The Dark Side of 2005 Bankruptcy Code Reform

—Does Derivatives Privilege Affect Corporate Borrowing?[1]

Maggie Rong Hu
Chinese University of Hong Kong
maggiehu@baf.cuhk.edu.hk

Chenyu Shan
Shanghai University of Finance and Economics
shan.chenyu@mail.sufe.edu.cn

Margaret Rui Zhu
City University of Hong Kong
Margaret.Zhu@cityu.edu.hk

This draft: February 2019

Abstract

The 2005 Bankruptcy Reform puts derivatives contracts into an effective "super-senior" status. The reform intends to provide stability to the derivative markets and reduce systemic risk. However, we find that it unintentionally hurts the borrowings of derivative-using firms. The theoretical model in Bolton and Oehmke (2015) suggests that the super-seniority status of derivatives shifts risk to the creditors and could lead to inefficiency in corporate borrowing. Using a unique set of hand-collected corporate derivatives-usage data, we empirically test Bloton and Oehmke (2015) theory and examine the effects of the 2005 Bankruptcy Reform on firms' borrowing capacity and cost. With the difference-in-difference tests, we find that derivatives users are less likely to obtain loans from banks after 2005. When they do, the loans they obtain have a smaller size, higher loan spread, and more stringent collateral requirements. The effects are more pronounced for derivatives-using firms closer to financial distress. Collectively, these findings shed light on the dark side of the 2005 Bankruptcy Reform and help understanding the potential conflict of interest amongst various creditors in general.

Keywords: Derivatives privilege, Bankruptcy Reform, Debt contracting, Conflict of interest

[1] We appreciate comments from Tse-Chun Lin.

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1. Introduction

Bankruptcy laws establish proceedings designed to rehabilitate debtors while protecting creditors. When firms file for bankruptcy in the United States, a stay goes into effect immediately and automatically.[2] The automatic stay prohibits creditors from seizing the debtor's assets pledged as collateral or taking other actions to collect what the creditor is owed. The 2005 new bankruptcy reform code makes the derivative counterparties *exempted* from the automatic stay and are generally able to immediately closeout and collect payment or collateral from a defaulted counterparty. In short, the new act effectively puts derivatives counterparties into "super-senior" status relative to other creditors.

The primary argument used to motivate passage of legislation granting these extraordinary protections is that derivatives markets are a major source of systemic risk in financial markets and that netting, and closeout reduce this risk (Bliss and Kaufman, 2006). The 2005 bankruptcy reform intends to reduce derivatives counterparties' credit risk, increase the supply of derivatives products in the market, and hence reduce a firm's cost of hedging and the systematic risk in the financial market. However, the special treatment for the derivatives contracts might have an unintended dark side for firms, as the normal procedure to pay off creditors in bankruptcy has been substantially changed. In the case of default and bankruptcy, while derivatives counterparties enjoy the super-seniority status, regular creditors such as lenders of bank loans or corporate bonds cannot collect payments immediately, as their claims are subject to the *automatic stay*. Even if their claims are collateralized, regular creditors are not allowed to seize and sell collateral upon default. The theoretical model in Bolton and Oehmke (2015) shows that super-seniority status for derivatives can lead to inefficiencies in debt contracting and shifts credit risk to the firm's other existing creditors, even though this risk could be borne more efficiently by derivative counterparties. Those creditors, in response to the increased default risk induced by the 2005 bankruptcy law change, could tighten loan contract terms, reduce loan amount, increase interest rate or even refuse to issue new loans. Several law studies[3] also highlight the dark side of the 2005 bankruptcy act.

[2] 11 U.S.C. § 362(a).
[3] See Edwards and Morrison (2005), Duffie and Skeel (2012), Robert and Kaufman (2006)

In this study, we empirically test whether the derivatives privilege granted by the 2005 Bankruptcy Code has an adverse effect on corporate borrowing. We use hand-collected derivative usage data at the firm level, together with each firm's borrowing activities at the debt contract level from 1994 to 2015. Employing this comprehensive data, we examine whether and how firms' derivatives usage affects debt issuance likelihood and amount, and debt contract terms, including contract size, spread, collateral, covenants, and maturity, of private bank loans and publicly issued bonds before and after the 2005 bankruptcy law change.

Our empirical analysis reveals that in general, during the sample period, the derivatives users enjoy more favorable terms in bank loans before 2005. This result is consistent with Campello, Lin, Ma, and Zou (2011) that derivatives for hedging purposes could reduce firm risk and enable firms to enjoy lower financing costs. However, after the 2005 bankruptcy law change, derivatives users start to face less favorable loan contracts than non-derivatives-users. Specifically, derivatives users are 7.8%-13.7% less likely to get new loans, and even if they do, the loans they obtain are 12.4% smaller in size, 4.7% larger in loan spread, and 3.5% more likely to have a collateral requirement. These effects are significant both economically and statistically. The results still hold if we exclude the 2007-2008 crisis period or use restricted samples and matched samples. Besides private bank loans, we also find that public bonds have similar effects on bond issuance amount and contract terms.

If derivatives privilege has any externality on debt contracting, such effects should be more pronounced for firms closer to bankruptcy, as concerns for default is more salient, and conflicts among creditors are more severe and costly in times of distress (Strahan, 1999; Bharath et al., 2008). To test this hypothesis, we divide firms into sub-samples based on the severity of financial distress proxied by Altman's Z-score and KZ-index. We find that derivative-using firms close to bankruptcy suffer more from the negative externality of derivatives privilege. For example, loan spread increase after the 2005 bankruptcy reform is 15% higher for derivatives users with lower Z-score than those with higher Z-score. The increase in the frequency of collateral requirement is 2.8% larger for derivatives users with lower Z-score than those with higher Z-score.

It is known that senior creditors could obtain substantial control through their loan agreements with debtors (Berger and Udell, 1990; Ayotte and Morrison, 2009). Secured creditors have more

senior status than unsecured ones and are able to influence managers through means such as financial and investment policies, whereas unsecured creditors are limited in their ability to exert control over the firm. Unsecured creditors are generally small and dispersed whereas secured creditors are generally large and concentrated (Waldock, 2017). Given this difference in security and seniority, we examine whether creditors of secured loans are more lenient in setting loan contract terms. Indeed, we find that only creditors of unsecured loans place more stringent loan contracts in terms of higher interest rates and smaller loan amount. This is consistent with the notion that creditors seek more protection when their priority position is impaired by this 2005 Bankruptcy Reform. Our finding is of particular interest because the use of secured debt by speculative-grade U.S. corporate borrowers has increased significantly in recent years (Jenkins and Smith 2014), which raises a renewed debate among bankruptcy policymakers about the relation between secured credit and bankruptcy outcomes.

It is possible that derivatives-using firms and non-derivatives-using firms have different firm characteristics that are unobservable to the public; these latent firm attributes could play an important role in their use of derivatives for hedging or other purposes. As a result, whether firms use derivatives and how much they use could be an endogenous decision. To address this endogeneity concern, we employ the matching approach, whereby each derivatives-using firm (the treatment group) is matched with a firm from the non-derivatives-using group (the control group) on several important firm attributes. Our goal is to find each treatment firm a control firm that has as similar firm attributes, especially those that have a strong impact on the firm's propensity of derivatives usage. We repeat the difference-in-difference tests using this matched sample and obtain qualitatively similar results.

Besides the matched sample approach, we also conduct a battery of additional robustness analysis. For instance, we conduct three subsample analyses by restricting the sample to 1) short window around 2005 Bankruptcy Reform, or 2) lenders that lend to both derivative-using firms and non-derivatives-using firms, 3) firms that ever use derivatives during the sample period. Our restricted sample analysis yields similar results to the main sample.

The paper contributes directly to the literature on the effects of the 2005 bankruptcy reform. Prior studies suggest that the reform's safe harbors could result in premature liquidation of failing institutions (Morrison, 2009; Roe, 2011). Bolton and Oehmke (2015) argue that in a corporate finance

model, the super-senior status of derivatives counterparties granted by the 2005 bankruptcy law change would affect a firm's cost of borrowing and its incentives to engage in efficient derivatives transactions. Our study provides direct empirical evidence that supports Bolton and Oehmke (2015)'s theory which predicts derivatives users experience tightened borrowing terms and less new loan issuance. As far as we know, we are the first to provide empirical evidence on how the 2005 Bankruptcy Reform could negatively affect firms' borrowing contract terms, including both pricing terms and non-pricing terms.

The paper is also related to the stream of literature on corporate hedging and external financing cost. Hedging theories suggest a positive relationship between hedging and firms' ability to raise funds: hedging reduces cash flow volatility, the probability of bankruptcy and thus the expected costs associated with financial distress and bankruptcy (Smith and Stulz, 1985; Stulz 1996). Campello, Lin, Ma, and Zou (2011) empirically show that hedgers pay lower interest spreads and have favorable terms in covenants. Their sample period, however, is 1996 to 2002, which is before the 2005 bankruptcy law change, and thus does not provide inference for the more recent period. Our paper compliments Campello, Lin, Ma, and Zou (2011)'s empirical findings with an extended sample period to 1994-2015, which includes before and after the bankruptcy law change.

Further, the findings in the paper shed light on understanding the potential conflict of interest amongst various creditors of a firm (Lou and Ott, 2015). According to modern capital structure theory, conflicts between different stakeholders could lead to inefficient outcomes (e.g., Rauh and Sufi, 2010; Colla, Ippolito, and Li, 2013). These conflicts become particularly acute in bankruptcy. (e.g., Rajan, 1992; Diamond, 1993; Bolton and Scharfstein, 1996; Hart and Moore, 1998; Jenkins and Smith, 2014; among others). However, empirical evidence on the mechanism and outcome of these conflicts has been limited. As different debt financing including seniority is generally the endogenous choice of the firm, it is hard to analyze the conflict of interest among creditors. In this paper, with the exogenous bankruptcy law change in 2005, we could study the conflict of interest amongst various creditors—ordinary creditor and derivatives counterparties and examine whether the seniority for derivatives contracts induced by the law change affects firms' access to normal debt financing and the borrowing cost.

The rest of the paper is arranged as follows. Section 2 introduces the institutional background of the bankruptcy rules. Section 3 develops the hypothesis. Section 4 presents the sample and data collection. Section 5 discusses the methodologies to test the hypotheses and presents the main results. Section 6 discusses the robustness of the results, and section 7 concludes the paper.

2. Institutional Background and Hypothesis Development

In this section, we briefly describe the institutional background on the privileged treatment of derivatives counterparties in bankruptcy proceedings and discuss how we develop testable hypotheses. In the U.S. bankruptcy law, when the bankruptcy petition is filed, the automatic stay begins at the same moment. An automatic stay is an automatic injunction that halts actions by creditors, with certain exceptions, to collect debts from a debtor who has declared bankruptcy. Creditors can negotiate with the distressed firm and other creditors in the bankruptcy case. However, they cannot terminate the debt contracts or engage in ordinary collection activities without first obtaining approval from the bankruptcy court. Under the system before 2005, derivatives counterparties are treated the same as regular creditors.

The Bankruptcy Reform Act in 2005 made some important changes to the treatment to derivative counterparties and stated that certain derivatives and financial transactions were exempt from provisions in the bankruptcy code that freeze a failed company's assets until a court decides how to apportion them among creditors, a.k.a. safe harbors. Accordingly, when a party to a derivative contract goes bankrupt, the derivatives counterparty may terminate the contract and collect payment by seizing and selling the part of the firm's assets posted as collateral to them immediately without the approval from the bankruptcy court (Faubus, 2010).

The new rules radically altered the regular process of paying off creditors in bankruptcy. Regular creditors such as lenders of bank loans or corporate bonds cannot collect payments immediately when the firm defaults, because, unlike derivative counterparties, their claims are subject to the *automatic stay*. Even if their claims are collateralized, regular creditors are not allowed to seize and sell collateral upon default, as their collateral, in contrast to the collateral posted to derivative counterparties, is subject to the automatic stay. Hence, to the extent that a derivative counterparty is

collateralized at the time of bankruptcy, collateralization and closeout provisions imply that the derivative counterparty is de facto senior to all other types of creditors.

In addition, derivative counterparties have stronger rights regarding eve-of-bankruptcy [4] payments or fraudulent conveyances[5]. While regular creditors often have to return payments made or collateral posted within 90 days before bankruptcy, derivative counterparties are not subject to those rules. Any collateral posted to a derivative counterparty at the time of a bankruptcy filing is for the derivative counterparty to keep[6].

