the same accounting ratio as the basis for determining the interest rate. The idea behind PPPs is to incentivise credit improvements via the possibility of lower interest rates when accounting ratios improve; accounting based covenants then handle the credit risk deteriorations (Beatty et al. 2002). SFAS 159 has the potential to affect the denominator of the typical PP measure, i.e., debt/EBITDA.

[2] Difference in data collection method is explained in section 4.1.

Finally, in the case of $H3_{DDL}$, the objective of SFAS 159 is to achieve consistent accounting, without the application of complex hedge accounting provision. The previous accounting standard, FAS 133, "Accounting for Derivative Instruments and Hedging Activities", required entities to identify fair value hedging relationships and only derivatives could be used as hedging instruments (FASB 2007). SFAS 159 allows entities to elect the fair value option to the hedged item at its inception, providing greater simplicity in the application of accounting guidance. Guay and Kothari (2002) find that risk management activities such as operational hedges substantially increase firm value. This suggests that fair value accounting could improve accounting numbers in reflecting firm risk, which would be of interest to capital providers, especially debt providers. Furthermore, fair value accounting could improve the information content of accounting number in reflecting borrowers' liquidity by providing information on exit values of both assets and liabilities.

3.2 Extending Demerjian et al. (2016)

In this sub-section, we develop additional hypothesis to further complement the findings of DDL. DDL (2016) argue that, if borrowers have an above median value of level 2 and 3 fair value assets (as a proportion of total fair value), they are more likely to include a FVC due to lenders' reliability concerns. However, we expect lenders to be more concerned with how fair value affects earnings, proxied by the (net) sum of fair value assets and liabilities. Assuming that a borrower has an equal amount of fair value assets and liabilities and the same discount rate for both assets and liabilities,[3] when its credit quality worsens, the amount of both fair valued assets and liability should decline in a way that one perfectly offsets the other. Impaired fair value assets cause a loss in the income statement when discount rates increase,

[3] Irwin T. Vanderhoof, Edward Altman, (1998), The Fair Value of Insurance Liabilities, Page 341

and this should offset any gain from impaired liabilities. If the borrower has more fair value assets than liabilities, the loss caused by impaired FV assets will be greater than the gain caused by impaired FV liabilities.

Prior literature suggests that lenders are mainly concerned with the gain in earnings associated with impaired liabilities (Lipe 2002). This does not mean if the borrower has no fair value liabilities prior to contract initiation, they will not opt out of fair value accounting via a FVC. This is because FVCs prevent current and future uses of fair value in covenant calculations. The lender cannot anticipate whether the borrower will exercise the fair value option in the future, such as via engaging in interest rate swaps agreement (level 2). The argument is that even if the borrower has marginally net positive fair value prior to contract initiation, the borrower may exercise the fair value option on new liabilities, resulting in net negative fair values within the maturity of the contract and hence increasing earnings in the case of borrower credit deterioration.

On the other hand, if the borrower has high levels of net positive fair value, any future fair value deterioration in liabilities would be neutralised by existing fair value assets. The main assumption is that the discount rate for both liabilities and assets would increase. In other words, if the borrower's credit quality worsens after contract initiation, the loss by impaired assets will always offset the gain in current or future impaired liabilities. Therefore, our first hypothesis is:

H1: *Borrowers with high level of **net** positive level 1, 2 and 3 fair value are less likely to have a FVC in their lending agreements.*

Secondly, we examine the impact of syndicate structure on the use of FVC. When syndicate size is large, the lead arranger is more likely to suffer from the free riding problem.

This is when the informed lender is responsible for monitoring the borrower, while uninformed creditors just participate by committing capital but without participating in monitoring. In this case, a lack of effort from uninformed lenders could lead to underinvestment. Prilmeier (2017) suggests that adding additional covenants gives monitoring incentives to the lead arranger. If there is a sole lender rather than a syndicate of lenders, fair value monitoring is more likely to suffer from free riding problems. This prediction is not uncontentious, however. Etsy and Meggin (2005) indicate that more concentrated syndicates facilitate lower costs of renegotiation in the event of default. We therefore develop the following hypothesis.

H2: *Syndicate size is associated with the use of FVC in lending agreements.*

DDL (2016) report that the use of affected covenants, which are financial covenants that could be impacted by the adoption of ASC 825, did not change after the adoption. They found that the results for their three hypothesises are stronger when the sample is restricted to contracts with affected covenants. However, they did not directly test whether debt contracts with affected financial covenants are more likely to include FVC. This provides an opportunity to do so.

Finally, DDL argue that because fair value levels 2 and 3 are unreliable, managers can manipulate fair value estimates-based via their valuation assumptions. They further indicate if borrowers have high levels of unreliable fair value, it provides borrowers with greater opportunities to manipulate their accounting figures. If lenders are concerned about the reliability of fair value, they should be more concerned with level 3 fair value, which is based on unobservable inputs and therefore less verifiable than level 2 fair value. Borrowers with 100% level 3 fair values are where there would seem to be a highest risk of manipulation.

Therefore, our third and final hypothesis is:

H3: *Borrowers with 100% level 3 fair values on their balance sheet are more likely to have a FVC in their lending agreements.*

In the following section, we set out the data collection and analyses methods we use to test the above hypotheses.

4 Data

4.1 Data sources and sample construction

We employ three main datasets to address our hypotheses and research questions. The first involves the collection of data on whether firms choose to opt out of fair value measurement in their debt contracting. Since such data is not available from standard databases, we do this by searching for references in private lending agreements in SEC EDGAR to the US accounting standard on fair value: SFAS 159, relabelled ASC 825.

Material financial contracts such as credit agreements are available in 'exhibit 10' of Securities Exchange Commission (SEC) filings, particularly 10K annual reports, 10Q quarterly reports and 8K current reports for corporate material events (and their amendments), respectively. We develop a Python script to examine these filings to find the loan contracts themselves, the SFAS 159 exclusions within them, as well as the contract initiation date. Since it is necessary to download all filings (circa 1.5 million text files) in order to search for the contracts and terms within them, we employ the University of Bristol Advanced Computing Research Centre facilities.

We initially codify fair value exclusion clauses using the five key terms used by DDL (2016). However, in our attempt to reproduce their study, we must use a different way of

retrieving the filings. This is because *10-K Wizard employed* DDL (2016),[4] also called Morning Star Document Search, which was discontinued in 2015.

After we download all Forms 10K, 10Q and 8K using a Python script to remove HTML and XBRL tags,[5] we design and use a series of regular expressions to search for the desired key terms. FVC_{DDL} is a binary variable that equals one if it matches any of the original 5 key terms.[6] After inspecting a sample of contracts manually, we then expanded the potential key terms used to identify FVCs, generating a more inclusive measure denoted FVC_{MCRL}. This measure is based on a more comprehensive vocabulary list. For example, the following extracts is taken from a debt contract that includes a FVC.

> "*Notwithstanding any other provision contained herein, all terms of an accounting or financial nature used herein shall be construed, and all computations of amounts and ratios referred to herein shall be made (i) without giving effect to any election under* ***Accounting Standards Codification 825-10-25 (previously referred to as Statement of Financial Accounting Standards 159)*** *(or any other Accounting Standards Codification or Financial Accounting Standard having a similar result or effect) to value any Indebtedness or other liabilities of the Borrower or any Subsidiary at "fair value", as defined therein…"*[7]

For our second data set, we obtain details of credit agreements through Thomson Reuters Loan Pricing Corporation (LPC) Dealscan database. In this database, credit agreements are referred as "packages" and can contain one or more tranches, i.e., "facilities".

[4] Note that the 10-K Wizard also allows searches for Forms 8K and 10Q.
[5] We gratefully acknowledge Andy Leone for providing the original code in Perl, and Tie de Kok for Python guides, as well as colleagues in the University of Bristol Advanced Computing Research Centre for excellent research software support.
[6] Both regular expressions and the key terms they search for are given in Appendix A.
[7] https://www.sec.gov/Archives/edgar/data/62234/000114420416117722/v445647_ex4-1.htm

Details of financial covenants and net worth covenants are merged through "packageid", while lender information and performance pricing information are merged through "facilityid". Ultimately, all variables are constructed on the package level.

Finally, we obtain borrowers' firm level accounting data from Standard and Poor's (S&P) COMPUSTAT. We merge firm data with loan contract data using the Chava and Roberts (2008) linking table. We merge SFAS 159 data and contract data using the SEC Central Index Key (CIK) and contract initiation date, with the latter being retrieved from the first page of the lending agreement. The final sample contains 4,785 private credit agreements and 2,175 unique borrowers between 2008 and August 2017.

4.2 Empirical Models

To examine DDL's first test of whether financial covenant usage is affected by the adoption of SFAS 159, covenants based on balance sheet items are the most likely to be affected. Although earnings-based covenants are the most common financial covenant in syndicated loans (Li 2016), no earnings-based covenants use comprehensive income as an earnings concept and contracts often remove transitory components when defining income, by using measures such as EBITDA (Li 2010). Thus, the income statement may be less affected by fair value accounting since prior contracting features were already in place to focus on operating earnings and remove non-recurring components. Therefore, *AFFECTED* is a binary variable equal to one if the debt contract contains any of the following financial covenants: debt-to-EBITDA, senior debt-to-EBITDA, debt-to-assets, senior debt-to-assets, debt-to-equity, debt-to tangible net worth, net worth, tangible net worth, current ratio, and quick ratio covenants.

The change in financial covenant usage and affected covenant usage is tested using a similar probit regression model to Demerjian et al. (2016). The dependent variable is either

Financial Covenant or *Affected Covenant*, where the former equals one if the debt contract includes any financial covenants, while and the latter is explained above. The primary variable is *Post*, which is a binary variable equal to one if the debt contract initiated after SFAS 159 adoption date, 15th November 2007, and zero otherwise. We interpret a positive coefficient as an increase in covenant usage following SFAS 159 adoption, and *vice versa*. Consistent with DDL, we control for various firm characteristics including the size of balance sheet items eligible for fair value option, firm size, leverage, ROA, magnitude of firm's discounted future lease payments and whether a credit rating is available at contract initiation.

