CDS, Empty Creditors, and Distressed Exchanges

by

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Abstract

Theory predicts that empty creditors – bondholders who hedge their default exposure using CDS – will resist Distressed Exchanges (DEs), forcing debtors to file for bankruptcy. Empirical evidence finds that empty creditors resist DEs, but their resistance does not cause debtors to file for bankruptcy. We provide evidence that debtors respond to empty creditor resistance by structuring and executing DEs in a manner that allows them to reduce debt and avoid bankruptcy. Our findings reconcile theory and empirics, and by highlighting the debtor's role, contribute to a fuller understanding of the role CDS and empty creditors play in distress resolution.

July 2014

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1. Introduction

Over the last decade, markets for credit insurance have developed dramatically and credit default swaps (CDS) have become the instrument of choice when it comes to hedging credit risks. The expanded hedging opportunities CDS provide and the allied benefits of better risk-sharing notwithstanding, concerns over their economic role stem from their ability to engender "empty creditors", and the role such creditors play in distress situations. As pointed out by legal scholars Lubben (2007) and Hu and Black (2008a, b), when creditors insure in the CDS market, they functionally decouple their cash flows from the control rights associated with their debt contracts, effectively becoming empty creditors. Such empty creditors, these authors argue, will prefer that a distressed debtor file for bankruptcy rather than restructure debt out-of-court because bankruptcy will trigger payments on their CDS contracts and make them whole while restructuring out-of-court would only yield a recovery below par.[1] Consequently, these scholars argue that in contrast to a distressed firm's typical creditors who prefer renegotiating with the debtor outside of bankruptcy rather than rely on costlier in-court proceedings, empty creditors will resist attempts by the debtor to restructure out-of-court to try and force the debtor to file for bankruptcy.[2] Bolton and Oehmke (2011) advance the argument further by showing that even if market participants (CDS counterparties) anticipate the incentives facing empty creditors and price them into CDS spreads, because debt contracting is incomplete (debtors cannot fully commit to honoring their obligations), empty creditors will over-insure in equilibrium and resist attempts by the debtor to restructure out-of-court.

Empirical evidence on the empty creditor problem (reviewed in section 3) indicates that empty creditors resist out-of-court restructurings. Yet it also indicates that empty creditor

[1] Industry analysts Yavorsky et al. (2009) express a similar view.
[2] Gilson, John and Lang (1990) argue that distressed firms have incentives to reorganize outside of bankruptcy.

resistance does not influence the debtor's choice to restructure debt in or out-of-bankruptcy. These two seemingly inconsistent pieces of evidence suggest either that the empty creditor problem is not severe enough to force debtors to file for bankruptcy (as implied by the extant evidence), or that it is, but that debtors respond to empty creditor resistance in some fashion that allows them to successfully restructure debt out-of-court and avoid bankruptcy. Stated differently, the endogeneity of the debtor's response makes it difficult to interpret the finding that empty creditor resistance does not materially affect the debtor's choice between restructuring in or out-of-bankruptcy. A fuller characterization of the empty creditor problem therefore requires an understanding of the debtor's response to empty creditor resistance. This is an empirical issue, and the one that we examine in this paper.

The plausibility of a debtor's response becomes apparent once one considers the incentives facing debtors. To the extent that restructuring debt out-of-court is beneficial to debtors in that it avoids the deadweight costs associated with bankruptcy, debtors will have an incentive to respond to empty creditor resistance. Anecdotal evidence suggests that this response is likely to be observed in the manner in which debtors structure and execute their out-of-court restructurings. For instance, the Financial Times (July 23, 2009) observes that with out-of-court restructurings:

> " ... the CDS market has become such a big part of the calculus that when advisers try to structure deals, their starting point is often to look at how many CDS holders there are and try to structure deals that address their concerns."

It goes on to provide the example of Unisys's restructuring:

> "… to get CDS holders to support the deal, Unisys had to offer to exchange bonds into senior secured debt at a ratio of 95 cents on the dollar and 20 per cent in cash - a deal so generous that the bonds were worth more than par. Since the most investors can get in the event of a default is 100 cents on the dollar, even holders of the credit insurance happily accepted the offer."

To better understand the debtors' response to empty creditors, we examine the Distressed Exchanges (DEs) they conduct to restructure their debt out-of-court. In a DE, the firm restructures debt out-of-court through a tender offer, extinguishing some part of its outstanding debt and replacing it with a package of new securities (debt, equity, cash or some combination thereof) of lower cash value. We examine 83 such DEs conducted between 2004 and 2011 for differences between those conducted by CDS-reference and non-reference entities. As with the prior literature, reference entities proxy for debtors who face empty creditors. There are 25 DEs conducted by reference entities in our sample. To ensure meaningful comparisons, we control for differences in distress characteristics, debt structure and debt maturity across reference and non-reference entities.

We find that the DEs conducted by reference entities differ from those conducted by non-reference entities in two key ways. First, we find that reference entities restructure a smaller proportion of their outstanding senior unsecured debt, but a larger proportion of their outstanding junior debt relative to non-reference entities. Closer examination reveals that reference entities restructure a smaller proportion of their senior unsecured debt relative to non-reference entities only when there is no junior debt in the capital structure. When junior debt is present, reference entities restructure a similar proportion of senior unsecured debt, but a larger proportion of junior debt relative to non-reference entities. Reference entities face resistance in restructuring senior unsecured debt because, for all practical purposes, empty creditors are senior unsecured bondholders (CDS contracts typically reference senior unsecured debt). The smaller proportion of senior unsecured debt restructured by reference entities is therefore consistent with the unwillingness of empty creditors to tender in the DE. However, the fact that reference entities restructure a larger proportion of their junior debt indicates that debtors respond to empty

creditor resistance along a quantity margin. When the opportunity exists, reference entities disproportionately restructure junior debt to circumvent the limitation they face in restructuring senior unsecured debt.

Second, we find that recovery rates for senior unsecured bondholders are higher in reference entity DEs relative to non-reference entity DEs when there is no junior debt in the capital structure. When junior debt is present, recovery rates for senior unsecured bondholders are similar across reference and non-reference entities, but recovery rates for junior bondholder are higher in reference entity DEs relative to non-reference entity DEs. These findings indicate that debtors operate along both a price margin and a quantity margin in structuring and executing their DEs. When there is no junior debt, debtors accommodate the resistance faced from senior unsecured creditors by paying them more to tender in the DE. When the opportunity to restructure junior debt exists, debtors circumvent their limited ability to restructure senior unsecured debt by paying junior creditors more to entice them to tender disproportionately in the DE.

To determine whether these observed differences between reference and non-reference entity DEs translate into distress relief, we first compare the amount of debt reduced in the restructuring. We compute this debt reduction as the product of the outstanding debt that is restructured and what is paid to restructure it (i.e. the recovery rate for the restructured debt). When there is no junior debt, we find that reference entities are unable to lower their outstanding debt to the same extent as non-reference entities. However, when junior debt is present, there is no difference in the amount of debt reduced in the restructuring between reference and non-reference entities. To get a more complete picture of the distress relief achieved through the DE, we also examine the incidence of bankruptcy subsequent to the DE. We find that none of the

reference entities file for bankruptcy in the first year subsequent to their DE, nor do we find reference entities to have a higher probability of filing for bankruptcy subsequent to their DEs when compared to non-reference entities. In a more specific test, we examine whether the ability to restructure junior debt allows reference entities to successfully avoid bankruptcy. We find that reference entities are more likely to file for bankruptcy when they have senior unsecured debt but no junior debt, and that this does not hold for non-reference entities. These findings indicate that the manner in which debtors structure and execute DEs to address empty creditor resistance allows them to relive their distress and avoid having to file for bankruptcy.

To summarize, our findings reveal that debtors structure and execute DEs to address empty creditor resistance. Anticipating resistance from empty creditors, reference entities either accommodate their limited ability to restructure senior unsecured debt by paying senior unsecured bondholders more to tender in the DE, or circumvent it by paying junior bondholders more to disproportionately tender in the DE. Structuring and executing the DE in this manner allows reference entities to relieve their debt enough to not have to restructure again under bankruptcy.

Our findings show that debtors' response to empty creditor resistance is critical to understanding how debtors resolve distress when faced with empty creditors. By doing so, our paper contributes to a fuller characterization of the empty creditor problem by highlighting the debtor's side of the equation, and helps reconcile the theoretical prediction that empty creditor resistance to DEs should lead reference entities to file for bankruptcy with the empirical evidence that reference entities manage to avoid it.

2. Institutional Details

2.1. Credit Default Swaps (CDS)

A single-name CDS is a bilateral contract between a buyer and a seller of protection that references an entity (a firm) and an obligation (typically the senior unsecured bond). Under the contract terms, the protection buyer makes periodic payments (generally quarterly) to the seller. These payments, called the fee, spread, or premium, are a percentage of the nominal amount of the reference obligation. In exchange for these payments, the buyer receives a settlement from the seller equal to the difference between the par and the recovery on the reference obligation when the reference entity experiences a credit event. The period over which the CDS is in effect is termed its maturity and ranges from one to ten years. While CDS contracts are privately negotiated between the counterparties, the majority adheres to standardized protocols developed by the International Swaps and Derivatives Association (ISDA). The contractual features associated with a CDS – the reference entity, reference obligation, effective date and scheduled termination date, are documented in a "confirmation" that references ISDA definitions.

More importantly for our purpose, CDS confirmations also specify what constitutes a credit event. ISDA defined credit triggers include bankruptcy, failure to pay (after a specified grace period), obligation acceleration, obligation default, repudiation or moratorium, and restructuring.[3] Under the Modified Restructuring (Mod-R) clause introduced in 2003, ISDA defined a restructuring as one where a firm in financial distress engages in one or a combination of the following actions to improve its creditworthiness - principal reduction, coupon reduction, maturity extension, or a change in subordination. However, the restructuring would be considered a credit event only if the terms on an existing bond or loan (same CUSIP identifier) were changed and the changes were voluntary and binding on all holders of the obligation. Under

[3] ISDA Credit Derivatives Definitions are available at www.isda.org/credit

this definition, a DE would not qualify as a credit event because it issues new claims to tendering bondholders even if non-tendering claims were subordinated to tendered claims. In 2009, the ISDA eliminated the Mod-R clause altogether. According to Altman and Karlin (2009), DEs have not triggered a credit event in the corporate market in recent years.

