The CDS market reaction to loan renegotiation announcements

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Abstract

This paper analyzes the credit market's reaction to loan renegotiation announcements through changes in credit default swap (CDS) spreads. Using a sample of public US firms during the period 2010-2017, we document a positive and significant CDS market reaction (decrease in CDS spreads). The strongest reactions are for material amendments such as line of credit amount or tranche amount. On the contrary, we find no significant stock market reaction. Moreover, we identify an anticipation effect of up to 30 days before the announcement date on the CDS market, possibly due to informed trading done by lead banks of the CDS contracts of their speculative-rated borrowers. Finally, we show that firm-specific CDS returns lead the idiosyncratic component of stock returns, especially around the announcement date and for speculative-rated firms.

Keywords: Renegotiation, Bank loans, Credit default swaps, Event studies
JEL: G13, G14, G21, G34

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1. Introduction

Private credit is the primary source of external financing around the world.[1] Through bank loans, corporations finance their growth, which is key especially in times of financial crises. In the market for private credit, loan renegotiation plays a crucial role as can be seen in many corporate finance theories. Indeed, security design, incentives and the choice of capital structure depend critically on whether agents renegotiate their agreements (Hart and Moore, 1998; Garleanu and Zwiebel, 2009).

The scope for renegotiation stems from ex ante informational frictions and contractual incompleteness,[2] that might make creditors try to limit borrower behavior by designing initial contracts which impose constraints on the borrower and which give more bargaining power to the lender, for example by designing tight and restrictive covenants. The accrual of new information regarding the credit quality of the firm and market conditions may then trigger a renegotiation process. The contract will be updated to reflect the new information, leading to more efficient and complete contracts. In this way, creditors exercise their monitoring and control functions through periodic evaluations, renegotiating the loan contracts. Financial institutions thus produce valuable information (either positive or negative) about borrowing firms (Fama, 1985; Diamond, 1991). Since this information is private, the simple fact of renegotiating a loan is informative, leading to a certification effect. This effect can then be reflected in markets where securities having claims on the firms' values are traded such as equity markets and credit default swap markets.

Recent empirical evidence shows that loan renegotiation has a certification effect in the equity market, both in the US and in Europe (Nikolaev, 2017; Godlewski, 2015a). The reaction of the CDS market to loan amendment announcements however, has not been analyzed before. The CDS market might respond similarly to the equity market given that debt is a claim against the firm's value, just like equity. Nevertheless, there are several reasons to expect that the credit market might react differently. First, since equity holders own a call option on the assets' value, they benefit from upside potential, while creditors have limited upside potential and are more sensitive to downside risk. Second, the CDS market is dominated by sophisticated (institutional) investors and might be subject to fewer noise trading, unlike equity markets dominated by retail investors. Third, renegotiations might lead to wealth transfers from creditors to shareholders which might

[1] In the US, one of the most important markets, $2.106 trillion of total outstanding loan commitments were reported as of the first quarter of 2018 by the Shared National Credits Program Review. In the Eurozone, an economy that relies much more on banks rather than on financial markets compared to the US, bank private credit to GDP reached 115% in 2010 Cihak et al., 2012.

[2] On the one hand, ex ante uncertainty implies a large number of future state of the worlds that are virtually impossible to write down in the initial contract. On the other hand, agency and information problems imply that the agent's non-contractible actions are difficult to induce through initial contracts.

lead to divergent reactions on the CDS and equity markets. Previous work shows evidence that there are important differences in the two markets reactions to many corporate events such as financial restatements (Du, 2017), stock issuances (Cornett et al., 2014), or credit rating announcements (Norden and Weber, 2004). Our goal in this paper is to study the reaction of the CDS market to loan amendment announcements and to compare it to the stock market reaction to these announcements.

Loan amendments are in general private workouts or out-of-court restructuring, outside of financial distress. While the reaction of CDS markets to formal debt restructuring such as Chapter 11 bankruptcy or Chapter 7 liquidation has been analyzed in the literature (Jorion and Zhang, 2007), the reaction to loan renegotiation outside financial distress has not been studied before. We fill this gap in the literature by analyzing the CDS market reaction to loan amendments announcements. The reaction might depend on the type of amendment and the direction of the change, such as an increase or decrease in loan maturity or a change (positive or negative) in the loan amount. An increase in loan maturity could either signal that the borrowing firm is having trouble reimbursing the loan on time and thus needs a maturity extension triggering a negative market reaction (increase in CDS spreads), or on the contrary it could be interpreted by the market as good news since the firm has more time to reimburse, triggering a positive reaction (decrease in CDS spreads). The CDS market reaction is ultimately an empirical question.

We analyze the CDS market reaction to loan amendments announcements using a sample of 176 CDS-trading firms belonging to the CDX index covering the period 2010-2017. We show that there exists a positive reaction to loan amendments announcements on the CDS market (decrease in CDS spreads), controlling for loan and borrower characteristics. Almost all amendments types are perceived as informative by the CDS investors, and they all imply a positive reaction when taken individually. The highest reactions are for material amendments such as a change in the tranche amount. Nevertheless, complex renegotiations involving a large number of amendments imply an increase in CDS spreads. We also find that the CDS market reaction is stronger for speculative-rated firms which are more sensitive to downside risk. On the contrary, we find no significant equity market reaction for our sample of CDS-trading firms. Compared to the mixed results in the previous literature for the stock market[3], for the CDS market we systematically obtain a positive reaction (decrease in CDS spreads) for all amendment types, with all but two of them being statistically significant.

Since CDS markets are sensitive to credit risk more than equity markets, they might be more reactive to amendment types signaling a change in the credit risk of the reference firm. Furthermore, due to the presence of sophisticated investors on these markets who exploit their information advantage

[3]For Europe Godlewski (2015a) finds that only four out of ten amendment types exhibit a significant stock market reaction to loan renegotiation announcements, one positive and the other three negative.

(the CDS market being a preferred venue for informed trading according to Batta et al. (2016)), an anticipation of loan renegotiation might ocurr. We thus test the existence of price discovery in the CDS market ahead of loan amendments announcements and show that there is an anticipation effect of up to 30 days before the announcement. No such anticipation has been detected on the equity market. Furthermore, we provide evidence that the source of information that drives the anticipation effect is informed trading on the CDS market, in particular, lead banks contribute to price discovery in this market by trading CDS contracts of their speculative-rated borrowers.

Finally, we analyze the lead-lag relationship between the CDS and stock market and find that firm-specific CDS returns around loan amendments announcements significantly predict the idiosyncratic component of equity returns. This is in line with evidence from Lee et al. (2018) who also show that there is a significant information flow from the CDS to the stock market when firm-specific credit information is prominent, as in the case of rating announcements.

Overall, this paper has a threefold contribution to the literature. First, we contribute to the loan renegotiation literature showing that loan renegotiations bears a certification effect not only for the stock market as shown in previous studies, but also and especially for the CDS market. To the best of our knowledge, we are the first to study the CDS market reaction to private loan renegotiations. Second, we extend the literature on the CDS market reaction to corporate announcements, bringing evidence on a new type of corporate event to which the CDS market is sensitive, that is, private loan renegotiation. Third, we add novel evidence on the contribution of CDS spreads to price discovery in financial markets.

The rest of the paper is organized as follows. Section 2 reviews the relevant literature. Section 3 offers a full description of our data set and the methodology used in this study. Section 4 provides our empirical results on the CDS market reaction to loan renegotiations. Finally, Section 5 concludes.

2. Literature review

In this section we review two strands of the previous literature closely related to our paper. On the one hand, we review the literature on loan renegotiation. On the other hand, we discuss the literature on the CDS market reaction to different corporate announcements.

Although corporate debt renegotiation has been intensively studied in the theoretical literature starting from the seminal papers of Leland (1994), Anderson and Sundaresan (1996), Mella-Barral and Perraudin (1997) to the recent paper of Garleanu and Zwiebel (2009), among others, the empirical literature on debt renegotiation is relatively scarce. For the US, Roberts and Sufi (2009), Roberts (2015) and Nikolaev (2017) provide evidence on loan renegotiation. They find that almost all loans are renegotiated prior to maturity as a consequence of the acrual of new information. Tough initial contractual constraints designed to mitigate information asymmetry problems are relaxed as new information about borrower credit quality appears.

European evidence on bank loan renegotiations is provided by Godlewski (2014), Godlewski (2015a) and Godlewski (2015b). Compared to US loans, European ones are renegotiated less frequently and later in the life of the loan, while also differing in amended terms. Nevertheless, similarly to US loans, the renegotiation process is the result of informational frictions in the borrower-lender relationship.

Since private creditors discover information during renegotiations, loan amendments announcements could transmit new information to the market. The empirical findings of Godlewski (2015a) and Nikolaev (2017) confirm this conjecture for the European and US stock market, respectively. On the one hand, Godlewski (2015a) shows that renegotiation bears a certification value. He finds that amendments to financial covenants and loan amounts imply a positive stock market reaction, while late and frequent renegotiations lead to a negative stock market reaction. On the other hand, although focusing on the relationship between demand for monitoring and renegotiation intensity, Nikolaev (2017) provides some evidence on the information content of contract renegotiations in the US, as additional analysis to validate his monitoring hypothesis (see section 6). He finds that on the day of renegotiation firms with loan amendments exhibit an abnormally higher trading volume and stock price volatility. Moreover, he documents a statistically significant 5-day CAR of approximately 30 basis points. This evidence suggests that renegotiations reveal new information to outside investors, reducing information asymmetry, in line with the monitoring hypothesis.

Stockholders however, are not the only investors that might react to the information content of loan renegotiations. Creditors, who also have a claim on firm value, might be sensitive to this information. Thus, the bond or CDS market might react to these anouncements. Indeed, previous literature shows that the CDS market reacts to different corporate events related to the credit risk of a firm. For example, there is evidence that CDS markets react to (and anticipate) announcements regarding ratings (Lee et al., 2018; Norden and Weber, 2004), financial restatements (Du, 2017), equity issuances (Cornett et al., 2014) or formal bankrptcy procedures through Chapter 11 or Chapter 7 (Jorion and Zhang, 2007).

Using a sample of firms from 2000 to 2002, Norden and Weber (2004) show that the CDS market reacts to rating downgrades (by Moody's), but also to reviews for downgrades (by Standard & Poor's and Moody's), while there is no significant reaction to positive rating events. The level of the old rating, previous rating events and the pre-event average rating level affect the magnitude of the abnormal performance. Du (2017) finds that there is a positive association between CDS returns and financial restatements. That is, the CDS market reacts negatively to accounting restatement announcements (increase in CDS spreads), especially those involving fraud and affecting more accounts. The CDS market has been shown to also react to default-relevant information contained in equity issuance announcements. Cornett et al. (2014) find that CDS spreads drop in response to these announcements (lower costs for default protection via CDSs), particularly dur-

ing the financial crisis. Finally, Jorion and Zhang (2007) examine the effect of formal bankruptcies through Chapter 11 Renegotiation or Chapter 7 Liquidation on the CDS spreads of industry competitors. They find evidence of contagion effects for Chapter 11 (increases in the CDS spread of industry competitors), while Chapter 7 bankruptcies are associated with competitive effects (decrease in the CDS spread of industry competitors). We complement this strand of the literature by showing that the CDS market is also sensitive to announcements regarding loan renegotiations. We document a positive and significant CDS market reaction to loan amendments announcements.