We also control for various contract characteristics, including nine binary variables for contractual features such as whether the contract contains a performance pricing grid, whether it includes a revolving loan, capital expenditure restriction, institutional tranche for contracts that include a term loan b or higher, any sweep covenant, dividend restriction, collateral (indicating whether the contract is secured) and the class of financial covenant used in the prior deal (balance sheet or income statement, Demerjian 2011). Syndicate size is measured as the number of unique lenders in the contract[8] and debt size is the deal (package) amount.

$$
\begin{aligned}
Covenant_{it+1} = {} & \alpha_0 + \beta_1 Post + \beta_2 Eligible\ FV\ Instrument_{it} + \\
& \beta_3 Performance\ Pricing_i + \beta_4 Revolver_i + \beta_5 Size_{it} + \\
& \beta_6 Leverage_{it} + \beta_7 ROA_{it} + \beta_8 Rating\ Available_{it} + \\
& \beta_9 Lease_{it} + \beta_{10} BS\ Covenant\ Prior\ Deal_i + \\
& \beta_{11} IS\ Covenant\ Prior\ Deal_i + \beta_{12} Syndicate\ Size_i + \\
& \beta_{13} Capex\ Restriction_i + \beta_{14} Institutional\ Tranche_i + \\
& \beta_{15} Sweep\ Covenant_i + \beta_{16} Dividend\ Restriction_i + \\
& \beta_{17} Colleteral_i + \beta_{18} Debt\ Size_i + \varepsilon_{t+1}
\end{aligned}
\qquad \textbf{(1)}
$$

The initial sample is restricted to borrowers who are engaged in debt contracts one and three years prior to and after the adoption of SFAS 159. This is to ensure changes in debt

[8] Package may contain multiple facilities, lenders may choose to participle in certain facility but not others.

contracting practice are independent of changes in borrower markets and sample composition (Costello and Wittingberg-Moerman 2009). Standard errors are adjusted for the clustering of yearly observations across a given company, since residuals tend to be correlated over time and magnitude of t-statistics might be overstated (Petersen, 2009).

The likelihood of fair value exclusions in debt contracts is estimated using a probit regression model based on Dermerjian et al. (2016):

$$
\begin{aligned}
FVC_{t+1} = \quad & \alpha_0 + \beta_1 Revolver_i + \beta_2 Unreliable\ FV_{it} + \beta_3 PP_i + \beta_4 Hedge\ Industry_{it} + \\
& \beta_5 Liquidity\ Covenant_i + \beta_6 Eligible\ FV\ Instrument_{it} + \\
& \beta_7 Debt\ Restriction\ Covenant_i + \beta_8 Networth\ Covenant_i + \\
& \beta_9 Earnings\ Covenant_i + \beta_{10} Size_{it} + \beta_{11} Leverage_{it} + \beta_{12} ROA_{it} + \\
& \beta_{13} Rating\ Available_{it} + \beta_{14} Lease_{it} + \beta_{15} Contingent\ Liability_{it} + \\
& \beta_{16} Unrealised\ Gains/Losses_{it} + \beta_{17} Institutional\ Tranche_i + \\
& \beta_{18} Sweep\ Covenant_i + \beta_{19} Dividend\ Rrestriction_i + \beta_{20} Colleteral_i + \\
& \beta_{21} Debt\ Size_i + \varepsilon_{t+1}
\end{aligned}
\qquad \textbf{(2)}
$$

For DDL's hypothesis two, two proxies are used to measure borrower opportunism. First, *REVOLVER*, a binary variable equal to one if the debt contract features a revolving line of credit, as discussed in the previous section; second, *UNRELIABLEFV_EST*, which measures the magnitude of unreliable estimates over all fair value estimates. Level two and three fair value estimates for assets and liabilities in illiquid markets are unlike level one fair value estimates, which have observable market prices as a reference. Only managers know the true economic value and the assumptions that underlie the valuation models for level two and three FV estimates. This may create opportunities to manage accounting numbers to be within covenant thresholds due to the increased information asymmetry between managers and market participants. For the purpose of marginal effects interpretation, *UNRELIABLEFV_EST*, a continuous variable is converted to a binary variable, *UNRELIABLEFV*, which equals 1 if the borrower is above the sample median and zero otherwise. This median value is limited to post SFAS 159 observations.

The presence of an accounting-based performance pricing grid (*PP*) in a debt contract provides incentives to manage the typical measure for PP, debt to EBITDA. Although interest decreasing PP is the most commonly used method to incentivise better performance, it can also give managers the incentive to manage the size of debt in order to obtain and stay at lower interest rate ranges. This incentive leads to an increase in moral hazard, which results in wealth transfer from lenders to shareholders (Asquith et al. 2005). Consistent with DDL, we test hypothesis three, *PP* is a binary variable equal to one if debt contract features a performance pricing grid.

Finally, the last two hypotheses predict that fair value accounting may potentially be harmful for debt contracting. However, the main objective for SFAS 159 is to simplify hedge accounting, thus firms that engage the most in hedging activities may benefit most from the fair value changes. Bartrum et al. (2009) found that derivatives usage rate is highest in chemical (foreign exchange derivatives) and utility industries (interest rate derivatives), while commodity price derivatives are also used extensively by oil, mining and steel industries. *HEDGE*, a binary variable, equals one if the firm is in the chemical, utility, oil, mining and steel industries under the 48 Fama-French industry classification. Fair value can also provide useful information on the entity's liquidity position as it reflects the exit price for existing short-term assets and liability. We therefore test the impact of *LIQUIDITYCOV*, a binary variable that equals one if the debt contract contains a liquidity covenant, such as the current or quick ratio.

4.3 Descriptive Statistics

Table 1 presents summary statistics for both 2008-2012 (DDL's sample period) and 2008-2017 (full sample). We identify 753 FVC_{DDL}, which uses DDL's dictionary, in 2,532 private debt contracts (29.7%) between 2008 and 2012, which is significantly more than Demerjian

et al. (2016)'s sample, where they identify FVCs in 380 of 2,615 private debt contracts (a rate of 14.5%, roughly half the rate we find). To ensure FVCs are correctly classified, 100 random contracts are examined against the original EDGAR filing and were found to be 100% accurate. Furthermore, in FVC_{MCRL}, which uses our expanded dictionary, we identified 837 in 2,532 contracts (32.8%) between 2008 and 2012. This increased quite significantly to 41.6% (1,984) in the 4,774 contracts we identify between 2008 and 2017. Consistent with Demerjian (2011), the average usage of *AFFECTED* covenants, which are financial covenants largely based on balance sheet numbers, fell when the sample period was extended by 5 years. Table 2 presents correlation matrix.

Insert Tables 1 and 2 Here

Figure 1 shows the percentage of debt contracts with FVCs. It indicates that there is a dramatic increase usage of FVC between 2008 and 2012, then a broad stabilisation at around 45%. A regression of FVC on an annual time trend shows that there is a significant increase in FVCs over time. As noted above, SFAS 159 was introduced in November 2007 and debt contracts initiated in 2008 began to include clauses removing the effects of SFAS 159 for several years after. The proportion of contracts found by Demerjian et al. (2016) of 14.5% is thus substantially lower than our estimates. Moreover, this statistic is clearly time-varying.

One explanation of the increased exclusion of fair value could be due to an increase in the usage of financial covenants. However, figure 2 shows that the average number of financial covenants in debt contracts has also been decreasing over time. Similarly, figure 3 shows that there is also a decreasing trend of debt contracts with at least one financial covenant between 2005 and 2017. Therefore, it is unlikely that increased usage of FVC is due to increased usage of financial covenants. A second possible explanation for the increase in FVCs is the effect of diffusion, where a new phenomenon becomes the "norm" by a social system (Bass 1969). This means that if a practice is deemed useful for debt contracting

practice, others will follow (knowingly or unknowingly) and the trend will continue to increase. Although Bass's (1969) model is based on consumer durables, which includes the initial cost of purchase, the same logic still applies in the form of additional monitoring cost. Unlike consumer durables where demand eventually falls due to other innovations, innovation of contracting practice tends to be slow and useful contracting features such as debt restriction clauses tends to stay. Figure 1 shows that the usage of FVCs peaked in 2015 and stabilised (with a variance) after this.

Insert Figures 1, 2 and 3 Here

Untabulated results show that out of 1,880 FVCs, there are 79 (4%) occasions where the borrower obtained a debt contract with an exclusion followed by one without.[9] This suggests that for the majority of borrowers, once they obtain a debt contract with a FVC, subsequent contracts will almost inevitably have a FVC, causing it to exhibit 'stickiness' properties. Table 3 shows the distribution of FVC across 12 Fama French industries. FVCs are least concentrated in chemicals and oil, gas and coal extraction (3.2% respectively). This is consistent with Bartrum et al. (2009)'s findings, where those are among the industries that use derivatives to hedge the most (foreign exchange derivatives and commodity price derivatives respectively). On the other hand, FVCs are most concentrated in the finance industry (~19%), which is expected as they largely consist of financial assets and liabilities (Landsman 2007). These two findings coincide with the two main objective of SFAS 159, i.e., expanded use of fair valuation of assets and liabilities, as well as to simplify the use of hedge accounting.

The previous section focuses on borrower and contract characteristics, showing that the time trend of FVC is significant. Prior literature suggests that certain clauses in debt contracts

[9] These 79 occasions contain 75 unique borrowers; subsequent contracts vary from the same and different year, as well as same and different lead lenders.

could be due to 'boilerplate contracts' written by a particular bank (e.g., Baylis et al. 2017). Table 4 shows the distribution of FVCs by the top 10 lead lenders as defined in Ball et al. (2008), ranked by aggregate funds arranged between 2008 and 2017. JP Morgan and Bank of America are the top two lead lenders, and together represent around 52% of the total loan sample. Wells Fargo included the highest percentage of bank loans issued with FVCs (46%), marginally above Bank of America (45%). In addition, it can be seen that FVC are not concentrated among particular lead lenders and there is clear variation in usage within each lead lender. Therefore, it is unlikely that the use of FVC is due to boilerplate effects by one or two banks. Furthermore, the top 10 lead lenders' FVC usage represents 85.4% of all FVC usage, while the top 10 lead lenders represent 84% of the total loans arranged. Consistent with prior research (e.g., Beatty et al. 2007), fixed effects for each of the top two lead lenders (52% of the sample) as well as year fixed effect are therefore included in the regressions, unless stated otherwise.