When disputes arise over what constitutes a credit event, the ISDA's Credit Derivatives Determinations Committee's decisions are binding. When a credit event occurs, the CDS contract is settled physically or in cash. In a physical settlement, the protection buyer delivers the reference obligation in return for the agreed notional amount. With physical settlement, a sudden increase in demand for the debt obligation in the case of credit event may cause a temporary shortage of the security and result in an artificial increase in its price. Consequently, cash settlements have become the preferred method of settlement, because they reconcile the short-term demand and supply mismatch problems faced in a physical delivery. In a cash settlement, the protection buyer receives the difference between the face value and the market price of the cheapest-to-deliver reference security.[4]

2.2. Distressed Exchanges (DEs)

The restructuring of public debt outside of bankruptcy typically takes the form of an exchange offer (distressed exchange, or DE). This is because the Trust Indenture Act of 1939 requires that any proposed changes to the core terms of the bond indenture (principal amount, interest rate or maturity) be approved by each bondholder, effectively giving a single bondholder veto power over the proposed change. To overcome the potential for a single bondholder to hold out and preclude a value increasing transaction, the restructuring is accomplished through a

[4] In a physical settlement, CDS contracts require that the buyer deliver to the seller a bond of the same seniority as that referenced in the contract. Because bonds in the same seniority class may have different prices (say because of accrued interest), the buyer has the option to deliver the cheapest bond in the class to the seller. In a cash settlement, the cheapest-to-deliver equivalent price is used to determine the market price of the reference obligation.

tender offer wherein tendering bondholders receive a new package of securities (cash, debt, equity) of lower cash payout value. From a creditor's perspective, the tender offer is an opportunity to exchange debt that is currently trading at a significant discount for a higher-valued package.

In a DE, all outstanding debt is rarely restructured. Chatterjee, Dhillon, and Ramirez (1995, 1996) report that, on average, only 52% of the outstanding public debt is restructured in a DE. This is because it is costly to get all debt holders to agree to the terms of the offer. Consequently, firms target particular classes of bondholders in the tender offer. To encourage bondholders to tender and to penalize holdouts, firms offer bondholders a package whose market value is higher than the current market value of their debt. Generally, the new bonds in the package are more senior and are of shorter maturity (Gilson, John, and Lang, 1990). The amount of debt reduced by the firm through the DE thus depends on the debt that is restructured and what tendering bondholders receive in exchange for tendering their debt.

Empty creditor resistance to the DE makes it difficult (more costly) for firms to restructure debt held by empty creditors (or the debt class that contains empty creditor debt). In our empirical analysis, we examine all the debt the firm restructures across all creditor classes and their corresponding recoveries (that determine the market value of the package that tendering bondholders receive) to determine how the debtor structures and executes the DE when faced with the difficulty of restructuring the debt in the creditor class that contains empty creditor debt.

3. Relevant Literature

The ability of CDS markets to engender empty creditors and the role such creditors play in distress resolution was first recognized by legal scholars Lubben (2007) and Hu and Black

(2008a, b). Terming creditors who partially or fully hedge their credit exposure in the CDS markets as empty creditors to characterize how CDS insurance decouples a creditor's economic exposure (cash flow rights) from the associated control rights, these authors emphasize the incentive-altering effects of CDS insurance. In contrast to traditional creditors who prefer that the debtor restructure out-of-court rather than in bankruptcy, these authors argue that CDS insurance incentivizes empty creditors to resist out-of-court restructurings to try and force the debtor to file for bankruptcy. This change in incentives occurs because the economic benefits are greater if the debtor were to file for bankruptcy, triggering payments on CDS contracts and making empty creditors whole, as opposed to agreeing to an out-of-court restructuring that would necessitate granting concessions and receiving less than par.

Bolton and Oehmke (2011) formalize this argument in a limited commitment model of debt to show that even if CDS markets anticipate empty creditors' incentives and price it into CDS spreads empty creditors will over-insure and resist out-of-court restructurings. In their model, the limited ability of debtors to commit to fulfilling their payment obligations (because realized cash flows are not verifiable) leads to the possibility that debtors may default not just for liquidity reasons (when cash flows are insufficient to fulfill contractual payments), but for strategic reasons (when cash flows are sufficient to fulfill contractual payments) to extract concessions from creditors as well. When debtors can default for liquidity as well as strategic reasons, the reluctance of empty creditors to renegotiate debt because they are protected in the event of default generates two opposing effects. On the one hand, the unwillingness of empty creditors to renegotiate serves to commit the debtor against strategic default thereby generating efficiencies (raising debt capacity). On the other hand, the same unwillingness of empty creditors to renegotiate also generates inefficiencies because it makes default more likely when renegotiation

would have been value preserving in liquidity default situations. The socially optimal level of insurance trades off the ex-ante commitment benefits against the ex-post costs of inefficient renegotiation, but empty creditors do not fully internalize the cost of foregone renegotiation surplus. As a result, even when CDS spreads incorporate effects associated with empty creditors, empty creditors will over-insure and resist out-of-court restructurings, and in equilibrium, the incidence of bankruptcy will be inefficiently high compared to the social optimum.

Empirically, however, empty creditors do not appear to be associated with a disproportionately higher incidence of bankruptcy filings as predicted by theory. In an industry study conducted for ISDA, Mengle (2009) examines the association between empty creditors and the proportion of distressed firms that restructure debt out-of-court (through DEs) relative to restructuring in bankruptcy. He finds that the frequency of out-of-court restructurings relative to bankruptcies shows no change after the development of CDS markets. Furthermore, he finds no difference in the proportion of DEs relative to bankruptcies between CDS-reference entities (that proxy for the presence of empty creditors) and non-reference entities after the development of CDS markets. Bedendo, Cathcart, and El-Jahel (2012) employ probit specifications to examine whether reference entities exhibit a greater propensity to restructure in bankruptcy as opposed to through a DE. Controlling for factors that affect the choice between restructuring through a DE or in bankruptcy, they find that reference entities do not disproportionately restructure their debt in bankruptcy when compared to non-reference entities.[5]

Although the empirical evidence indicates no association between empty creditors and the choice of restructuring method, there is evidence that suggests that empty creditors resist DEs. Subrahmanyam, Tang, and Wang (2013), who examine changes in a firm's credit risk surrounding the initiation of CDS trading, find that the inception of CDS trading increases the

[5] A similar examination using our sample confirms these findings.

credit risk of the reference entity, measured both as the propensity for a credit rating downgrade and the probability of bankruptcy, which they argue is consistent with the reluctance of empty creditors to participate in DEs. Danis (2012), who examines the issue more directly by hypothesizing that the reluctance of empty creditors to participate in a DE should be observable in the tendering rates of the bonds targeted in the DE, finds that the proportion of the targeted bonds tendered in a DE (what he calls the participation rate) is lower in reference entity DEs relative to non-reference entity DEs.

Our paper provides for a fuller characterization of the empty creditor problem by examining the debtor's side of the equation. Our evidence that empty creditors resist DEs, but that distressed firms respond by structuring and executing DEs in a manner that accommodates or circumvents their resistance helps reconcile the seemingly inconsistent evidence that empty creditors resist DEs but that this resistance does not lead firms to file for bankruptcy.

4. Data and Sample

4.1. Data

To construct our sample, we start with a list of DEs obtained from Moody's Default and Recovery Database (DRD) that occurred between January 2004 and December 2011. We merge this list with the list of DEs from the database maintained by NYU's Salomon Center to obtain the largest possible set of DEs.[6] We begin in 2004, as this year marked a turning point in the CDS market with the initiation of ISDA Credit Derivatives Definitions and the introduction of CDX and iTraxx credit indices in 2003. We identify unique DEs based on the ultimate guarantor of the restructured debt. We use Bloomberg, Moody's company searching tools, and the

[6] We thank Ed Altman for providing us this dataset of DEs conducted by high-yield bond issuers from January 2004 to March 2010. This database adds 13 firms conducting DEs and 2 additional DEs conducted by William Lyon Homes Inc. (10/23/2009) and Hovnanian Enterprises Inc. (11/24/2008) to those identified using Moody's DRD.

underlying bond indentures to identify the guarantor information. We consider DEs that occurred within 6 months of each other to represent a single DE because the precipitating factors, firm characteristics, and the nature of reorganization are unlikely to have changed within this short period. Clustering such observations and eliminating financial and non-US companies produces an initial sample of 134 DEs conducted by 124 firms.

We compile the requisite financial data on firms conducting DEs from the first available annual report prior to the DE from COMPUSTAT, EDGAR, Bloomberg, and firm websites.[7] We obtain details on the debt structure from FactSet and firms' annual financial reports. We drop 39 DEs (37 firms) because we failed to identify an annual report within a year prior to the firm's first exchange offer. For the remaining DEs, we collect details on the exchange (the securities targeted, the amount exchanged etc.) from Moody's DRD, and when unavailable on Moody's DRD, directly from the firm's 10-K and 8-K SEC filings. We refer to company press releases and LEXIS-NEXIS news search results when further clarification and/or details are needed. Throughout the data collection process, we confirm that all of the sample firms are indeed financially distressed and that their debt structure details reported in annual financial statements include the securities involved in the DEs.[8]

[7] There are two cases where obtaining firm level details required accounting for the mergers the firms had entered into prior to their DEs. Caesars Entertainment Corporation was involved in a merger in January 2008. It conducted a DE in December 2008,which included securities from the merger that were not reported in 2007 annual report. In order to match firm characteristics with the securities restructured as closely as possible, we use balance sheet information from the second quarter of 2008 and the 12-month trailing income statement from the same quarter. We also confirmed that debt table as of the second quarter of 2008 included all of the securities restructured. Similarly, Clear Channel Communications, Inc. was involved in a merger in June 2008 and conducted a DE in August 2009. The first post-merger annual report was available only in 2010. To obtain financial information on the company at the end of 2008, we sum up the pre-merger (from January 1 through July 30, 2008) and post-merger (from July31 through December 31, 2008) income statement items reported in 2009 annual report to obtain the company's 2008 annual operating performance. The company's balance sheet as of December 2008 was available in the 2009 annual report.