Comparing stock market to CDS market reaction, Du (2017) finds that overall both markets exhibit a negative reaction on the day of the announcement, reflected by an increase in CDS spreads and a decrease in stock prices. Nevertheless, stock prices react negatively to all kind of restatements including favorable ones, while creditors react positively (decrease in CDS spread) to favorable restatements announcements such as those restating a higher net income. Similarly to Du (2017), while comparing CDS with stock market reactions of industry rivals to Chapter 11 and Chapter 7 bankruptcies, Jorion and Zhang (2007) find that the direction of responses in the stock market systematically has the opposite sign of that in the CDS market. For Chapter 11 bankruptcies they find a decrease in stock prices and an increase in CDS spreads, the negative reaction on both markets suggesting contagion effects. On the contrary, for Chapter 7 banruptcies they find an increase in stock prices and a decrease in CDS spreads, thus a positive reaction suggesting competition effects. However, reactions in the equity market are not statistically significant. This could either indicate that the CDS market is more sensitive to downside risk or that stock prices are much more volatile and noisy than CDS spreads and lead to less powerful tests.

In line with Jorion and Zhang (2007), we find a strong reaction in the CDS market (almost all amendment types exhibit a significant decrease in CDS spreads), but a non-significant reaction in the equity market. On the contrary, Nikolaev (2017) had documented a significant positive stock market reaction to loan amendments announcements. This evidence combined with the positive CDS market reaction that we document (decrease in CDS spreads) suggests that both stockholders and creditors see loan renegotiations as goood news. The lack of significant reaction on the equity market for our sample could be explained by the fact that, unlike Nikolaev (2017), our sample also includes non-material amendments. Godlewski (2015a) analyzes the European stock market reaction to loan amendments announcements in a sample extracted from Bloomberg which includes non-material amendments similarly to ours. Although he does not report the overall abnormal returns surrounding the announcement days, his univariate analysis shows that only four out of the ten types of amendments exhibit a significant CAR, one of them positive, and the other three negative. The difference in the results that we obtain for the stock market reaction with respect to previous studies might also be due to the fact that, unlike Nikolaev (2017) and Godlewski (2015a), we focus on a sample of CDS-trading firms. Unlike these mixed previous

results for the stock market, for the CDS market reaction we systematically obtain a positive reaction (decrease in CDS spreads) for all amendment types, with all but two of them exhibiting significant coefficients.

Regarding market efficiency, Du (2017) finds that CDS spreads stop increasing after the announcement day, while stock prices continue to drop, indicating that the CDS is more efficient at adjusting to the news of financial restatements. Moreover, there is an anticipation of up to 10 days on the CDS market and about 3-5 days on the stock market. This suggests that the CDS market has an informational advantage over the equity market which might be because institutional investors from the CDS market use private information or they are better at interpreting public information. Norden and Weber (2009) compare stock and CDS market reactions to rating announcements and, similarly to Du (2017), they find that while both markets anticipate downgrades and reviews for downgrades, the CDS market reacts earlier for the latter. This can be either due to the fact that there is a smaller fraction of noise traders in the CDS market or due to potential insider information of banks trading on the CDS market. Similar to them, we find that the CDS market has an informational advantage over the stock market as we find such an anticipation effect to loan amendments announcements only on the CDS market of up to 30 days before the announcement date, but not on the stock market. There is no evidence of an anticipation effect to loan renegotiations on the stock market in the previous literature either. Regarding the sources of information that drive the anticipation effect in the CDS market, Lee et al. (2018) find evidence that suggests that CDS markets can anticipate future rating changes mainly thanks to informed trading in this market, as the anticipation effect is stronger for firms with more bank relations. Consistent with their findings, we find that CDS markets anticipate future loan amendments due to informed lenders and bring further evidence that lead banks contribute to the CDS market price discovery. Furthermore, we complement their findings by showing that it is informed trading of CDS contracts of speculative-rated entities that drives the anticipation effect. In a similar vein, Avramov et al. (2009, 2013) find that the profitability of strategies based on price or earnings momentum, credit risk and idiosyncratic volatility, among others, is concentrated in the worst-rated stocks.

The market reaction might also differ depending on the credit quality of the firm. Previous literature provides evidence of different reactions for speculative-rated versus investment-grade firms. For example, Du (2017) shows that CDS spreads of speculative-rated firms are more sensitive to restatement characteristics suggesting that highly distressed firms are more sensitive to firm-specific news. Similarly, Cornett et al. (2014) find that equity issuances by speculative-rated institutions are received more favorably in the CDS market and by stock investors. In line with this evidence, we find a stronger reaction to loan amendments announcements for speculative-rated firms, which are more sensitive to downside risk.

Finally, our paper is also related to the literature on price discovery in fi-

nancial markets and the information flow from the CDS to the equity market or the reverse. Although Hilscher et al. (2015) show that information unidirectionally flows from stocks to CDS and not viceversa, Lee et al. (2018) show that firm-specific CDS returns exhibit significant predictability on the idiosyncratic component of stock returns. For the case of loan amendments announcements we also find evidence that there is significant information flow from the CDS to the stock market through firm-specific information channels.

3. Data and Methodology

In this section we first present the database that we use in this study, the corresponding descriptive statistics, and finally the methodology employed.

3.1. Data

We start by describing our sample of amendments, CDS spreads and equity prices. We then present data on loan characteristics and borrower financial variables.

3.1.1. Amendments and CDS and equity sample

We use a database that includes daily information of CDS spreads and equity prices from 01/03/2010 to 12/29/2017 that have been obtained from Datastream. Our sample includes public US firms that belong either to the CDX investment-grade index or to the CDX high-yield index. Since the CDX indices include the most liquid CDS-trading US firms, we expect to exclude firms with CDS contracts that might be not liquid. That is, we opt not to artificially increase the number of firms at the cost of having CDS spread information with low or no time variation which might blur or bias our results. The final database includes 176 US firms with 5-year CDS (the most liquid and most popularly traded CDS contracts) for senior unsecured debt with a no restructuring clause (which is the standard clause after April 2009) and a total amount of 339,063 daily observations of equity returns and 334,876 daily observations of CDS spreads. Figure 1 shows the evolution of median CDS and stock values across companies for every date in the sample. We observe that CDS and equity series follow opposite trends, that is, increasing (decreasing) trends in equity are associated with decreasing (increasing) trends in CDS spreads, which is consistent with the negative correlation that can be expected between the value of the firm and its credit risk.

[Figure 1 about here.]

We also extract from Bloomberg the information about amendments that affect the loans of the firms in the sample, at tranche level. For each renegotiation of firms' loan contracts, we have information about the annoucement date and the type of amendment that affects each tranche of the loan, which can refer to modifications of financial/nonfinancial covenants (6.11% and

9.90% of the total number of amendments, respectively), changes in the line of credit amount (2.80% of the amendments), changes in maturity (15.10%), changes in the amount of the loan (21.47%), changes in the loan fees (6.45%), definition changes (28.57%) and changes in the pricing grid (9.25%).[4] Comparing the initial and final conditions of the loan, we construct variables that reflect the changes in the terms of the loan and that will be used to study the intensive margin of the different types of amendments. With the information of loan amendments at tranche level and the announcement date we can also generate new variables relevant for our analysis, such as the number of different amendments that affect each tranche, the number of renegotiations made by the borrower until a given date or the duration between two renegotiations of the same borrower.

In our analysis, we exclude all the observations of a firm that might be affected by another major event of that firm. More concretely, we exclude all the observations of a firm when another major event occurs in the range of two days before and two day after the announcement date of a loan renegociation. To do so, Bloomberg provides a list of major events of a given company (i.e., sale releases, earnings call or investor meetings) and the days when they take place. This procedure reduces considerably the size of our final sample, from 982 to 758 renegotiations of our 176 selected public US firms.

3.1.2. Loan characteristics, bank relationships and firm financials

We obtain the characteristics of the loan at origination from Bloomberg. These characteristics allow to identify different typologies of loans, attending to whether it has single or multiple tranches, if it is a syindicated or club loan, if it is secured or not, whether or not it has covenants or whether it is a term loan. We can also identify which are the banks that are included in each loan issue, and we construct the variables of bank relationships following the definitions in Lee et al. (2018). First, we generate the variable number of lenders counting the number of banks that can be matched to each loan issue. Second, following previous papers, we also count the number of lead banks following the criteria in Cai et al. (2018). Third, we also define a variable that identifies the number of CDS originating banks[5] counting the number of relationships with these type of banks in each loan issue.

Finally, we also use characteristics of the company obtained from Datastream that refer to financial variables, such as the volume of sales per year, the leverage ratio, the return on assets (ROA) and the market value of equity with respect to the book value of equity.

Combining CDS spread and stock prices with loan amendments and the

[4]This distribution is similar to the one in Godlewski (2015a) for a sample of European amendments. Similar to him, we exclude residual amendment types such as Borrowing base amount and Loan collateral.

[5]Following Lee et al. (2018), CDS originating banks include Bank of America, Barclays Bank, BNP Paribas, Citibank, Credit Suisse, Deutsche Bank, Goldman Sachs, HSBC, JP-Morgan Chase, Lehman Brothers, Merrill Lynch, Morgan Stanley, Royal Bank of Scotland, and UBS.

rest of the information, we intend to explore the potential effects of changes in the conditions of the loan on stock and CDS markets when the conditions of the renegotiation are announced in the markets.

3.2. Descriptive Statistics

[Table 1 about here.]

Table 1 provides the list and descriptive statistics of the main variables used in the analysis. The definition of these variables is provided in Table A.1 in the appendix. For the group of renegotiation variables, the average number of amendments in the sample of 758 renegotiations is 2.289, and 80% of the observations are concentrated between 1 and 4 amendments. By borrower, we observe that the average number of renegotiations in the sample is around 9, being the percentiles 10th and 90th equal to 3 and 18, respectively. On average, it takes around 2.176 years until the loan is first renegotiated, though, if the loan is renegotiated more than once, the duration between renegotiations becomes lower, with a value around half of the duration until the first renegotiation for all the percentiles of the distribution. We also observe that 24.9% of the observations correspond to amendments of an increase of the maturity of the loan larger than 1 year. For changes to maturity, the average increase is equal to 1.87 years. Next, 27.6% of the renegotiations correspond to increases in the loan amount. For changes in loan amount, the average change is negative (reduction in the amount) and equal to -191 million dollars.

From the characteristics of the loan at origination, we observe that the majority of loans renegotiated are syndicated and with covenants, and 42.1% of them are secured and 21.5% are term loans. The average maturity of the loans in the sample is around 5 years, and the average number of loans issued by a company in the sample is around 17. The number of lenders and lead banks can be large, since the average value is around 21 and 18, respectively. The number of CDS originating banks has an average value of 4.27.