Although the goal of the 2005 bankruptcy reform was to strengthen derivative markets and enhance legal certainty for contracts, reduce legal risk and systemic risk, as claimed by the Securities Industry and Financial Markets (SIFMA) Association, it has received mixed reviews by the financial market. The costs and benefits of this derivatives exemption from bankruptcy are the subjects of a recent debate among industry practitioners, legal scholars, and policymakers. Some industry experts state that the new rules might have accelerated the demise of Bear, Lehman, and AIG in the 2008 financial crisis by removing legal obstacles for banks and hedge funds that wanted to close positions and demand extra collateral from the three companies[7].

In the academic community, there are also divided views on these new reforms. Morrison (2009) points out that the reform's safe harbors permit premature liquidation of failing institutions. Non-debtor counterparties rush to terminate existing contracts, dismembering the failing institution and preventing an orderly wind-down that might yield greater overall value to counterparties. The failure of a systemically important institution will, therefore, destabilize markets regardless of whether the Bankruptcy Code offers safe harbors for financial contracts. Indeed, these safe harbors may

[4] A bankruptcy trustee or chapter 11 debtor-in-possession has the power under section 547 of the Bankruptcy Code to avoid a transfer made immediately prior to bankruptcy if the transfer unfairly prefers one or more creditors over the rest of the creditor body.

[5] Fraudulent conveyance is the illegal or unfair transfer of property to another party via a bankruptcy trustee. One type, called "actual fraud", is meant to defer, hinder or defraud creditors, or to put such property out of the reach of a creditor in anticipation of or during bankruptcy proceedings, according to the Uniform Fraudulent Transfer Act (UFTA) and federal Bankruptcy Code. Source: https://www.investopedia.com/terms/f/fraudulentconveyance.asp

[6] See Roe (2011), Edwards and Morrison (2005) and Bliss and Kaufman (2006) for more detailed information on the legal treatment of derivatives.

[7] "Wall Street made rod for own back" by Francesco Guerrera, Nicole Bullock and Julie MacIntosh New York (*The Financial Times*, October 31, 2008), retrieved from http://www.ft.com/cms/s/0/24cd66ea-a6eb-11dd-95be-000077b07658.html

exacerbate the instability by permitting a counterparty "run" on the failing institution. Along the similar vein, Roe (2011) posits that when the regulators subsidize derivatives and similar financial activity via bankruptcy benefits unavailable to other creditors, these advantages may be abused. The senior claimants have the incentive to force inefficient liquidations or liquidations in which a firm's assets are sold for less than the firm's value as a going concern (Jenkins and Smith, 2014).

Bolton and Oehmke (2015) explain these inefficiencies in a corporate finance model. They propose a theoretical framework to assess the effect of these exemptions on a firm's cost of borrowing and its incentives to engage in efficient derivative transactions. While derivatives are in general value-enhancing risk management tools, seniority for derivatives can lead to inefficiencies: It transfers credit risk to debtholders, even though this risk is borne more efficiently in the derivative market.

Although Congress enacted these safe harbors to reduce systemic risk by maintaining liquidity in troubled markets, they effectively allowed counterparties to engage in opportunistic behavior and inefficiently consume a debtor's limited assets (Faubus, 2010). As these consequences may harm the debtor and its other creditors, the safe harbors may merely substitute one kind of systemic risk for another.

The implications of these inefficiencies are manifold. First and foremost, it could lead to credit rationing problems for derivative using firms (Stiglitz and Weiss, 1981; Jaffee and Thomas, 1976; Williamson, 1987; Bharath et al., 2008). Banks making loans are concerned about the risk exposure of the loans, and they tailor loan contract terms for individual borrowers based on a detailed analysis of financial profiles. The theoretical model in Bolton and Oehmke (2015) predicts potential negative consequences of the 2005 bankruptcy reform to firms' borrowing capacity and cost. As all other claimholders are de-facto junior to derivatives counterparties, this privilege essentially transfers firms' default risk from derivative counterparties to other existing claimholders, especially ordinary creditors. The bankruptcy cost to ordinary creditors becomes larger if the troubled firm has a derivative counterparty that is at the front of the queue for proceeds, as the seniority of ordinary creditors is downgraded to be lower than that of the derivatives counterparty. Given the ex-post higher losses and lower seniority for regular creditors in bankruptcy, creditors will be less likely to extend credit to

firms, to prevent dilution from the junior status in bankruptcy. As a result, firms with derivatives positions would face more difficulty in seeking external debt financing.

When creditors decide to issue debt to the derivatives-using firms, they might require higher compensation or tighter terms. Faced with the worse borrowing condition and higher borrowing costs, the derivatives-using firms could choose to take fewer loans. From these two channels, we hypothesize that the likelihood of obtaining debt is smaller for derivative users and the total amount of loan issuance will be smaller after the bankruptcy reform in 2005.

Hypothesis 1: **(**Credit Rationing Hypothesis) Derivatives-using firms are less likely to obtain private debt from lenders after the 2005 Bankruptcy Reform.

The second implication of the inefficiencies is that, if creditors decide to lend to these derivatives-using firms, they would be more likely to request a higher interest rate as compensation for lower protection in case of bankruptcy. As interest rate directly measures the profit and return on loan, a higher interest rate is charged on borrowers with higher default risk. Both the price and non-price terms of bank loans reflect observable components of borrower risk (Strahan 1999). Banks not only charge more to risky borrowers, but they also use non-price terms that facilitate monitoring (covenant) and limit losses (loan size and collateral) more intensively when borrowers are risky. Therefore, additional covenants are likely to impose additional constraints on firms' operating and financial policies; creditors are more likely to require collateral and stricter covenants in lending to derivatives-using firms.

Roe (2011) argues that, because derivatives counterparties bear less risk, non-prioritized creditors bear more and those creditors thus have more market-discipline incentives to assure themselves that the debtor is a safe bet. To the extent that creditors agree to lend to derivatives-using firms, ex-ante, they would demand compensation for this potentially larger bankruptcy cost by imposing stricter loan contract terms. Strahan (1999) shows that loan spread, as well as other loan contract terms, vary with borrower risk. Therefore, we analyze the effect of accruals on both the AIS spread as well as the non-price terms of loan contracts controlling for firm characteristics.

First, they could do so by practicing credit rationing and reduce the size of each loan extended to these derivatives-using borrower firms. Second, lenders could charge higher interest rates as compensation for higher default risk. Third, they could demand valuable collateral to back the loan in case of default, as lower quality and higher risk borrowers face a greater requirement to provide collateral and are more likely to borrow on a secured basis (Berger and Udell, 1990; Rajan and Winton, 1995). Fourth, they could also impose more stringent covenants to reduce the default risk, as riskier firms have tighter financial covenants (Demiroglu and James, 2010). Taken together, we hypothesize that the contract terms are less favorable for derivative users after the bankruptcy reform in 2005.

Hypothesis 2: (Creditor Compensation Hypothesis) The loan contract terms for derivatives-using firms are less favorable after the 2005 bankruptcy reform.

The privileged status of derivatives counterparties may induce regular creditors to tighten the contract terms of loans. We expect such adverse effects would be stronger when the derivatives contracts are larger in amount and thus pose a larger concern to creditors. A larger derivatives position will result in larger payments to derivatives counterparties when the borrower firm is in bankruptcy, and thus less would be left to pay creditors, worsening creditors' concern of loan loss. Therefore, any impact from derivatives privilege should be more pronounced for borrower firms taking a larger derivatives position.

Hypothesis 3: The loan contract terms for derivatives-using firms are less favourable for firms that take larger derivatives position.

Note that the externality of derivatives privilege would be less of a concern when the firm is remote from bankruptcy. The priority of bankruptcy claim is more relevant when the bankruptcy concern is more salient. In a good state where the borrower can meet all of its repayment obligations, creditors are less concerned about their relative seniority. The conflict of interests among creditors is more likely to a concern in a bad state where firms are closer the bankruptcy (Lou and Ott, 2015). Hoshi, Kashyap, and Scharfstein (1990) document that financial distress is costlier for firms that are

likely to have significant conflicting creditors' claims. Furthermore, using data on Chapter 11 bankruptcy filings, Ivashina et al. (2016) show that firms with conflicting creditors' claims tend to spend more time in bankruptcy, and are more likely to be liquidated rather than re-organized even though it is collectively inefficient for them to do so. Therefore, a financially-constrained firm with the existing derivatives-counterparties on the priority list would suffer more from the credit rationing and tougher terms after the 2005 reform. We hypothesize that the impact of derivatives privilege for the financially-constrained firms will be larger than for the unconstrained firms.

Hypothesis 4: The loan contract terms for derivatives-using firms are less favorable for firms that are close to bankruptcy.

Two principal components of credit risk are the probability of borrower default and loss given default. The likelihood of default is roughly comparable for various debt obligations of the same obligor. Collateral and seniority of claims are two important determinants of the post-default recovery (Carty, Hamilton and Moss, 1999). Secured loans have a higher level of creditor protection compared with unsecured loans (Esty and Megginson, 2003; Djankov et al., 2006; Qian and Strahan 2007), as stronger creditor protection will alleviate lenders' concern on securing their claim in distress or bankruptcy. Berger and Udell (1990) also find that collateral is most often associated with riskier borrowers, riskier loans and riskier banks. In the event of default, the unsecured loans without a collateral backing for the debt can be much worse off by the derivatives privilege.

When a borrower firm has derivatives contracts that are in loss position, the counterparties of the derivatives contracts enjoy the privileged treatment and come to the front of the queue for claim, whereas the unsecured creditors move down long the seniority and may end up with less or no claim (Roe, 2011; Bolton and Oehmke 2015). Therefore, the creditors of unsecured loans are expected to require higher compensation and pose stricter loan contract terms.

Hypothesis 5: The loan contract terms for derivatives-using firms are less favorable for unsecured loans.

3. Data and Sample

3.1 Derivatives Usage Data

We collect corporates' derivatives-usage data from various sources. First, we use the data item "Accumulated Other Company Income – Derivatives Unrealized Gain/Loss" ("AOCIDERGL") in the Compustat database to identify whether a firm is using derivatives or not in a given year. If the company reports a non-zero unrealized gain/loss in derivatives contracts, the company should have taken non-zero derivatives contracts outstanding. We define firms that take non-zero AOCIDERGL in a given year as derivatives-using firm in that year, and non-derivatives-using firm otherwise. We acknowledge that this way to identify derivatives-using firms could be imprecise. Because if a firm is using derivatives and the contract is at the money, the unrealized gain will be zero, while the firm will be misidentified as non-derivatives-using. Put differently; this approach would underestimate the frequency of derivatives-using firms. The underestimation of the derivatives-using firms will make our results less significant.

To improve data precision, we also conduct analyses using a hand-collected dataset, in which we manually search and collect firm derivatives usage information from the firm's SEC 10-k filings. We collect derivatives-using data by searching keywords "hedg"[8], "derivative", "market risk" and "risk management". Then the paragraph around the keywords is read manually to identify whether the firm uses derivatives to hedge, what kind of hedge it is, what kind of derivatives the firm uses, the notional value and the fair value of the derivatives usage. The hedging data covers industries with historical SIC code 0100-4999[9] from 1994 to 2015.

Using this hand-collected dataset, we can observe whether the firm uses derivatives and the amount of its derivatives position for each firm in a given year. The amount of derivatives usage is measured as the total notional amount of all derivatives that the firm takes a position in divided by its total assets measured as of the same year. When quarterly hedges are reported, the amount defined as the total of the quarterly notional amount of hedge divided by total assets. When firms report notional

[8] We search "hedg" without letter "e" to including cases where firms mention "hedging" instead of "hedge".
[9] The Industries with SIC code 3500-3699 (machinery and electronics), 3800-3899 (instruments and devices), 4800-4999 (communication and utilities) are 10% sampled randomly due to large number of firms in each industry.

(fair) value separately for different commodities, for example, copper, aluminum, and zinc for metal industries, the total value is recorded. In this way, we can not only identify whether a firm is using derivatives or not each year but also the notional dollar amount of derivatives position it takes. The firm is classified as a derivatives user if (i) it has a non-zero value in reported notional amount or fair value of the derivatives contracts, or (ii) it claims using derivatives contracts to hedge but does not report notional value or fair value of the derivatives contracts.