[8] We exclude Century Aluminum Company's DE on September 30, 2009 because the restructuring information in Moody's DRD was incomplete and we were unable to reconcile the details using the company's SEC filing.

For each security involved in the DE, we collect its characteristics (coupon type and rate, issue amount, maturity, etc.) either from Moody's DRD or Bloomberg. For floating rate bonds, we calculate the coupon rate prior to the DE completion date using the underlying benchmark (3-month or 6-month LIBOR), spread, and coupon reset periodicity information available on Bloomberg. We obtain prices for the securities restructured one month after the DE completion date from Moody's DRD, and when unavailable on Moody's DRD, from Bloomberg or FINRA's TRACE database. We obtain stock returns, prices, and number of shares outstanding prior to the DE from the Center for Research in Security Prices (CRSP) database. Eliminating 11 DEs (11 firms) that include non-rated securities for which security characteristics and prices are unavailable results in a final sample that consists of 75 firms conducting 83 DEs involving 268 outstanding debt securities. [9]

We identify whether a sample firm is a CDS reference entity using Bloomberg data feeds.[10] To increase the probability that we capture economically significant effects associated with empty creditors at the time of the DE, we classify firms as a reference entity only if there is a CDS price (spread) available in the 6 months prior to the DE completion date. We also crosscheck if these reference entities appear in the Depository Trust & Clearing Corporation's (DTCC) Top 1,000 Reference Entities list in the same time period.[11] We identify the reference obligation for the CDS using Markit's reference obligation identifiers (RED Codes) on Bloomberg. For all our reference entities, the reference obligation is the senior unsecured bond.

[9] Such sample sizes are typical of studies of distressed debt restructurings. For instance, Gilson, John, and Lang (1990), Brown, James, and Mooradian (1993), Franks and Torous (1994), Chatterjee, Dhillon, and Ramirez (1995) and James (1996) examine 80, 35, 45, 46, and 68 DEs respectively.

[10] Bloomberg feeds include CBGL/LON, CBGN/NYC, CBGT/TYO, CBED/OTH, CBIL/LON, CBIN/NYC, CBIT/TYO, CMAL/OTH, and CMAN/OTH.

[11] Using a one-year window for the availability of CDS spreads or excluding firms not on the DTCC list (available at http://www.dtcc.com/products/derivserv/data_table_i.php?tbid=5) do not change any of our findings in a material way. Our sample contains two reference entities that are not on the DTCC list.

Our sample consists of 25 DEs conducted by reference entities and 58 DEs conducted by non-reference entities.

4.2. Sample characteristics

Table 1, Panel A presents the time distribution of DEs in the sample. Majority of the DEs in the sample occur during 2008-09. Of the 83 DEs in the sample, 56 occur in 2008 and 2009. This time concentration is mirrored in sub-samples of reference and non-reference entity DEs. Of the 25 DEs by reference entities, 18 occur in these two years. Similarly, of the 58 DEs by non-reference entities, 38 occur in the same time period. Altman and Karlin (2009) report a similar increase in DEs post 2007 which they attribute to the reduced availability of debtor-in-possession financing for bankruptcy reorganizations during the financial crisis of 2008-09.[12]

Table 1, Panel B presents the industry distribution of DEs in the sample based on the Fama-French aggregation of SIC codes into 5 representative sectors (Consumer, Manufacturing, High-tech, Health and Other). Sample DEs occur almost uniformly in all sectors, except the Health sector. This industry pattern is the same whether the firm conducting the DE is a reference entity or not. Panel B also reports the number of private firms conducting DEs in the sample. The majority of the firms conducting DEs are private. Among the 30 public firms conducting DEs, nearly half (14) are reference entities.

Table 1, Panel C identifies DEs in our sample based on their industry's (2-digit SIC code level) growth prospects. The median industry Q in the year prior to the DE is above one irrespective of whether the firm conducting the DE is a reference entity or not, indicating that DEs occur in industries with growth options. Panel C also identifies whether DEs in the sample occur in distressed industries using a median one-year industry return of less than -30% prior to

[12] We discuss the implications of the financial crisis for our analysis in section 6.

the DE to classify industry distress. Approximately half of the reference entity DEs and a third of the non-reference entity DEs in the sample occur in distressed industries.

Table 2 presents various financial characteristics for reference and non-reference entities conducting the DEs in the sample. Consistent with the fact that CDS contracts are typically written on large firms, sample reference entities are larger than sample non-reference entities. Although they do not differ in terms of their overall profitability (ROA), sample reference entities have lower asset turnovers (Sales/Assets) and higher profit margins (EBITDA/Sales) relative to non-reference entities.

CDS coverage and the propensity for distress are endogenous because marginal credits attract CDS coverage. Conditional on being distressed however, sample reference entities are similar to sample non-reference entities in terms of their distress characteristics based both on book value measures and market value measures. Typical of firms experiencing financial distress, both reference and non-reference entities in the sample are solvent on a book value basis (the leverage ratio, Total Debt/Total Assets is below 1), generate sufficient earnings from their operating activities to cover interest expenses (EBITDA/Interest ratio is greater than 1), but are cash constrained. Although sample reference entities have lower interest expenses relative to their debt than sample non-reference entities, the median sample reference entity has a Cash/Total Debt ratio of 5% while its Interest Expense/Total Debt ratio is 8%, similar to the median sample non-reference entity, which has corresponding figures of 4% and 9% respectively.

Computing a market-based measure of distress, such as the distance-to-default based on a structural model of credit risk, requires the market value of equity as a key input. In the absence of the market value of equity for a number of our sample observations (64% of our sample consists of private firms), we adopt an alternate approach. We randomly select a bond for every

firm in our sample and calculate the credit spread as the difference between the yield-to-maturity of the bond and a benchmark risk-free rate one-month before the announcement of the DE. We calculate the benchmark risk free rate by linearly interpolating the maturity-matched interest rate swap curve. We also calculate an alternative risk-free benchmark in a similar fashion from the treasury yield curve. Similar to what is observed with book value based measures, these credit spreads are not statistically different across sample reference and non-reference entities. Using either risk-free benchmark, the mean (median) credit spread for reference entities is about 36% (23%). Correspondingly, the credit spread is approximately 52% (31%) for non-reference entities.[13]

As a final comparison of distress characteristics, we examine liquidation values. To proxy for liquidation value we follow Almeida and Campello (2007) and capture the assets that can be pledged (and hence liquidated) by constructing a tangibility ratio defined as:

$$(\text{Cash} + 0.715 \text{ x Receivables} + 0.547 \text{ x Inventories} + 0.535 \text{ x PP\&E})/\text{Assets}. \quad (1)$$

This proxy for liquidation value is not statistically different across reference and non-reference entities. The mean (median) tangibility ratio for sample reference entities is 37% (32%) while it is 39% (40%) for sample non-reference entities.

Table 3 presents details on the debt structure of reference and non-reference entities conducting the DEs in the sample. We classify a firm's debt on the basis of its seniority (priority) into loans (private debt) and bonds/notes (public debt), and the bonds further into senior secured, senior unsecured and junior debt (which includes senior subordinated and junior subordinated

[13] Our results are qualitatively unchanged when we randomly pick only senior unsecured bonds to compute the spread, or when we compute weighted average spreads where the weights are the bonds' issue size weights. A multivariate analysis (unreported) that controls for security specific characteristics further confirms that there is no difference in spreads between reference and non-reference entities.

debt). Almost all sample firms have loans, and the proportion of debt in the form of loans is similar across reference and non-reference entities (about a third of their total debt).

Similarly, almost all sample firms have bonds, but there are differences in bond debt structure across reference and non-reference entities. All reference entities have senior unsecured debt because senior unsecured bonds are the reference obligation underlying the CDS, while only 36 out of the 58 non-reference entities have senior unsecured debt. Conditional on having senior unsecured debt however, there is no difference in the proportion of senior unsecured debt between reference entities (an average of 54% of total debt) and non-reference entities (an average of 56% of total debt). Not all firms have senior secured or junior debt, but when they do, reference entities have a smaller percentage of their debt in senior secured and junior bonds compared to non-reference entities. Only 11 out of the 25 reference entities have senior secured bonds, and when they do, senior unsecured debt accounts for an average of 16% of their total debt. In contrast, 16 out of the 58 non-reference entities have senior secured bonds, and when they do, it accounts for an average of 47% of their total debt. Similarly, 15 out the 25 reference entities have junior bonds that on average represent 10% of their total debt, while 29 out of 58 non-reference entities have junior bonds that represent an average of 30% of their total debt.

To obtain a summary measure that takes into account the disparity in the bond debt structure of firms, we construct a Hefindahl index of debt concentration across debt classes along the lines of Betker (1995) as follows:

$$\sum_{j=1}^{k}\left(V_j/V_i\right)^2, \tag{2}$$

where V_j is the face value of long-term claims held by debt class j and V_i is the sum of the face value of all long-term debt claims held by firm i. Based on this measure, reference entities have a

less concentrated debt structure than non-reference entities, reflective of the fact that, relative to non-reference entities, reference entity debt is held across more classes and across more securities in each class.[14]

5. Analysis

To determine whether reference entities structure and execute their DEs differently from non-reference entities, we contrast reference and non-reference entity DEs along two dimensions: the outstanding debt that is restructured and bondholder recovery rates. We then examine whether differences in the way reference entities structure and execute DEs allows them to achieve distress relief both in terms of debt reduction and their ability to avoid bankruptcy. Throughout our analysis, we emphasize the restructuring of senior unsecured debt because empty creditors are senior unsecured bondholders – for all the reference entities in our sample, the CDS references the senior unsecured bond. Empty creditor resistance should therefore make it more difficult for reference entities to restructure their senior unsecured debt relative to non-reference entities.