Finally, regarding borrower variables, we can only report results for a reduced subsample due to data availability. On average firms have 26.7 billion dollars of sales, with an average leverage of 43.10%, a positive return on assets and a market to book ratio of around 3. In general, our sample is similar to the ones in previous studies, both US and European (Roberts, 2015; Godlewski, 2015a).

3.3. Methodology

In this section, we first describe our measures for CDS and equity reactions, and we then present our empirical strategy.

3.3.1. Measuring CDS reactions

Our measure of the CDS reaction to loan amendments is the abnormal CDS returns and the abnormal CDS spread changes, estimated following the methodology posited in Hull et al. (2004) and used in Lee et al. (2018) and Jorion and Zhang (2007). We compute indices of CDS spreads for four

rating classes[6], and we adjust the daily changes in 5-year CDS spreads of each firm using the median change in CDS spreads of the equally-weighted CDS index of the corresponding rating class. This adjustment accounts for systematic trends and general market conditions that might affect similarly all firms with the same risk profile. Thus, the adjusted spread change and the adjusted spread return for firm i, rating r, in each day t will be computed as follows:

$$\begin{aligned} ASC_{it}^{r} &= (S_{it} - S_{it-1}) - (I_{rt} - I_{rt-1}) \\ CDS\ AR_{it}^{r} &= \frac{S_{it} - S_{it-1}}{S_{it-1}} - \frac{I_{rt} - I_{rt-1}}{I_{rt-1}} \end{aligned}$$

where S_{it} is the daily 5-year maturity CDS spread of firm i at day t, and I_{rt} is the median spread for the index of CDS spreads of firms with rating r. We winsorize the adjusted spread changes and the CDS adjusted returns at their 5th and 95th percentile values.

Once we have the adjusted spread changes and the CDS adjusted returns, the definition of the cumulative abnormal spread changes and cumulative abnormal returns from day t_1 to day t_2 is:

$$\begin{aligned} CASC_{i[t_1,t_2]} &= \sum_{t=t_1}^{t_2} ASC_{it} \\ CDS\ CAR_{i[t_1,t_2]} &= \sum_{t=t_1}^{t_2} CDS\ AR_{it} \end{aligned}$$

To aggregate observations across events and over time, we follow the econometrics of event studies in Mackinlay (1997).

3.3.2. Measuring stock reactions

To compare the differences in effect of stock prices, we follow Fuller et al. (2002) and estimate stock abnormal returns as $EquityAR_{it} = R_{it} - R_{mt}$, where R_{it} is the return of company i at date t and R_{mt} is the S&P market index return at date t. We winsorize the adjusted equity returns at their 5th and 95th percentile values. We use this specification of abnormal returns instead of estimating them with the CAPM model based on a time period before each renegotiation because the probability of including previous amendments in the estimating period is very high, due to the high frequency of renegotiations. This could provide inconsistent estimates of the

[6] We define a rating variable, r, that identifies the rating for the firm according to Standard and Poor's. The variable takes value $r = 1$ if the rating is between AAA and A-; $r = 2$ if the rating is in between BBB+ and BBB-; $r = 3$ if the rating is in between BB+ and BB- and $r = 4$ if the rating is equal or lower than B+.

parameters of the model, since they have to be estimated in the absence of events. Figure 2 shows that the number of renegotiations per year in the sample is between 150 and 350, and Figure 3 shows that 86.9% of the borrowers (153 out of 176) are involved in more than one loan renegotiation, and that 59.23% of the loans in the sample are renegotiated at least twice during the sample period.

[Figure 2 about here.]

[Figure 3 about here.]

Once we have the Equity AR, we compute the cumulative abnormal returns for equity from day t_1 to day t_2 as:

$$EquityCAR_{i[t_1,t_2]} = \sum_{t=t_1}^{t_2} EquityAR_{it}$$

3.3.3. Empirical strategy

We aim at studying the impact of loan renegotiation on CDS, and compare it with the reaction of stock prices. CDS spreads are indicators of firms' capacity to repay their debt obligations. The content of information of CDS spreads might vary due to changes in the loan conditions and, particularly, when information about the loan amendment is announced to the market. We will examine whether the different types of loan amendments impact the cumulative adjusted spread change, CASC, and the cumulative adjusted returns, CDS CAR. To do so, we use the standard methodology of event studies, and define an event as loan renegotiation, and use the announcement date as day zero.

We analyze whether there is a positive or negative impact on the CDS spreads and returns as a consequence of the announcement of a loan renegotiation, within the 21-day window of [-10,10] on a daily basis. In doing so, we will be able to assess if, on average, there is a significant impact of loan renegotiation and in which direction (increase or decrease of CDS spreads/returns) and whether or not there is an anticipation effect in the markets, if there are significative abnormal spreads/returns before the announcement day.

Next, we will replicate the estimations using the equity cumulative abnormal returns, Equity CAR, to assess whether the impact of renegotiation is similar or different to that of CDS spreads and returns.

Since loan amendments are non-homogeneous events, the CDS market's reaction might depend on the amendment types, loan characteristics or borrower variables. We will thus also estimate cross-sectional regressions to analyze the determinants of CDS reactions to loan renegotiation. Overall, we expect that the results of the univariate and multivariate analysis shed light on what is the expected CDS reaction once the information of loan renegotiation has been announced and transmitted to the market for each particular

loan renegotiation. At this stage, we will analyze whether the stock prices react to loan amendments in the same direction as CDS spreads/returns, or whether their reaction is the opposite one. With these results, we will try to infer the type of information contained in both securities and the potential explanations that determine their reaction to loan amendments.

4. Main Results

4.1. CDS reactions to renegotiation announcements

We first examine whether CDS spreads react to loan renegotiation announcements.

[Table 2 about here.]

We can also observe from Table 2 Panel B that there is a negative reaction of abnormal stock returns, Equity CAR, at the day of the loan renegotiation announcement, in which the stock prices present a negative abnormal return of -9.5 basis points. We observe that, on average, stock prices have a divergent reaction to CDS spreads, since the "certification effect" of lower credit risk observed in CDS spreads is not translated into higher values in the stock prices. Nonetheless, the negative value at day 0 is only statistically significant at 10% and the average Equity CAR for windows [-1,1] and [-5,5] is not statistically significant. This might indicate that stock prices are less sensitive to downside risk than CDS spreads, and/or that stock prices are much more volatile and "noisy" than CDS spreads, thus leading to less powerful tests. Similarly, Jorion and Zhang (2007) find a barely significant reaction of stock prices of industry rivals to Chapter 11 and Chapter 7 bankruptcies announcements, but a significant CDS market reaction.[7]

Comparing with previous evidence on the stock market reaction to loan renegotiations announcements, Nikolaev (2017) found a positive and significant reaction of 8 basis points for market-adjusted returns, and a 5-days CAR (for the window [-1,3]) of 28 basis points. Combining this evidence with the positive CDS market reaction that we document (decrease in CDS spreads) suggests that loan renegotiations are interpreted by both stockholders and creditors as goood news. The lack of significance for the stock market reaction in our sample could be explained by the fact that, unlike Nikolaev (2017) who relies on a comprehensive sample of SEC required disclosures of material changes to debt contracts, we rely on a sample including both material and non-material changes to loan contracts. For the European market, Godlewski (2015a) offers evidence of the stock market reaction to loan renegotiation announcements using a sample of both material and non-material amendments extracted from Bloomberg, similar to our US sample.

[7]Nevertheless, despite the lack of statistical significance, Jorion and Zhang (2007) find, unlike us, that the direction of industry reactions in the stock market systematically has the opposite sign to the CDS market.

However, he does not provide the overall market-adjusted returns surrounding announcement days. His unvariate results show that the 3-days window CAR [-1,1] is significant for only four of the ten amendment types, being positive for financial covenants, and negative for changes in loan fee, tranche amount and (non-material amendment) definition change. Finally, differences in the results could also be due to the fact that, unlike Nikolaev (2017) and Godlewski (2015a), we focus on a sample of CDS-trading firms.

4.2. Multivariate results

4.2.1. Determinants of CDS reactions to loan renegotiations

The event study above provides information on the average reaction of CDS to loan amendments. However, loan amendments are events that are not homogeneous. That is, the reaction of CDS might be different depending on the number of different types of amendments introduced in the loan renegotiation (maturity, amount, line of credit, covenant, fee, definition), and also of the magnitude and direction of the changes introduced (extension or reduction of maturity, increase or decrease of total amount). The CDS reaction might also be different depending on the characteristics of the loan (i.e., bilateral or syndicated, number of lenders, initial amount) and of the firm (i.e, financial risk, profitability, economic activity). Therefore, we now perform a multivariate analysis to control for the different characteristics that might affect each renegotiation. To perform this analysis, we focus on the three-day period interval [-1,1] of CASC and CDS CAR and assume that they represent the abnormal spread and returns on CDS as a consequence of a renegotiation. The multivariate analysis complements the univariate analysis as we exploit all the sources of variation available in the database, that is, the variability across the different types of amendments, firm characteristics and loan characteristics to identifiy the determinants of CDS reactions. We thus estimate an empirical model to identify which variables determine the magnitude and direction of the CDS reaction. More concretly, we estimate variations of the following econometric model:

$$\begin{aligned} y_{i,[t_1,t_2]} &= \beta_0 + RENEGOTIATION'_{it}\beta_1 + LOANCHAR'_{it}\beta_2 + \\ &+ FIRM'_{it}\beta_3 + CONTROL'_{it}\beta_4 + \epsilon_{it} \end{aligned} \quad (1)$$

where $y_{i,[t_1,t_2]}$ can be $CASC_{i,[t_1,t_2]}$ or $CDS\ CAR_{i,[t_1,t_2]}$ or $Equity\ CAR_{i,[t_1,t_2]}$, and the vectors $RENEGOTIATION'_{it}$, $LOANCHAR'_{it}$ and $FIRM'_{it}$ contain variables with information of the loan renegotiation, loan characteristics at origination and characteristics of the company, respectively. *RENEGOTIATION'*$_{it}$ includes dummy variables that identify the type of amendments in the loan renegotiation of firm i at day t. The coefficients of these variables inform of the isolated effect of each type of amendment on CASC/CDS CAR. Moreover, it also includes the renegotiation variables defined in Table A.1. In particular, some of these variables inform about the direction and intensity of the change in cases of maturity and amount amendments. For amendments of loan amounts, $Id(\Delta AMOUNT_{it} > 0)$ takes the value of 1

in loan amendments that increase the amount borrowed and zero otherwise; and $|\Delta AMOUNT_{it}|$ is a continuous variable with the absolute value of the difference between the original amount and the new amount that was renegotiated at date t. For maturity amendments, $Id(\Delta MATURITY > 1YEAR)$ takes the value of 1 if the change is longer than 1 year and zero otherwise, and $\Delta MATURITY$ is a continuous variable that takes the value of the maturity change (in days) provided there is a maturity amendment. The vector $CONTROL$ includes dummies of industry, currency and year of the renegotiation. All the regressions are estimated with OLS with robust standard errors clustered at company level.