Insert Tables 3 and 4 Here

5 Results

5.1 Replication of Demerjian et al. (2016)

Table 5 shows the replication results for the change in financial covenant use one and three years surrounding the adoption of SFAS 159 in 2008. Consistent with DDL, we find no statistically significant change in the use of financial covenants. Table 6 and 7 show the replication results for the 2008-2012 and 2008-2017 sample periods respectively. Firstly, column one of table 6 presents probit regression for FVC based on DJN's regular expression (*FVC_DDL*) while column three shows FVC based on expanded FVC regular expressions (*FVC_MCRL*). Secondly, table 7 uses *FVC_MCRL* exclusively with year and industry fixed effects. Although the amount of *FVC_MCRL* is greater than *FVC_DDL*, table 5 shows that

the results do not differ significantly. Consistent with DDL's findings, *REVOLVER* is positive and significant, which suggests that borrowers with a revolving credit facility are 12% more likely to receive a fair value exclusion clause in their credit agreements. Secondly, *HEDGE* and *LIQUIDITYCOV* are negative and significant, which suggests that lenders recognise that FVA is useful for borrowers that tend to engage in hedging activities and that FVA provides useful information on the liquidation value of borrowers' assets and liabilities. Marginal effect shows that *HEDGE* lowers the probability by around 11% while the presence of a liquidity covenant lowers the probability by ~32%. All three results are economically significant, especially *LIQUIDITYCOV*, which suggest that lenders value the liquidation value of financial assets and liabilities.

Insert Tables 5, 6 and 7 here

Table 7 examines the same model with 4 addition years of data. Results are largely consistent with the findings of table 6. *UNRELIABLEFV* is positive but insignificant, which suggests that the borrower is not more likely to receive a FVC if they have above average (i.e., median) values of level 2 and 3 compared to their total fair value. This suggests that lenders are not concerned with the reliability of fair value and are aware of the useful benefits of level 2 and 3 fair value estimates. Secondly, *PP* is insignificant which suggest that contracts with performance pricing provisions are no more likely to have a FVC than those without. Lastly, the majority of the increase in adjusted R-square originates in the year fixed effects, which indicates that the times trends in FVC usage are significant.

5.2 Remodelling Results

Table 9 presents results for our modified logit model. Column 1 includes year fixed effects, column 2 includes additional lead lender fixed effects and column 3 includes additional industry fixed effects. Our main variable of interest, *NETFVPOS_HIGH* equals 1 if borrower

has net positive fair value and represents top 30% of that sample. Our results show *NETFVPOS_HIGH* is negative and significant which suggests that if borrowers have high level of positive net fair value are less likely to receive FVC. Marginal effects suggest that borrowers who have high level of net positive fair value are 5 to 6% less likely to receive FVC. Secondly, *SOLELENDER*, which equals one if lending syndicate consist of one lender, are less likely (marginal effect= -13%) to receive FVC. This suggests the lack of participants results in less monitoring demands. Thirdly, debt contract with financial covenants which could be affected by the adoption of ASC 825, are more likely to receive to FVC. Marginal effect suggests 32% to 36% more likely, which is economically significant. This result complements the results of DDL. Un-tabulated result shows that financial covenant, in general, are not associated with the use of FVC.

To address lenders' reliability concerns about fair value accounting, we examine the influence of the most unreliable fair value, level 3, on the propensity to include a FVC. Table 10 column 1 shows that the coefficient for *JUSTLVL3*, which equals one if borrowers only have both level 3 assets and liabilities, is positive but insignificant. Columns 2 and 3 show that if the borrower has only level 3 assets or level 3 liabilities is also positive but insignificant. This suggests that borrowers with only level 3 fair value estimates, asset or liability, the most unverifiable and therefore provides manager the most opportunity to manipulate, are not more likely to receive FVC. Results suggest that level 3 fair value estimates are not completely detrimental in the contracting setting. In some respects, these results resemble the conclusions of Frankel et al. (2008) on intangibles.

Insert Tables 8, 9 and 10

To summarise our replication, extension and additional analysis, at the borrower level, we find that firms that have high levels of net positive fair value and those in industries more likely to hedge are less likely to opt out of fair value accounting via the inclusion of a FVC in

their debt contracts. We do not find that high levels of unreliable (level 2 and 3) fair value estimates are associated with the use of FVCs. Secondly, at the contract level, contracts with affected covenants and a revolving line of credit increases the likelihood of FVC, while liquidity covenant and contracts with a single lender are less likely to receive FVC. The use of performance pricing provisions is not associated with the use of FVC. Table 8 presents univariate test that indicates there is no statistically significant difference in FVC usage between the contracts containing performance pricing and those do not.

Our findings are consistent with prior literature that lenders' concern with the effect of fair value accounting is principally on earnings. It also complements the results of Demerjian (2011), who reports declining use of balance sheet covenants around the introduction of a balance sheet emphasis. We show that affected covenants are still used in contracting practice but the effects of fair value accounting sometimes tend to be removed from covenant calculations. We also show that fair value accounting is not completely detrimental in the context of contracting since borrowers with only level 3 fair value are *not* more likely to receive FVC. This also confirms that lenders recognise the benefits of fair value accounting in some cases, e.g. where it provides information on liquidation value.

6 Conclusion

The overall objective of this paper is to study how the use of fair value accounting influences debt contracting practices. More specifically, we re-examine and extend the available evidence on how contracting parties adapt their accounting-based debt covenants following SFAS 159/ASC 825, which allows entities to apply fair value accounting to an expanded set of balance sheet items.

We first re-assess Demerjian et al. (2016)'s hypotheses using the same sample period as their study (i.e., 2008-2012). The fact that the 10-K Wizard used by Demerjian et al., (2016)

has been discontinued provides an opportunity to re-examine the important issue of fair value effects on debt contracting using a novel and reproducible dataset collected by Python. We initially re-examine whether financial covenant usage changed after the SFAS 159 introduction date. Using a sample period from 2005 to 2012, we do not observe any material changes in financial covenant usage. Alternatively, for affected covenants, which are covenants largely based on balance sheet numbers, there is also no statistically significant change, consistent with Demerjian et al. (2016). Although covenant usage did not change, there are numerous instances where fair value accounting figures are excluded from covenant calculations. Specifically, there were 438 fair value exclusion clauses (FVC) in our final sample of 1775 debt contracts (25%) between 2008 and 2012. This is almost twice the level (14.5%) identified by Demerjian et al. (2014).

We also report an increasing trend in the use of FVCs over the duration of our sample period. One explanation is that there is also an increase in covenant usage. However, we observed a decreasing trend in both debt contracts with covenant and the average number of covenants in debt contracts, which suggest this is not the case. We also find that FVCs exhibit a "stickiness effect", where once a borrower obtains a contract including a FVC, this clause will tend to stay on into their subsequent contracts.

Our second analysis re-examine the probability of including FVC in debt contracts using the same model as Demerjian et al. (2016). We find support for the notion that borrowers with more opportunity to manipulate accounting figures, proxied by *REVOLVER*, are more likely to include a FVC. Furthermore, two circumstances that are considered where expanded use of fair value accounting could provide useful information. One of the main objectives of SFAS 159 is to simplify hedge accounting and there was support for where borrowers that are in industries that engage in hedging activities, FVCs are less likely to be included in their debt contracts. Fair value accounting could also provide useful information

in regard to borrowers' liquidity position, as it reveals the exit value for short term assets and liabilities. We found that borrowers with debt contracts with liquidity covenant have a lower probability of containing a FVC. On the other hand, we do not find that borrowers with above median unreliable fair value estimates (*UNRELIABLEFV*) or contracts with performance pricing provision (*PP*) are more likely to include FVCs.

Univariate comparisons showed that when each level of fair value scaled by assets, there is no statistical difference between borrower with FVC and those do not. Similarly, there is also no statistical difference in PP between borrowers with FVC and those without. We hypothesise that lenders will be more concerned about potential effects on earnings from fair value estimates rather than the quantity of level 2 and 3 fair values.

The important assumption here is that both fair value assets and liabilities are equal and have the same discount rate. When borrowers' credit quality worsens, the loss in earnings from impaired fair value assets should neutralise the gain in earnings from impaired fair value liabilities. We find that borrowers with large amounts of fair value assets compared to liabilities, lenders are less likely to include FVCs in the contract. This suggests that lenders are less concerned with the fair value effect on earnings if the potential loss from impaired assets is larger than potential gain from impaired liability. Prior fair value literature suggests that lenders are concerned with the reliability of fair value. We examine this issue by examining borrowers with only level three fair value assets and/or liability and we do not find that this is not the case. Lastly, we hypothesise and find that debt contracts with one lender are less likely to have FVC due to less monitoring demands from participant lenders.

Overall, our replication using a different data collection method for an extended sample period shows support for three out of five hypotheses of Demerjian et al. (2016). However, our descriptive analysis reveals that the incidence of fair value opt outs is of the order of 2-3 times the estimates of Demerjian et al. (2016). They conclude (p. 1070) that there is "a small

but significant number of contracts that modify covenant definitions to exclude the effects of SFAS 159 fair values. After allowing time for contracts to fully adapt to the new accounting measurement basis, we find it now exceeds 40%. In line with Demerjian et al. (2016), however, the vast majority of cases relate to liabilities, not to assets.

Although lenders are concerned with the potential impact of FVA on earnings, our evidence suggests that they find fair value accounting useful in debt contracting. This paper has potential important policy implications for standard-setters and regulators with regards to future fair value accounting and disclosure development. We recognise several limitations in this paper, and thus our results should be interpreted with caution. First, there are other possible underlying mechanisms that link fair value accounting with debt contracting structure other than FVCs. Second, consistent with DDL, our study does not fully observe the factors that drive firms to elect fair value, which could potentially limit this paper's conclusions. Third, the result of this paper is limited to the US sample, since majority of the world uses IFRS 5 in terms of fair value, it limits the generalisability of our findings. Future research can investigate other clauses that are associated with covenant calculation modifications. For instance, we observe that in some cases, lenders also exclude the effect of ASC 470-20 with respect to convertible debt instruments. It would therefore be of interest to examine how various debt contract clauses may potentially interact with both accounting and non-accounting-based covenants.