Note that firms often report that they use derivatives contracts for hedging purposes, although the real purpose of usage is unobservable to outsiders. The indistinguishable purpose for derivatives usage does not affect our study; however, as our interest lies in whether a firm *enters* a derivative contract and has any exposure in the contract. Therefore, whether the firm uses derivatives for hedging or speculation purposes does not affect the interpretation of our results.

3.2 Bank Loan Sample

Our data for loan contract terms are obtained from the Loan Pricing Corporation (LPC)'s Dealscan. Dealscan database reports detailed information about private debt agreements, including issuance amount, maturity, spread, loan types, loan purposes, security status, covenants, performance pricing, and the lender identity. LPC has been collecting information on loans of large U.S. corporations primarily through self-reporting by lenders, SEC filings, and its staff reporters. The primary sources of data for Dealscan are attachments to SEC filings, reports from loan originators, and the financial press[10]. The initial sample includes the private debt agreements made by the bank and non-bank lenders to U.S. corporations during the period from 1981 to 2015. The Dealscan database contains between 50% and 70% of all commercial loans in the U.S. issued during the early 1990s (Chava and Roberts, 2008). Dealscan coverage increases to include an even greater fraction of commercial loans from 1994 onward. The loans in Dealscan are reported at the facility level. We conduct our analysis at the loan facility level because most loan contract terms, including loan amount, maturity, spread, security status, loan type, and loan purpose, are reported at the facility-level. We link

[10] Other papers that have used this database include Carey, Post and Sharpe (1998), Hubbard, Kuttner and Palia (1998), Strahan (1999), Sunder (2002), Beatty and Weber (2003), and Dennis, Nandy, and Sharpe (2000), Bharath et al (2008), to name a few.

covenant information, which is recorded at the loan package level, to the loan-facility dataset and conduct the analysis.

Dealscan reports loan issuance amounts as "facility amount". We use the reported "All-in-Spread-Drawn" (AISD) as our measure of the cost of a loan. AISD is the coupon spread over LIBOR on the drawn amount plus any recurring annual fee. For loans not based on LIBOR, LPC converts the coupon spread into LIBOR terms by adding or subtracting a constant differential reflecting the historical averages of the relevant spreads. The AISD enables comparison across loans, independent of the underlying fee and rate structure.

For non-price terms of a loan, we examine collateral requirements, covenants and stated maturity at issuance. In Dealscan, whether a loan is collateralized is denoted by the field "secured". If the "secured" field takes the value of "Yes", then the repayment of the loan is backed by collateral.[11] This value is sometimes missing, so we focus on the sample loans that are not missing security status information. In our empirical analysis, we use the "secured" indicator that takes one if the loan is backed by collateral at issuance. To measure the restrictiveness of the covenants imposed in loan contracts, we use the covenant strictness measure developed by Murfin (2012). The facility maturity is measured as the number of months between the facility start date and the maturity date. Overall, we are interested in the effects of derivatives privilege in the five major loan contract terms, i.e., loan amount, loan spread, collateral, covenants, and maturity.

3.3 Sample Description

We combine firm financial data from Compustat and CRSP with loan issuance data using the link file provided by Chava and Roberts (2008). We extend the link file to 2015 by manually matching borrower name to Compustat firm name to obtain a firm ID. Our initial sample includes all non-financial and non-utility Compustat firms during the period 1994-2015. We further restrict the sample to those with non-missing derivatives usage information in Compustat. Because most firms (more than 95% of the sample) report missing AOCIDERGL before 2001, our final sample starts

[11] We follow a large literature including Murfin (2012), Demiroglu and James (2010), Costello and Wittenberg-Moerman (2011), among others, to define this "secured" indicator.

from 2002. The final sample consists of 17,985 loans issued by 3,084 firms, out of which 9,123 loans are issued to 1,611 derivatives users (firms that take non-zero derivatives position at the time of loan initiation).

Table 1, Panel A presents the distribution of loans by the initiation year. From 2002 to 2015, 17,985 loans are initiated in total. The number of loans initiated varies from year to year, with the 2002-2006 period seeing more loan initiations and 2007-2010 crisis period fewer loan initiations. Loan amount shows an increasing trend over the entire period with an average of 461.4 million. On average, the loans have an average maturity of 50 months, the all-in-drawn spread of 216.4 basis points and Murfin's strictness measure of 0.294. Among all the loans, 78.4% are backed by collateral at initiation.

Table 1, Panel B shows the distribution of loans by the initiation year for derivatives users only. From 2002 to 2015, 9,123 loans are initiated by firms that take nonzero derivatives position in the prior year. Overall, the number of loans and the average loan amount have similar time-series patterns for derivatives users and nonusers. On average, the loans have an average maturity of 50 months, the spread of 193.9 basis points and Murfin's strictness measure of 0.289. 73.8% of the loans are backed by collateral at initiation. The summary data show that on average, loans issued by derivatives users have a larger size and are subject to slightly looser loan terms than loans issued by non-derivatives users.

The detailed comparison of summary statistics for derivatives users and non-derivatives users are presented in Table 2. Columns 1 to 3 present the comparison for the full sample, i.e., the entire Compustat sample with non-missing derivatives-using information. As shown, derivatives users have larger loan amount, lower spread, less tight collateral requirement and less restrictive financial covenants (according to the Murfin's measure). The comparison suggests an important pattern that, over the *entire* sample period, derivatives users are granted better loan terms than nonusers. Columns 4 to 6 present the comparison for the restricted sample, i.e., the sample we hand collected derivatives usage information from firms' SEC 10-k filings. This sample contains 23,054 firm-year observations from 1998 to 2015 for 3,050 distinct firms. Within the sample, 986 of them are identified as derivatives-using firms in some year. Linking this sample to the Dealscan dataset, the resulted

"restricted" loan initiation sample includes 9,349 loans issued to 1,530 firms, out of which 3,222 loans are issued to 601 derivatives-using firms. Similar to what we find for the full sample, loans issued to derivatives-using firms have a larger size, lower spread and contain less tight collateral and covenant requirements for the restricted sample. The observation is consistent with the hedging theory and literature that hedging makes cash flow more stable and can facilitate more debt with better terms (See, for example, Campello, Lin, Ma, and Zou, 2011).

Moving down to firm characteristic variables, the first three variables are loan issuance measures at firm-year level. Overall, derivatives-using firms have higher loan issuance likelihood than non-derivatives-using firms, and the cumulative loan issuance amount by year, measured by either the natural logarithm of issuance amount or the ratio of issuance amount-to-total assets, is larger for derivatives-using firms. The differences between derivatives-using firms and non-derivatives-using firms are statistically significant. Consistent with existing literature, derivatives users are larger firms with higher ROA. Derivatives users have less cash holding and lower current ratio. Derivatives-using firms tend to be financially constrained as shown by their lower average Z-score and lower fixed charge coverage. Evidence from uncertainty measures is mixed: derivatives-using firms have lower tangible assets ratio but lower return volatilities. Overall, summary statistics in Table 2 are consistent with the existing theory on corporate hedging that firms are more likely to use derivatives if they are large, with financial constraints and face higher risks. They are less likely to use derivatives if they keep a large cash position, which is regarded as an alternative hedging method.

4. Methodologies and Empirical Results

4.1 The Impact of Derivatives Privilege on Loan Issuance

The 2005 Bankruptcy Code Reform moves the derivatives counterparties to the top of the bankruptcy claim queue. This privilege essentially increases the default risk and bankruptcy costs to other claimholders, especially regular creditors. Consequently, creditors could be either reluctant to lend to firms with derivatives claim ex-ante or demand higher promised repayments to compensate for the higher credit risk they face (Bolton and Oehmke, 2015). Both channels may lead to a reduced likelihood of loan issuance and declined loan issuance volume for derivatives users after 2005

(Hypothesis 1), either because the creditors are reluctant to lend to derivatives users or because the users are unwilling to accept tighter loan terms and thus borrow less.

To test Hypothesis 1, we use the 2005 bankruptcy law change as the quasi-experiment for empirical identification and test for the difference-in-difference effects of the law change on derivatives users and non-users for before and after 2005. We measure the loan issuance likelihood in three ways: (1) *Loan Issuance Indicator*, a dummy variable that equals one if the firm issued any loans in the firm-year. (2) *Log (Loan Issuance Amount)*, the natural logarithm of the total cumulative loan issuance dollar amount during the firm-year. (3) *Loan Issuance Amount/Total Assets*, the ratio of cumulative loan issuance dollar amount in a given year relative to the year-end total assets of the issuing firm. We aggregate the number of loan facilities issued by the firm as reported in LPC's Dealscan to obtain the firm's total loan issuance amount in year t. The specification we estimate takes the following form:

$$Loan\ Issuance\ Likelihood\ or\ Amount\ Measures_{j,t}$$
$$= \alpha + \beta_1 Der\ Usage_{j,t-1} * Post\ 2005_{j,t-1} + \beta_2 Der\ Usage_{j,t-1}$$
$$+ \beta_3 Post\ 2005_{j,t-1} + \beta_4 Firm\ Controls_{j,t-1} + u_j + \varepsilon_{j,t}$$

in which j represents the borrowing firm, and t represents the calendar year. $Der\ Usage_{j,t-1} * Post\ 2005_{j,t-1}$ is the independent variable of interest to capture the difference-in-difference effects in loan issuance propensity and amount for derivatives-using firms in the post-2005 period, compared to non-derivatives-using firms and the pre-2005 period. $Der\ Usage_{j,t-1}$ is a dummy variable that equals to one if the borrowing firm takes nonzero derivatives position in year t-1. $Post\ 2005_{i,t-1}$ is a dummy variable that equals to one if the year when the firm takes non-zero position is after 2005 a and zero otherwise. $Firm\ Controls_{i,t-1}$is a vector of variables on firm characteristics that may affect loan issuance propensity and amount, including firm size (*Log (Total Assets)*), credit rating (*Rated*) and riskiness (*Altman's Z-score*). u_j is the firm fixed effects. $\varepsilon_{j,t}$ is the error term that is assumed to be normally distributed and following i.i.d.

We use multiple proxies for firms' derivatives usage: (1) a dummy variable for whether a firm takes nonzero derivatives position in a given year, based on the variable AOCIDERGL reported in

Compustat; (2) a dummy variable for whether firm takes nonzero derivatives position in a given year, based on hand-collected derivatives position information from the firm's SEC 10-k filings; (3) a continuous variable for the notional amount of derivatives a firm takes which is also based on the hand-collected information from the 10-k filings.

4.1.1. Baseline Results

Table 3 reports the difference-in-difference estimation results of the likelihood and amount of loan issuance for derivatives users after 2005, compared with the pre-2005 period. The columns (1) and (2) in Table 3 are OLS and probit regressions of the likelihood of loan issuance, respectively. The columns (3) and (4) show regression results for the natural logarithm of loan issuance amount and the ratio of loan issuance amount to the firm's total assets. As shown in Table 3, with firm characteristics being controlled for, derivatives users are 13.7% less likely to issue any loans after 2005, compared to derivatives users in the pre-2005 period. The total loan issuance amount is 7.9% smaller. The total loan issuance amount to assets ratio is 0.033 lower, or 10.5% lower relative to the mean for sample firms that have nonzero loan initiation in the firm-year. All coefficients are statistically significant at the 1% level. Note that the stand-alone derivatives user indicator, *Der Usage*, has a positive and significant coefficient, suggesting that derivatives-using firms, on average, have higher loan issuance propensity and larger loan issuance amount during the *entire* sample period. This finding is consistent with the hedging literature documenting that derivatives-usage facilitates corporates' debt financing (Campello, Lin, Ma, and Zou, 2011).

In general, derivatives users tend to have higher loan issuance likelihood and amount than nonusers, but not after the 2005 Bankruptcy Reform. The negative coefficients of $Der\ Usage_{j,t-1} * Post\ 2005_{j,t-1}$ across columns (1) to (4) suggest that after the 2005 bankruptcy law change, derivatives users have less loan issuance likelihood and amount. The results are consistent with our hypothesis that the 2005 bankruptcy reform gives the derivatives counterparty higher claim priority and makes the common creditor bear higher default risk. Consequently, the firms with existing derivatives position experience a decline in loan issuance.

4.1.2 Restricted Sample Analysis

The baseline regressions based on measure (1) are reported in Table 3, Panel A. Next, we examine a restricted sample based on measure (2). This sample is restricted to firms for which we have searched and collected derivatives usage information from their 10-k filings. The independent variable is an interaction term of Post 2005 and Der Usage, and Der Usage is a dummy taking one if the firm takes nonzero derivatives position according to its 10-k filings.