We now discuss the results of different specifications of equation (2). Table 3 presents the results of the estimation that only includes loan renegotiations with only one type of amendment. Albeit the sample size is reduced to 255 events, this analysis allows us to isolate the pure effect of each amendment type, since there are no potential interactions, additive and/or offsetting effects among different types of amendments that could be present in loan renegotiations with multiple amendments. We observe that most of the amendment types are perceived as informative by CDS investors and do bear a certification value, since the impact on CDS abnormal returns (Column 1) and CDS abnormal spreads (Column 2) is negative and statistically significant. We note that out of the 8 amendment types 6 (4) have a significant negative sign for CAR (CASC). This confirms the overall positive reaction (decrease in spreads) of the CDS market noted in the previous table. The highest reactions are for material amendments such as LOC amount and tranche amount. Naturally, the CDS market that measures credit risk is very sensitive to changes in the line of credit amount that acts as a guarantee to payoff debt if the borrower cannot. Again, we do not find any significant reaction of the announcement of loan renegotiation in the pricing of stocks, reinforcing the hypothesis that stock prices are less sensitive to downside risk than CDS spreads, and/or that stock prices are much more noisy than CDS spreads, traded by well-informed investors.

[Table 3 about here.]

In Table 4 we present our baseline results including the full sample of amendments. In this specification, we also include variables that characterize the type and complexity of the current and the past renegotiations carried out by the company. First of all, the results including the multi-amendment loan renegotiations confirm our previous findings on the impact of the different types of amendments: CDS spreads decrease with loan renegotiation announcements that modify non-financial covenants, LOC amounts, loan fees, pricing grid and the overall amount of the loan.

[Table 4 about here.]

From the rest of variables included in the regression, we learn that the total number of amendments is positive and significant (increase in CDS

spreads, thus negative reaction). This result suggests that investors perceive a renegotiation with multiple amendments as a large and complex deal, since the overall positive reaction (decrease in CDS spreads) of the CDS abnormal spreads and returns to the different types of amendments included is mitigated as the number of amendments increases. We do not find a statistically significant effect neither in the duration until the first renegotiation nor in the duration between renegotiations, so CDS investors do not infer more or less complexity in the loan renegotiations that could affect credit risk from the frequency of the loan renegotiations. Nonetheless, we do find a negative and statistically significant impact of the number of renegotiations accumulated in the past by the company on CDS CASC. This indicates that frequent information updating by the lender might be beneficial. Indeed, the financial weakness of the borrower could accelerate the renegotiation because it has stronger incentives to engage in moral hazard. Thus, frequent information acquisition through renegotiation should mitigate the potential for ex post moral hazard.

For Equity CAR, we find a significant impact of loan renegotiation for amendments modifying financial covenants and non-financial covenants, though the effect is positive and negative, respectively, and significant at 10%. Similar results for these 2 amendment types have been found by Godlewski (2015a). The rest of the variables are not statistically significant.

Table 5 presents the results of model (2) including the variables that refer to loan characteristics at origination (Column 1 and Column 2) and to financial characteristics of the borrower (Column 3 and Column 4). Our results for amendment types and characteristics of the loan renegotiation remain robust, compared to those in Table 4. In Column 3 and Column 4, the magnitude and statistical significance of some coefficients present a slight decrease, which can be mainly attributed to the reduction of the sample size when we include borrower characteristics[8].

[Table 5 about here.]

From Column 1 and Column 2 of Table 5, we observe that the coefficient of the dummy $Id(\Delta Maturity > 1y)$ is negative and significant. This implies that if the amendment entangles a large increase in the maturity of the loan, it is considered as good news by the investors, possibly because the borrower presents a lower downside risk since she has a longer period to reimburse the loan. In the case of amount amendments, the change in the amount does not seem to have an impact on CDS spreads, once we control for the dummy that identifies renegotiations of loan amounts. Next, none of the variables that identifies the type of loan seems to have any impact on CDS spreads at the time of renegotiation, neither do the number of past issues by the company

[8]If we estimate the baseline model presented in Table 4 with the same number of observations than in Column 3 and Column 4 of Table 5, the magnitude and statistical significance of the coefficients is similar to that presented in Column 3 and Column 4 of Table 5.

nor the number of lenders. We have also tried to include the number of lead banks and the number of CDS banks, but none of the coefficients is statistically significant.

Column 3 and Column 4 of Table 5 show the results when including borrower characteristics, though they do not seem to have a differential impact on the CDS reaction when there is a loan renegotiation. These results are consistent with those of Cornett et al. (2014)) who find that borrower characteristics do not affect the CDS spreads reaction to equity issuance announcements. The signs of the controls are generally consistent with existing evidence: more profitable firms and more levered firms have a decreases in CDS spreads, which is similar to the positive reaction in stock prices documented in Godlewski (2015a), while larger firms have a negative reaction in the CDS market. Finally, we also observe that the number of renegotiations accumulated by the borrower becomes again negative and statistically significant (as in Table 4).

4.2.2. Anticipation effects of CDS in loan renegotiation

We now examine whether CDS spreads predict upcoming loan renegotiation. Our focus on CDS reactions to loan renegotiations is to determine the extent to which firm-specific credit risk information originates from the CDS market prior to the loan renegotiation announcement due to informed traders in this market, and the extent to which such CDS-originated credit risk information can spill over to other related securities prices, such as stock prices.

Since CDS traders are qualified investors that might have information about the renegotiation, we could observe a reaction in CDS spreads before the announcement date. Indeed, there is evidence of an anticipation effect on the CDS market before the announcement of different types of corporate events such as financial restatements (Du, 2017) or rating changes (Norden and Weber, 2004). We therefore intend to assess whether there are anticipation effects before the announcement date of a loan renegotiation, that is, to test whether the market discounts information days before the event, what is the magnitude of the reaction during the days around the event, and to test whether the abnormal reaction vanishes out once the information has been displayed. To do this, we perform the multivariate analysis using event windows with five different subintervals, [-30-11],[-10,-6],[-5,5],[6,10],[11,30].

We consider the evolution of CDS spreads up to 30 days before the announcement day, splitting the time period in two windows [-30,-11], [-10,-6] to assess whether there is any anticipation effect. We compare the effects of these two windows with the abnormal CDS spreads around the announcement date, the window [-5,5]. Then, we test whether the impact vanishes out after the announcement date, when there is no arrival of potential new information about the loan renegotiation of day 0. For symmetry, we take the windows [6,10] and [11,30].

[Table 6 about here.]

Table 6 presents the results. We do not include the borrower characteristics because they do not seem to have an impact on the CDS spreads and their inclusion reduces considerably the size of the final sample. Panel A shows the results for CDS CAR. We can observe that the CDS investors do anticipate the effects of loan renegotiation between 30 and 11 days before the announcement date. More concretely, in renegotiations with modification of the loan amount, definition and LOC amount, the CDS market anticipates a reduction in downward risk and discounts the impact through a decrease in the traded CDS spreads from 10 to 30 days before the announcement of the renegotiation. Also, the effect of the amendments is mitigated by the number of amendments in the renegotiation and the duration until the first renegotiation is negative and statistically significant. Finally, the size of the change in the amount of the loan increases the CDS spread from 10 to 30 days before the renegotiation. In this case, the market anticipates bad news, possibly because the larger size of the loan is interpreted as a higher credit risk. We do not find much significance in the abnormal CDS spreads in the window [-10,-6], thus it seems that there is no arrival of new information for CDS investors during the days close to the announcement date.

During the days around the announcement date, there is again a reaction in CDS CAR. Therefore, not all the information about the renegotiation is learned by the market prior to the renegotiation, since the CDS market reacts to the information published around the announcement date. After the announcement date, there are no abnormal CDS spreads, that is, we do not find statistical significance in almost any coefficients of Column 4 and Column 5 of Table 6. Panel B of Table 6 presents the same results estimated for CDS CASC. The main conclusions of the analysis are the same as for CDS CAR.

[Table 7 about here.]

We next analyze what drives the significant CDS reaction before loan renegotiation announcements. As previous studies have shown that the CDS market is a preferred venue for informed trading (Batta et al., 2016), we verify whether insider trading by lead banks can be the source of unique CDS market information on credit risk. We thus regress the abnormal CDS returns and spreads obtained from 30 to 10 days before the announcement date, where there was a significant anticipation effect, on the number of lead banks, controlling for the cumulative abnormal equity return in the same window. Table 7 reports the results. In Columns 1 and 2 we present the results for the full sample. The positive coefficients suggest that CDS reactions in anticipation to loan renegotiation announcements are higher for firms with a higher number of lead banks, although the coefficient is only significant for CDS spreads, and not for returns. In Columns 3 to 6 we split the sample into investment-grade firms (Columns 3 and 4) and speculative-rated firms (Columns 5 and 6). We can see that the results for the whole sample are driven by the subsample of speculative-rated firms, for which we obtain positive and significant coefficients for both CDS returns and spreads.

This suggests that informed trading done by lead arrangers of syndicated loans, having as object their speculative-rated borrowers's CDS contracts, contributes to the CDS market's anticipation of future loan renegotiations. Our findings are in line with those of Lee et al. (2018) who show that a similar anticipation of future rating changes might be due to informed trading of lead banks. Nevertheless, we go a step further in showing that in the case of loan renegotiations, this anticipation effect due to informed trading is driven by trading of CDS contracts of speculative-rated entities. This is consistent with evidence from Avramov et al. (2009, 2013) who find that profitability strategies based on price or earnings momentum, credit risk or idiosyncratic volatility, among others, is concentrated in the worst-rated stocks.

4.2.3. Lead-Lag analysis of Stock prices versus CDS spreads

Given the significant reaction of CDS spreads to loan renegotiations and the anticipation effect documented in this market, we now turn to the question of whether CDS credit pricing information spills over to stocks, adding to the debate regarding CDS' contribution to price discovery. We thus analyze the lead-lag relationship between the CDS and the stock market to verify whether CDS returns can lead stock market returns. The evidence in the previous literature is mixed. Marsh and Wagner (2012) find that stock prices lead CDS spreads mainly through their systematic returns, and Hilscher et al. (2015) find that information unidirectionally flows from stocks to CDS and that there is no significant lead role over stock prices. However, Lee et al. (2018) revisit the analysis and find that, controlling for the evolution of aggregate stock and CDS market conditions, CDS returns exhibit significant predictability on future stock returns.

To perform our analysis, we use a panel VAR based on the estimation of the following equations, as in Hilscher et al. (2015):

$$\begin{pmatrix} R_{it}^{Stock} \\ R_{it}^{CDS} \end{pmatrix} = \begin{pmatrix} \beta_{0,i}^{Stock} \\ \beta_{0,i}^{CDS} \end{pmatrix} + \sum_{k=1}^{3} \begin{pmatrix} \beta_{k}^{Stock,Stock} & \beta_{k}^{Stock,CDS} \\ \beta_{k}^{CDS,Stock} & \beta_{k}^{CDS,CDS} \end{pmatrix} * \begin{pmatrix} R_{it-k}^{Stock} \\ R_{it-k}^{CDS} \end{pmatrix} + \begin{pmatrix} \epsilon_{it}^{Stock} \\ \epsilon_{it}^{CDS} \end{pmatrix} \tag{2}$$

[Table 8 about here.]