Figures

Figure 1 Time trend in FVC usage between 2008 and 2017

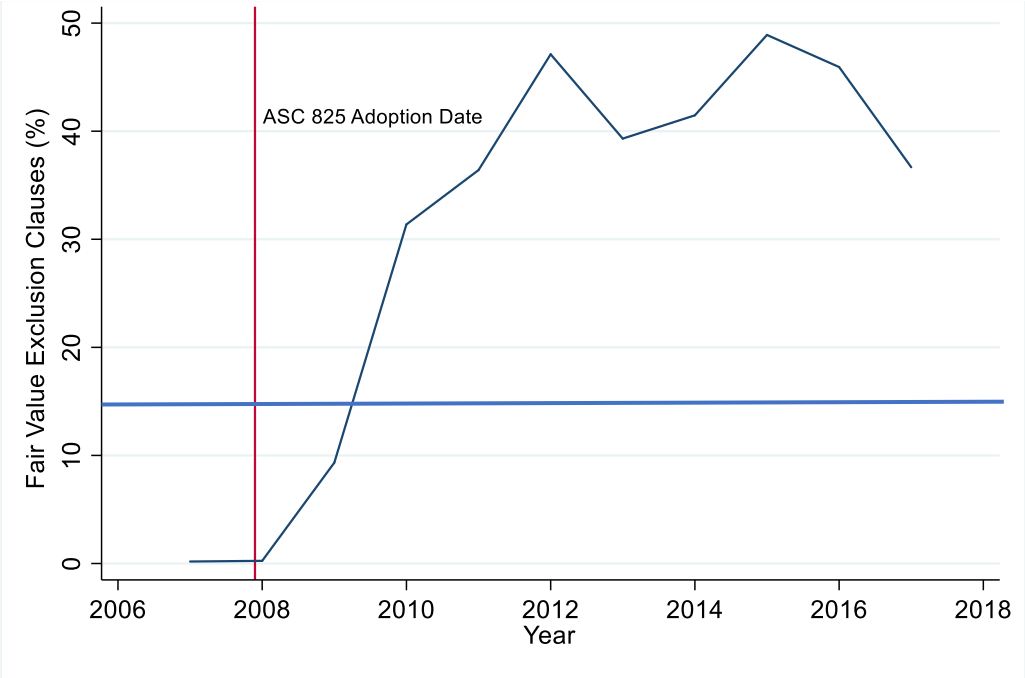

Figure 1 presents the percentage of debt contracts with a fair value opt-out clause (FVC) between 2006 and 2017. The red vertical line represents the time when ASC 825 was adopted. The blue horizontal line represents of the findings of Demerjian et al. (2016) where they found, on average, 14.5% contains clauses to remove fair value effects from covenant compliance calculations.

Figure 2 Average number of Financial covenants in Debt Contracts

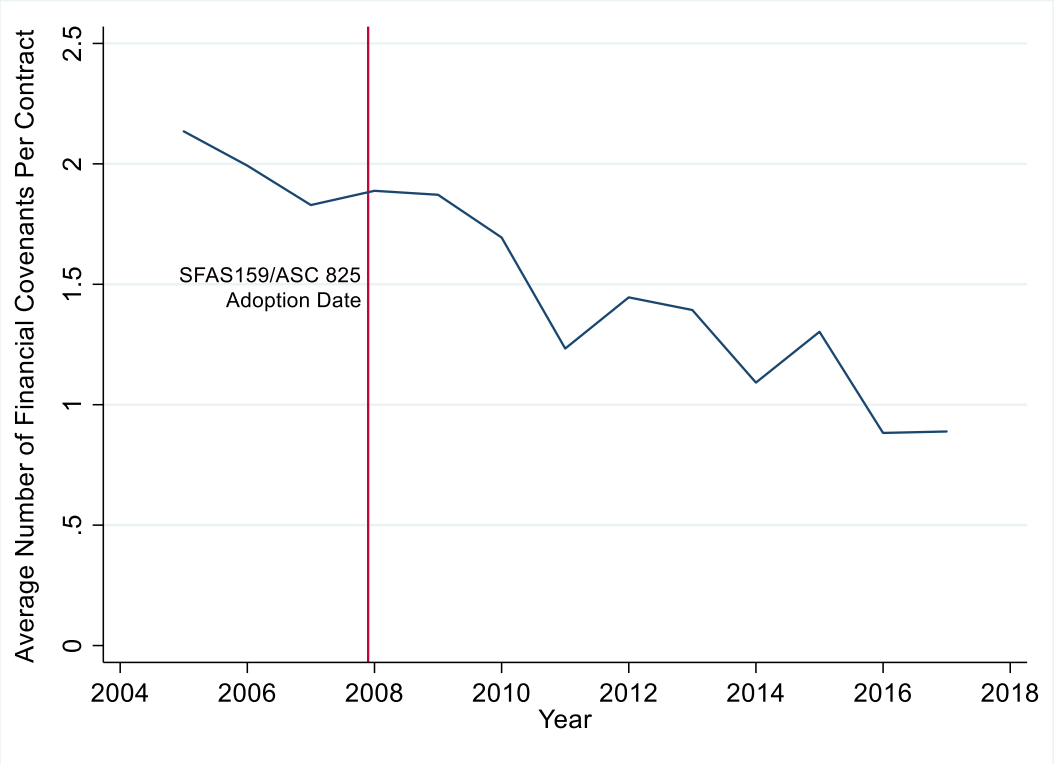

Figure 2 shows the average number of financial covenants in debt contracts between 2005 and 2017. The vertical line represents the time when ASC 825 was adopted.

Figure 3 Debt Contracts with Minimum of One Financial Covenant between 2005 and 2017

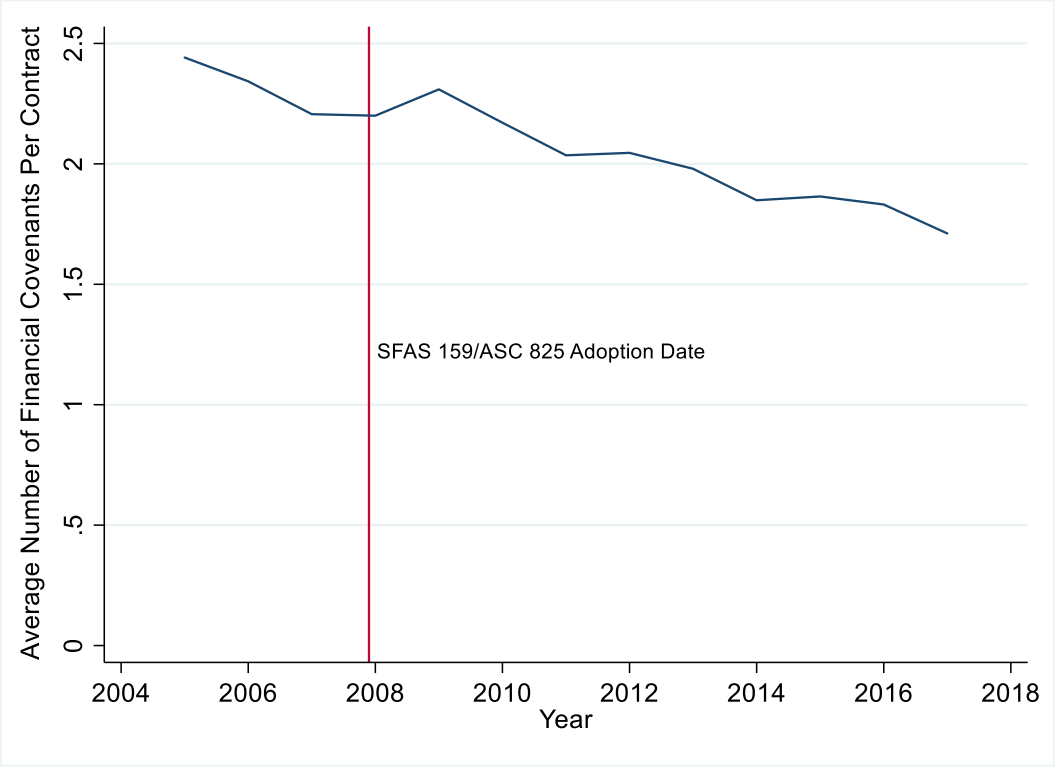

Figure 3 shows debt contracts with a minimum of one financial covenant between 2005 and 2017. The vertical line represents the time when ASC 825 was introduced.