Table 3, Panel B presents the difference-in-difference results of the 2005 bankruptcy law on firms' loan issuance using the restricted hand-collected derivatives-using data. Similar to the results from the Compustat full sample, within this restricted sample, derivatives-using firms see a significant decline in loan issuance in the post-2005 period, compared to the pre-2005 period. The likelihood of loan issuance for derivatives-using firms is 0.078 lower than that for the pre-2005 period. This decline is as large as 19% if compared with the average loan issuance likelihood for the whole derivatives-using firm sample. The total amount of loan issuance declines by 4.5%, and the loan issuance amount-to-total assets ratio declines by 0.022 (or 7% relative to the mean loan issuance amount-to-total assets all sample firms that have nonzero loan issuance in a given year). All the coefficients are statistically significant at the 1% or 5% level. Overall, the results from the restricted sample with the alternative derivatives-using indicator are consistent with those from the full Compustat sample.

4.2 The Impact of Derivatives Privilege on Loan Contract Terms

To the extent that creditors agree to extend credits to derivatives-using firms, creditors could demand compensation for their potentially larger bankruptcy cost by imposing stricter loan contract terms. For instance, lenders could charge higher interest rates as compensation for higher default risk (Hypothesis 2). If the hypothesis holds, we would expect to see the firms with the existing derivatives positions experience stricter terms in the loan contracts, including loan size, maturity, spread, security status, and covenants.

Table 4 reports the estimation results for the effects of derivatives usage on loan contract terms before and after 2005. *Der Usage*Post 2005* is the interaction term of our interest that captures the difference-in-difference change in the tightness of loan contract terms for derivatives-using firms for

the post-2005 period, compared to nonusers and before the 2005 period. It shows that for an average derivatives user, its loan amount and all-in-drawn spread are 12.4% smaller and 4.7% higher than before 2005 period. The post-2005 pattern is in contrast to the general pattern shown in Table 2, which shows that over the *entire* period, derivatives users tend to have significantly larger loan amount and smaller loan spread compared to non-users. Again, this observation is consistent with the findings in the hedging literature and highlights that the tightening effect on loan contract terms is due to the post-2005 derivatives usage, rather than derivatives usage in general. Even though derivatives users tend to have larger loan amount and smaller loan spread in general, they have significantly smaller loan amount and higher spread for loan initiation after 2005, compared to non-users, which is against the general pattern.

Table 4 also shows that during the post-2005 era, derivatives-users are 3.5% more likely to post collateral at loan initiation than in the pre-2005 period, while over the entire period, derivatives users are 9.4% less likely to have loans secured (Table 2). The financial covenants are tightened by 0.007 for the Murfin's measure (albeit statistically insignificant), or by 2.1% relative to the sample mean covenant strictness for derivatives users before 2005. The results suggest that the derivatives users suffer from significantly tightened loan contract terms after 2005, compared to the before-2005 period. The worsening of loan contract terms goes against the general pattern for derivatives users. The evidence is consistent with our Hypothesis 2 that the privileged position of derivatives counterparties hurt other creditors. In response, creditors attempt to transfer risks back to the derivatives-using firm by tightening contract terms of loans they extend.

All specifications in Table 4 have included borrower industry fixed effects and loan purpose indicators[12] to address the possibility that loan contract terms could be systemically different for loans in different industries and used for various reasons. The standard errors are clustered by borrowing firm.

4.3 The Quantity of Derivatives Usage

[12] Dealscan reports the following categories of loan purposes: corporate purposes, debt repayment, working capital, takeover, commercial paper backup, or other.

Thus far, we have used a dummy indicator (*Der Usage*) to capture the derivatives-using effect on loan contracting, with the 2005 bankruptcy reform as a quasi-experiment. If the derivatives counterparty's privilege in bankruptcy claim induces credit rationing and results in higher borrowing costs, we would expect the effect to be more significant if the firm's liabilities to the derivatives counterparty are higher (Hypothesis 3). Unfortunately, we do not have information on the exact amount the firm has to pay its derivatives counterparty. Instead, we use the notional amount of derivatives held by the firm as a proxy for the firm's exposure to its derivatives counterparty. Examining the notional amount of derivatives contracts allows us to quantify the effects of derivatives privilege on firms' borrowing costs.

We collect the notional amount of derivatives position from the 10-k form and construct the hedge ratio,[13] measured by the notional amount of derivatives contracts divided by total assets. Specifically, the total notional amount of derivatives is calculated as the highest amount of the four quarters (*Der Notional Amt*) in a given year.[14] The results are reported in Table 5. Panel A of Table 5 reports the estimated effects of the notional amount of derivatives contracts on the likelihood and amount of loan issuance. The results confirm that the decline in the likelihood of loan issuance and the amount of loan issuance after 2005 is more significant for firms with a larger derivatives position in place. Specifically, Columns (1) to (3) show that a one standard deviation increase in *Der Notional Amt* is associated with a 1.6% decline in the likelihood of loan issuance, a 9.9% decrease in the amount of loan issuance, and a 0.009 decline in the loan issuance amount to assets ratio (or 2.9% relative to the mean loan issuance amount-to-total assets ratio for firms that have nonzero loan issuance in the firm-year).

Panel B of Table 5 presents the difference-in-difference results of loan contracting terms for derivatives users versus non-users, and before versus after 2005 period. The quantity of derivatives

[13] It is called "hedge ratio" because firms usually report their derivatives usage for hedging purposes, although the true usage is kept private to the firm. This fact makes the reported notional amount suitable for our study because we are interested in the general use of derivatives rather than the amount for specific purposes (hedging or speculation). Firms that use derivatives either for hedging or speculation may have liabilities to their derivatives counterparties.

[14] The hedging data are at the quarter-level for industry 0001-2799, and is at the year-level for industry 2800-4999. We also use the *average* notional amount of derivatives of the four quarters as an alternative measure for derivatives usage. We find similar results using this alternative measure.

usage has similar effects as the derivatives usage indicator on loan contract terms. Specifically, the results show that after 2005, a one standard deviation increase in the notional amount of derivatives is associated with a 3.6% reduction in loan amount and 5.4% increase in loan spread, compared with firms that use derivatives before 2005. Non-pricing terms are also tightened. Column 3 shows that a one standard deviation increase in the post-2005 notional amount of derivatives is associated with a 0.021 increase in the likelihood that the loan is secured by collateral (or 2.7% relative to the pre-2005 mean for derivatives-using firms).

4.4 Conditional Effects by Financial Distress Measures

As indicated by the results in Sections 4.1 to 4.3, the 2005 bankruptcy law change gives derivatives counterparty super-seniority, leading common creditors to tighten the loan issuance and loan terms for derivatives users in the post-2005 period. The mechanism is that derivatives privilege allows the derivatives counterparty to be at the top of the claim queue and thus would limit the firm's ability to repay its common creditors. For firms that have ample liquidity and distant from default, such privilege of a derivatives counterparty will not be of concern as the firm's repayment ability is not binding even if it commits to repay the derivatives counterparty first. However, it becomes a real concern if the firm has a liquidity shortage and is constrained by its repayment ability. Thus, we expect to see stronger effects for derivatives users that are financially constrained. Firms that are closer to bankruptcy are more likely to be affected by the 2005 bankruptcy law change and punished by creditors (Hypothesis 4).

To test the hypothesis, we conduct *conditional* difference-in-difference test by splitting the sample based on the financial distress measures. We use Altman's Z-score to measure firm default risk and KZ-index to measure firm financial constraint (Altman, 1968; Kaplan and Zingales, 1997). By construction, a smaller Z-score represents higher default risk of a firm, and a higher KZ-index represents more financial constraint a firm has. We split the size- and credit risk-matched sample of derivatives-using firms and non-derivatives-using firms into the low- and high-Z-score groups and high- and low-KZ-index groups using the 50^{th}-percentile points by fiscal year and by firm category (derivatives-using and non-using). We describe the detailed matching procedure in Section 5.

Presumably, loan contract terms should be tightened more for firms closer to bankruptcy (low Z-score) or more financially constrained (high KZ-index).

The results of conditional regressions are presented in Table 6. Panel A shows the regressions of loan contract terms on the difference-in-differences of indicators for derivatives users and the post-2005 period conditional on *Altman's Z-score*. The results show that derivatives users with low Z-score experience more descent in the loan amount and more escalation in the loan spread. The effects of the 2005 bankruptcy reform on worsening loan terms experienced by the derivatives users are more than three times larger for the firms with low Z-score than those with high Z-score (21.1% increase in loan spread, compared to 6.1%, and the latter is statistically insignificant). The reduction of loan maturity on the new issuance and the increase in the likelihood for the loan to be secured for derivatives users are only significant for those with low Z-scores.

Panel B of Table 6 presents the regression of loan contracting terms conditional on the KZ-index. The results present that the derivatives users with high KZ index (more financially constrained), compared to derivatives users with low KZ index, experience significantly more decline in the loan amount (17.4% versus 12.5%) and more tightening in loan covenants (0.035 vs. 0.013). Effects on other loan terms are not statistically distinguishable for low and high financial distress groups. The results shown in Table 6 are consistent with hypothesis 4 that derivatives-using firms that are closer to bankruptcy are more likely to be affected by the 2005 bankruptcy law change and punished by creditors with tighter loan contract terms. For robustness, we also split the sample by other financial constraint measures including the SA index, and find similar results.

4.5 Secured Loans vs. Unsecured Loans

If derivatives privilege worsens creditor concerns and induces tightening of contract terms of loans subsequently extended by the creditor, such effects should be stronger for loans not secured by any collateral (Hypothesis 5). We examine this hypothesis by separating loans by their security status. We control for firm-level effects and restrict the sample to loans issued by firms that issue *both* secured and unsecured loans *in a given year*. Within the sample, 716 firms meet the criteria. Then we compare the effects of post-2005 derivatives usage on loan terms for the two groups of loans.

Table 7 presents the estimation results. As shown, post-2005 derivatives usage is associated with a 28.5% decrease in the loan amount and a 22.3% increase in loan spread for unsecured loans, while it is not associated with any significant change in loan terms for secured loans. The t-statistics show that these effects represent a 15.7% *larger* decline in loan amount, 19.1% *more* increase in loan spread, and a 28.1% *greater* increase in loan maturity for secured loans than unsecured loans issued by derivatives-using firms after 2005. The findings are consistent with our hypothesis that creditors not protected by collateral become more concerned when derivatives counterparty is granted priority in claims.

4.6 Robustness

4.6.1 Matched Sample Results

Even though the baseline results show differential effects of the 2005 bankruptcy law on derivatives users and nonusers, one could argue that derivatives users and nonusers are firms with different characteristics and that derivatives usage is an endogenous choice. To mitigate the endogeneity of derivatives usage, we repeat the difference-in-difference tests using a matched sample, in which each derivatives-using firm in the treatment group is paired with a control firm from the non-derivatives-using group by matching on firm size (*Log (Total Assets)*) and riskiness (Altman's *Z-score*) measured as of the year prior to derivatives usage. We rank all matching candidates by the distance in firm size and the distance in Z-score between the treatment and control. Then we select from non-derivatives-using firms the one with the smallest total ranks of distance in firm size and in Z-score to be the match.

Table 8 presents the difference-in-difference regression results of loan issuance and loan contract terms using the matched sample. Panel A shows that for the matched sample, firms that use derivatives after 2005 see an 8% decline in loan issuance likelihood, compared to the pre-2005 period. The finding is robust to using a probit model. Columns 3 and 4 show that the loan issuance amount also declines for derivatives-using firms after 2005, in both absolute terms and relative terms scaled by the firm's total assets.

Panel B presents the estimation results for loan contract terms. We continue to include loan and firm controls, and year, industry and loan purpose fixed effects in the specifications. The effect of post-2005 derivatives usage on tightening loan terms remains statistically and economically significant for the matched sample. Derivatives users have 10.5% less loan amount and 4.8% higher loan spread than nonusers in the post-2005 period. After 2005, the likelihood for loans issued by derivatives-using firms to be backed by collateral increased by 4.8%. The matched sample results corroborate our finding that the tightening effects of derivatives-using on loan contract terms are robust to possible factors that "select" the firm into the derivatives-user group. Alternatively, we replace the *Der Usage* dummy with the continuous variable *Der Notional Amt.* We use its interaction with *Post 2005* as the independent variable in the loan contract term regressions for the matched sample of loans; we restrict the sample to loans for which we have hand collected the notional amount of derivatives position. As reported in Table IA1, we continue to find similar results.