5.1. Debt restructured

Table 4 presents univariate comparisons of the amount of debt outstanding and the proportion that is restructured in reference and non-reference entity DEs, both at the firm level and across debt classes. Panel A of the table presents this comparison for the entire sample of 83 DEs. This panel reveals that reference entities restructure a much smaller percentage of their total outstanding debt relative to non-reference entities. On average, non-reference entities have $0.84 billion in debt and they restructure 37% of it in a DE. In contrast, reference entities have

[14] The median reference entity's debt is held across three classes (about 6 securities per class) while the median non-reference entity's debt is held in two classes (with about 2 securities per class).

$18.65 billion in debt, but they restructure only 18% of it. Both reference and non-reference entities have similar proportions of loans and notes or bonds outstanding. Both seldom restructure their loans (in workouts with private lenders) when conducting a DE. Hence, the smaller proportion of debt restructured by reference entities traces to the smaller proportion of bond-debt they restructure relative to non-reference entities. More specifically, it traces to the restructuring of senior unsecured debt. Despite having a similar proportion of senior unsecured debt outstanding, reference entities restructure a smaller proportion of it compared to non-reference entities. The average non-reference entity (among the 36 non-reference entities that have senior unsecured bonds) has 56% of its debt in senior unsecured bonds and restructures 48% of it. In contrast, the average reference entity has 54% of its debt in senior unsecured bonds and restructures only 26% of it.

Although Panel A reveals that reference entities restructure less of their senior unsecured debt when compared to non-reference entities, not all non-reference entities have senior unsecured debt nor do all reference entities that have senior unsecured debt have junior debt. To obtain more appropriate comparisons, we restrict the sample to the 61 DEs where the firms have senior unsecured debt, and further subsample based on whether they have junior debt (Panel B – with junior debt), or do not have junior debt (Panel C – without junior debt). These panels that control for the differences in debt structure reveal that the smaller proportion of senior unsecured debt restructured by reference entities can be traced to those that do not have junior debt. Reference entities with both senior unsecured and junior debt are no different from their non-reference entity counterparts in terms of the proportion of debt they restructure at the firm level or across individual debt classes. In contrast, reference entities with senior unsecured debt but without junior debt restructure a smaller proportion of their senior unsecured debt (30%) when

compared to similar non-reference entities (62%), despite having similar proportions of senior unsecured debt outstanding.

Tables 5 and 6 perform these comparisons in a regression framework controlling for differences in firm financial characteristics. All regressions include the following control variables: firm leverage (Total Debt/Assets), profitability (EBITDA/Sales), and liquidity (Interest Expense/Total Debt and Cash/Total Debt). The coefficient of interest in the regressions is the one on the dummy variable (CDS Dummy) that indicates whether there is a difference in the amount of debt restructured by reference and non-reference entities. All regressions are estimated using OLS with White's (1980) correction employed to account for possible heteroskedasticity.

Table 5, which is the counterpart to Table 4, Panel A, presents the results of the regression analysis utilizing the entire sample of DEs. In regression I, the dependent variable is the dollar amount of debt restructured as a proportion of total outstanding debt. [15] Statistically significant coefficients in the regression confirm that more profitable firms restructure less debt while firms with higher interest burdens restructure more debt. The insignificant coefficient on the CDS dummy indicates that the proportion of outstanding debt restructured by reference entities is no different from that restructured by non-reference entities. Regressions II and III analyze the junior debt and senior unsecured debt restructured, respectively. In regression II, the dependent variable is the amount of junior debt restructured as a proportion of outstanding junior debt. The independent variables in this regression include additional controls for the amount of junior and senior debt (as a percentage of outstanding debt). Not surprisingly, this regression shows that firms with more junior debt restructure a larger proportion of their junior debt. The coefficient on

[15] The results remain qualitatively the same if we use a dependent variable defined as the debt restructured as a proportion of the debt in the targeted debt classes (instead of debt outstanding).

Junior Debt/Total Debt is 0.86 and statistically significant at conventional levels. More importantly, the coefficient on the CDS dummy is 0.28 and statistically significant indicating that reference entities restructure a larger proportion of their junior debt relative to non-reference entities. In regression III, the dependent variable is the senior unsecured debt restructured as a proportion of outstanding senior unsecured debt. All the independent variables are identical to that in regression II. Again, not surprisingly, this regression indicates that firms with more junior debt restructure less senior unsecured debt. However, this regression indicates that reference entities restructure a smaller proportion of their senior unsecured debt relative to non-reference entities. The coefficient on the CDS dummy is -0.22 and statistically significant.

Table 6, which is the counterpart to Table 4, Panels B and C, presents the results of the regression analysis for the sample of DEs conducted by firms with senior unsecured debt. Regressions I and II analyze DEs by the subsample of firms with both senior unsecured and junior debt, while regression III analyzes DEs by the subsample of firms with senior unsecured debt, but without junior debt. In regression I, which analyzes the proportion of junior debt restructured (in a specification identical to regression II of Table 5), the coefficient on the CDS dummy is 0.27 and statistically significant, indicating that reference entities restructure a larger proportion of their junior debt compared to non-reference entities when they have both senior unsecured and junior debt. In contrast, in regression II, which analyzes the proportion of senior unsecured debt restructured (in a specification identical to regression III of Table 5), the coefficient on the CDS dummy is insignificant, indicating that these same reference entities restructure a similar proportion of their senior unsecured debt relative to non-reference entities. In regression III, which also examines the proportion of senior unsecured debt restructured, but for DEs by firms that do not have any junior debt, the coefficient on the CDS dummy is -0.28

and statistically significant, indicating that reference entities restructure a smaller proportion of their senior unsecured debt compared to non-reference entities only when they do not have junior debt.

The results from our analysis of the debt restructured in the DE provide evidence that empty creditors limit the ability of debtors to restructure their debt out-of-court, but only when senior unsecured debt is the lowest in terms of the absolute priority of claims (when there is no junior debt). In such situations, empty creditor resistance to restructuring senior unsecured debt limits debtors' ability to restructure debt. More importantly, our results also provide evidence that debtors are able to overcome the resistance they face from empty creditors in restructuring debt when they have junior debt. In such situations, debtors are able to circumvent empty creditor resistance in restructuring senior unsecured debt by disproportionately restructuring junior debt.

5.2. Recovery rates

Table 7 reports univariate comparisons of recovery rates in reference and non-reference entity DEs across all debt classes. Bond level recoveries are computed as the price of the targeted bond subsequent to the completion of the DE as a percentage of face value.[16] Following Moody's convention, we use the bond price one month from the DE's completion to infer the recovery rate for a bond. For DEs in the sample that are not from Moody's DRD, we obtain the first price available one month from the completion of the DE from Bloomberg or FINRA's TRACE database. The class level recovery rates reported are the averages of the individual bond recovery rates in that particular debt class.

Panel A presents the comparisons for all DEs in the sample. The average recovery rate in a reference entity DE is about 53%, while it is about 57% for a non-reference entity DE. These

[16] We use a price subsequent to the completion of the DE as opposed to say, after the announcement of the DE, because prices post-completion are not contaminated by the probability of success or failure of the DE, while those prior to completion are.

recovery rates are not statistically different. Neither are the class-level recovery rates. Although Panel A does not reveal any difference in the recovery rates between reference and non-reference entity DEs, it shows that the majority of bonds restructured by sample firms are senior unsecured bonds. To better understand the recovery rates of senior unsecured bonds, we restrict the sample of DEs to those by firms with senior unsecured debt in Panels B and C. To account for the differences in debt structure, we further subsample based on whether the firm also has or does not have junior debt.

Panel B presents the comparison of recovery rates across reference and non-reference entity DEs for firms with both senior unsecured and junior debt. This panel shows that when firms have both senior unsecured and junior debt, the average recovery rate is lower in reference entity DEs (48%) when compared to non-reference entity DEs (61%). Furthermore, this difference in average recovery rates arises from the recovery rates for senior unsecured bonds, which are lower in reference entity DEs (47%), relative to non-reference entity DEs (68%). Junior bondholder recovery rates are not statistically different across reference and non-reference entity DEs for this subsample of DEs. In contrast, Panel C, which compares the recovery rates across reference and non-reference entity DEs for firms with senior unsecured debt but without junior debt, shows that when senior unsecured debt is the lowest in the absolute priority of claims, senior unsecured bondholder recovery rates are significantly higher in reference entity DEs (59%) relative to the non-reference entities DEs (47%).

Table 8 presents comparisons of recovery rates across reference and non-reference entity DEs in a regression framework. The regressions are run at the security level where the dependent variable is the bond recovery rate. Bond recovery rates depend on industry, firm and security characteristics. In all our regressions, we follow Acharya, Bharath, and Srinivasan (2007), and

control for firm specific characteristics: firm size (Log Assets), asset tangibility (Tangibility), profitability (EBITDA/Sales), leverage (Total Debt/Total Assets), and debt concentration (Debt Concentration). We also control for industry characteristics: industry growth options (Industry Q) and industry distress (a dummy variable that takes the value one if the median firm in the firm's 2-digit SIC industry had a stock return of less than -30% in the year prior to the DE, and zero otherwise). Finally, we control for security specific characteristics: time to maturity (Time to Maturity in years), coupon rate (Coupon Rate), Issue size (Log Issue Size), seniority (Junior dummy), security (Secured dummy), and optionality (Convertible dummy). The coefficient of interest in our regressions is that of the CDS dummy that captures any difference in the recovery rates across reference and non-reference entity DEs. All regressions are estimated using OLS with White's (1980) correction applied to errors clustered at the firm level to account for possible heteroskedasticity and correlation across recovery rates within the same firm.

Regression I analyzes bondholder recoveries for the entire sample of DEs. Regression I indicates that recovery rates are higher if the firm's debt structure is more concentrated. It also indicates that recovery rates are higher in growth industries and lower in distressed industries. Furthermore, it confirms that recovery rates are higher when creditors have security and convertibility.[17] The coefficient on the CDS dummy in this regression is 13.31 and statistically significant, indicating that the average recovery rate is higher in reference entity DEs relative to non-reference entity DEs.