Table 8 replicates the analysis in Lee et al. (2018) for our sample. Column 1 shows the baseline results, in which there are no controls for aggregate stock nor CDS market conditions. As in Lee et al. (2018), CDS returns react to past shocks in stock returns, but there is no clear evidence of CDS returns on stock returns, since the first and third lag have opposite signs and we cannot reject the test that the sum of coefficients is equal to zero. Column 2 and Column 3 control for the evolution of the systematic return in order to estimate the effects of idiosyncratic shocks of CDS and stock returns. In Column 2 we include the average CDS returns and the average stock returns across observations for each time period, and in Column 3 we use the idiosyncratic component of CDS and stock returns for each firm, defined as the original

CDS/stock returns minus the corresponding average CDS and stock returns used in Column 2 as explanatory variables. In both estimations, we observe that firm-specific CDS returns can significantly predict future firm-specific stock returns, as in Lee et al. (2018): in Column 2, the impact of the first lag of CDS returns on stock returns is negative and statistically significant at 1%, and in Column 3, stock returns react negatively to both the first and second lag of firm-specific CDS returns, with coefficients statistically significant at 5%.

[Table 9 about here.]

We next analyze in which cases the information from the CDS market might have a stronger impact on stock market prices. Basically, we try to identify in which circumstances there can be relevant information learned in anticipation in the CDS market that can lead the reaction of the stock prices. From our previous analysis, we find that during the days before the announcement of a loan renegotiation, there is a significant abnormal reaction in the CDS market. We split our sample in observations inside and outside the [-30,30] window to test whether the observed shock in the CDS market seen in Table 8 leads the reaction in the stock market. The results are shown in Column 1 and Column 2 of Table 9, only for the idiosyncratic returns. We observe that the reaction of stock returns to CDS shocks is higher in the days around the event (first and second lag statistically significant, sum of coefficients -0.013) than in the days outside the event window (first lag statistically significant, equal to -0.006). If we split the interval [-30,30] into the five windows [-30-11],[-10,-6],[-5,5]],[6,10],[11,30], we observe in Table 10 that the higher reaction of stock returns to CDS returns are in the windows [-30-11],[-10,-6], with an accumulated effect of -0.036 and -0.040 in the first and second lags, respectively. The impact of CDS on stock returns in the window [-5, 5] is statistically significant at 10%, and with a magnitude of -0.016. For the windows that only include days after the renegotiation announcement, there is no effect of CDS returns on equity returns, possibly because we did not find any effect on CDS abnormal spreads during those days and, thus, there are no shocks in CDS that could be translated to stock returns.

[Table 10 about here.]

Finally, we split the sample between observations of "investment-grade" firms and "speculative" firms. Comparing Column 3 and Column 4 of Table 9, CDS returns have no impact at all on stock returns for investment-grade firms, whereas the impact is up to -0.016 for speculative firms. This is consistent with the idea that CDS contracts are more sensitive in cases that present higher credit risk. Indeed, the CDS spreads of speculative firms have been previously shown to be more sensitive to financial restatement announcements (Du, 2017) or equity issuances announcements (Cornett et al., 2014). For investment-grade firms, loan renegotiation might not convey new information about the quality of the firm and, thus, there is no impact of shocks of CDS returns on stock returns.

Overall, we find that CDS markets can lead stock market returns. However, the magnitude of the effect (if any) depends on whether there has been a shock in the CDS market that significantly affects the downside risk of the firm, such as a loan renegotiation in firms with low ratings. Otherwise, one could observe that the CDS market is a sideshow to the stock market and that it does not lead any reaction to the stock market.

4.3. Robustness checks

We have performed several robustness tests to check the validity of our results to different specifications.

Table A.2 shows the results of our baseline model (2) separating the sample in firms with debt rated as "investment-grade" and those rated as "speculative". We observe that the main results obtained in the analysis come from the subsample of firms with lower credit ratings, whereas the CDS spreads of the investment-grade firms present little (if any) reaction to loan renegotiation announcements. This reinforces one of the main findings of the paper, that the reaction of CDS spreads to news affecting the company will be more significant the higher the credit risk of the firm.

Table A.3 shows the results of the analysis of the anticipation effects for stock prices. Overall, the coefficients are not statistically significant and, thus, we conclude that the stock prices do not react to loan renegotiations, before, around or after the announcement date.

We have also tried different definitions for the event windows. More concretely, we have considered [-60, 60] and [-90,90] and different splits to perform the analysis of the paper. Overall, the results remain relatively stable, though the magnitude and statistical significance of CDS spreads decreases as we consider dates further from the annoucement day of the loan renegotiation.

5. Conclusions

We analyze the reaction of the CDS market to loan renegotiation announcements using a sample of 758 renegotiations of public US firms covering the period from January 2010 to December 2017. We document a significant positive reaction (decrease in CDS spreads) for almost all types of loan amendments, which is robust to the inclusion of loan and borrower characteristics. Moreover, we show that this reaction is driven by speculative-rated firms that are more sensitive to downside risk. On the contrary, we find no significant reaction on the stock market.

Similar to previous studies, we find evidence of an anticipation effect in the CDS market of up to 30 days before the announcement date. Informed trading done by lead banks of their speculative-rated borrowers' CDS contracts contribute to this anticipation effect. Furthermore, we show that the idiosyncratic component of CDS returns leads stock returns especially around the announcement date and for speculative-rated firms.

This paper is the first study on the association between CDS market returns and renegotiation announcements. Although private credit is the

primary source of financing around the world, empirical research on private loan renegotiation is scarce. Moreover, it focuses only on its impact on the equity market. We contribute to the literature by investigating the impact of renegotiations on debt holders' perceptions of firm value and default risk. Given the size and interplay of the bank loan market and CDS market, a better understanding of their interaction is crucial.

Appendix A.

Table A.1: Variables definitions.
This table presents the definitions of all variables used in this study.

Variable	Definition
Renegotiation variables	
Types of amendments by tranche	Number of different types of amendments by tranche
Number of tranches	Number of amended tranhces by borrower
Renegotiations by borrower until t	Number of renegotiations by borrower until t
Renegotiations by borrower total	Number of renegotiations by borrower in the sample
Duration until renegotiation	Time from loan origination until renegotiation (in years)
Duration between renegotiations	Time between each renegotiation (in years)
Id(Change in maturity $>$ 1 year)	= 1 if change in loan maturity is larger than 1 year
Change in maturity	Change in loan maturity (in days)
Id(Change in amount $>$ 0)	= 1 if change in loan amount is positive
Change in amount	Change in loan amount (m$)
Loan characteristics at origination	
Multiple tranches	= 1 if loan has multiple tranches
Syndicated or club deal	= 1 if loan is a syndicated or club deal
Secured	= 1 if loan is secured
Covenant lite	= 1 if loan does not have covenants
Term loan	= 1 if loan is a term loan
Original deal amount	Loan deal amount (m$)
Original maturity	Original maturity (in years)
Loans amount outstanding	Total amount of loans outstanding by borrower (m$)
Past loan issues	Number of past loan issues by borrower
Number of lenders	Number of lending banks by borrower
Number of lead banks	Number of lead banks by deal
Number of cds banks	Number of lead banks that are prominent CDS originating banks
Borrower characteristics	
Sales	Sales (B$)
Debt/assets	Total debt to total assets ratio (%)
ROA	Net income to total assets (%)
Market to book	Market value of equity to book value of equity

Table A.2: Baseline results for CDS, by subsamples: investment-grade versus speculative.
This table presents the results of OLS regressions of the CDS CAR (cumulative abnormal return in the CDS market), CDS CASC (cumulative abnormal spread changes) and Equity CAR (cumulative abnormal return in the stock market) in the window [-1,1] on loan renegotiation variables, for the subsamples of investment-grade (Columns 1 and 2) and speculative-rated firms (Columns 3 and 4), respectively. All the specifications include dummies of industrial sector, currency and renegotiation year, but they not reported. All variables are defined in Table A.1. Robust standard errors clustered at company level are reported in parentheses. Superscripts ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	CDS CAR IG	CASC IG	CDS CAR HY	CASC HY
Covenant Financial	-1.605	-1.196	-3.890	-5.896
	(1.927)	(2.277)	(4.031)	(6.352)
Covenant NonFinanc	-0.061	-0.529	-9.081*	-13.835**
	(1.734)	(2.051)	(4.754)	(6.889)
Definition Change	0.239	-0.325	2.673	8.209
	(2.085)	(2.246)	(5.017)	(9.951)
LOC Amount	-1.019	-1.162	-4.512	-8.164
	(1.936)	(2.228)	(4.520)	(8.220)
Loan Fee	-1.325	-1.711	-9.886*	-13.049
	(2.500)	(2.679)	(5.815)	(8.344)
Maturity Change	5.429	5.744	1.248	5.687
	(3.602)	(3.808)	(6.263)	(12.153)
Pricing Grid	-1.896	-1.826	-6.158	-11.835
	(1.719)	(2.008)	(4.361)	(8.392)
Amount	-2.108	-2.641	-10.214*	-18.374**
	(1.747)	(1.798)	(5.149)	(8.865)
Duration between	-4.607	-1.779	-1.568	-2.827
renegotiations	(6.615)	(7.396)	(20.972)	(26.901)
Duration until	0.538	0.230	1.776	1.624
renegotiation	(1.101)	(1.236)	(4.148)	(6.036)
Types amendments	1.705	2.667	36.342*	53.428*
by tranche	(5.471)	(5.832)	(19.710)	(28.073)
Renegot accum	-2.136*	-2.413**	-3.671	-9.458
by borrower	(1.130)	(1.211)	(4.620)	(6.732)
Id(Change in maturity	-3.028	-3.284	-5.076	-9.244
>1 year)	(2.398)	(2.687)	(4.047)	(9.123)
Id(Change in amount >0)	-0.864	-0.904	-2.060	-1.995
	(1.858)	(1.789)	(5.586)	(11.160)
Constant	4.226	0.283	-24.393	-36.329
	(5.486)	(6.263)	(17.047)	(23.525)
Obs.	349	349	408	408
R^2	0.094	0.093	0.122	0.162