4.6.2 Excluding the 2007-2009 Credit Crisis

Because our sample spans 2002 to 2015, which covers the 2007-2009 credit crisis, one may concern that the results are driven by liquidity shortage and credit tightening during the credit crisis period. Therefore, we exclude the firm-years from 2007 to 2009 from the sample and estimate how derivatives usage after 2005 affects loan issuance and loan contracts. As Table 9, Panel A shows, derivatives-usage after 2005 has a large and significant adverse effect on loan issuance likelihood and issuance amount for the restricted sample. In Panel B, we exclude loans issued in 2007-2009 from the sample and conduct the tests. We continue to find declining loan amount, increasing loan spread and increasing collateral requirements on derivatives-using firms after the 2005 Bankruptcy Reform, which suggests that the 2007-09 credit crisis does not explain the adverse effect of derivatives privilege on loan issuance and loan terms.

4.6.3 Within-Bank Analysis: Control for Borrower-Bank Match

Another concern may be that the possible pre-determined match between the lender and the borrower may affect the robustness of our results, i.e., banks that choose to lend to derivatives users could be systematically different from the banks that choose to lend to non-derivatives users. Put differently; it could be the case that banks that lend to derivatives-using firms, in general, write tighter

loan terms for some reason. To mitigate the concern, we repeat the difference-in-difference tests using a restricted sample including only loans issued by banks that lend to *both* derivatives-using firms and non-derivatives-using firms *in a given year*. This restricted sample covers loans issued by 2,908 firms, out of which 1,592 are derivatives-using firms. This within-bank analysis makes loan terms for derivatives-users and non-derivatives-users more comparable.

Table 10, Panel A presents the estimation results for loan issuance propensity and amount. As in the baseline sample and the matched sample, we continue to find a significant decline in loan issuance likelihood and issuance amount for derivatives-using firms after 2005. The economic magnitude of the estimated coefficients is comparable to that in the baseline and the matched sample. As shown in Table 10, Panel B, the results hold similarly to the main results with slightly stronger effects on the loan spread and covenant strictness. The slightly stronger results are consistent with the endogenous lender-borrower match not explaining our findings.

4.7 Derivatives Privilege, Bond Issuance and Bond Contracts Terms

Besides loan lenders, bondholders are also among common creditors that are inferior to the derivatives counterparty regarding repayment priority. Therefore, the 2005 bankruptcy law change should not only affect loan terms but touch on the bond contract terms. Similar to loan contract terms, we collect bond issuance information from the Fixed Income Securities Database (FISD), including bond issuance amount, maturity, yield spread, security status, and covenants. The first four contract terms are in the same format as loan contracts. Information on the last term, covenants, is much less detailed for bonds than for loans. It is not surprising that bond covenants are often regarded as boilerplate because bondholders are usually dispersed and rarely conduct monitoring. Lacking quantitative information on bond covenants, we count the number of covenants imposed on each bond issue and use this count measure as a coarse measure for the restrictiveness of bond covenants. The more covenants imposed on a bond issue, the more stringent the covenant requirement is considered to be.

We conduct the same difference-in-differences test for bond issuance likelihood and amount to quantify the effect of post-2005 derivatives usage. Table 11 presents the estimation results. As shown by the strong and negative coefficients of the interaction term *Der Usage* and *Post 2005*, derivatives

users experience a decline in bond issuance likelihood and amount after 2005, compared with the before-2005 period. On average, the ratio of bond issuance to the firm's total assets declines by 0.006 (or 3.73% relative to the average bond issuance-to-assets ratio for firms that have nonzero bond issuance in a given year) for firms that use derivatives after the 2005 Bankruptcy Reform. Column 4 of Table 11 shows that a one standard deviation increase in the derivatives notional amount is associated with a 0.003 lower bond issuance amount-to-total assets ratio (or 2% lower relative to the sample mean).

This finding suggests that derivatives-using firms are less likely to obtain bond financing after the 2005 Bankruptcy Reform. This result goes beyond the credit rationing hypothesis (Hypothesis 1) of which the prediction focuses on private debt. The results in Table 11 show that derivatives privilege may have an adverse effect on other common creditors, including public debtholders, too.

Similar to the case for loans, we expect a stronger adverse effect of post-2005 derivatives usage for firms that are closer to bankruptcy than solvent firms. We separate the sample into investment-grade bond issues and junk-grade bond issues and examine whether and how the effect of the post-2005 derivatives usage is different for the two groups of bond issues.

Table 12 examines the differential effect of derivatives usage after the 2005 Bankruptcy Reform on bond contract terms. As shown, the post-2005 derivative usage effect concentrates on junk bonds. Specifically, firms that use derivatives after 2005 are subject to higher bond yield and tighter covenant requirements than firms that use derivatives before 2005, and such effects are mainly found for junk bonds. Panel B, Table 12 shows that the Bankruptcy Reform has a mild effect on the bond contract terms for investment-grade bonds. The differences in coefficients of *Der Usage* and *Post 2005* reported in the bottom row are statistically significant for bond yield spread and the number of covenants. The results are consistent with our hypothesis that the derivatives privilege effect is stronger for firms that are closer to bankruptcy and for debtholders whose claims are at higher risks.

5. Conclusion

The 2005 new bankruptcy code puts derivatives contracts into an effective "super-senior" status. Motivated by Bolton and Oehmke (2015), we hypothesize that the special treatment for the

derivatives contracts might have an unintended dark side for firms, as it shifts risks to the creditors and essentially increases their bankruptcy cost. Consequently, creditors are either reluctant to lend to firms with ex-ante derivatives claim or require more stringent loan contract terms as compensation for the reduced seniority and the increased bankruptcy cost.

This paper empirically tests whether and how derivatives privilege, granted by the 2005 Bankruptcy Code, affects firms' access to debt and financing cost, using data on bank loans and public bonds during 2002-2015. Comparing the loan contracts obtained by derivatives-using firms before and after the 2005 bankruptcy law change, our difference-in-difference test results reveal that after the 2005 bankruptcy law change, derivatives users are less likely to obtain bank loans and the loans they obtain are associated with higher loan spread, smaller loan size, and stricter collateral and covenant requirements. The results are more pronounced for unsecured loans and firms closer to bankruptcy. We find similar effects for public bond issuance and bond contract terms. As expected, the effects are stronger for junk bonds than for investment-grade bonds.

These results are consistent with bank lenders concern about the reduced seniority of their claim and larger loss in case of default after the 2005 Bankruptcy Reform. In response, bank lenders design their debt contract to be higher return and more stringent in terms of collateral and covenants to derivative-using firms as compensation. Overall, the findings draw attention to the dark side of the 2005 bankruptcy law change and corporate derivatives usage. The findings also shed light on the understanding of the conflict of interest amongst various creditors of a firm.

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Table 1: Sample Distribution by Loan Initiation Year

This table presents the distribution of our sample loan initiations and loan contract characteristics by year. Panel A summarizes loans in the whole sample. Panel B summarizes loans issued to derivatives-using firms only, i.e., firms that take nonzero derivatives position before loan initiation. If a firm reports a nonzero unrealized gain/loss from derivatives trading (data item "AOCIDERGL") in the year before loan initiation, then the firm is defined as a derivatives-using firm in that year. Column 1 shows the number of loan facilities initiated by our sample firms each year. Columns 2 to 6 present the loan amount ($ million), all-in-drawn spread (in basis points), the percentage of secured loans (Secured), Murfin's measure of covenant strictness, and the stated loan maturity, averaged across loan facilities. All loan contract terms are extracted at loan initiation. The sample is confined to firms that have nonmissing derivatives usage information in Compustat (Data item "AOCIDERGL: Accumulated Other Company Income – Derivatives Unrealized Gain/Loss takes a non-missing value). We extract loan initiation information from the Loan Pricing Corporation (LPC)'s Dealscan database. The sample period is 2002-2015.

Panel A. Distribution of Loans by Year (All Firms)

Year	# of Loans	Facility Amount ($ Million)	Spread	Secured	Covenant Strictness	Maturity
2002	1690	268.7	222.0	0.845	0.387	34
2003	1618	273.6	233.6	0.845	0.358	38
2004	1757	342.7	203.5	0.795	0.330	49
2005	1662	405.4	170.7	0.742	0.278	54
2006	1508	461.2	166.1	0.783	0.280	55
2007	1391	573.2	168.5	0.780	0.284	57
2008	780	409.0	218.8	0.774	0.296	43
2009	559	332.6	365.8	0.807	0.336	38
2010	921	458.9	295.1	0.807	0.261	49
2011	1314	584.1	224.9	0.761	0.237	56
2012	1150	545.2	240.0	0.750	0.233	54
2013	1349	594.5	230.9	0.795	0.262	55
2014	1303	644.6	215.6	0.754	0.229	56
2015	983	700.4	207.8	0.713	0.228	54
Total	17,985	461.4	216.4	0.784	0.294	50

Panel B. Distribution of Loans Issued by Year (Derivatives-Using Firms)

Year	# of Loans	Facility Amount ($ Million)	Spread	Secured	Covenant Strictness	Maturity
2002	834	384.4	191.5	0.814	0.398	34
2003	822	370.6	210.9	0.811	0.371	38
2004	867	451.1	170.0	0.743	0.321	49
2005	860	525.3	142.8	0.697	0.266	53
2006	695	645.4	141.0	0.731	0.290	55
2007	647	758.1	140.0	0.760	0.294	56
2008	362	594.4	200.9	0.743	0.288	41
2009	318	403.7	377.6	0.777	0.364	40
2010	478	580.4	278.8	0.785	0.250	50
2011	755	708.4	211.2	0.715	0.240	56
2012	615	707.9	219.0	0.698	0.207	54
2013	714	746.0	202.6	0.742	0.237	56
2014	651	837.0	182.1	0.671	0.206	57
2015	505	837.6	186.3	0.628	0.233	53
Total	9,123	602.6	193.9	0.738	0.289	50

Table 2: Summary Statistics for Derivatives Users and Non-Derivatives Users

We compare means of firm and loan characteristics of derivatives users and non-derivatives users in our sample. The full sample includes all loans with non-missing derivatives using information in Compustat in 2002-2015. The restricted sample includes loans for which we have manually collected derivatives data for the borrowing firm's SEC 10-k form, for the period 1998-2015. Loan characteristic variables are extracted at loan initiation from Dealscan. Firm characteristic variables are extracted at the end of the year before loan initiation. Derivatives-using firms refer to firms that take a nonzero position in derivatives in the year before loan initiation. Non-derivatives-using firms refer to firms that take zero position in derivatives in the year before loan initiation. ***, **, and * denote statistical significance at 1%, 5% and 10% levels, respectively.