Regressions II and III analyze junior and senior unsecured recovery rates respectively for all DEs in the sample. The coefficient on the CDS dummy is positive and significant in both

[17] In regression I we also include 2-digit SIC industry dummies and following Stromberg, Hotchkiss, and Smith (2011), a LBO&MBO dummy to control for private equity involvement. None of the dummies are significant.

regressions, indicating that in reference entity DEs, both junior and senior unsecured bondholders recover more relative to their counterparts in non-reference entity DEs.

Regressions IV and V analyze the recovery rates for the sample of DEs where the firms have both senior unsecured and junior debt. Regression IV analyzes junior bond recoveries and regression V analyzes senior unsecured bond recoveries for this subsample of DEs. The coefficient on the CDS dummy in regression IV is 29.39 and statistically significant while it is statistically insignificant in regression V. These two regressions indicate that when the firm has both senior unsecured and junior debt, it is the junior bondholders and not the senior unsecured bondholders who recover more in reference entity DEs than in non-reference entity DEs. In regression VI, we restrict the sample to DEs conducted by firms that have senior unsecured debt but no junior debt, and analyze senior unsecured bond recoveries. The coefficient on the CDS dummy in this regression is 37.61 and statistically significant, indicating that senior unsecured bondholders in reference entity DEs recover more relative to their counterparts in non-reference entity DEs only when the firm has no junior debt.

The results from the analysis of recovery rates, taken together with those from the previous section on the debt restructured in the DE, indicate that reference entities respond to empty creditor resistance along both a price and a quantity margin in structuring and executing their DEs. When there is no junior debt, debtors accommodate the resistance faced from senior unsecured creditors by paying them more to tender in the DE. When the opportunity to restructure junior debt exists, debtors circumvent empty creditor resistance in restructuring senior unsecured debt by paying junior creditors more to entice them to tender disproportionately in the DE.

5.3. Distress relief

The ultimate goal of a DE is to remedy distress and avoid bankruptcy. The previous sections show that debtors respond to empty creditor resistance in the manner in which they structure and execute their DEs. To analyze how effective their response is in remedying distress, we combine the debt they restructure and what they pay bondholders to do it to compute the debt reduced through the DE as:

$$\sum_i \text{Amount Restructured}_i \text{ x } (1\text{-Recovery}_i), \quad (3)$$

where *i* references the bond restructured in the DE. When a particular bond's recovery rate is not available, we use the average recovery rate for the corresponding bond class as an estimate of that particular bond's recovery rate.

We investigate the amount of debt reduced through the DE in a regression framework that controls for firm profitability (EBITDA/Sales), leverage (Total Debt/Assets), liquidity (Cash/Total Debt), asset tangibility (Tangibility), debt concentration (Debt Concentration), industry growth options (Industry Q) and distress (Industry Distress). The dependent variable in all regressions is the amount of debt reduced in the DE as a proportion of total debt outstanding prior to the DE. The variable of interest in all regressions is the CDS dummy. We run OLS regressions that use White (1980) robust standard errors. The results of this analysis are presented in Table 9.

Regression I is run using the full sample of DEs. Although the coefficients on EBITDA/Sales, Total Debt/Assets and Cash/Total Debt and Tangibility are not statistically significant in regression I, their signs are broadly consistent with the need for debt reduction. The signs on these variables indicate that more profitable firms with tangible and liquid assets reduce

their debt less while those with more leverage reduce their debt more. The coefficient on the debt concentration variable is positive and significant at conventional levels indicating that firms find it easier to reduce their debt when they have to deal with concentrated as opposed to dispersed creditors. Similarly, the signs on the industry variables indicate that firms in industries with growth options reduce their debt less, but industry distress has no noticeable effect on debt reduction. In regression I, the coefficient on the CDS dummy is statistically insignificant, indicating that the amount of debt reduction achieved by reference entities is no different from that achieved by non-reference entities.

In regression II we restrict the sample to DEs by firms with senior unsecured and junior debt, and in regression III to firms with senior unsecured debt but no junior debt. The coefficient on the CDS dummy is statistically insignificant in regression II, but attains statistical significance in regression III, indicating that reference entities are limited in their ability to reduce their debt only when they do not have junior debt. These results indicate that reference entities are not limited in their ability to reduce their debt when they are able to restructure junior debt.

To analyze how effective the debtor's response to empty creditor resistance is in avoiding bankruptcy, we conduct two tests. First, we examine the incidence of bankruptcy in the two years following the DE across reference and non-reference entities for our full sample of DEs. We obtain bankruptcy filings for our sample firms from Moody's DRD database and LEXIS-NEXIS news search results. We tabulate the findings in Table 10. Table 10 shows that 5 out of 78 DEs (6.41%) conducted between 2004 and 2010 are followed by a bankruptcy filing within a year of the DE. However, none of these are by the 24 reference entities in the sample. Extending the post DE period to two years, we find that 11 out of 74 DEs (14.87%) conducted between 2004 and 2009 are followed by a bankruptcy. Only 2 of these bankruptcies are by reference entities while

11 of these are by non-reference entities. The difference in the proportion of firms filing for bankruptcy is significantly smaller for reference entities for the one-year post-period and insignificant for the two-year post-period. These results show that reference entities do not experience higher bankruptcy rates subsequent to DEs.[18]

Second, we specifically test whether it is the ability of reference entities to disproportionately restructure junior debt that allows them to avoid bankruptcy by examining whether the absence of junior debt is associated with a higher incidence of reference entity bankruptcies. To do so, we use Bloomberg to identify a sample of junk-rated firms with senior unsecured debt that filed for bankruptcy during the sample period (64 firms) to contrast with the 61 firms in our sample of DEs that have senior unsecured debt. This sample of 125 firms contains 40 reference entities (25 in the DE sample and 15 in the bankruptcy sample), and 85 non-reference entities (36 in the DE sample and 49 in the bankruptcy sample). Table 11, Panel A, presents univariate comparisons of the proportion of reference and non-reference entities without junior debt in the DE and bankruptcy samples. This panel shows that the proportion of reference entities without junior debt is higher in the bankruptcy sample (93%) than in the DE sample (40%). In comparison, the proportion of non-reference entities with junior debt is no different across the bankruptcy and DE samples. Similarly, within the bankruptcy sample, the proportion of reference entities without junior debt (93%) is higher than the proportion non-reference entities without junior debt (67%), while there is no difference in these proportions in the DE sample. These results show that reference entities without junior debt have a higher incidence of bankruptcy relative to comparable non-reference entities.

[18] In unreported results, we find that a logistic regression that controls for firm characteristics shows no difference across reference and non-reference entities in the probability of filing for bankruptcy subsequent to the DE.

Panel B of the Table conducts these tests in a probit regression framework. The dependent variable in the regressions is 1 if the firm files for bankruptcy or 0 if it engages in a DE. The independent variables in the regressions control for size (Log Assets), profitability (EBITDA/Sales), Asset tangibility (Tangibility), Leverage (Total Debt/Assets), Short-term debt (Short-term Debt/Total Debt) and Bank debt (Bank Debt/Total Debt). The coefficient of interest is the one on the dummy No Junior Debt (which takes on a value of 1 if the firm has no junior debt and 0 otherwise) that captures any differences in the probability of bankruptcy relative to a DE across firms with and without junior debt. Regression I is run on the sample of reference entities while regression II is run on the sample of non-reference entities. The coefficient on the dummy is positive and statistically significant in regression I (1.78) indicating that reference entities without junior debt have a higher probability of filing for bankruptcy, while it is insignificant in regression II indicating no such difference for non-reference entities.

In sum, the results of this section indicate that the manner in which debtors structure and execute DEs to address empty creditor resistance allows them to reduce their debt and avoid bankruptcy.

6. Discussion

In this section, we discuss issues related to empty creditor resistance and how they affect our analysis. We report, but do not tabulate the results of the tests discussed in the section.

6.1. Credit event trigger

The incentive for empty creditors to resist DEs arises because resistance increases the probability that the debtor would experience a credit event triggering payoffs on their CDS contracts. If the DE itself were to trigger a credit event, there would be no need for empty

creditors to resist it. Whether DEs constitute a credit event is therefore critical to identifying empty creditor resistance. As mentioned earlier in section 2.1, under ISDA's 2003 Modified Restructuring (Mod-R) clause, a debt restructuring is defined as one where a firm in financial distress engages in one or a combination of the following actions to improve its creditworthiness: principal reduction, coupon reduction, maturity extension, or a change in subordination. Furthermore, the restructuring is considered a credit event only if the terms on an *existing* bond or loan (same CUSIP identifier) are changed and the changes are voluntary and binding on all holders of the obligation. Under Mod-R, DEs would not qualify as a credit event because the firm issues *new* claims to tendering bondholders even if non-tendering claims were subordinated to the tendered claims. In 2009, ISDA eliminated the Mod-R clause altogether as part of its Big Bang Protocol and formally recognized that DEs do not constitute a credit event. Altman and Karlin (2009) confirm that DEs have not triggered a credit event in the corporate market in the last decade. Thus, over our entire sample period, DEs would not have triggered a credit event and empty creditors would have faced incentives to resist the DE to try and push the firm to experience a credit event. To the extent that there was any uncertainty over a DE triggering a credit event, our results should be sensitive to the resolution of this uncertainty with the introduction of the Big-Bang protocol. To check whether our results are sensitive to the introduction of the Big-Bang protocol, we introduce a Big-Bang dummy (that takes on the value of 1 for DEs that occurred after April 8, 2009 and 0 otherwise) and interact it with our CDS dummy in regression I of Table 5. We find that the coefficients on the Big-Bang dummy, the CDS dummy and the interaction dummy are all statistically insignificant, indicating that the Big-Bang protocol did not have any material effect on our results.