Tables

Table 1 Descriptive Statistics

	Descriptive Statistics between 2008-2012					Descriptive Statistics between 2008-2017					
Variable	N	Mean	p25	Median	p75	SD	N	Mean	p25	Median	p75	SD
Dependent												
AFFECTED	2540	0.641	0.000	1.000	1.000	0.480	4784	0.605	0.000	1.000	1.000	0.489
FVC_DDC	2540	0.297	0.000	0.000	1.000	0.457	4784	0.381	0.000	0.000	1.000	0.486
FVC_MCRL	2540	0.329	0.000	0.000	1.000	0.470	4784	0.416	0.000	0.000	1.000	0.493
Treatment Variable												
REVOLVER	2540	0.809	1.000	1.000	1.000	0.393	4784	0.788	1.000	1.000	1.000	0.409
UNRELIABLE_EST	2540	0.508	0.000	0.539	1.000	0.442	4784	0.499	0.000	0.501	1.000	0.439
NETFV	2540	2617.415	-0.410	0.202	93.791	31142.640	4784	2353.177	-0.300	0.117	105.672	28386.530
JUSTLVL3	2540	0.027	0.000	0.000	0.000	0.162	4784	0.025	0.000	0.000	0.000	0.157
PP	2540	0.590	0.000	1.000	1.000	0.492	4784	0.542	0.000	1.000	1.000	0.498
ACCOUNTINGPP	2540	0.266	0.000	0.000	1.000	0.442	4784	0.243	0.000	0.000	0.000	0.429
RATINGPP	2540	0.217	0.000	0.000	0.000	0.412	4784	0.208	0.000	0.000	0.000	0.406
HEDGE	2540	0.160	0.000	0.000	0.000	0.367	4784	0.152	0.000	0.000	0.000	0.359
LIQUIDITYCOV	2540	0.037	0.000	0.000	0.000	0.189	4784	0.028	0.000	0.000	0.000	0.164
ELIGFVINSTRU	2540	0.506	0.186	0.452	0.679	0.439	4784	0.520	0.203	0.470	0.704	0.443
DEBTRESTRICTION	2540	0.639	0.000	1.000	1.000	0.480	4784	0.605	0.000	1.000	1.000	0.489
NETWORTH	2540	0.136	0.000	0.000	0.000	0.343	4784	0.110	0.000	0.000	0.000	0.312
EARNINGSCOV	2540	0.553	0.000	1.000	1.000	0.497	4784	0.488	0.000	0.000	1.000	0.500
AT	2540	10181.580	709.381	2016.465	6155.844	49190.290	4784	11378.580	887.947	2575.889	7707.000	45200.610
SIZE	2540	7.252	6.141	7.315	8.376	1.663	4784	7.585	6.463	7.621	8.703	1.690
LEV	2540	0.279	0.109	0.246	0.398	0.230	4784	0.304	0.139	0.278	0.430	0.230
ROA	2540	0.007	0.001	0.010	0.020	0.042	4784	0.006	0.001	0.009	0.019	0.060
RATING_AVAIL	2540	0.461	0.000	0.000	1.000	0.499	4784	0.476	0.000	0.000	1.000	0.499
LEASE	2540	0.052	0.005	0.018	0.046	0.104	4784	0.048	0.005	0.017	0.042	0.100
CONTINGENTLIAB	2540	0.168	0.000	0.000	0.000	0.374	4784	0.154	0.000	0.000	0.000	0.361
UNREALISEDGL	2540	0.000	0.000	0.000	0.000	0.002	4784	0.000	0.000	0.000	0.000	0.003
LN1SYNSIZE	2540	2.018	1.609	2.079	2.565	0.751	4784	2.081	1.609	2.197	2.639	0.730
CAPEX	2540	0.119	0.000	0.000	0.000	0.324	4784	0.085	0.000	0.000	0.000	0.279
INSTIT	2540	0.077	0.000	0.000	0.000	0.266	4784	0.094	0.000	0.000	0.000	0.292
SWEEPVAR	2540	0.247	0.000	0.000	0.000	0.431	4784	0.225	0.000	0.000	0.000	0.417
DIVRESTRICITION	2540	0.485	0.000	0.000	1.000	0.500	4784	0.398	0.000	0.000	1.000	0.490
COLLATERAL	2540	0.491	0.000	0.000	1.000	0.500	4784	0.463	0.000	0.000	1.000	0.499
DEBTSIZE	2540	19.541	18.746	19.519	20.436	1.260	4784	19.794	18.980	19.807	20.723	1.270

Notes to Table 1: this table presents descriptive statistics (mean, standard deviation, 25th, 50th, and 75th percentile) for the sample included in our main regression models. The sample includes lending agreements identified by a Python text search program from the SEC EDGAR archives for 2,175 firms between 2008 and 2017 with data in Dealscan and Compustat. Variable description is in appendix B.

Table 2 Correlation Matrix

	AFFECTED	*FVC_MCRL*	*UNRELIABLEFV*	*PP*	*REVOLVER*	*HEDGE*	*LIQUIDITYCOV*	*NETFV_HIGH*	*JUSTLVL3*
AFFECTED	1								
FVC_MCRL	**0.050**	1							
	0.0005								
UNRELIABLEFV	**-0.009**	**-0.001**	1						
	0.5276	0.9313							
PP	**0.490**	**0.005**	**-0.021**	1					
	0	0.7507	0.1497						
REVOLVER	**0.085**	**0.087**	**-0.048**	**0.135**	1				
	0	0	0.0009	0					
HEDGE	**0.040**	**-0.102**	**0.061**	**0.012**	**-0.060**	1			
	0.0063	0	0	0.3923	0				
LIQUIDITYCOV	**0.137**	**-0.091**	**0.053**	**0.053**	**0.044**	**0.233**	1		
	0	0	0.0003	0.0002	0.0021	0			
NETFV_HIGH	**-0.004**	**-0.022**	**0.038**	**0.000**	**-0.049**	**-0.009**	**-0.034**	1	
	0.7801	0.1266	0.0093	0.9825	0.0007	0.5427	0.0181		
JUSTLVL3	**0.004**	**0.030**	**0.159**	**-0.057**	**0.008**	**-0.023**	**0.005**	**-0.071**	1
	0.8012	0.0368	0	0.0001	0.5702	0.1053	0.7122	0	

This table reports correlation coefficients and p-values for all sample firms. The sample includes lending agreements identified by a Python text search program from the SEC EDGAR archives for 2,175 firms between 2008 and 2017 with data in Dealscan and Compustat. Variable description is in appendix B.

Table 3 FVC by 12 Fama French Industries Between 2008 and 2017

Industries	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Finance	0	4	31	57	64	47	33	73	38	8	355
Business Equipment - Computers, Software, and Electronic Equipment	0	3	31	37	42	48	22	57	48	10	298
Other - Mines, Constr, BldMt, Trans, Hotels, Bus Serv, Entertainment	1	4	25	37	32	37	27	45	36	2	246
Manufacturing	0	2	16	33	43	21	16	47	29	2	209
Wholesale, Retail, and Some Services (Laundries, Repair Shops)	0	2	14	39	31	27	19	35	38	3	208
Healthcare, Medical Equipment, and Drugs	0	1	12	15	14	13	15	26	24	0	120
Consumer Non-Durables	0	4	14	16	14	11	11	17	17	1	105
Utilities	0	3	5	13	11	18	6	16	12	1	85
Telephone and Television Transmission	0	2	8	8	10	9	8	13	7	5	70
Consumer Durables	0	5	6	6	17	4	6	10	9	0	63
Chemicals and Allied Products	0	1	7	9	10	7	4	15	5	3	61
Oil, Gas, and Coal Extraction and Products	0	3	4	8	11	9	6	8	10	1	60
Total	1	34	173	278	299	251	173	362	273	36	1,880

This table presents the distribution of FVC across Fama-French 12 industries for 2,175 unique firms between 1996-2017. The sample includes 4,785 leading agreements from SEC 10-K, 10-Q and 8-K filings. Other industries include Mines, Construction, Building materials, Transportation, Hotels, Bus Service, Entertainment.

Table 4 Distribution of FVC by top 10 lead arranger between 2008 and 2017

Lead arranger	Contracts with FVC		Contracts without FVC		Total
	Obs	%	Obs	%	Obs
Bank of America	514	44.89%	631	55.11%	1,145
BNP Paribas SA	10	13.89%	62	86.11%	72
Citi	46	18.93%	197	81.07%	243
Credit Suisse AG	29	25.44%	85	74.56%	114
Deutsche Bank AG	34	25.56%	99	74.44%	133
JP Morgan	568	41.70%	794	58.30%	1,362
Sun Trust	60	42.55%	81	57.45%	141
US Bank NA	31	38.75%	49	61.25%	80
Wachovia Bank	1	2.50%	39	97.50%	40
Wells Fargo	314	46.18%	366	53.82%	680
Total by 10 lead arrangers	1607	40.07%	2403	59.93%	4010
N. Whole sample	1880		2905		4785
As % of whole sample	85.48%		82.72%		83.80%

This table shows the distribution of FVCs across the top 10 lead lenders in the syndicated loan market, where the lead lender is ranked by the total aggregate amount loaned between 2008 and 2017. Lead lenders are identified by "lead arranger credit" provided by Dealscan or as the only lender in the loan

Table 5 Changes in financial covenant usage after the introduction of SFAS 159/ASC 825

VARIABLES	(1) Financial Covenant/ 1year	(2) Marginal Effect	(3) Financial Covenant/ 3year	(4) Marginal Effect	(5) Affected Covenant/ 1year	(6) Marginal Effect	(7) Affected Covenant/ 3year	(8) Marginal Effect
POST	-0.0379	-0.00612	0.0365	0.00619	-0.0991	-0.0225	-0.0863	-0.0200
	(0.0763)	(0.0123)	(0.0998)	(0.0169)	(0.0633)	(0.0144)	(0.0837)	(0.0194)
ELIGFVINSTRU	0.104		-0.000260		0.0619		-0.185*	
	(0.0926)		(0.122)		(0.0420)		(0.0974)	
PP	1.596***		1.451***		1.240***		1.184***	
	(0.0933)		(0.120)		(0.0787)		(0.102)	
REVOLVER	0.164		0.130		0.0316		0.0860	
	(0.112)		(0.124)		(0.0996)		(0.120)	
SIZE	0.148***		0.220***		0.0924**		0.194***	
	(0.0471)		(0.0579)		(0.0409)		(0.0501)	
LEV	0.163		0.303		0.0323		0.497**	
	(0.211)		(0.281)		(0.172)		(0.236)	
ROA	0.606		-0.421		1.172		1.139	
	(1.185)		(1.383)		(0.902)		(1.149)	
RATING_AVAIL	-0.0840		-0.141		-0.329***		-0.392***	
	(0.0910)		(0.119)		(0.0827)		(0.105)	
LEASE	-0.657		-0.357		-0.858		-0.328	
	(0.464)		(0.511)		(0.523)		(0.515)	
PRIORBS	0.260***		0.316***		0.494***		0.569***	
	(0.0862)		(0.111)		(0.0790)		(0.102)	
PRIORIS	0.367***		0.303***		0.150**		0.120	
	(0.0828)		(0.105)		(0.0708)		(0.0942)	
LN1SYNSIZE	0.277***		0.333***		0.357***		0.340***	
	(0.0875)		(0.107)		(0.0755)		(0.0952)	
CAPEX	0.863***		0.875***		0.401***		0.355**	
	(0.201)		(0.255)		(0.138)		(0.163)	
INSTIT	-0.298*		-0.269		0.365***		0.344**	
	(0.161)		(0.193)		(0.132)		(0.167)	
SWEEPVAR	0.191		0.167		-0.0369		-0.0300	
	(0.130)		(0.153)		(0.104)		(0.128)	
DIVRESTR	0.977***		0.980***		0.774***		0.714***	
	(0.102)		(0.126)		(0.0840)		(0.106)	
COLLATERAL	0.222*		0.329**		-0.178*		-0.0810	
	(0.115)		(0.139)		(0.0970)		(0.123)	
DEBTSIZE	-0.263***		-0.296***		-0.213***		-0.261***	
	(0.0650)		(0.0782)		(0.0561)		(0.0697)	
Constant	2.468**		2.495**		2.184**		2.365**	
	(1.005)		(1.225)		(0.872)		(1.092)	
Observations	2,675	2,675	1,629	1,629	2,675	2,675	1,629	1,629
Pseudo R2	0.447		0.429		0.323		0.316	