	Full-sample			Restricted Sample		
Variable	Der-Users	Non-Der-Users	Difference	Der-Users	Non-Der-Users	Difference
	(1)	(2)	(3)	(4)	(5)	(6)
Loan Characteristics						
Facility Amount ($ Million)	602.643	317.519	285.124***	594.624	261.28	333.344***
Maturity	49.718	49.785	-0.066	50.497	48.298	2.199***
Secured	0.738	0.832	-0.094***	0.729	0.813	-0.084***
Covenant Strictness	0.289	0.299	-0.010**	0.295	0.339	-0.044***
Spread	193.935	239.201	-45.266***	190.848	223.526	-32.678***
Firm Characteristics						
Loan Issuance Likelihood	0.356	0.117	0.239***	0.411	0.200	0.211***
Log (Loan Issuance Amount)	2.283	0.637	1.645***	2.611	1.053	1.558***
Loan Issuance Amount/Total Assets	0.096	0.043	0.053***	0.107	0.070	0.037***
Total Assets ($ Million)	11700.6	4179.89	7520.72***	10391.5	3597.25	6794.26***
Fixed Charge Coverage	9.611	28.75	-19.139***	9.783	12.287	-2.504
KZ Index	-14.128	-3.631	-10.496	-44.799	-1.05	-43.749
S&P Long-term Issuer Rating	10.614	11.875	-1.261***	10.627	10.956	-0.329***
ROA	0.021	0.013	0.008***	0.022	0.018	0.004***
Tangible	0.803	0.811	-0.008**	0.825	0.935	-0.109***
Cash/Total Assets	0.057	0.086	-0.028***	0.058	0.061	-0.003**
Current Ratio	1.659	2.049	-0.390***	1.761	2.11	-0.349***
Leverage	0.202	0.184	0.018***	0.193	0.199	-0.006*
Log (Market Value)	14.51	13.875	0.635***	14.614	13.586	1.028***
Rated	0.748	0.476	0.272***	0.764	0.495	0.269***
Excess Return	0.096	0.102	-0.005	0.095	0.094	0.001
Return Volatility	0.092	0.106	-0.014***	0.09	0.117	-0.027***
Altman's Z-score	2.132	2.564	-0.431***	2.17	2.478	-0.308***

Table 3: Impact of 2005 Bankruptcy Law on Derivatives-using Firms' Loan Issuance

This table examines the difference-in-difference effects of derivatives usage on the firm's loan issuance before and after 2005. In Panel A, we employ a firm-year sample from 2002 to 2015 for which the firm's derivatives usage information is non-missing, i.e., the Compustat variable, Accumulated Other Company Income – Derivatives Unrealized Gain/Loss ("AOCIDERGL") in a given year). In Panel B, we employ a firm-year sample from 2002 to 2015 for which we manually collected firms' derivatives-using data from the 10-k form. The dependent variables are the *Loan Issuance Indicator, Log (Loan Issuance Amount)*, and *Loan Issuance Amount/Total Assets*. *Loan Issuance Indicator* is a dummy indicator taking one if a firm issues any loan in a given year, and zero otherwise. *Issuance Amount/Total Assets* is the total amount of loans issued scaled by the firm's year-end total assets in a given year. The independent variables of interest are the interaction of the *Post 2005* dummy and derivatives usage measure: *Der Usage*, a dummy taking one if the firm is a derivatives-user in the year before loan initiation. We define a firm a derivatives-user if the firm has nonzero and non-missing AOCIDERGL in a given year. *Post 2005* takes one if the firm's derivatives usage is measured after 2005 (including 2005), or zero otherwise. We extract loan issuances reported by Dealscan during 2002-2015. T-values calculated from standard errors that are clustered by borrowing firm are reported in parentheses. ***, ** and * denote statistical significant levels at 1%, 5%, and 10% levels, respectively.

Panel A. Full Sample

	Loan Issuance Indicator		Log (Loan Issuance Amount)	Loan Issuance Amount/Total Assets
	OLS	Probit	OLS	OLS
Variable	(1)	(2)	(3)	(4)
Der Usage*Post 2005	-0.137***	-0.260***	-0.792***	-0.033***
	(-18.164)	(-10.833)	(-16.773)	(-7.764)
Der Usage	0.103***	0.200***	0.818***	0.046***
	(12.452)	(9.091)	(18.804)	(11.247)
Post 2005	-0.079***	-0.397***	-0.276***	-0.028***
	(-33.733)	(-28.357)	(-19.683)	(-13.310)
Log (Total Assets)	0.029***	0.180***	0.212***	0.004***
	(30.872)	(47.500)	(32.211)	(13.009)
Rated	0.131***	0.298***	0.948***	0.025***
	(23.968)	(21.285)	(27.584)	(13.031)
Altman's Z-score	0.004***	0.064***	0.012***	0.004***
	(10.348)	(20.009)	(4.965)	(24.593)
Industry FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes
(McFadden) R-squared (%)	17.81	17.07	21.09	3.16
Observations	94,127	94,127	94,127	94,127

Panel B. Restricted Sample

	Loan Issuance Indicator		Log (Loan Issuance Amount)	Loan Issuance Amount/Total Assets
	OLS	Probit	OLS	OLS
Variable	(1)	(2)	(3)	(4)
Der Usage*Post 2005	-0.078***	-0.046**	-0.449***	-0.022***
	(-9.758)	(-2.099)	(-8.903)	(-5.193)
Der Usage	0.043***	0.172***	0.306***	0.016***
	(5.370)	(9.556)	(6.102)	(3.732)
Post 2005	-0.077***	-0.477***	-0.344***	-0.024***
	(-32.405)	(-43.363)	(-24.963)	(-17.593)
Log (Total Assets)	0.044***	0.194***	0.327***	-0.001
	(15.944)	(32.333)	(15.983)	(-0.692)
Rated	0.143***	0.386***	0.951***	0.029***
	(12.511)	(14.846)	(13.751)	(5.043)
Altman's Z-score	0.008***	0.074***	0.022***	0.007***
	(7.490)	(14.800)	(3.512)	(10.942)
Industry FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes
(McFadden) R-squared (%)	16.49	16.40	21.01	2.56
Observations	23,054	23,054	23,054	23,054

Table 4: Impact of 2005 Bankruptcy Law on Derivatives-using Firm's Loan Contract Terms

This table examines the difference-in-difference effects of derivatives usage on contract terms of the loans issued by the firm for pre- and post-2005 period. The sample period is 2002-2015. The dependent variables are loan terms extracted at loan issuance: the natural logarithm of loan issuance amount, all-in-drawn spread, and the stated maturity. Other terms include the loan's security status (*Secured*) and the restrictiveness of financial covenants (*Covenant Strictness*). *Secured* is a dummy indicator that takes one if the field "secured" equals to "Yes" in Dealscan, and zero if the field "secured" equals to "No." Loans missing security status information are excluded from our sample. Covenant strictness is the strictness measure constructed by Murfin (2012). We follow Murfin (2012) to calculate an aggregate measure for all financial covenants imposed in a loan. *Der Usage* is a dummy taking one if the firm is a derivatives-user in the year before loan initiation. "*Post 2005*" is a dummy taking one if the first derivatives usage is after 2005 (including 2005). Besides firm derivatives-using status and firm characteristic variables, we also control for fixed effects for loan initiation year, the borrowing firm's 1-digit SIC industry, loan purpose and the indicator for whether the loan includes performance pricing terms. T-values calculated from standard errors that are clustered by borrowing firm are reported in parentheses. ***, ** and * denote statistical significant levels at 1%, 5%, and 10% levels, respectively. See Appendix for detailed variable definitions. The sample of loans is restricted to those issued by firms that have non-missing derivatives using information in a given year.

Variable	Log (Loan Amount)	Log (Loan Spread)	Secured	Covenant Strictness	Log (Loan Maturity)
Der Usage*Post 2005	-0.124***	0.047*	0.035**	0.007	-0.031
	(-4.752)	(1.643)	(2.018)	(0.784)	(-1.264)
Der Usage	0.089***	-0.037	-0.01	0.006	-0.018
	(3.352)	(-1.504)	(-0.821)	(0.892)	(-0.834)
Post 2005	0.261***	0.150***	0.009	-0.058***	0.216***
	(11.179)	(7.709)	(0.963)	(-10.973)	(12.614)
Log (Loan Amount)		-0.128***	-0.024***	-0.017***	0.102***
		(-25.81)	(-8.408)	(-6.313)	(17.097)
Log (Loan Maturity)	0.188***	0.192***	0.050***	0.016***	
	(18.705)	(25.753)	(13.676)	(4.250)	
Log (Number of	0.239***	0.088***	0.018*	-0.015*	0.026*
Lead Lenders)	(9.903)	(5.152)	(1.915)	(-1.711)	(1.752)
Log (Total Assets)	0.657***	-0.127***	-0.034***	-0.007**	-0.070***
	(59.981)	(-14.517)	(-9.813)	(-2.103)	(-10.981)
Rated	0.088***	0.065***	0.044***	0.014	0.022
	(3.971)	(4.902)	(5.415)	(1.492)	(1.522)
Altman's Z-score	0.018***	-0.072***	-0.016***	-0.021***	-0.005**
	(5.633)	(-28.393)	(-12.676)	(-18.970)	(-2.329)
Intercept	-1.003***	5.967***	1.119***	0.486***	3.054***
	(-11.894)	(134.922)	(49.971)	(8.673)	(70.309)
Industry FE	Yes	Yes	Yes	Yes	Yes
Loan Purpose FE	Yes	Yes	Yes	Yes	Yes
Loan Initiation year FE	Yes	Yes	Yes	Yes	Yes
R-squared (%)	71.53	32.63	12.63	15.06	14.09
Observations	17,844	17,844	17,844	10,544	17,844

Table 5: Impact of Post-2005 Derivative Usage on Loan Issuance and Loan Contract Terms: Notional Amount of Derivative Position

This table reports the difference-in-difference regressions of how the amount of firm's derivatives usage affects loan issuance and contract terms of loans before and after 2005. Panel A employs the firm-year sample and reports the estimated effect of a firm's derivatives usage on the firm's loan issuance likelihood and amount. Panel B employs the loan initiation sample and reports the estimated effect a firm's derivatives usage on the contract terms of loans issued by the firm. The independent variable of interest is the interaction of the derivatives amount measures and *Post 2005*, a dummy taking one if the firm's derivatives usage is after 2005. *Der Notional Amt* is the total notional amount of derivatives divided by total assets, where the annual notional amount of derivatives is calculated as the *highest* amount of the four quarters (Note: Hedging data for Industry 0001-2799 is quarterly level, and annual level for industry 2800-4999). We restrict the sample to borrowers for which we have searched for information about the notional amount of their derivatives position in the firm's 10-K SEC filings. In Panel B, besides firm derivatives-using status and firm characteristic variables, we also control for fixed effects for loan initiation year, firm 1-digit SIC industry, loan purpose and whether the loan includes performance pricing terms. To conserve space, coefficients of the loan and firm controls are not reported. T-values calculated from standard errors that are clustered by borrowing firm are reported in parentheses. ***, ** and * denote statistical significant levels at 1%, 5%, and 10% levels, respectively. See Appendix for detailed variable definitions. The sample period is 2002-2015.

Panel A. Loan Issuance Likelihood and Amount: Derivatives Amount Measure

Variable	*Loan Issuance Likelihood*	*Log (Loan Issuance Amount)*	*Loan Issuance Amount /Total Assets*
Der Notional Amt	-0.194***	-1.212**	-0.111*
* Post2005	(-2.234)	(-2.204)	(-1.923)
Der Notional Amt	0.216***	1.494***	0.146***
	(2.731)	(3.073)	(2.703)
Post2005	-0.109***	-0.497***	-0.024***
	(-17.443)	(-12.983)	(-18.982)
Industry FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes
R-squared (%)	16.65	22.43	3.61
Observations	2,3054	23,054	23,054

Panel B. Loan Contract Terms: Derivatives Amount Measure

Variable	Log (Loan Amount)	Log (Loan Spread)	Secured	Covenant Strictness	Log (Loan Maturity)
Der Notional Amt*Post 2005	-0.441**	0.663***	0.260*	0.066	-0.067
	(-2.432)	(2.673)	(1.732)	(0.592)	(-0.335)
Der Notional Amt	0.693***	-0.462**	0.191**	0.080	0.355**
	(3.442)	(-2.435)	(2.013)	(1.092)	(2.347)
Post 2005	0.166***	0.312***	0.012	-0.031***	0.272***
	(5.053)	(10.982)	(0.866)	(-2.693)	(12.186)
Industry FE	Yes	Yes	Yes	Yes	Yes
Loan Purpose FE	Yes	Yes	Yes	Yes	Yes
Loan Controls	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes
R-squared (%)	68.47	35.06	9.89	14.17	15.11
Observations	9,013	9,013	9,013	5,500	9,013

Table 6: Impact of Post-2005 Derivatives-using Firms' Loan Contract Terms: Firm Bankruptcy Risk

This table reports of the triple difference-in-difference regressions of how corporates' derivatives usage affects contract terms of loans issued before and after 2005 for firms with high-risk and low-risk firms. The sample period is 2002-2015. Panel A and B present estimate results for sub-samples divided by the 50th percentile of Z-score and KZ-index. We allow the 50th percentile breakpoints to vary by year and by whether the firm is derivatives-user in a given year, i.e., for derivatives-using firms, the high/ low-risk group is determined by the 50^{th} percentile points of the derivatives-using firms in a given year. For non-derivatives-using firms, the high/ low-risk group is determined by the 50^{th} percentile points of the non-derivatives-using firms in a given year. The independent variable of interest is the interaction of *Der Usage* and *Post 2005*, a dummy taking one if the first derivatives usage is after 2005. *Der Usage* is a dummy taking one if the firm has nonzero derivatives position in the year before loan initiation. Besides firm derivatives-using status and firm characteristic variables, we also control for fixed effects for loan initiation year, firm 1-digit SIC industry, loan purpose and the indicator for whether the loan includes performance pricing terms. T-values calculated from standard errors that are clustered by borrowing firm are reported in parentheses. ***, ** and * denote statistical significant levels at 1%, 5%, and 10% levels, respectively. See Appendix for detailed variable definitions.