6.2. Financial Crisis

The majority of the DEs in our sample – 72% of DEs by reference entities and 66% of DEs by the non-reference entities – were conducted during the 2008-09 period. This period coincides with the financial crisis of 2008 where concerns over the ability of major financial institutions to fulfill their contractual obligations increased counterparty risk. Therefore, it is conceivable that empty creditors, worried about the ability of their counterparties to pay out on their CDS contracts in the event the debtor defaults, would be more likely to participate in, and less likely to resist DEs. To investigate this possibility, we introduce LIBOR-OIS spread as a proxy for counterparty risk and interact it with the CDS dummy in regression I in Table 5. Accounting for the effects of increased counterparty risk in this manner, we find that our original result remains qualitatively unchanged – there is no difference in the proportion of outstanding debt restructured by reference and non-reference entities during the financial crisis period due to heightened counterparty risk.

Furthermore, if increased counterparty risk caused empty creditors to lower their resistance to DEs, then we should not find a difference in the way reference entities execute their DEs depending on whether they had, or did not have junior debt. Our finding that reference entities disproportionately restructure junior debt suggests that concerns over counterparty risk were not adequate enough to cause them to ignore the potential for empty creditors to resist their DEs, perhaps because debtors could not ascertain whether empty creditors will or will not resist the DE.

6.3. Counterparty intervention

It is conceivable that counterparties (CDS protection sellers) purchase debt claims from empty creditors to preempt having to pay out on the CDS contract. Such a scenario would arise if

the purchase price were to be lower than the CDS payout in the event of default. If protection sellers were to purchase empty creditor debt, reference entity DEs would not be associated with empty creditor resistance. Although this is a theoretical possibility, there is no evidence that protection sellers settle in this manner (see Bolton and Oehmke, 2011 pp. 33). Furthermore, it is unclear whether under the current disclosure regime, debtors would know of such a settlement between the creditor and the CDS protection seller. Given this uncertainty over whether empty creditors have settled with their counterparties, debtors still face the possibility that empty creditors may resist their DEs. Our analysis indicates that debtors respond to this possibility.

6.4. Junior creditors

In our analysis, we identify empty creditor resistance as being associated with the senior unsecured class because the CDS in our sample reference senior unsecured debt. It is possible that empty creditor resistance is also associated with the junior class (in an admittedly derivative manner) if junior creditors purchase CDS protection (that references senior unsecured debt). If this were to be the case, then the analysis effectively reduces to the one we conducted on firms without junior debt.

6.5 Endogeneity

Comparing DEs conducted by reference and non-reference entities raises the endogeneity concern that the differences we observe in the way reference and non-reference entities restructure their DE reflect the differences in their characteristics and not responses to empty creditor resistance. Reference entities may differ from non-reference entities in terms of their leverage, debt structure and debt maturity. Such differences could arise because it is the marginal credits that attract CDS coverage. Besides, as Bolton and Oehmke (2011) argue, they could arise because CDS coverage helps debtors commit against strategic default thereby allowing them to

increase their debt capacity (leverage). Saretto and Tookes's (2013) analysis which shows that the initiation of CDS coverage allows firms to increase their debt capacity and extend their debt maturities implies that reference entities differ from non-reference entities both in terms of leverage and debt maturity. Furthermore, our descriptive statistics confirm that the reference entities differ from non-reference entities in terms of their leverage and debt structure. The concern is that these differences affect the propensity to experience distress or the severity of distress, which could in turn affect how reference entities restructure debt in a DE. For instance, reference entities may be restructuring more junior debt in their DEs because they have higher leverage (more junior debt) or because junior debt is due sooner than senior unsecured debt, and not because they are responding to empty creditor resistance.

To ensure that the propensity to experience distress or the severity of distress is not driving our results, we control for differences in profitability, leverage and liquidity in our analysis. Furthermore, we verify in section 4.2 that conditional on distress, reference entities are not different from non-reference entities in their distress characteristics using both book value and market-based measures. Moreover, we also control for differences in debt structure in our regression analyses besides comparing DEs across subsamples of reference and non-reference entities with similar debt structures. Consistent with Saretto and Tookes's (2013) results, we find that in our sample, the average debt maturity for reference entities with both senior unsecured and junior debt is higher (6.77 years) than that of non-reference entities (4.50 years). However, we also find that this is because the average maturity of junior debt is significantly higher (12.15 years) for such reference entities when compared to similar non-reference entities (3.70 years). The average maturity of senior unsecured debt is similar across such reference and non-reference entities (6.20 and 5.15 years, respectively). Our analysis, taken together with these maturity

differences, shows that that reference entities restructure relatively more of their junior debt despite its later maturity both relative to their own senior unsecured debt and non-reference entities' junior debt. We confirm that this is indeed the case by introducing a maturity control variable in our regressions in Tables 5 and 6. Collectively, our results show that it is the debtor's response to empty creditor resistance and not reference entity characteristics that explain the manner in which reference entities structure and execute DEs.

7. Summary

In contrast to a firm's traditional creditors, empty creditors – joint holders of a firm's bonds and CDS – prefer that a distressed firm file for bankruptcy rather than restructure its debt out-of-court. This is because a bankruptcy filing would trigger payments on their CDS contracts and make them whole, while an out-of-court restructuring would write down the value of their debt. This preference for bankruptcy incentivizes them to resist out-of-court restructurings. In this paper, we present evidence that debtors structure and execute DEs to address empty creditor resistance and that doing so allows them to achieve distress relief and avoid bankruptcy.

We show that reference entities disproportionately restructure debt that is junior to empty creditor debt, and that they pay junior bondholders more to tender in the DE relative to non-reference entities. Executing DEs in this manner allows reference entities to reduce their debt and avoid bankruptcy. When they do not have debt junior to empty creditor debt, effectively making empty creditor debt the lowest in terms of the absolute priority of claims, reference entities restructure empty creditor debt to a smaller extent by paying them more to tender in the DE, relative to non-reference entities. While restructuring debt in this fashion allows reference

entities to successfully restructure debt out-of-court, it does limit their ability to reduce their debt.

Our findings imply that accounting for debtors' response to empty creditor incentives is critical to a fuller understanding of the influence of CDS on distress resolution. They help reconcile the empirical evidence that empty creditor resistance is not associated with a higher incidence of bankruptcy as theory predicts by highlighting the important role debtors play in structuring and executing DEs in a manner that avoids bankruptcy.

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Table 1: Sample Time and Industry Distribution Characteristics

The table reports the time and industry distribution, and industry characteristics of 83 distressed exchanges (DEs) conducted by 75 firms between January 2004 and December 2011. DEs that occur within 6 months of each are considered a single event. A firm is classified as a *Reference Entity* if it has an outstanding single name CDS contract with spread quotes available in the 6 months preceding the DE completion date. *Public* variable indicates whether a firm is public at the DE announcement date. *Industry Distress* is a dummy variable that takes the value one if the median firm in a 2-digit SIC industry experienced a one-year stock return prior to the DE of less than -30%, and zero otherwise. *Industry Q* is the median Tobin's Q in a 2-digit SIC industry in the year prior to the DE.

Panel A: Time Distribution

Year	Reference Entity	Non-Reference Entity	Total
2004	1	6	7
2005	1	2	3
2006	1	1	2
2007	1	3	4
2008	6	7	13
2009	12	31	43
2010	2	4	6
2011	1	4	5
Total	25	58	83

Panel B: Industry Distribution (Fama-French 5-Industry Classification)

Industry	Reference Entity	Non-Reference Entity	Total
Consumer	2	19	21
Manufacturing	5	19	24
High-Tech	11	9	20
Health	0	1	1
Other	7	10	17
Total	25	58	83
Public	14	16	30

Panel C: Industry Characteristics

	Reference Entity		Non-reference Entity	
Variables	N	Mean (Median)	N	Mean (Median)
Industry Distress	25	0.48	58	0.38
		(0.00)		(0.00)
Industry Q	25	1.27	58	1.32
		(1.22)		(1.23)

Table 2: Descriptive Statistics

The table reports the mean and median characteristics for a sample of 83 distressed exchanges (DEs) completed between January 2004 and December 2011. A firm is classified as a *Reference Entity* if it has an outstanding single name CDS contract with spread quotes available in the 6 months preceding the DE completion date. Financial ratios are based on the most recent annual report prior to the exchange date. *Log Assets* is the natural logarithm of total assets in millions. *ROA* is the ratio of net income to total assets. *Tangibility* is calculated as {(Cash + 0.715 x Receivables + 0.547 x Inventories + 0.535 x PP&E)/Assets}. *Cash* includes cash and cash equivalents. *Total Debt* is the sum of short-term debt and long-term debt. *Market measure of credit risk* section reports the credit spreads, expressed in percentages, for 71 DEs in our sample that have bond prices available one month prior to the announcement of the DE. When a firm has multiple bonds outstanding, we randomly select a unique bond to represent the firm's credit risk. Credit spread is the difference between the yield-to-maturity of a bond and the maturity matched risk-free rate – linearly interpolated rates from the interest swap and treasury curves. "Test of Differences" column reports t-values from a t-test assuming unequal variances and z-values from the Wilcoxon rank-sum test.