Table A.3: Anticipation effect for the equity market. This table reports the results of OLS regressions of the Equity CAR (cumulative abnormal returns) on loan renegotiation variables, for all the sample of loan renegotiations. We perform the multivariate analysis using event windows with five different subintervals, [-30-11],[-10,-6],[-5,5],[6,10],[11,30]. All the specifications include dummies of industrial sector, currency and renegotiation year, but they not reported. All variables are defined in Table A.1. Robust standard errors clustered at company level are reported in parentheses. Superscripts ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	(-30,-11)	(-10,-6)	(-5,5)	(6,10)	(11,30)
Covenant Financial	0.010	0.001	0.005	-0.008*	-0.025***
	(0.010)	(0.004)	(0.008)	(0.005)	(0.009)
Covenant Non	-0.006	-0.005	-0.011*	-0.001	0.003
Financial	(0.009)	(0.004)	(0.006)	(0.004)	(0.009)
Definition Change	0.003	-0.000	-0.003	-0.002	-0.008
	(0.010)	(0.005)	(0.006)	(0.005)	(0.010)
LOC Amount	-0.000	-0.000	-0.009	-0.002	0.011
	(0.010)	(0.005)	(0.008)	(0.005)	(0.013)
Loan Fee	0.010	-0.006	-0.002	0.001	-0.012
	(0.012)	(0.005)	(0.007)	(0.005)	(0.011)
Maturity Change	-0.004	-0.001	-0.004	-0.002	-0.009
	(0.010)	(0.005)	(0.006)	(0.006)	(0.011)
Pricing Grid	-0.012	0.004	0.001	-0.000	-0.004
	(0.010)	(0.005)	(0.006)	(0.004)	(0.012)
Amount	-0.009	0.000	-0.004	-0.005	-0.009
	(0.011)	(0.005)	(0.006)	(0.004)	(0.011)
Duration between	-0.018	0.007	0.006	-0.008	-0.003
renegotiations	(0.016)	(0.008)	(0.011)	(0.008)	(0.016)
Duration until	0.000	0.001	0.004	-0.003	0.005
renegotiation	(0.003)	(0.002)	(0.003)	(0.002)	(0.004)
Types of amendments	0.011	0.005	0.008	0.003	0.014
by tranche	(0.028)	(0.013)	(0.014)	(0.012)	(0.025)
Renegot accum	-0.002	0.002	0.004	0.001	0.006*
by borrower	(0.004)	(0.002)	(0.003)	(0.002)	(0.003)
Id(Change in maturity	-0.002	0.002	0.000	0.004	0.010
> 1 year)	(0.008)	(0.004)	(0.005)	(0.004)	(0.007)
Id(Change in amount > 0)	0.007	0.001	-0.003	0.006*	0.009
	(0.006)	(0.003)	(0.005)	(0.003)	(0.007)
Constant	0.024	-0.012	0.032**	-0.020**	-0.011
	(0.021)	(0.010)	(0.016)	(0.010)	(0.020)
Obs.	739	794	768	782	716
R^2	0.059	0.053	0.058	0.045	0.073

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Figures

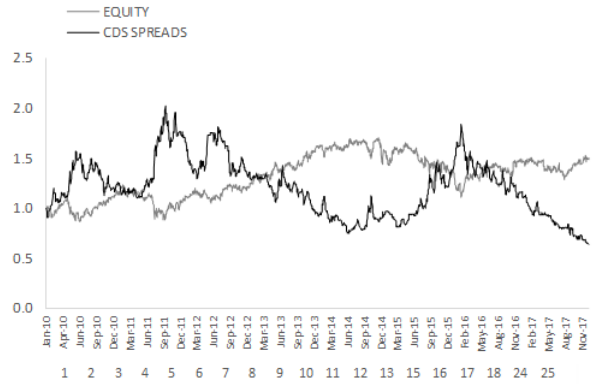

Figure 1: CDS spreads and Equity prices. Median values across firms. (100= 1/3/2010)

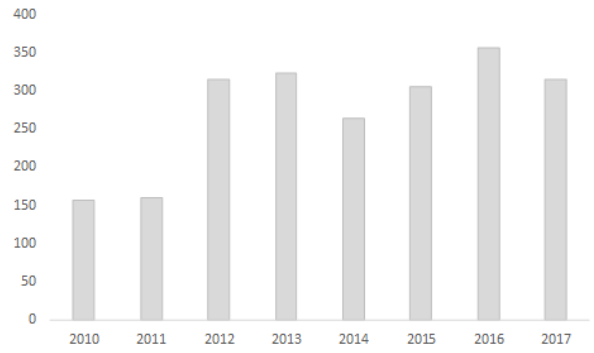

Figure 2: Distribution of renegotiations per year. This figure presents the distribution of loan renegotiations by year.

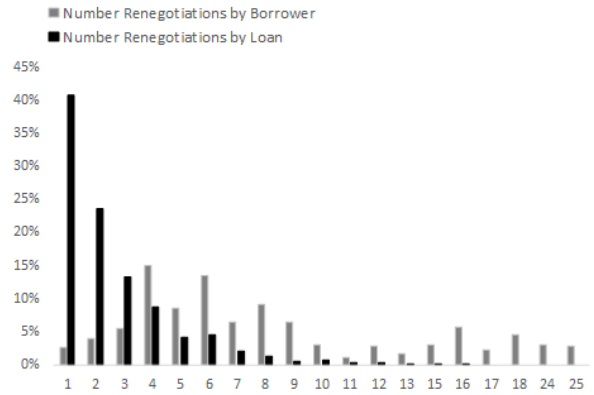

Figure 3: Distribution of renegotiations by loan and borrower. This figure presents the distribution of renegotiations by loan and by borrower. For example, around 40% of the loans are rengotiated only once, while less than 5% of the borrowers renegotiate only once.

Tables

Table 1: Descriptive statistics
This table shows summary statistics of the main variables used in the analysis. The definitions of all variables are detailed in Table A.1.

Variable	N	Mean	St Dev	P10th	P50th	P90th
Renegotiation variables						
Types of amendments by tranche	758	2.289	1.366	1	2	4
Number of tranches	758	1.830	1.708	1	1	4
Renegotiations by borrower until t	758	3.868	4.223	0	3	10
Renegotiations by borrower total	758	8.690	5.936	3	7	18
Duration until renegotiation	758	2.176	2.032	0.151	1.489	4.408
Duration between renegotiations	614	0.926	0.851	0.071	0.790	2.063
Id(Change in maturity >1 year)	758	0.249	0.433	0	0	1
Change in maturity	283	684	363	363	679	1192
Id(Change in amount >0)	758	0.276	0.447	0	0	1
Change in amount	360	-191	1621	-1000	50	900
Loan characteristics at origination						
Multiple tranches	741	0.576	0.494	0	1	1
Syndicated or club deal	741	0.965	0.184	1	1	1
Secured	741	0.421	0.494	0	0	1
Covenant lite	741	0.055	0.229	0	0	0
Term loan	741	0.215	0.411	0	0	1
Original deal amount	741	7910	38700	225	1800	9800
Original maturity	723	5.094	1.882	3	5	7
Loans amount outstanding	534	1120	2140	0	25	4380
Past loan issues	741	20.95	39.66	5	12	34
Number of lenders	741	17.80	10.85	6	17	30
Number of lead banks	741	3.771	2.920	1	3	7
Number of cds banks	741	4.275	2.177	1	4	7
Borrower characteristics						
Sales	571	26.70	35.00	2.894	11.30	79.91
Debt/assets	571	43.10	19.94	19.59	41.86	68.81
ROA	571	5.221	5.506	-0.330	5.120	11.89
Market to book	571	3.085	6.996	-0.447	2.298	8.078

Table 2: CDS and stock market reaction to loan amendment announcements. The table compares the effects of loan renegotiations on CDS and stock markets during the days before and after the announcement date (day 0). In Panel A, CSC is the cumulative change in the CDS spread and CASC is adjusted for movements in the average spread for the same credit rating. In Panel B, Equity CAR is the cumulative abnormal return in stock markets, and CDS CAR is the cumulative abnormal returns in CDS. The "%(¿0)" entry indicates the percentage of observations with positive or zero values. Superscripts ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

Panel A.

	CSC			CASC		
Day	Mean	t-stat.	%(> 0)	Mean	t-stat.	%(> 0)
-5	0.366	0.69	40.8	-0.122	-0.26	46.9
-4	0.126	0.24	39.3	-0.046	-0.10	43.9
-3	0.303	0.57	39.8	0.424	0.91	51.0
-2	0.221	0.42	43.5	0.020	0.04	47.1
-1	0.864	1.63	38.0	0.000	0.00	47.3
0	-0.008	-0.01	42.8	-2.712	-5.80***	49.6
1	-1.080	-2.04**	45.1	-0.643	-1.38	47.8
2	-1.265	-2.39**	38.2	-0.331	-0.71	47.3
3	-0.179	-0.34	38.5	-0.279	-0.60	48.3
4	0.139	0.26	39.2	-0.657	-1.41	46.7
5	-0.297	-0.56	37.7	-0.566	-1.21	46.6
$[-1, 1]$	-0.225	-0.21	42.6	-3.354	-3.74***	52.6
$[-5, 5]$	-0.811	-0.37	46.0	-4.911	-2.65***	51.1

Panel B.

	Equity CAR			CDS CAR		
Day	Mean	t-stat.	%(> 0)	Mean	t-stat.	%(> 0)
-5	-0.075	-1.34	44.1	-0.043	-0.20	45.5
-4	0.002	0.04	45.2	-0.028	-0.13	44.1
-3	0.021	0.38	47.7	0.052	0.24	50.8
-2	-0.025	-0.44	47.8	-0.022	-0.10	47.1
-1	-0.044	-0.79	49.8	0.016	0.07	46.0
0	-0.095	-1.69*	44.3	-1.169	-5.39***	49.6
1	0.026	0.47	48.3	-0.442	-2.04**	47.5
2	0.062	1.11	46.7	-0.033	-0.15	48.5
3	0.041	0.73	47.0	-0.058	-0.27	47.1
4	-0.044	-0.78	45.8	-0.109	-0.50	48.3
5	0.044	0.79	47.8	-0.098	-0.45	46.7
$[-1, 1]$	-0.113	-1.13	48.3	-1.595	-3.89***	53.4
$[-5, 5]$	-0.084	-0.43	46.7	-1.934	-2.32**	50.3

Table 3: CDS and Equity results with amendment variables for events with only one amendment type. This table presents the results of OLS regressions of the CDS CAR (defined as the cumulated abnormal return for CDS), CDS CASC (cumulative CDS spread changes adjusted for movements in the average spread for the same credit rating) and Equity CAR (cumulative abnormal return for equity) in the window [-1,1] on loan renegotiation variables, for the subsample of loan renegotiations with only one amendment type. The loan renegotiation variables included are the dummies for each type of amendment. All the specifications include dummies of industrial sector, currency and renegotiation year, but they not reported. Robust standard errors clustered at company level are reported in parentheses. Superscripts ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	CDS CAR	CDS CASC	Equity CAR
Covenant Financial	-14.804	-21.252	0.193
	(11.619)	(16.124)	(0.967)
Covenant Non Financial	-26.883**	-30.609*	0.149
	(12.022)	(17.128)	(0.753)
Definition Change	-27.144*	-27.159	-0.264
	(15.593)	(19.279)	(0.713)
LOC Amount	-56.167**	-74.138**	0.719
	(25.023)	(31.088)	(0.897)
Loan Fee	-48.291**	-63.068**	0.354
	(21.857)	(26.121)	(0.950)
Maturity Change	-20.837	-23.830	-0.670
	(15.206)	(19.105)	(0.675)
Pricing Grid	-23.271*	-29.744	-1.228
	(13.747)	(20.971)	(0.816)
Amount	-43.625**	-58.394**	-0.196
	(18.913)	(23.170)	(0.689)
Constant	37.799*	38.973	-2.464*
	(21.793)	(29.394)	(1.341)
Obs.	255	255	266
R^2	0.150	0.192	0.136