The table reports probit regression model examining the likelihood of including a financial covenants/affected covenants in debt contracts in the one/three-year period surrounding the adoption of ASC 825 on 15th November 2007. The sample is restricted to firms with at least one contract before and after the adoption of SFAS 159/ASC 825. In Column 1&3 (5&7), the dependent binary variable which equals one if debt contracts available on DEALSCAN contains financial covenant (affected covenant), and zero otherwise. Column 2, 4, 5 and 8 presents marginal effect. *FINANCIAL COVENANT*: binary variable equal to one if the debt contract available on Dealscan includes a leverage ratio, debt-to-equity ratio, net worth, current ratio, quick ratio covenant, interest coverage ratio, fixed charge, debt service, minimum EBITDA, or debt-to-earnings covenant and zero otherwise. *AFFECTED COVENANT*: binary variable equal to one if the debt contract available on Dealscan includes a leverage, debt-to-equity, debtto- earnings, net worth, current ratio, or quick ratio covenant, and zero otherwise. *POST*: binary variable equal to one for all debt contracts on Dealscan initiated following the adoption of SFAS 159 on 15th November 2007, and zero otherwise. *ELIGIBLE FV* Instruments: total financial instruments on the balance sheet eligible for the fair value option (Compustat rect + ivst + ivaeq + ivao + ap + dlc + dltt), scaled by total assets. *PP*: binary variable equal to one if the debt contract available on Dealscan includes a performance-pricing provision, and zero otherwise. *REVOLVER*: binary variable equal to one if the debt contract available on Dealscan is a revolving credit facility, and zero otherwise. All other control variables are defined in Appendix 1. Robust

standard error is clustered by firm in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels respectively.

Table 6 Replication of Demerjian et al. (2016): Likelihood of Excluding Fair Value from Covenant Definitions Between 2008 and 2012

	(1)	(2)	(3)	(4)
Dependent Variable	*FVC_DEMER*	Marginal Effect	*FVC_MCRL*	Marginal Effect
REVOLVER	0.362***	0.117***	0.616***	0.120***
	(0.0817)	(0.0262)	(0.141)	(0.0271)
UNRELIABLEFV	0.0692	0.0224	0.108	0.0210
	(0.0625)	(0.0202)	(0.104)	(0.0203)
PP	-0.0313	-0.0102	-0.0513	-0.00996
	(0.0676)	(0.0219)	(0.113)	(0.0219)
HEDGE	-0.345***	-0.112***	-0.571***	-0.111***
	(0.107)	(0.0343)	(0.185)	(0.0356)
LIQUIDITYCOV	-0.995***	-0.322***	-1.842***	-0.358***
	(0.261)	(0.0841)	(0.553)	(0.107)
ELIGFVINSTRU	0.227**		0.383**	
	(0.0898)		(0.150)	
DEBTRESTR	0.231***		0.383***	
	(0.0854)		(0.143)	
NETWORTH	-0.158		-0.255	
	(0.0985)		(0.164)	
EARNINGSCOV	-0.0339		-0.0584	
	(0.0803)		(0.134)	
SIZE	-0.0417		-0.0724	
	(0.0352)		(0.0593)	
LEV	-0.235		-0.393	
	(0.169)		(0.282)	
ROA	1.253		2.487	
	(0.992)		(1.855)	
RATING_AVAIL	-0.240***		-0.405***	
	(0.0775)		(0.131)	
LEASE	-0.617*		-1.062*	
	(0.356)		(0.631)	
CONTINGENTLIAB	-0.276***		-0.484***	
	(0.0923)		(0.159)	
UNREALISED	1.437		1.169	
	(12.93)		(21.23)	
LN1SYNSIZE	0.0744		0.117	
	(0.0648)		(0.108)	
CAPEX	0.105		0.176	
	(0.103)		(0.172)	
INSTIT	0.292**		0.459**	
	(0.124)		(0.208)	
SWEEPVAR	-0.0836		-0.140	
	(0.0824)		(0.140)	
DIVRESTR	-0.0628		-0.0970	
	(0.0699)		(0.117)	
COLLATERAL	-0.224***		-0.380***	
	(0.0768)		(0.129)	
DEBTSIZE	0.0798		0.138	
	(0.0500)		(0.0837)	
Constant	-2.056***		-3.469***	
	(0.764)		(1.271)	
Observations	2,532	2,532	2,532	2,532
Pseudo R2	0.0622		0.0622	

The table reports probit regression model examining the likelihood of including a fair value exclusion clauses (FVC) in debt contracts between 2008 and 2012. In Column 1&3, the dependent binary variable which equals one if debt contracts contain FVC, and zero otherwise. Column 2 and 4 presents marginal effect. *REVOLVER*: binary variable equal to one if the debt contract available on Dealscan includes a revolving credit facility, and zero otherwise. *UNRELIABLE FV*: binary variable equal to one if a firm's ratio of the Level 2 and 3 SFAS 157 fair value assets and liabilities to total fair value assets and liabilities ([Compustat (aol2 + aul3 + lol2 + lul3)/(aqpl1 + aol2 + aul3 + lqpl1 + lol2 + lul3)]) is above sample median, and zero otherwise; missing fair value estimates are set to zero. *PP*: binary variable equal to one if the debt contract available on Dealscan includes a performance-pricing provision, and zero otherwise. *HEDGE*: binary variable equal to one if the firm is in

the chemicals, gas and oil, mining, or utilities industry (Fama–French industries 14, 28, 30, 31), and zero otherwise. *LIQUIDITYCOV*: binary variable equal to one if the debt contract available on Dealscan includes a current ratio or quick ratio covenant, and zero otherwise. Robust standard error is clustered by firm in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels respectively.

Table 7 Likelihood of Excluding Fair Value Estimates from Covenant Definitions Between 2008 to 2017

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
REVOLVER	0.242***	0.0899***	0.273***	0.0552***	0.376***	0.0855***	0.249**	0.0499**
	(0.055)	(0.021)	(0.102)	(0.020)	(0.092)	(0.020)	(0.10)	(0.020)
UNRELIABLEFV	0.0200	0.00743	-0.0384	-0.00777	0.0532	0.0121	-0.0125	-0.00249
	(0.049)	(0.0183)	(0.085)	(0.0173)	(0.080)	(0.018)	(0.087)	(0.017)
PP	-0.0611	-0.0228	0.0478	0.00966	-0.102	-0.0231	0.0441	0.00881
	(0.049)	(0.0184)	(0.086)	(0.017)	(0.080)	(0.018)	(0.087)	(0.017)
HEDGE	-0.318***	-0.119***	-0.466***	-0.0941***				
	(0.095)	(0.0348)	(0.166)	(0.033)				
LIQUIDITYCOV	-0.733***	-0.273***	-0.981***	-0.198***	-0.959***	-0.218***	-0.731**	-0.146**
	(0.184)	(0.0681)	(0.347)	(0.069)	(0.342)	(0.0775)	(0.350)	(0.0698
ELIGFVINSTRU	0.190**		0.310**		0.326**		0.352**	
	(0.074)		(0.133)		(0.128)		(0.139)	
DEBTRESTR	0.236***		0.364***		0.376***		0.361***	
	(0.067)		(0.118)		(0.109)		(0.118)	
NETWORTH	-0.292***		-0.356**		-0.419***		-0.271*	
	(0.084)		(0.157)		(0.142)		(0.162)	
EARNINGSCOV	-0.0526		-0.0485		-0.107		-0.0830	
	(0.066)		(0.119)		(0.109)		(0.120)	
SIZE	-0.0468*		-0.144***		-0.0921**		-0.164***	
	(0.025)		(0.0460)		(0.042)		(0.0472)	
LEV	-0.331**		-0.857***		-0.494**		-0.815***	
	(0.13)		(0.247)		(0.220)		(0.250)	
ROA	-0.147		-0.249		-0.258		-0.280	
	(0.39)		(0.695)		(0.837)		(0.737)	
RATING_AVAIL	-0.237***		-0.276**		-0.388***		-0.275**	
	(0.063)		(0.112)		(0.106)		(0.113)	
LEASE	-0.517**		-0.901**		-0.816*		-0.916*	
	(0.25)		(0.439)		(0.464)		(0.491)	
CONTINGENTLIAB	-0.225***		-0.298**		-0.372***		-0.309**	
	(0.077)		(0.135)		(0.127)		(0.135)	
UNREALISED	13.94**		14.53		23.56*		15.87	
	(6.92)		(11.71)		(12.40)		(12.37)	
LN1SYNSIZE	0.0213		0.0932		0.0577		0.131	
	(0.046)		(0.081)		(0.076)		(0.081)	
CAPEX	0.0204		0.435***		0.0253		0.440***	
	(0.087)		(0.163)		(0.145)		(0.164)	
INSTIT	0.142		0.228		0.177		0.167	
	(0.086)		(0.152)		(0.143)		(0.154)	
SWEEPVAR	0.0218		-0.0333		0.0193		-0.0589	
	(0.062)		(0.112)		(0.102)		(0.113)	
DIVRESTR	-0.0376		0.252**		-0.0580		0.263**	
	(0.056)		(0.105)		(0.094)		(0.106)	
COLLATERAL	-0.232***		-0.508***		-0.371***		-0.509***	
	(0.059)		(0.110)		(0.098)		(0.112)	
DEBTSIZE	0.0816**		0.0167		0.145***		0.0218	
	(0.034)		(0.061)		(0.056)		(0.061)	
Constant	-1.439***		-5.564***		-2.501***		-5.497***	
	(0.554)		(1.39)		(0.92)		(1.40)	
Observations	4,774	4,774	4,774	4,774	4,774	4,774	4,774	4,774
Pseudo R2	0.0424		0.149		0.0493		0.156	
Industry FE	NO		NO		YES		YES	
Year FE	NO		YES		NO		YES	

The table reports logit regression model examining the likelihood of including a fair value exclusion clause (FVC) in debt contracts between 2008 and 2017. In Column 1&3, the dependent binary variable which equals one if debt contracts contain FVC, and zero otherwise. Column 2 and 4 presents marginal effect. *REVOLVER*: binary variable equal to one if the debt contract available on Dealscan includes a revolving credit facility, and zero otherwise. *UNRELIABLE FV*: binary variable equal to one if a firm's ratio of the Level 2 and 3 SFAS 157 fair

value assets and liabilities to total fair value assets and liabilities ([Compustat (aol2 + aul3 + lol2 + lul3)/(aqpl1 + aol2 + aul3 + lqpl1 + lol2 + lul3)]) is above sample median, and zero otherwise; missing fair value estimates are set to zero. *PP*: binary variable equal to one if the debt contract available on Dealscan includes a performance-pricing provision, and zero otherwise. *HEDGE*: binary variable equal to one if the firm is in the chemicals, gas and oil, mining, or utilities industry (Fama–French industries 14, 28, 30, 31), and zero otherwise. *LIQUIDITYCOV*: binary variable equal to one if the debt contract available on Dealscan includes a current ratio or quick ratio covenant, and zero otherwise. Robust standard error is clustered by firm in parentheses. Year and industry fixed are included unless stated otherwise. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels respectively.