	Reference Entity		**Non-reference Entity**		**Test of Differences**
Variables	**N**	**Mean (Median)**	**N**	**Mean (Median)**	**t-value (z-value)**
Firm size and profitability					
Log Assets	25	9.32	58	6.57	9.68***
		(9.23)		(6.44)	(6.57)***
ROA	25	-0.15	58	-0.11	-0.47
		(-0.07)		(-0.10)	(0.40)
Sales/Assets	25	0.57	58	1.21	-4.93***
		(0.42)		(1.20)	(-4.42)***
EBITDA/Sales	25	0.20	58	0.07	2.61**
		(0.22)		(0.07)	(3.24)***
Liquidity and solvency					
Cash/Total Debt	25	0.12	58	0.10	0.83
		(0.05)		(0.04)	(0.91)
Total Debt/Assets	25	0.75	58	0.83	-1.17
		(0.72)		(0.74)	(-0.68)
Short-term Debt/Total Debt	25	0.06	58	0.10	-1.11
		(0.02)		(0.01)	(0.30)
Interest Expense/Total Debt	25	0.08	58	0.10	-2.56**
		(0.08)		(0.09)	(-2.52)**
EBITDA/Interest Expense	25	1.05	57	1.22	-0.36
		(1.25)		(1.22)	(0.06)
Tangibility	25	0.37	58	0.39	-0.48
		(0.32)		(0.40)	(-0.42)
Market measure of credit risk					
Credit Spread - Swap Curve	25	35.69	46	51.55	-1.46
		(23.28)		(30.99)	(-1.08)
Credit Spread - Treasury Curve	25	36.21	46	52.12	-1.47
		(23.95)		(31.54)	(-1.08)

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 3: Debt Structure

The table reports the mean and median capital structure characteristics for a sample of 83 distressed exchanges (DEs) completed between January 2004 and December 2011. A firm is classified as a *Reference Entity* if it has an outstanding single name CDS contract with spread quotes available in the 6 months preceding the DE completion date. We categorize the capital structure into four broad debt classes (one loan class and three bond classes - Secured, Senior Unsecured, Junior). Conditional on firms having the given debt class, this table presents summary statistics for the amount of debt in each debt class as a ratio of total debt. *Debt Concentration* for firm *i* is calculated as $\sum_{j=1}^{k}\left(V_j/V_i\right)^2$ where V_j is the face value of claims in debt class *j* and V_i is the sum of the face value of all debt claims. "Test of Differences" column reports t-values from a t-test assuming unequal variances and z-values from the Wilcoxon rank-sum test.

	Reference Entity		Non-Reference Entity		Test of Differences
Variables	**N**	**Mean (Median)**	**N**	**Mean (Median)**	**t-value (z-value)**
Loans	24	0.34	56	0.38	-0.69
		(0.33)		(0.37)	(-0.47)
Notes/Bonds	25	0.67	57	0.64	0.55
		(0.70)		(0.65)	(0.39)
Senior Secured	11	0.16	16	0.47	-3.20***
		(0.14)		(0.44)	(-2.29)**
Senior Unsecured	25	0.54	36	0.56	-0.20
		(0.44)		(0.56)	(-0.29)
Junior	15	0.10	29	0.30	-4.13***
		(0.07)		(0.28)	(-3.47)***
Senior Subordinated	7	0.15	27	0.30	-2.31***
		(0.12)		(0.28)	(-1.70)*
Subordinated	8	0.05	2	0.31	-3.09**
		(0.03)		(0.31)	(-1.96)*
Debt Concentration	25	0.53	58	0.63	-2.17**
		(0.50)		(0.56)	(-1.87)*

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 4: Restructuring Characteristics

The table reports the restructuring characteristics for a sample of 83 distressed exchanges (DEs) completed between January 2004 and December 2011. A firm is classified as a *Reference Entity* if it has an outstanding single name CDS contract with spread quotes available in the 6 months preceding the DE completion date. Panel A reports the average debt outstanding and average restructured in dollars while Panel B and C report these for DEs by firms with senior unsecured and junior debt, and DEs by firms with senior unsecured debt but no junior debt. "Test of Differences" column reports t-values from a t-test assuming unequal variances.

	Reference Entity					Non-Reference Entity					Test of Diff.
Variables	**N**	**Amount ($ Bln)**	**Amount /Total Debt**	**Restructured ($ Bln)**	**Restructured /Total Class (A)**	**N**	**Amount ($ Bln)**	**Amount /Total Debt**	**Restructured ($ Bln)**	**Restructured /Total Class (B)**	**(A - B) t-value**
Panel A: All DEs											
Total Debt	25	18.65	1.00	1.70	0.18	58	0.84	1.00	0.17	0.37	-3.31***
Loans	24	6.53	0.34	0.11	0.01	56	0.42	0.38	0.01	0.04	-1.13
Notes/Bonds	25	11.65	0.67	1.60	0.27	57	0.43	0.64	0.16	0.51	-3.32***
Senior Secured	11	7.05	0.16	0.05	0.09	16	0.38	0.47	0.09	0.33	-1.65
Senior Unsecured	25	8.15	0.54	1.47	0.26	36	0.34	0.56	0.15	0.48	-2.79***
Junior	15	0.46	0.10	0.17	0.25	29	0.20	0.30	0.08	0.39	-1.26
Panel B: DEs by Firms with Senior Unsecured and Junior Debt											
Total Debt	15	15.03	1.00	1.45	0.18	15	0.98	1.00	0.20	0.26	-1.07
Loans	15	7.79	0.34	0.03	0.00	15	0.38	0.32	0.01	0.07	-1.06
Notes/Bonds	15	7.31	0.66	1.42	0.26	15	0.59	0.66	0.19	0.36	-0.90
Senior Secured	7	2.40	0.15	0.09	0.14	3	0.11	0.18	0.07	0.33	-0.52
Senior Unsecured	15	5.73	0.49	1.21	0.23	15	0.38	0.43	0.13	0.30	-0.60
Junior	15	0.46	0.10	0.17	0.25	15	0.18	0.19	0.04	0.23	0.12
Panel C: DEs by Firms with Senior Unsecured but without Junior Debt											
Total Debt	10	24.08	1.00	2.09	0.19	21	0.77	1.00	0.18	0.44	-2.53**
Loans	9	4.43	0.34	0.24	0.03	19	0.45	0.38	0.00	0.01	0.69
Notes/Bonds	10	18.17	0.69	1.87	0.28	21	0.36	0.66	0.18	0.62	-2.75**
Senior Secured	4	15.19	0.16	0.00	0.00	1	0.86	0.22	0.17	0.20	.
Senior Unsecured	10	11.78	0.62	1.87	0.30	21	0.32	0.65	0.17	0.62	-2.64**

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 5: Debt Restructured Regressions – Full Sample Results

The table reports the restructuring regression results for the full sample of DEs. The sample comprises of 83 distressed exchanges (DEs) completed between January 2004 and December 2011. A firm is classified as a *Reference Entity* if it has an outstanding single name CDS contract with spread quotes available in the 6 months preceding the DE completion date. *CDS Dummy* equals 1 if the firm is a reference entity, and 0 otherwise. All other variable definitions are provided in Table 2. The t-statistics in parenthesis reflect White (1980) robust standard errors.

	All DEs		
	Total Rest./ Total Debt	**Junior Rest./ Junior Debt**	**Sen. Unsec. Rest./ Sen. Unsec. Debt**
Explanatory Variables	**I**	**II**	**III**
Intercept	-0.09	-0.03	0.51**
	(-0.83)	(-0.16)	(2.32)
EBITDA/Sales	-0.35***	-1.02**	-0.19
	(-3.11)	(-2.64)	(-1.18)
Total Debt/Assets	0.05	0.17	-0.15
	(0.54)	(1.33)	(-1.06)
Interest Exp./Total Debt	4.28***	2.59	0.84
	(4.28)	(1.57)	(0.42)
Cash/Total Debt	0.23	-0.96	0.05
	(0.69)	(-1.28)	(0.14)
CDS Dummy	-0.08	0.28**	-0.22**
	(-1.38)	(2.37)	(-2.51)
Sen. Unsec. Debt/Total Debt		-0.32	0.18
		(-1.31)	(0.87)
Junior Debt/Total Debt		0.86***	-0.95**
		(3.04)	(-2.68)
Number of Observations	83	44	61
R^2	0.35	0.53	0.33

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 6: Debt Restructured Regressions – Subsample Results

The table reports the restructuring regression results for DEs conducted by firms with comparable debt structure. The sample comprises of 61 distressed exchanges (DEs) completed between January 2004 and December 2011 by firms that have senior unsecured debt, 30 of which also have junior debt, and 31 of which do not have junior debt. A firm is classified as a *Reference Entity* if it has an outstanding single name CDS contract with spread quotes available in the 6 months preceding the DE completion date. *CDS Dummy* equals 1 if the firm is a reference entity, and 0 otherwise. All other variable definitions are provided in Table 2. The t-statistics in parenthesis reflect White (1980) robust standard errors.

	DEs by firms with Sr. Unsec. and Jr. Debt		**DEs by firms with Sr. Unsec, but no Jr. Debt**
	Junior Rest./ Junior Debt	**Sen. Unsec. Rest./ Sen. Unsec. Debt**	**Sen. Unsec. Rest./ Sen. Unsec. Debt**
Explanatory Variables	**I**	**II**	**III**
Intercept	0.31	0.60	0.39
	(0.96)	(1.34)	(1.26)
EBITDA/Sales	-1.10**	-0.14	-0.21
	(-2.24)	(-0.28)	(-0.94)
Total Debt/Assets	-0.16	-0.26	0.08
	(-0.81)	(-1.44)	(0.36)
Interest Exp./Total Debt	0.35	0.49	-0.41
	(0.18)	(0.15)	(-0.15)
Cash/Total Debt	-1.56	0.16	0.46
	(-1.63)	(0.16)	(0.86)
CDS Dummy	0.27**	-0.17	-0.28*
	(2.15)	(-1.44)	(-1.78)
Sen. Unsec. Debt/Total Debt	0.01	0.07	0.27
	(0.04)	(0.29)	(0.95)
Junior Debt/Total Debt	1.33**	-0.78*	
	(2.73)	(-1.88)	
Number of Observations	30	30	31
R^2	0.44	0.25	0.28

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 7: Security Level Recovery Rates

The table reports the percentage recovery rate details for the securities in a sample of 83 distressed exchanges (DEs) completed between January 2004 and December 2011. A firm is classified as a *Reference Entity* if it has an outstanding single name CDS contract with spread quotes available in the 6 months preceding the DE completion date. "Test of Differences" column reports t-values from a t-test assuming unequal variances and z-values from the Wilcoxon rank-sum test.