Table 4: Baseline multivariate results for CDS and Equity with amendment and renegotiation variables. This table presents the results of OLS regressions of the CDS CAR (cumulative abnormal return in the CDS market), CDS CASC (cumulative abnormal spread changes) and Equity CAR (cumulative abnormal return in the stock market) in the window [-1,1] on loan renegotiation variables, for all the sample of loan renegotiations. All the specifications include dummies of industrial sector, currency and renegotiation year, but they not reported. All variables are defined in Table A.1. Robust standard errors clustered at company level are reported in parentheses. Superscripts ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	CDS CAR	CDS CASC	Equity CAR
Covenant Financial	-3.010	-4.349	0.578*
	(2.235)	(3.568)	(0.332)
Covenant Non Financial	-5.608**	-8.793**	-0.562*
	(2.722)	(3.974)	(0.289)
Definition Change	-0.969	0.783	-0.102
	(2.729)	(4.455)	(0.358)
LOC Amount	-5.589**	-9.973**	0.272
	(2.528)	(3.905)	(0.416)
Loan Fee	-7.522**	-11.041**	0.309
	(3.406)	(5.026)	(0.369)
Maturity Change	3.155	5.014	-0.037
	(2.949)	(4.662)	(0.322)
Pricing Grid	-5.149**	-8.015*	-0.066
	(2.450)	(4.210)	(0.348)
Amount	-8.238**	-14.111**	0.128
	(3.678)	(6.446)	(0.363)
Duration between renegotiations	-2.204	-2.221	0.641
	(11.495)	(14.787)	(0.735)
Duration until renegotiation	0.831	1.101	0.141
	(1.694)	(2.871)	(0.130)
Types of amendments	24.383**	36.376**	0.306
	(11.272)	(15.587)	(0.926)
Renegotiations accumulated	-2.956	-5.769*	0.105
	(2.052)	(3.227)	(0.159)
Id(Change in maturity $>$ 1 year)	-3.743	-5.089	-0.310
	(2.268)	(3.605)	(0.269)
Id(Change in amount $>$ 0)	-0.603	1.525	-0.376
	(3.483)	(7.157)	(0.259)
Constant	-10.451	-19.909**	0.273
	(6.475)	(9.547)	(1.083)
Obs.	758	758	799
R^2	0.076	0.088	0.054

Table 5: Loan characteristics and borrower variables.
This table presents the results of OLS regressions of the CDS CAR (cumulative abnormal return) and CDS CASC (cumulative abnormal spread changes) in the window [-1,1] on loan renegotiation variables, for all the sample of loan renegotiations. Column 1 and Column 1 include variables of loan characteristics, and Column 3 and Column 4 include borrower characteristics. All the specifications include dummies of industrial sector, currency and renegotiation year, but they not reported. All variables are defined in Table A.1. Robust standard errors clustered at company level are reported in parentheses. Superscripts ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	CDS CAR	CDS CASC	CDS CAR	CDS CASC
Covenant Financial	-3.017	-4.163	-1.572	-2.883
	(2.134)	(3.435)	(1.671)	(3.284)
Covenant Non	-6.111*	-9.559**	-3.807*	-7.568*
Financial	(3.434)	(4.726)	(2.007)	(4.157)
Definition Change	-2.239	-1.211	1.169	3.927
	(2.853)	(4.553)	(3.096)	(5.558)
LOC Amount	-4.346*	-7.564**	-3.157	-6.566
	(2.470)	(3.765)	(2.308)	(4.290)
Loan Fee	-7.489**	-10.531**	-4.016	-7.380
	(3.595)	(5.240)	(2.770)	(5.183)
Maturity Change	3.493	5.937	1.977	2.163
	(3.755)	(6.266)	(3.723)	(5.349)
Pricing Grid	-5.368*	-8.448*	-4.536*	-6.958
	(2.769)	(4.665)	(2.687)	(4.580)
Amount	-9.917**	-16.758**	-9.133**	-16.071**
	(4.902)	(8.252)	(4.611)	(8.106)
Duration between	-2.684	-3.298	-32.737*	-37.194
renegotiations	(11.794)	(15.166)	(18.846)	(25.761)
Duration until	0.363	0.199	-0.058	-0.073
renegotiation	(2.045)	(3.299)	(1.615)	(3.307)
Types of amendments	25.478**	37.319**	14.739*	25.105*
by tranche	(12.380)	(17.137)	(8.731)	(13.730)
Renegotiations	-2.452	-4.914	-2.524*	-4.951**
accumulated by borrower	(2.179)	(3.511)	(1.339)	(2.329)
Id(Change in maturity	-5.023**	-7.469*	-1.702	-1.167
$>$ 1 year)	(2.475)	(4.169)	(2.288)	(3.107)
Id(Change in amount $>$ 0)	0.573	3.552	2.504	6.260
	(3.846)	(7.812)	(4.344)	(8.905)
Multiple tranches	0.855	1.640		
	(1.917)	(3.290)		
Syndicated or club	9.602	14.295		
deal	(12.780)	(23.747)		
Secured	-0.300	-0.481		
	(2.777)	(4.292)		
Covenants lite	4.444	7.514**		
	(2.845)	(3.789)		

(*Continues next page*) ...

Table 5: (Cont.)

	CDS CAR	CDS CASC	CDS CAR	CDS CASC
Past loan issues	-0.051	-0.021		
	(2.135)	(4.075)		
Number of lenders	2.156	4.764		
	(2.449)	(4.754)		
Log(sales)			0.046	0.539
			(0.891)	(1.574)
Debt/assets			-0.041	-0.085
			(0.053)	(0.110)
RoA			0.057	-0.055
			(0.290)	(0.549)
Market to book			0.009	0.048
			(0.095)	(0.182)
Constant	-20.681	-36.949	-1.393	-16.533
	(16.894)	(28.663)	(15.040)	(27.304)
Obs.	745	745	571	571
R^2	0.088	0.101	0.136	0.132

Table 6: Anticipation effect in the CDS market.
This table reports the results of OLS regressions of the CDS CAR (cumulative abnormal returns in Panel A) and CDS CASC (cumulative abnormal spread changes in Panel B) on loan renegotiation variables, for all the sample of loan renegotiations. We perform the multivariate analysis using event windows with five different subintervals, [-30-11],[-10,-6],[-5,5],[6,10],[11,30]. All the specifications include dummies of industrial sector, currency and renegotiation year, but they not reported. All variables are defined in Table A.1. Robust standard errors clustered at company level are reported in parentheses. Superscripts ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

Panel A. CDS CAR

	(-30,-11)	(-10,-6)	(-5,5)	(6,10)	(11,30)
Covenant Financial	-0.002	-0.001	-0.019	-0.018	0.027
	(0.013)	(0.007)	(0.016)	(0.012)	(0.019)
Covenant Non Financial	-0.026	0.004	-0.038*	-0.012	-0.032
	(0.019)	(0.006)	(0.020)	(0.011)	(0.035)
Definition Change	-0.050**	-0.012	-0.019	-0.016	-0.022
	(0.022)	(0.011)	(0.032)	(0.017)	(0.041)
LOC Amount	-0.036**	0.007	-0.040*	-0.006	0.009
	(0.017)	(0.007)	(0.023)	(0.010)	(0.025)
Loan Fee	-0.019	-0.018	-0.063**	-0.016	-0.012
	(0.020)	(0.016)	(0.027)	(0.013)	(0.039)
Maturity Change	-0.030	-0.001	0.037	-0.019	0.011
	(0.022)	(0.016)	(0.036)	(0.012)	(0.027)
Pricing Grid	-0.012	-0.005	-0.053**	-0.011	-0.014
	(0.020)	(0.011)	(0.023)	(0.012)	(0.028)
Amount	-0.050**	-0.010	-0.075**	-0.001	0.003
	(0.021)	(0.009)	(0.036)	(0.008)	(0.030)
Duration between renegotiations	0.021	-0.024	-0.093	0.008	-0.056
	(0.024)	(0.017)	(0.080)	(0.013)	(0.042)
Duration until renegotiation	-0.016**	-0.006*	-0.020	0.004	0.006
	(0.008)	(0.003)	(0.016)	(0.005)	(0.010)
Types of amendments by tranche	0.106*	0.017	0.199**	0.077*	0.064
	(0.063)	(0.028)	(0.088)	(0.043)	(0.096)
Renegotiations accum by borrower	0.006	0.004	-0.039***	-0.005	0.008
	(0.010)	(0.004)	(0.013)	(0.007)	(0.011)
Id(Change in maturity $>$ 1 year)	-0.009	-0.011	-0.050*	-0.018	-0.016
	(0.014)	(0.009)	(0.027)	(0.012)	(0.015)
Id(Change in amount $>$ 0)	0.030**	0.001	0.021	-0.008	-0.026
	(0.012)	(0.008)	(0.035)	(0.006)	(0.016)
Constant	-0.074	-0.025	-0.101	0.061	-0.112*
	(0.082)	(0.019)	(0.063)	(0.073)	(0.057)
Obs.	701	753	727	743	672
R^2	0.127	0.110	0.089	0.075	0.098

(*Continues next page*) ...

Table 6: (Cont.)