Panel A. By Z-score

Low Z-score

# of Distinct Der-using Firms: 870 # of Distinct Non-der-using Firms: 373

Variable	Log (Loan Amount)	Log (Loan Spread)	Secured	Covenant Strictness	Log (Loan Maturity)
Der Usage*Post 2005	-0.187***	0.211***	-0.003	0.023	-0.095***
	(-3.822)	(5.384)	(-0.188)	(1.466)	(-2.553)
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Loan Purpose FE	Yes	Yes	Yes	Yes	Yes
R-squared (%)	68.23	33.92	11.06	10.46	14.82
Observations	16,051	16,051	16,051	9,638	16,051

High Z-score

# of Distinct Der-using Firms: 1,063 # of Distinct Non-der-using Firms: 520

Variable	Log (Loan Amount)	Log (Loan Spread)	Secured	Covenant Strictness	Log (Loan Maturity)
Der Usage*Post 2005	-0.177***	0.061	-0.031	0.034**	-0.042
	(-4.822)	(1.604)	(-1.488)	(2.122)	(-1.153)
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Loan Purpose FE	Yes	Yes	Yes	Yes	Yes
R-squared (%)	69.78	18.22	9.31	13.68	13.27
Observations	23,207	23,207	23,207	12,280	23,207

Difference in Coefficients (Low-High)

Difference	-0.010	0.150***	0.028**	-0.011	-0.053***
t-value	(-0.336)	(5.525)	(2.135)	(-0.982)	(5.317)

Panel B. By KZ-index

High KZ-index

# of Distinct Der-using Firms: 1,351 # of Distinct Non-der-using Firms: 654

Variable	Log (Loan Amount)	Log (Loan Spread)	Secured	Covenant Strictness	Log (Loan Maturity)
Der Usage*Post 2005	-0.174***	0.109***	-0.026	0.035**	0.046
	(-4.973)	(2.548)	(-1.253)	(2.173)	(1.342)
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Loan Purpose FE	Yes	Yes	Yes	Yes	Yes
R-squared (%)	71.27	31.36	8.48	9.11	13.27
Observations	12,117	12,117	12,117	7,139	12,117

Low KZ-index

# of Distinct Der-using Firms: 614 # of Distinct Non-der-using Firms: 190

	Log (Loan Amount)	Log (Loan Spread)	Secured	Covenant Strictness	Log (Loan Maturity)
Variable	(1)	(3)	(4)	(5)	(2)
Der Usage*Post 2005	-0.125***	0.096**	-0.014	0.013	-0.013
	(-2.913)	(2.503)	(-0.673)	(0.812)	(-0.081)
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Loan Purpose FE	Yes	Yes	Yes	Yes	Yes
R-squared (%)	69.31	39.15	11.70	15.59	15.95
Observations	4,703	4,703	4,703	2,759	4,703

Difference in Coefficients (High-Low)

Difference	-0.049*	0.013	-0.012	0.022*	0.059
T-value	(-1.798)	(0.452)	(-0.819)	(1.942)	(0.904)

Table 7: Impact of 2005 Bankruptcy Law on Derivatives-using Firms' Loan Contract Terms: Secured Loans vs. Non-secured Loans

This table reports of the results of triple difference-in-difference regressions that examine how corporates' derivatives usage affects contract terms of loans issued before and after 2005 for secured loans and unsecured loans. The independent variable of interest is the interaction of *Der Usage* and *Post 2005*, a dummy taking one if the first derivatives usage is after 2005. *Der Usage* is a dummy taking one if the firm takes nonzero derivatives position in the year before loan initiation. Besides firm derivatives-using status and firm characteristic variables, we also control for fixed effects for loan initiation year, firm 1-digit SIC industry, loan purpose and the indicator for whether the loan includes performance pricing terms. *T*-values calculated from standard errors that are clustered by borrowing firm are reported in parentheses. ***, ** and * denote statistical significant levels at 1%, 5%, and 10% levels, respectively. See Appendix for detailed variable definitions. The sample is restricted to loans issued by firms that issue *both* secured and unsecured loans in a given year. 716 firms in our sample meet these criteria. The sample period is 2002-2015.

Panel A. Secured Loans

Variable	Log (Loan Amount)	Log (Loan Spread)	Covenant Strictness	Log (Loan Maturity)
Der Usage*Post 2005	-0.128	0.032	0.060	0.166
	(-1.342)	(0.262)	(1.052)	(1.142)
R-squared (%)	47.50	28.06	21.88	16.21
Observations	1,639	1,639	698	1,639
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Loan Purpose FE	Yes	Yes	Yes	Yes

Panel B. Unsecured Loans

Variable	Log (Loan Amount)	Log (Loan Spread)	Covenant Strictness	Log (Loan Maturity)
Der Usage*Post 2005	-0.285**	0.223*	-0.020	-0.115
	(-2.990)	(1.822)	(-0.404)	(-0.833)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Loan Purpose FE	Yes	Yes	Yes	Yes
R-squared (%)	65.65	33.95	12.90	15.02
Observations	1,328	1,328	879	1,328

Panel C: Difference in Coefficients: Unsecured-Secured

	Log (Loan Amount)	Log (Loan Spread)	Covenant Strictness	Log (Loan Maturity)
Difference	-0.157*	0.191*	0.08	-0.281**
T-value	(-1.646)	(1.642)	(0.151)	(-1.982)

Table 8: Robustness: Matched Sample Results

This table presents the results of difference-in-difference effects of derivatives usage on loan issuance propensity and amount, and loan contract terms before and after 2005 with matching sample. For each derivatives-using firm, we find a matched control firm from the group of firms that never use derivatives during the sample period by matching on firm size (log (Total Assets)) and riskiness (Z-score) in the year before the firm's usage of derivatives. We rank all matching candidates by the distance in firm size and the distance in Z-score. Then we select from non-derivatives-using firms the one with the smallest total ranks of distance in firm Size and in Z-score to be the match. There are 20,744 derivatives-using firm-years (3,447 distinct derivatives-using firms) matched with one non-derivatives-using firm-year each. Panel A examines how derivatives usage affects the firm's loan issuance propensity and the amount in the next year. The dependent variables are the *Loan Issuance Indicator*, *Log (Loan Issuance Amount)*, and *Loan Issuance Amount/Total Assets*. The independent variables of interest are interactions of the *Post 2005* dummy and derivatives usage measure *Der Usag*e, a dummy taking one if the firm is a derivatives-user in the year before loan initiation. Panel B reports estimates of regressions that examine how corporates' derivatives usage affects contract terms of loans issued in the next year for a matched sample of loans. Besides firm derivatives-using status and firm characteristic variables, we also control for fixed effects for loan initiation year, the borrowing firm's 1-digit SIC industry, loan purpose and the indicator for whether the loan includes performance pricing terms. *T*-values calculated from standard errors that are clustered by borrowing firm are reported in parentheses. ***, ** and * denote statistical significant levels at 1%, 5%, and 10% levels, respectively. See Appendix for detailed variable definitions. The sample period is 2002-2015.

Panel A. Loan Issuance Indicator and Loan Issuance Amount: Matched Sample Results

	Loan Issuance Indicator		Log (Loan Issuance Amount)	Loan Issuance Amount/Total Assets
Variable	OLS	Probit	OLS	OLS
Der Usage*Post 2005	-0.080***	-0.126***	-0.500***	-0.029***
	(-8.492)	(-4.064)	(-5.576)	(-4.546)
Der Usage	0.124***	0.324***	0.779***	0.056***
	(14.603)	(12.461)	(9.435)	(9.612)
Post 2005	-0.113***	-0.457***	-0.575***	-0.018***
	(-18.532)	(-19.869)	(-7.412)	(-3.784)
Industry FE	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes
(McFadden) R-squared (%)	12.56	12.42	15.75	2.96
Observations	41,437	41,437	41,437	41,437

Panel B. Loan Terms: Matched Sample Results

Variable	Log (Loan Amount)	Log (Loan Spread)	Secured	Covenant Strictness	Log (Loan Maturity)
Der Usage*Post 2005	-0.105***	0.048*	0.048*	0.007	-0.005
	(-2.938)	(1.622)	(1.622)	(0.784)	(-0.213)
Der Usage	0.088***	-0.037	-0.037	0.010	-0.025
	(3.004)	(-1.483)	(-1.483)	(1.192)	(-1.134)
Post 2005	0.178***	0.158***	0.158***	-0.057***	0.195***
	(6.588)	(7.722)	(7.722)	(-7.774)	(10.683)
Industry FE	Yes	Yes	Yes	Yes	Yes
Loan Purpose FE	Yes	Yes	Yes	Yes	Yes
R-squared (%)	59.59	32.44	32.44	15.12	13.78
Observations	16,616	16,616	16,616	9,857	16,616

Table 9: Robustness: Excluding Financial Crisis Period

This table presents the difference-in-difference effects of derivatives usage on loan issuance propensity and amount, and loan contract terms before and after 2005 for a restricted sample that excludes the 2007-2009 financial crisis. Panel A examines how derivatives usage affects the firm's loan issuance propensity and the amount in the next year. We exclude firm-years 2007-2009 from the sample. The dependent variables are the *Loan Issuance Indicator*, *Log (Loan Issuance Amount)*, and *Loan Issuance Amount/Total Assets*. The independent variables of interest are interactions of the *Post 2005* dummy and derivatives usage measure *Der Usag*e, a dummy taking one if the firm is a derivatives-user in the year before loan initiation. Panel B examines how corporates' derivatives usage affects contract terms of loans issued in the next year for a matched sample of loans. Besides firm derivatives-using status and firm characteristic variables, we also control for fixed effects for loan initiation year, the borrowing firm's 1-digit SIC industry, loan purpose and the indicator for whether the loan includes performance pricing terms. *T*-values calculated from standard errors that are clustered by borrowing firm are reported in parentheses. ***, ** and * denote statistical significant levels at 1%, 5%, and 10% levels, respectively. See Appendix for detailed variable definitions. The sample period is 2002-2015.

Panel A. Loan Issuance Indicator and Loan Issuance Amount

	Loan Issuance Indicator		Log (Loan Issuance Amount)	Loan Issuance Amount/Total Assets
Variable	OLS	Probit	OLS	OLS
Der Usage*Post 2005	-0.121***	-0.227***	-0.662***	-0.028***
	(-15.123)	(-8.731)	(-13.019)	(-6.178)
Der Usage	0.104***	0.144***	0.687***	0.045***
	(13.312)	(6.217)	(14.932)	(10.702)
Post 2005	-0.059***	-0.372***	-0.242***	-0.018***
	(-21.478)	(-24.890)	(-16.143)	(-10.342)
Industry FE	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes
(McFadden) R-squared (%)	18.77	18.05	22.30	3.26
Observations	73,893	73,893	73,982	73,893

Panel B. Loan Terms

Variable	Log (Loan Amount)	Log (Loan Spread)	Secured	Covenant Strictness	Log (Loan Maturity)
Der Usage*Post 2005	-0.145***	0.066**	0.051*	0.002	-0.021
	(-4.108)	(2.018)	(1.648)	(0.139)	(-0.803)
Der Usage	0.088***	-0.03	0.007	0.008	-0.013
	(3.142)	(-1.082)	(0.475)	(0.883)	(-0.528)
Post 2005	0.279***	0.186***	0.003	-0.069***	0.235***
	(10.312)	(7.793)	(0.265)	(-8.412)	(11.892)
Industry FE	Yes	Yes	Yes	Yes	Yes
Loan Purpose FE	Yes	Yes	Yes	Yes	Yes
R-squared (%)	64.57	34.65	12.86	13.80	15.20
Observations	15,101	15,101	15,101	9,857	15,101

Table 10: Robustness: Control for Borrower-Bank Match

This table examines the difference-in-difference effects of derivatives usage on loan issuance and contract terms of the loans issued by the firm before and after 2005 for a restricted sample that controls for borrower-bank match. The sample is restricted to loans originated by banks that lend to both derivatives-using firms and non-derivatives-using firms in a given year. Panel A employs the firm-year sample and reports the estimated effects of derivatives usage on loan issuance likelihood and issuance amount. Panel B employs the loan initiation sample and reports the estimated effects of derivatives usage on loan contract terms. The independent variable of interest is the interaction of *Der Usage* and Post 2005. *Der Usage* is a dummy taking one if the firm is a derivatives-user in the year prior to loan initiation. *Post 2005* is a dummy taking one if the firm's derivatives usage is after 2005. In Panel B, besides firm derivatives-using status and firm characteristic variables, we also control for fixed effects for loan initiation year, firm 1-digit SIC industry, loan purpose and the indicator for whether the loan includes performance pricing terms. T-values calculated from standard errors that are clustered by borrowing firm are reported in parentheses. ***, ** and * denote statistical significant levels at 1%, 5%, and 10% levels, respectively. See Appendix for detailed variable definitions. The sample period is 2002-2015.