Table 8 Univariate tests for Firm and Contract-level: Summary Statistics

	Full sample, 2008-2017		
Panel A: Fair value scaled by assets	FVC=1, n=1984	FVC=0, n=2790	Significance
Level 1 FV asset scaled by total asset	**3.33%**	2.91%	
Level 2 FV asset scaled by total asset	**3.47%**	3.46%	
Level 3 FV asset scaled by total asset	0.91%	**1.29%**	
Level 1 FV liability scaled by total asset	**0.69%**	0.64%	
Level 2 FV liability scaled by total asset	**1.81%**	1.47%	
Level 3 FV liability scaled by total asset	**0.79%**	0.57%	
Panel B: Each level of fair value scaled total fair value			
Level 1 Fair Value	**36.20%**	34.20%	
Level 2 Fair Value	50.27%	**52.66%**	*
Level 3 Fair Value	**13.53%**	13.14%	
Panel C: Fair value in absolute terms (millions)			
Level 1 asset	359.67	**649.32**	*
Level 2 asset	1016.93	**2564.59**	**
Level 3 asset	64.86	**220.65**	***
Level 1 liability	40.42	**48.18**	
Level 2 liability	117.50	**183.35**	*
Level 3 liability	40.34	**60.56**	
Total fair value changes included in earnings	0.08	-0.99	
Panel D: Firm characteristics			
Total asset (millions)	8300.02	**13640.08**	***
Market value of equity (millions)	6596.19	**8300.26**	***
Book value of equity (millions)	16.40	**17.85**	
Total intangibles/asset	**23%**	18%	***
Tang/asset	25%	**33%**	***
Total debt /asset	29%	**31%**	***
Total long term debt /asset	26%	**27%**	**
Hedge	11%	**18%**	***
Panel E: Contract characteristics			
REVOLVER	**83%**	75.7%	***
LIQUIDITY COV	1%	**4%**	***
ANY PP	**55%**	54%	
ACCOUNTINGPP	**28%**	22%	***
RATINGPP	19%	**22%**	**
Allindrawn	212.4484	**232.6096**	***
Borrow amount/at	**30%**	24%	***

Table 9 Likelihood of Excluding Fair Value Estimates from Covenant Definitions Between 2008 to 2017

	(1)	(2)	(3)	(4)	(5)	(6)
NETFVPOS_HIGH	-0.245**	-0.0492**	-0.257**	-0.0510**	-0.296***	-0.0581***
	(0.103)	(0.0206)	(0.104)	(0.0204)	(0.108)	(0.0210)
SOLELENDER	-0.657***	-0.132***	-0.626***	-0.124***	-0.646***	-0.127***
	(0.168)	(0.0335)	(0.168)	(0.0332)	(0.169)	(0.0331)
AFFECTED	1.773***	0.356***	1.711***	0.339***	1.619***	0.318***
	(0.474)	(0.0946)	(0.469)	(0.0922)	(0.473)	(0.0923)
REVOLVER	0.331***	0.0666***	0.319***	0.0632***	0.315***	0.0618***
	(0.0980)	(0.0195)	(0.0987)	(0.0194)	(0.0990)	(0.0193)
UNRELIABLEFV	-0.0275	-0.00552	-0.00641	-0.00127	0.0115	0.00226
	(0.0871)	(0.0175)	(0.0872)	(0.0173)	(0.0889)	(0.0175)
PP	0.0534	0.0107	0.0554	0.0110	0.0544	0.0107
	(0.0880)	(0.0177)	(0.0886)	(0.0175)	(0.0888)	(0.0174)
HEDGE	-0.470***	-0.0944***	-0.395**	-0.0782**		
	(0.167)	(0.0333)	(0.169)	(0.0332)		
LIQUIDITYCOV	-1.239***	-0.249***	-1.182***	-0.234***	-0.936**	-0.184**
	(0.375)	(0.0749)	(0.373)	(0.0735)	(0.378)	(0.0740)
ELIGFVINSTRU	0.325**		0.388***		0.392***	
	(0.133)		(0.138)		(0.143)	
DEBTRESTR	-1.375***		-1.297***		-1.215***	
	(0.470)		(0.465)		(0.469)	
NETWORTH	-0.339**		-0.299*		-0.257	
	(0.156)		(0.158)		(0.163)	
EARNINGSCOV	-0.0764		-0.0787		-0.110	
	(0.121)		(0.123)		(0.124)	
LEV	-0.799***		-0.769***		-0.738***	
	(0.246)		(0.246)		(0.248)	
ROA	-0.686		-0.713		-0.826	
	(0.577)		(0.560)		(0.576)	
RATING_AVAIL	-0.308***		-0.343***		-0.342***	
	(0.111)		(0.111)		(0.112)	
LEASE	-0.936**		-0.891*		-0.872*	
	(0.456)		(0.468)		(0.521)	
CONTINGENTLIAB	-0.305**		-0.332**		-0.339**	
	(0.135)		(0.136)		(0.136)	
UNREALISED	15.20		13.08		14.56	
	(11.87)		(12.52)		(13.19)	
LN1SYNSIZE	-0.0785		-0.116		-0.0926	
	(0.0929)		(0.0944)		(0.0951)	
CAPEX	0.447***		0.466***		0.478***	
	(0.161)		(0.163)		(0.163)	
INSTIT	0.233		0.206		0.156	
	(0.153)		(0.154)		(0.156)	
SWEEPVAR	0.00684		0.0370		0.0179	
	(0.112)		(0.112)		(0.113)	
DIVRESTR	0.245**		0.199*		0.216**	
	(0.105)		(0.106)		(0.108)	
COLLATERAL	-0.410***		-0.398***		-0.383***	
	(0.108)		(0.108)		(0.111)	
DEBTSIZE	-0.0708		-0.102*		-0.104*	
	(0.0554)		(0.0567)		(0.0556)	
Constant	-4.545***		-4.182***		-4.128***	
	(1.398)		(1.411)		(1.414)	
Observations	4,774	4,774	4,774	4,774	4,774	4,774
Year FE	YES		YES		YES	
Lead Lender FE	NO		YES		YES	
Industry FE	NO		NO		YES	
Pseudo R2	0.153		0.163		0.169	

The table reports logit regression model examining the likelihood of including a fair value exclusion clauses (FVC) in debt contracts between 2008 and 2017. In Column 1,3 and 5, the dependent binary variable which equals one if debt contracts contain FVC, and zero otherwise. Column 2, 4 and 6 presents marginal effect. *NETFVPOS_HIGH*: binary variable equal to one if a borrower has net positive fair value estimates (total fair value assets- total fair value liabilities) and among the highest 30% of net fair value, and zero otherwise. *SOLELENDER*: binary variable which equals one if the lending syndicate for debt contract available on Dealscan consist of one, and zero otherwise. *AFFECTED*: binary variable equal to one if the debt contract available on Dealscan includes a leverage, debt-to-equity, debtto- earnings, net worth, current ratio, or quick ratio covenant, and zero otherwise. *REVOLVER*: binary variable equal to one if the debt contract available on Dealscan includes a revolving credit facility, and zero otherwise. *UNRELIABLE FV*: binary variable equal to one if a firm's ratio of the Level 2 and 3 SFAS 157 fair value assets and liabilities to total fair value assets and liabilities ([Compustat (aol2 + aul3 + lol2 + lul3)/(aqpl1 + aol2 + aul3 + lqpl1 + lol2 + lul3)]) is above sample median, and zero otherwise; missing fair value estimates are set to zero. *PP*: binary variable equal to one if the debt contract available on Dealscan includes a performance-pricing provision, and zero otherwise. *HEDGE*: binary variable equal to one if

the firm is in the chemicals, gas and oil, mining, or utilities industry (Fama–French industries 14, 28, 30, 31), and zero otherwise. *LIQUIDITYCOV*: binary variable equal to one if the debt contract available on Dealscan includes a current ratio or quick ratio covenant, and zero otherwise. Robust standard error is clustered by firm in parentheses. Year and industry fixed are included unless stated otherwise. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels respectively.