Panel B. CDS CASC	(-30,-11)	(-10,-6)	(-5,5)	(6,10)	(11,30)
Covenant Financial	-5.182	1.350	0.759	-3.088	6.072
	(9.071)	(1.957)	(5.299)	(2.613)	(5.354)
Covenant Non Financial	-5.436	2.023	-8.093	-2.619	-4.290
	(5.121)	(1.916)	(5.087)	(2.313)	(6.749)
Definition Change	-18.180***	-1.582	1.641	-0.599	-4.836
	(6.126)	(2.344)	(6.151)	(2.916)	(8.740)
LOC Amount	-11.321*	1.897	-4.466	-0.382	3.212
	(6.540)	(2.379)	(5.266)	(2.864)	(7.835)
Loan Fee	-11.209	-3.143	-10.222*	0.404	-4.594
	(9.690)	(2.536)	(6.105)	(2.690)	(7.506)
Maturity Change	-16.389**	-0.332	8.389	0.355	5.410
	(7.398)	(2.668)	(6.395)	(3.321)	(5.431)
Pricing Grid	-2.830	-0.302	-5.136	-3.362	-1.677
	(7.447)	(2.073)	(6.386)	(2.330)	(6.150)
Amount	-13.114**	-1.194	-7.870	0.947	1.985
	(6.471)	(2.452)	(8.169)	(2.342)	(6.377)
Duration between renegotiations	10.365	-1.239	-7.309	3.769	-19.131
	(11.099)	(2.982)	(12.004)	(3.361)	(13.667)
Duration until renegotiation	-6.217**	-1.467*	-5.437	2.370*	0.197
	(3.045)	(0.873)	(3.900)	(1.247)	(2.379)
Types of amendments by tranche	34.858*	-1.146	22.996	10.219	9.866
	(18.780)	(5.955)	(16.997)	(7.441)	(19.844)
Renegotiations accum by borrower	-1.140	0.439	-7.631***	0.541	-1.016
	(2.764)	(0.696)	(2.679)	(1.268)	(2.189)
Id(Change in maturity $>$ 1 year)	3.570	-0.309	-7.555	-3.520	-5.203
	(5.275)	(1.590)	(4.936)	(2.902)	(3.599)
Id(Change in amount $>$ 0)	4.497	1.031	5.372	-2.663	-3.625
	(3.400)	(1.481)	(7.101)	(1.834)	(4.112)
Constant	-13.189	-0.680	-26.714**	4.344	-22.450
	(16.365)	(4.033)	(12.134)	(11.172)	(14.935)
Obs.	701	753	727	743	672
R^2	0.052	0.067	0.074	0.049	0.088

Table 7: Bank relations.
This table presents the determinants of CDS and stock response around renegotiation announcements. The dependent variable is the CDS CAR (cumulative abnormal return in the CDS market) for the window (-30,-11) in columns 1, 3 and 5, and CASC for the same window in columns 2, 4 and 6. The explanatory variable of interest is the number of lead banks. Equity CAR is the cumulative abnormal return of the firm's stock during the respective interval in percentages. Columns 1 and 2 present the estimations for all the sample of loan renegotiations. Columns 3 and 4 present the results for the subsample of investment-grade firms, while columns 5 and 6 present the results for the subsample of speculative-rated firms. Robust standard errors clustered at company level are reported in parentheses. Superscripts ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	Full sample	Full sample	IG	IG	HY	HY
	$CDS\ CAR$	$CASC$	$CDS\ CAR$	$CASC$	$CDS\ CAR$	$CASC$
N lead	0.010	2.740*	0.008	0.139	0.012*	5.967**
banks	(0.006)	(1.624)	(0.011)	(1.225)	(0.006)	(2.755)
Equity	-0.290***	-234.7*	-0.280*	-47.31**	-0.298**	-300.8*
CAR	(0.102)	(129.2)	(0.152)	(19.612)	(0.128)	(167.6)
Cons	-0.018**	-4.269*	-0.013	-0.687	-0.022**	- 8.730**
	(0.009)	(2.482)	(0.014)	(1.519)	(0.010)	(4.193)
Obs.	656	656	314	314	341	341
R^2	0.031	0.105	0.017	0.032	0.043	0.135

Table 8: Lead lag analysis Equity-CDS for full sample (event & non-event observations). This table presents the lead and lag relations between daily stock returns and CDS returns of 176 public firms from January 2009 to December 2017. Regressions include both event and non-event observations . Column 1 shows the baseline results with ordinary stock and CDS returns. Column 2 controls for stock and CDS market indexes as exogenous variables. Column 3 presents the lead-lag relation between idiosyncratic stock and CDS returns. Idiosyncratic returns are returns adjusted by stock and CDS market indixes. The stock market index is the S&P return (Return S&P), whereas the CDS market index is the equal-weighted CDS return of all firms in our sample (Mean CDS). All regressions include firm fixed effects. Standard errors clustered at company level reported in parentheses. Superscripts ***, **, * indicate significance at 1%, 5%, and 10% levels, respectively.

	Baseline	Baseline w / Mkt controls	Idiosync
STOCK RETURNS			
Ret $Equity_{t-1}$	-0.003	0.005	0.003
	(0.003)	(0.003)	(0.003)
Ret $Equity_{t-2}$	0.018***	0.003	0.001
	(0.004)	(0.004)	(0.003)
Ret $Equity_{t-3}$	-0.022***	-0.007***	-0.009***
	(0.003)	(0.002)	(0.003)
Ret CDS_{t-1}	-0.011***	-0.005***	-0.006***
	(0.002)	(0.002)	(0.001)
Ret CDS_{t-2}	-0.001	-0.003	-0.002**
	(0.002)	(0.002)	(0.001)
Ret CDS_{t-3}	0.008***	0.000	0.001
	(0.002)	(0.002)	(0.001)
Mean CDS		-0.054***	
		(0.007)	
Return S&P		1.080***	
		(0.032)	
CDS RETURNS			
Ret $Equity_{t-1}$	-0.166***	-0.078***	-0.145***
	(0.009)	(0.009)	(0.013)
Ret $Equity_{t-2}$	-0.080***	-0.039***	-0.082***
	(0.004)	(0.004)	(0.006)
Ret $Equity_{t-3}$	-0.034***	-0.028***	-0.050***
	(0.004)	(0.003)	(0.006)
Ret CDS_{t-1}	0.063***	0.013**	0.088***
	(0.007)	(0.006)	(0.008)
Ret CDS_{t-2}	0.041***	0.020***	0.050***
	(0.004)	(0.003)	(0.004)
Ret CDS_{t-3}	0.016***	0.011***	0.017***
	(0.004)	(0.004)	(0.004)
Mean CDS		0.953***	
		(0.023)	
Return S&P		-0.047***	
		(0.012)	
Obs.	303827	303817	303782

Table 9: Lead lag analysis Equity-CDS with idiosyncratic measure by subsamples (inside/outside event window, investment-grade/speculative). This table presents the lead and lag relations between daily idiosyncratic stock returns and idiosyncratic CDS returns of 176 public firms from January 2009 to December 2017 by subsamples. In Columns 1 and 2, the full sample is partitioned into firm days outside of renegotiation event windows ([30, 30]) and firm days inside of renegotiation event windows, respectively. In Columns 3 and 4, the full sample is partitioned into investment-grade and speculative-rated firms, respectively. All estimations are based on idiosyncratic stock and CDS returns, where idiosyncratic returns are index-adjusted returns. The stock market index is the S&P return, whereas the CDS market index is the equal-weighted CDS return of all firms in our sample. All regressions include firm fixed effects. Standard errors clustered at company level are reported in parentheses. Superscripts ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	Inside event window	Outside event window	Invest Grade	Speculative
STOCK RETURNS				
Id Ret Eq_{t-1}	0.020**	0.000	-0.006**	0.006
	(0.008)	(0.003)	(0.003)	(0.004)
Id Ret Eq_{t-2}	-0.005	0.001	-0.006**	0.002
	(0.007)	(0.003)	(0.003)	(0.004)
Id Ret Eq_{t-3}	-0.010	-0.009***	-0.011***	-0.009**
	(0.008)	(0.003)	(0.003)	(0.004)
Id Ret CDS_{t-1}	-0.007**	-0.006***	0.000	-0.012***
	(0.003)	(0.001)	(0.001)	(0.002)
Id Ret CDS_{t-2}	-0.006**	-0.002	-0.001	-0.004**
	(0.003)	(0.001)	(0.001)	(0.002)
Id Ret CDS_{t-3}	0.002	0.001	0.001	0.000
	(0.002)	(0.001)	(0.001)	(0.002)
CDS RETURNS				
Id Ret Eq_{t-1}	-0.153***	-0.144***	-0.112***	-0.163***
	(0.028)	(0.012)	(0.022)	(0.016)
Id Ret Eq_{t-2}	-0.075***	-0.083***	-0.062***	-0.096***
	(0.014)	(0.007)	(0.012)	(0.008)
Id Ret Eq_{t-3}	-0.054***	-0.049***	-0.048***	-0.054***
	(0.015)	(0.006)	(0.009)	(0.008)
Id Ret CDS_{t-1}	0.053***	0.095***	0.107***	0.066***
	(0.013)	(0.008)	(0.010)	(0.010)
Id Ret CDS_{t-2}	0.046***	0.050***	0.061***	0.037***
	(0.009)	(0.004)	(0.005)	(0.005)
Id Ret CDS_{t-3}	0.027***	0.015***	0.021***	0.011*
	(0.008)	(0.005)	(0.005)	(0.006)
Obs.	38969	263612	169570	132167

Table 10: Lead lag analysis equity-cds by windows with idiosyncratic measure for speculative firms. This table presents the lead and lag relations between daily idiosyncratic stock returns and idiosyncratic CDS returns during 60-day windows around the renegotiation events for the subsample of speculative-rated firms. Time intervals in the column headers show the VAR estimation period relative to the announcement date. All estimations are based on idiosyncratic stock and CDS returns, where idiosyncratic returns are index-adjusted returns. The stock market index is the S&P return, whereas the CDS market index is the equal-weighted CDS return of all firms in our sample. All regressions include firm fixed effects. Standard errors clustered at company level are reported in parentheses. Superscripts ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

	(-30,-11)	(-10,-6)	(-5,5)	(6,10)	(11,30)
EQ. RETURNS					
Id Ret Eq_{t-1}	0.006	0.038	0.026	0.079**	0.007
	(0.019)	(0.031)	(0.021)	(0.037)	(0.012)
Id Ret Eq_{t-2}	-0.013	0.026	-0.017	0.018	0.007
	(0.018)	(0.031)	(0.022)	(0.026)	(0.012)
Id Ret Eq_{t-3}	-0.023	-0.014	-0.012	0.024	-0.018
	(0.015)	(0.031)	(0.018)	(0.025)	(0.015)
Id Ret CDS_{t-1}	-0.022**	-0.040**	-0.016*	-0.019	-0.006
	(0.010)	(0.018)	(0.009)	(0.016)	(0.007)
Id Ret CDS_{t-2}	-0.016*	-0.006	-0.001	-0.025	-0.002
	(0.009)	(0.013)	(0.005)	(0.017)	(0.005)
Id Ret CDS_{t-3}	0.007	0.015	-0.002	0.000	0.001
	(0.014)	(0.012)	(0.007)	(0.012)	(0.006)
CDS RETURNS					
Id Ret Eq_{t-1}	-0.140***	-0.172***	-0.162***	-0.133***	-0.160***
	(0.051)	(0.053)	(0.049)	(0.044)	(0.036)
Id Ret Eq_{t-2}	-0.120***	0.006	-0.107**	-0.079**	-0.044*
	(0.022)	(0.042)	(0.050)	(0.039)	(0.025)
Id Ret Eq_{t-3}	-0.006	-0.104**	-0.063*	-0.020	-0.069***
	(0.028)	(0.045)	(0.035)	(0.053)	(0.022)
Id Ret CDS_{t-1}	0.029	0.067	0.039	0.097	0.034*
	(0.030)	(0.053)	(0.024)	(0.059)	(0.020)
Id Ret Eq_{t-2}	0.025*	0.142	0.009	0.078**	-0.002
	(0.015)	(0.103)	(0.016)	(0.035)	(0.012)
Id Ret Eq_{t-3}	0.035**	0.077	0.001	0.036	0.015
	(0.016)	(0.062)	(0.013)	(0.039)	(0.011)
Obs.	6495	1829	4151	1770	6399