Panel A. Loan Issuance Indicator and Loan Issuance Amount: Within-Bank Analysis

	Loan Issuance Indicator		Log (Loan Issuance Amount)	Loan Issuance Amount/Total Assets
Variable	OLS	Probit	OLS	OLS
Der Usage*Post 2005	-0.075***	-0.198***	-0.519***	-0.003
	(-4.423)	(-2.130)	(-4.822)	(-0.312)
Der Usage	0.055***	0.146***	0.406***	0.013
	(3.662)	(3.489)	(4.342)	(1.402)
Post 2005	-0.168***	-0.451***	-0.970***	-0.037***
	(-13.792)	(-15.023)	(-13.298)	(-4.439)
Industry FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes
(McFadden) R-squared (%)	8.25	8.18	13.79	3.98
Observations	14,402	14,402	14,402	14,402

Panel B. Loan Contract Terms: Within-Bank Analysis

Variable	Log (Loan Amount)	Log (Loan Spread)	Secured	Covenant Strictness	Log (Maturity)
Der Usage*Post 2005	-0.077**	0.174***	0.013	0.023**	-0.081
	(-2.164)	(4.713)	(0.803)	(1.982)	(-1.562)
Der Usage	0.103***	-0.142***	-0.037***	-0.012	0.106***
	(3.254)	(-3.933)	(-2.654)	(-1.123)	(4.044)
Post 2005	0.161***	0.174***	-0.040***	-0.057***	0.227***
	(6.394)	(8.593)	(-4.001)	(-6.455)	(12.610)
Loan Controls	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Loan Purpose FE	Yes	Yes	Yes	Yes	Yes
R-squared (%)	60.63	30.49	21.16	14.92	13.21
Observations	19,014	19,014	19,014	10,993	19,014

Table 11: Impact of Derivatives Trading on Outstanding Bond Issuance

This table examines the difference-in-difference effects of derivatives usage on the firm's bond issuance before and after 2005. We employ a firm-year sample from 2002 to 2015 for which we collected data on the firm's derivatives usage. The dependent variables are (i) an indicator taking one if the firm has bond issuance in a given year, and zero otherwise; and (ii) the ratio of amount of bond issuance in a given year divided by its total book assets. The independent variables of interest are interactions of the Post 2005 dummy and derivatives usage measure: (i) *Der Usage*, a dummy taking one if the firm is a derivatives-user in the year prior to loan initiation; (ii) *Der Notional Amt*, the total notional amount of derivatives divided by total assets, where the annual notional amount of derivatives is calculated as the highest amount of the four quarters. T-values calculated from standard errors that are clustered by issuing firm are reported in parentheses. ***, ** and * denote statistical significant levels at 1%, 5%, and 10% levels, respectively.

	Bond Issuance Indicator	Bond Issuance Amount/Total Assets	Bond Issuance Indicator	Bond Issuance Amount/Total Assets
	Probit	OLS	Probit	OLS
Variable	(1)	(2)	(3)	(4)
Der Usage*Post 2005	0.032	-0.006***		
	(0.502)	(-2.913)		
Der Usage	-0.010	0.005***		
	(-0.253)	(2.934)		
Der Notional Amt*Post2005			-0.642**	-0.042***
			(-1.969)	(-3.082)
Der Notional Amt			0.028	0.023*
			(0.613)	(1.834)
Post 2005	0.047	0.001	-0.030	0.001
	(1.053)	(1.043)	(-1.082)	(0.913)
Industry FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes
(McFadden) R-squared (%)	15.59	6.81	15.61	6.81
Observations	23,209	23,209	23,209	23,209

Table 12: Impact of Derivatives Trading on Bond Terms: Investment Grade vs. Junk Bond

This table examines how the post-2005 derivatives usage effect on the firm's bond contract terms is different for junk bonds and investment-grade bonds. We define bonds issued by a firm with a long-term issuer credit rating equal to or higher than BBB- as investment grade. We define bonds issued by a firm with a long-term issuer credit rating lower than BBB- as junk grade. The dependent variables are the logarithm of the amount of the bond issue, the logarithm of the stated maturity of the bond issue, the logarithm of the all-in-drawn spread of the bond issue, a dummy indicating whether the bond issue is backed by collateral, and the logarithm of the number of covenants imposed in a bond contract. The independent variables of interest is the interaction of the *Post 2005* dummy and derivatives usage measure: *Der Usage*, a dummy taking one if the firm is a derivatives-user in the year prior to bond initiation. The sample is composed of corporate bonds issued during 1994-2015. T-values calculated from standard errors that are clustered by issuing firm are reported in parentheses. ***, ** and * denote statistical significant levels at 1%, 5%, and 10% levels, respectively. The sample period is 2002-2015.

Panel A. Junk Bond (Credit Rating Lower than BBB-)

# of Der-using Firms: 335 # of Non-der-using Firms: 687

Variable	Log (Bond Amount)	Log (Bond Spread)	Secured	Log (# of Covenants)	Log (Bond Maturity)
Der Usage*Post 2005	0.005	0.163***	-0.066	0.319***	0.030
	(0.082)	(2.556)	(-1.142)	(3.384)	(0.882)
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Loan Purpose FE	Yes	Yes	Yes	Yes	Yes
R-squared (%)	38.73	34.71	19.28	3.97	3.31
Observations	3,050	3,050	3,050	3,050	3,050

Panel B. Investment Grade (Credit Rating Equal to or Higher than BBB-)

# of Der-using Firms: 548 # of Non-der-using Firms: 663

Variable	Log (Bond Amount)	Log (Bond Spread)	Secured	Log (# of Covenants)	Log (Bond Maturity)
Der Usage*Post 2005	-0.119*	0.001	-0.001	-0.030	0.018
	(-1.662)	(0.124)	(-0.010)	(-0.422)	(0.332)
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Loan Purpose FE	Yes	Yes	Yes	Yes	Yes
R-squared (%)	42.69	27.90	14.58	9.83	5.76
Observations	6,178	6,178	6,178	6,178	6,178

Difference in Coefficients (Junk Bond-Investment Grade)

Difference	0.124	0.162***	-0.065	0.349***	0.012
t-value	(1.121)	(3.502)	(0.148)	(2.885)	(0.081)

Appendix: Variable Definitions

Variable	Definition
Derivatives-usage Information	
Der Usage	A dummy variable representing whether the borrowing firm is using derivative. It takes one if the firm is a derivatives-user in a given year. We use information from both Compustat and 10k to identify derivatives-using firms. We identify a firm as a derivatives-using firm if the firm reports derivatives-using for hedging in its 10k in a given year or the firm has non-missing "CIDERGL" (net gain/loss from derivatives trading) in Compustat
Der Firm	A dummy variable taking one if a firm has ever used derivatives in the sample period
Der Notional Amount	The notional dollar amount of derivatives position taken by a firm in a given year
Loan Characteristics	
Secured	A dummy taking one if the loan is secured by collateral at issuance and zero otherwise
Covenant Strictness	$1 - \Phi[(w - w)/\sigma]$, where Φ is the standard normal cumulative distribution function; w is the logarithm of the value of the covenant variable at the end of the quarter prior to loan initiation; w is the logarithm of the minimum (maximum) that the firm must maintain above (below) during the life of the loan required by a loan covenant; σ is the annual standard deviation matrix of the quarterly change in the logged value of covenant variables across all loans, varying by the 1-digit SIC industry and year (industry-year)
Loan Amount ($Million)	The aggregated amount of loan facilities in $million
Maturity	Maturity in months at loan facility issuance
Loan Spread	All-in-drawn spread at loan facility issuance
Number of Lenders	The number of banks that participate in the loan syndicate, including both lead banks and participating banks. For sole-lender loans, it equals one
Repeated Lending	A dummy taking one if the firm borrowed from the same lead lender in the past five years, and zero otherwise
Performance Pricing	A dummy taking one if the loan contains a performance-pricing term, i.e., terms that adjust loan spread according to firm performance, and zero otherwise. Dealscan reports both spread-increasing and spread-decreasing performance pricing terms

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Appendix: Variable Definitions – *Cont'd*

Borrower/Issuer Characteristics	
**All firm financial information is extracted at the end of the quarter prior to loan/bond issuance*	
Total Assets ($Billion)	The total book assets of the firm
Current Ratio	Total current assets/total current liabilities
Leverage	Total book debt/total book assets
Total Debt	Short-term debt + 0.5*long-term debt outstanding
Market-to-Book	Market value of equity/book value of equity
Rated	A dummy taking one if the borrower has an S&P credit rating
S&P Long-term Issuer Rating	The numerical version of S&P long-term issuer credit rating. AAA=1; AA+2; AA=3…Larger number represents lower rating.
Investment Grade	A dummy taking one if the firm has an investment grade (BBB or above) at loan/bond issuance.
Net Worth	Total assets - total liabilities
Tangible Net Worth	Total assets - total liabilities - intangible assets
ROA	Operating income before depreciation/total assets
Tangibility	Tangible assets/total assets
Altman's Z-score	3.3* EBIT/total assets + 0.999* sales/total assets + 1.4* retained
EBITDA Volatility	The standard deviation of quarterly EBITDA
Excess Stock Return	The quarterly stock return less the contemporaneous value-
Analyst Forecast Dispersion	The standard deviation of analysts' EPS forecast across all equity
Bank Debt Ratio	The percentage of bank debt out of all outstanding debt
Stock Return Volatility	The standard deviation of monthly stock returns in a given quarter

Internet Appendix to

"The Dark Side of 2005 Bankruptcy Code Reform —Does Derivatives Privilege Affect Debt Contracting"

Table IA1: The Impact of the 2005 Bankruptcy Law on Derivatives-using Firms' Loan Contract Terms: Matched Restricted Sample with Non-missing Notional Amount of Derivatives Position

This table examines how the effects of derivatives usage on contract terms of the loans issued by the firm in the next year are different in the pre- and the post-2005 period for a *matched* restricted sample. We employ the loan initiation sample for 1994-2015, in which loans are restricted to those issued by firms for which we have hand collected information about the firm's derivatives position reported in its SEC 10-k form. For each derivatives-using firm, we find a matched control firm from the group of firms that never use derivatives during the sample period by matching on firm size (log (Total Assets)) and riskiness (Z-score) in the year prior to the firm's usage of derivatives. We rank all matching candidates by the distance in firm size and the distance in Z-score. Then we select from non-derivatives-using firms the one with the smallest total ranks of distance in firm Size and in Z-score to be the match. The independent variable of interest is the interaction of *Der Notional Amt* and *Post 2005*. *Der Notional Amt* is the total notional amount of derivatives divided by total assets, where the annual notional amount of derivatives is calculated as the *highest* amount of the four quarters. *Post 2005* is a dummy taking one if the firm's derivatives usage is after 2005 (including 2005). Besides firm derivatives-using status and firm characteristic variables, we also control for fixed effects for loan initiation year, firm 1-digit SIC industry, loan purpose and whether the loan includes performance pricing terms. T-values calculated from standard errors that are clustered by borrowing firm are reported in parentheses. ***, ** and * denote statistical significant levels at 1%, 5%, and 10% levels, respectively. See Appendix for detailed variable definitions.

Variable	Log (Loan Amount)	Log (Loan Spread)	Secured	Covenant Strictness	Log (Loan Maturity)
Der Notional Amt	-0.416*	0.357**	0.346**	-0.087	-0.396
* Post 2005	(-1.649)	(1.968)	(1.969)	(-0.702)	(-1.422)
Der Notional Amt	0.297*	-0.107	0.049	0.212**	0.624***
	(1.693)	(-0.783)	(0.342)	(2.473)	(3.113)
Post 2005	0.205***	0.328***	0.065**	-0.044	0.312***
	(6.792)	(13.176)	(2.392)	(-0.266)	(9.622)
Industry FE	Yes	Yes	Yes	Yes	Yes
Loan Purpose FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
PP FE	Yes	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes	Yes
Loan Controls	Yes	Yes	Yes	Yes	Yes
R-squared (%)	65.88	37.12	26.67	14.71	18.92
Observations	6233	6233	4576	3782	6233

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