Table 10 Level 3 Reliability Concern, Likelihood of Excluding Fair Value Estimates from Covenant Definitions Between 2008 and 2017

	(1)	(2)	(3)	(4)	(5)	(6)
REVOLVER	0.343***	0.0681***	0.344***	0.0682***	0.344***	0.0682***
	(0.0988)	(0.0194)	(0.0989)	(0.0194)	(0.0989)	(0.0194)
JUSTLVL3	0.200	0.0397				
	(0.241)	(0.0477)				
JUSTLVL3ASSETS			0.300	0.0594		
			(0.412)	(0.0816)		
JUSTLVL3LIABS					0.142	0.0282
					(0.292)	(0.0579)
PP	0.0364	0.00721	0.0355	0.00704	0.0335	0.00665
	(0.0882)	(0.0175)	(0.0881)	(0.0175)	(0.0881)	(0.0175)
LIQUIDITYCOV	-0.685**	-0.136**	-0.682**	-0.135**	-0.688**	-0.136**
	(0.335)	(0.0663)	(0.336)	(0.0666)	(0.335)	(0.0664)
ELIGFVINSTRU	0.397***		0.399***		0.398***	
	(0.143)		(0.143)		(0.143)	
DEBTRESTR	0.343***		0.344***		0.343***	
	(0.120)		(0.120)		(0.120)	
NETWORTH	-0.247		-0.250		-0.245	
	(0.165)		(0.165)		(0.165)	
EARNINGSCOV	-0.0730		-0.0729		-0.0706	
	(0.123)		(0.123)		(0.123)	
LEV	-0.662***		-0.661***		-0.661***	
	(0.248)		(0.248)		(0.248)	
ROA	-0.614		-0.639		-0.616	
	(0.577)		(0.572)		(0.576)	
RATING_AVAIL	-0.370***		-0.372***		-0.371***	
	(0.112)		(0.112)		(0.112)	
LEASE	-0.835		-0.828		-0.835	
	(0.508)		(0.506)		(0.508)	
CONTINGENTLIAB	-0.340**		-0.342**		-0.341**	
	(0.136)		(0.135)		(0.135)	
UNREALISED	13.43		13.38		13.37	
	(12.39)		(12.40)		(12.38)	
LN1SYNSIZE	0.0754		0.0753		0.0755	
	(0.0836)		(0.0835)		(0.0835)	
CAPEX	0.470***		0.474***		0.473***	
	(0.161)		(0.161)		(0.161)	
INSTIT	0.247		0.249		0.247	
	(0.155)		(0.155)		(0.155)	
SWEEPVAR	0.0352		0.0336		0.0354	
	(0.112)		(0.112)		(0.112)	
DIVRESTR	0.229**		0.230**		0.229**	
	(0.107)		(0.107)		(0.106)	
COLLATERAL	-0.406***		-0.407***		-0.406***	
	(0.111)		(0.111)		(0.111)	
DEBTSIZE	-0.140**		-0.141**		-0.141**	
	(0.0556)		(0.0556)		(0.0556)	
Constant	-3.882***		-3.860***		-3.872***	
	(1.402)		(1.402)		(1.402)	
Observations	4,774	4,774	4,774	4,774	4,774	4,774
Year FE	YES		YES		YES	
Industry FE	YES		YES		YES	
Lead Lender FE	YES		YES		YES	
Pseudo R2	0.162		0.162		0.162	

The table reports logit regression models examining the likelihood of including a fair value exclusion clauses (FVC) in debt contracts between 2008 and 2017. In Columns 1, 3 and 5, the dependent binary variable which equals one if debt contracts contain FVC, and zero otherwise. Column 2, 4 and 6 presents marginal effect. *REVOLVER*: binary variable equal to one if the debt contract available on Dealscan includes a revolving credit facility, and zero otherwise. *JUSTLVL3*: binary variable equal to one if borrower only has both level 3 assets and liability, and zero otherwise. *JUSTLVL3ASSETS*: binary variable equal to one if borrower only has level 3 assets, and zero otherwise. *JUSTLVL3LIAB*: binary variable equal to one if borrower only has level 3 liability, and zero otherwise. *PP*: binary variable equal to one if the debt contract available on Dealscan includes a performance-pricing provision, and zero otherwise. *HEDGE*: binary variable equal to one if the firm is in the chemicals, gas and oil, mining, or utilities industry (Fama–French industries 14, 28, 30, 31), and zero otherwise. *LIQUIDITYCOV*: binary variable equal to one if the debt contract available on Dealscan includes a current ratio or quick ratio covenant, and zero otherwise. Robust standard error is clustered by firm in parentheses. Year and industry fixed are included unless stated otherwise. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels respectively.

Appendices

Appendix A - Regular expression

FVC_{DDL}	(?:(?:SFAS|ASC|Statement of Financial Accounting Standards|Accounting Standards Codification)\s(159|825(?:-10-25)?))|(the fair value option)
Which looks for:	SFAS 159 Statement of Financial Accounting Standards 159 ASC 825 Accounting Standards Codification 825-10-25 The fair value option

FVC_{MCRL}	((?:FAS|SFAS|(?:FASB\s)?ASC(?:\s(?:sub)?Topic)?|Statement of Financial Accounting Standards|Accounting Standard(?:s)? Codification(?:\sSection|\sSubtopic)?)\s(?:(?:No.)?\s?159|825(?:[-|\s]10[-|\s]25|[-|\s]10)?)|(the fair value option))
Which looks for:	FAS 159 FASB ASC 825 FASB ASC Topic 825 ASC Subtopic 825 ASC 825-10-25 ASC 825 10 25 ASC 825-10 ASC 825 10 ASC 825 SFAS No. 159 SFAS 159 Statement of Financial Accounting Standards No. 159 Statement of Financial Accounting Standards 159 Accounting Standards Codification 825 Accounting Standards Codification 825-10 Accounting Standards Codification 825-10-25 Accounting Standards Codification 825 10 25 Accounting Standards Codification Subtopic 825-10 Accounting Standards Codification Subtopic 825 10 Accounting Standards Codification Section 825-10-25 Accounting Standards Codification Section 825 10 25 Accounting Standards Codification Section 825 10 Accounting Standards Codification Section 825-10 Accounting Standards Codification Section 825 The fair value option

Appendix A shows the respective regular expressions we used for both FVC_{DDL} and FVC_{MCRL}, as well as the vocabulary we search for.

Appendix B - Variable Definitions

Variables	Definitions
Dependent Variables	
FINCOV	=1 if debt contract on Dealscan (financialcovenant and networthcovenant) contains leverage ratio, debt-to-equity ratio, net worth, current ratio, quick ratio covenant, interest coverage ratio, fixed charge, debt service, minimum EBITDA, or debt-to-earnings covenant and zero otherwise
AFFCOV	=1 if debt contract on Dealscan (financialcovenant and networthcovenant) contains a leverage, debt-to-equity, debt to EBITDA, net worth, current ratio, or quick ratio covenant and zero other wise
FVC	=1 if debt contract contains on Fair Value Exclusion Clauses
Treatment Variables	
POST	=1 of debt contract on Dealscan (dealactivedate in package) initiated after 15th November 2007
REVOLVER	=1 if debt contract contains a revolving credit facility on Dealscan (facility), and zero otherwise
UNRELIABLE_EST	Ratio of a firm's Level 2 and 3 SFAS 157 fair value assets and liabilities to the total sum of SFAS 157 fair value assets and liabilities [Compustat (aol2 + aul3 + lol2 + lul3)/(aqpl1 + aol2 + aul3 + lqpl1 + lol2 + lul3)].
UNRELIABLEFV	=1 if firm's *Unreliable_est* is above the sample median, 0 other wise
NETFV	A firms' total fair value assets minus total fair value liabilities [Compustat (aqpl1 + aol2 + aul3 - lqpl1 - lol2 - lul3)]
NETFVPOS_HIGH	=1 if top 30% of *netfv*, and zero otherwise
PP	=1 if debt contract on Dealscan (performance pricing) contains a revolving credit facility and zero otherwise
ACCOUNTINGPP	=1 if performance pricing type on Dealscan (performance pricing) contains Debt to Cashflow or Senior Debt to Cashflow, and zero otherwise *Note: debt to cashflow = debt to EBITDA (Beatty et al. 2002)
RATINGPP	=1 if performance pricing type on Dealscan (performance pricing) is ratings based and zero otherwise
HEDGE	=1 if the firm is in the chemicals, gas and oil, mining, or utilities industry (Fama–French industries 14, 28, 30, 31), and zero otherwise.
LIQUIDITYCOV	=1 of debt contract on Dealscan (financialcovenant) contains current ratio or quick ratio covenant, and zero otherwise
Control Variables	
ELIGIBLE FAIR VALUE INSTRUMENT	Total financial instruments on the balance sheet eligible for the fair value option scaled by total assets. [Compustat (rect + ivst + ivaeq + ivao + ap + dlc + dltt)/at]
DEBT RESTRICTION COVENANT	=1 one if the debt contract available on Dealscan (financialcovenant) includes a leverage, debt-to-equity, debt-to-earnings, or debt-to-tangible net worth covenant, and zero otherwise.
NETWORTH COVENENT	=1 one if the debt contract available on Dealscan (networth) includes tangible net worth or net worth covenant, and zero otherwise.
EARNINGS COVENANT	=1 one if the debt contract available on Dealscan (financialcovenant) an interest coverage ratio, fixed charge, debt service, or minimum EBITDA covenant, and zero otherwise.

TOTAL ASSETS	On Compustat (at)
SIZE(BORROWER)	Natural logarithm of the market value of equity. [Compustat: ln(csho* prcc_f)]
LEVERAGE	Total debt scaled by total asset [Compustat: dltt / at]
ROA	Income before extraordinary items scaled by total assets [Compustat: ib/ at]
RATINGS AVAILABLE	=1 if a firm has an S&P credit rating available on Compustat, and zero otherwise.[Compustat: splticrm spsdrm spsticrm]
LEASE	Sum of a firm's discounted future lease payments with 10% discount rate , scaled by total assets, [Compustat (mrc1+mrc2+mrc3+mrc4+mrc5)/at]
CONTINGENT LIABILITY	=1 if a firm has nonzero Compustat forward and future contracts (clfc), foreign exchange commitments (clfx), letters of credit (cll), guarantees (clg), interest rate swaps (clis), or loan commitments (cllc), and zero otherwise.
UNREALISEDGL	Total unrealized securities gain/loss on investment securities recognized in other comprehensive income scaled by total assets.[Compustat: cisecgl/at]
LN1SYNSIZE	Natural log of one plus number of unique lenders in a debt contract on Dealscan (lender and package)
CAPEX RESTRICTION	=1 if debt contract where its covenant type states Max. Capex on Dealscan (financialcovenent), and zero otherwise
INSTITUTIONAL TRANCHE	=1 if debt contract where its loan type states term loan B, C or D on Dealscan (facility), and zero otherwise
SWEEP COVENANT	=1 if debt contract contains excess cash flow sweep, asset sales sweep, debt issuance sweep, equity issuance sweep, or insurance proceeds sweep on Dealscan (package), and zero otherwise
DIVIDEND RESTRICTION	=1 if debt contract contains dividend restriction on Dealscan (package), and zero otherwise
COLLATERAL	=1 if debt contract is secured by collateral on Dealscan (facility), and zero otherwise
DEBT SIZE	Natural log of the deal amount of the debt contract on Dealscan (package)