	Reference Entity			Non-Reference Entity			Test of Differences	
Variables	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**t-test**	**Wilcoxon**
Panel A: All DEs								
All Securities	174	52.72	52.00	77	56.58	60.00	-1.10	-1.13
Loans	1	47.00	47.00	7	55.21	55.11	.	0.00
Notes/Bonds	173	52.76	53.00	70	56.71	61.38	-1.08	-1.13
Senior Secured	1	105.00	105.00	10	71.29	71.38	.	1.42
Senior Unsecured	155	52.20	53.00	41	53.84	60.00	0.37	-0.38
Junior	17	54.78	45.00	19	55.24	62.75	0.05	0.00
Panel B: DEs by Firms with Senior Unsecured and Junior Debt								
All Securities	108	48.78	46.13	26	61.10	64.38	-2.25**	-2.23**
Loans	.	.	.	3	45.67	37.00	.	.
Notes/Bonds	108	48.78	46.13	23	63.12	66.00	-2.48**	-2.45**
Senior Secured	1	105.00	105.00	1	99.50	99.50	.	.
Senior Unsecured	90	47.02	46.13	14	67.57	73.00	-3.30***	-3.00***
Junior	17	54.78	45.00	8	50.77	53.94	0.33	-0.18
Panel C: DEs by Firms with Senior Unsecured but without Junior Debt								
All Securities	66	59.18	58.50	29	46.58	41.00	2.39**	2.46**
Loans	1	47.00	47.00	.	.	.	.	.
Notes/Bonds	65	59.37	59.75	29	46.58	41.00	2.41**	2.49**
Senior Secured	.	.	.	2	44.63	44.63	.	.
Senior Unsecured	65	59.37	59.75	27	46.72	38.50	2.27**	2.44**

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 8: Bond Recovery Regressions

The table reports the OLS regression results for the bond level recovery rates for all, senior unsecured, and junior bonds. The sample consists of all bonds restructured in 83 distressed exchanges (DEs) completed between January 2004 and December 2011. A firm is classified as a *Reference Entity* if it has an outstanding single name CDS contract with spread quotes available in the 6 months preceding the DE completion date. *CDS Dummy* equals 1 if the firm is a reference entity, and 0 otherwise. *Time to Maturity*, *Coupon Rate*, *Log Issue Size*, *Convertible Dummy, Secured Dummy, and Junior Dummy* variables control for the bond features. All other variable definitions are provided in Table 2. Regression I includes industry dummies based on 1-digit SIC codes. None of the industry dummies are significant. Industry dummies are excluded from the senior unsecured and junior debt regressions in order to gain degrees of freedom. The t-statistics in parenthesis reflect White (1980) robust standard errors clustered at the firm level.

	All DEs			**DEs by firms with Sr. Unsec. and Jr. Debt**		**DEs by firms with Sr. Unsec, but no Jr. Debt**
Explanatory Var.	**All Bonds I**	**Junior II**	**Sen. Unsec. III**	**Junior IV**	**Sen. Unsec. V**	**Sen. Unsec. VI**
Intercept	2.46	96.25	-5.22	123.05	29.37	5.80
	(0.09)	(1.67)	(-0.20)	(1.11)	(0.63)	(0.13)
Time to Maturity	-0.62	-6.24***	-0.40	-5.70*	-1.17*	-0.29
	(-1.60)	(-2.99)	(-1.59)	(-2.16)	(-2.12)	(-1.59)
Coupon Rate	0.33	1.88	0.26	-3.63*	0.73	0.78**
	(0.94)	(0.86)	(0.84)	(-2.08)	(0.71)	(2.23)
Log Issue Size	0.13	-9.96	0.44	5.57	-4.58	9.06**
	(0.05)	(-1.52)	(0.17)	(0.27)	(-1.43)	(2.38)
Log Assets	0.18	-3.92	-0.03	-6.13	3.32	-8.82**
	(0.07)	(-0.66)	(-0.01)	(-1.30)	(0.75)	(-2.54)
Tangibility	10.54	24.88	9.80	-10.49	87.02**	44.11
	(0.51)	(0.77)	(0.42)	(-0.34)	(2.34)	(1.69)
EBITDA/Sales	6.13	51.62	-6.60	19.08	24.91	1.33
	(0.33)	(1.36)	(-0.35)	(0.27)	(0.59)	(0.07)
Total Debt/Assets	1.36	10.87	12.08	-13.53	-37.93***	43.88**
	(0.13)	(0.69)	(1.07)	(-0.39)	(-3.77)	(2.21)
Debt Concentration	30.14*	-71.32*	38.28**	-46.58	49.74***	24.62
	(1.94)	(-1.76)	(2.39)	(-0.24)	(3.78)	(0.86)
Industry Q	26.64***	41.05***	19.54	31.63**	11.61	-10.38
	(2.69)	(2.98)	(1.53)	(2.53)	(1.08)	(-0.50)
Industry Distress	-18.42***	-14.87	-20.29***	-34.07*	-25.84**	-16.77**
	(-3.27)	(-1.33)	(-3.13)	(-2.03)	(-2.57)	(-2.23)
CDS Dummy	13.31*	27.10*	11.29*	29.39*	-16.95	37.61***
	(1.80)	(1.88)	(1.78)	(2.05)	(-1.54)	(2.96)
Convertible Dummy	18.29***	40.07***	11.08	9.95	9.60	5.13
	(3.05)	(3.10)	(1.63)	(0.60)	(0.84)	(0.62)
Secured Dummy	20.46**					
	(2.28)					
Junior Dummy	7.54					
	(1.51)					
Number of Obs.	241	36	194	25	102	92
R^2	0.45	0.76	0.42	0.84	0.54	0.58

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 9: Debt Reduction Regressions

The table reports the OLS regression results for the percentage debt reduction in distressed exchanges (DEs). The sample consists of all bonds restructured in 83 DEs completed between January 2004 and December 2011. A firm is classified as a *Reference Entity* if it has an outstanding single name CDS contract with spread quotes available in the 6 months preceding the DE completion date. The dependent variable is the percentage reduction in debt at the DE level calculated as $\sum_i$ Amount Restructured$_i$x(1-Recovery$_i$)/Total Debt where i denotes the security restructured. When a particular recovery rate is not available, we use the average recovery rate for the corresponding debt class. We drop a DE if average recovery rate for the creditor class is not available. All variable definitions are provided in Table 2. The t-statistics in parenthesis reflect White (1980) robust standard errors.

	All DEs	**DEs by firms with Sr. Unsec. and Jr. Debt**	**DEs by firms with Sr. Unsec, but no Jr. Debt**
Explanatory Variables	**I**	**II**	**III**
Intercept	0.05	0.08	0.29**
	(0.69)	(0.99)	(2.35)
EBITDA/Sales	-0.06	-0.15	0.05
	(-0.95)	(-1.50)	(0.60)
Total Debt/Assets	0.03	0.01	-0.09
	(0.79)	(0.28)	(-1.15)
Cash/Total Debt	-0.04	-0.16	0.40
	(-0.22)	(-0.71)	(1.51)
Debt Concentration	0.16*	-0.06	-0.07
	(1.67)	(-0.58)	(-0.63)
Tangibility	0.00	0.02	-0.11
	(-0.05)	(0.17)	(-0.82)
Industry Q	-0.04	0.00	0.01
	(-1.06)	(0.02)	(0.13)
Industry Distress	0.00	0.04	-0.04
	(0.05)	(1.54)	(-0.99)
CDS Dummy	-0.02	0.03	-0.14***
	(-0.86)	(0.79)	(-3.00)
Number of Observations	77	30	27
R^2	0.11	0.23	0.40

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 10: Post-DE Bankruptcy

The sample consists of 83 distressed exchanges (DEs) completed between January 2004 and December 2011. A firm is classified as a *Reference Entity* if it has an outstanding single name CDS contract with spread quotes available in the 6 months preceding the DE completion date. The table reports the number of firms in the sample that filed for bankruptcy during one-year and two-year post DE periods. Bankruptcy in one-year and two-year sub-samples include DEs conducted during 2004 - 2010 and 2004 - 2009 periods, respectively. "Test of Differences" column reports t-values from a t-test assuming unequal variances

Variable	Reference Entity	Non-Reference Entity	Test of Differences
Bankruptcy in 1-year	0	5	
Total Observations	24	54	
Percentage	0.00%	9.26%	-2.33**
Bankruptcy in 2-years	2	9	
Total Observations	22	52	
Percentage	9.09%	17.31%	1.00

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.

Table 11: DE vs. Bankruptcy

The table reports the results from an analysis of distress resolution outcomes (DE or Bankruptcy) for firms with senior unsecured debt. The DE sample consists of the 61 firms (from Table 4) and the bankruptcy sample consists of 64 non-financial firms with senior unsecured public debt outstanding (high-yield bonds) that filed for bankruptcy between 2004 and 2011. We identify the firms with high-yield bonds and bankruptcy filings from Bloomberg. A firm is classified as a *Reference Entity* if it has an outstanding single name CDS contract with spread quotes available in the 6 months preceding the event date. *Dummy-No Junior Debt* equals 1 if the firm has senior unsecured debt but no junior debt, and 0 if the firm has both senior unsecured and junior debt. *Bank Debt/Total Debt* is a ratio of bank debt to total debt. All other variable definitions are provided in Table 2. Panel A reports the univariate analysis and the test of differences column reports the t-values assuming unequal variances. Panel B reports the coefficient estimates from a probit regression where the dependent variable equals 1 for bankruptcy, and 0 for DE. Regression I is run on reference entities, and Regression II on non-reference entities.

Panel A: Univariate Analysis

	DE	**Bankruptcy**	**Test of Differences**
Reference Entities	25	15	
Without Junior Debt (%)	40.00%	93.33%	-4.44***
Non-Reference Entities	36	49	
Without Junior Debt (%)	58.33%	67.35%	-0.84
Test of Differences	-1.41	2.74***	

Panel B: Probit Regression

	Reference Entities	**Non-Reference Entities**
Explanatory Variables	**I**	**II**
Intercept	-3.20	-0.38
Log Assets	-0.08	0.08
EBITDA/Assets	-0.57	-0.57
Tangibility	1.93	0.62
Total Debt/Assets	0.76	-0.35
Short-term Debt/Total Debt	3.13**	1.10**
Bank Debt/Total Debt	1.20	-0.53
Dummy – No Junior Debt	1.78**	0.07
Number of Observations	40	85
Likelihood Ratio	26.87	8.97
Pr > Chi-square	0.00	0.26

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively, for a two-tailed test.