Do Financial Institutions Face Stricter Borrowing Terms?

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Abstract

We ask whether lenders in the public bond and syndicated loan markets require more stringent borrowing terms for financial institutions than for other corporate borrowers of similar credit quality. We are motivated to ask this question by the surprisingly quick speed that some financial institutions have gone from seemingly strong credit quality to default. Several possible explanations are consistent with this rapid decline including overly optimistic assessments of the industry's creditworthiness or a higher degree of difficulty associated with analyzing the assets of financial institutions versus other corporate firms. If investors are not aware that credit assessments are inflated, they will not seek more stringent terms for financial institution borrowers however if they believe there to be rating inflation or that the credit quality of financial institutions is more uncertain and prone to rapid deterioration, they may protect themselves with stricter lending terms. We find evidence of more stringent borrowing terms for financial institutions throughout our sample period from 1985 to 2010, however these findings are primarily driven by the 2006 to 2010 period. We also find that the adjustments to lending terms occur differently for public bonds versus syndicated loans. Bond investors require higher yield spreads for financial institutions while lenders of syndicated loans tighten collateral and covenant requirements.

Key words: financial institutions, borrowing conditions, credit rating

JEL Classification: G11, G14, G20

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I. Introduction

We ask whether lenders in the public bond and syndicated loan markets require more stringent borrowing terms for financial institutions than for other corporate borrowers of similar credit quality. We are motivated to ask this question by the surprisingly quick speed that some financial institutions have gone from seemingly strong credit quality to default, particularly during the 2007 to 2009 financial crisis. Two possible explanations are consistent with this rapid decline. The first is that investors were overly complacent in relying on optimistic assessments of the industry's health. In other words, assessments provided by external monitors such as credit rating agencies may be inaccurate reflections of financial firms' strengths and investors were unaware that any discrepancy exists. If this was the case we would not expect to find any systematic differences in the lending terms provided to financial versus non-financial firms that hold similar credit ratings where we define non-financial firms as those with SIC codes outside of the 6000 to 6999 range.[1]

A second possibility however is that it is more difficult to assess the creditworthiness of financial institutions given the opaque nature of their assets and their sensitivity to investor and depositor confidence. Presumably, if the industry has unique features that make credit quality and its stability more unpredictable, we would expect lenders to require compensation for this additional risk and demand more stringent borrowing conditions for these firms. In this paper we test whether this is the case.

These two plausible explanations behind the rapid deterioration of financial institution credit quality have different empirical predictions and implications for lender awareness of the risks associated with lending to financial institutions. If financial institutions receive overly optimistic ratings that lenders take at face value, we would not expect any systematic difference in how lenders structure the debt of financial institutions versus the debt of other corporate borrowers. If instead, lenders are aware that credit quality for this industry is prone to extreme and unpredictable changes, we would expect that they would be more conservative in their

[1] In this paper we use the terms corporate, non-financial and industrial interchangeably to represent all borrowers with SIC codes outside the 6000 to 6999 range.

lending agreements to financial institutions. This increased caution could result in higher spreads for financial institution borrowers, tighter covenants, or enhanced use of collateral as security. We test for the presence of discrepancies across each of these in how they are applied to financial versus non-financial borrowers with the same credit rating.

Of course, tighter borrowing conditions for financial institutions are also consistent with lenders being aware that credit assessments are inflated for these firms when compared to similarly rated firms from other industries. While we cannot distinguish between knowledge of inflated ratings versus awareness that industry conditions make even the most carefully constructed credit assessments prone to rapid revision, finding more stringent terms for financials would suggest that lenders do not solely rely on rating agencies in their assessment of credit quality. In addition, examining whether discrepancies for lending conditions to financial institutions have been persistent or have changed to coincide with periods of heavy criticism for rating agencies helps us learn how lenders interpret credit ratings and whether their role in financial markets has changed over time.

Industry practitioners and academics have provided support for both the possibility that credit ratings for financial institutions have at times been overly optimistic and that the credit quality of financial institutions is inherently difficult to assess. While the role of rating agencies in the structured finance product market has been analyzed extensively (Hull, 2009; Benmelech and Dlugosz, 2010; White, 2010) far less attention has been paid to the characteristics of ratings for financial institutions. What little we do know suggests greater discrepancies between ratings assigned by the various rating agencies for this industry (Morgan, 2002; Iannotta, 2006) and a higher level of rating transition volatility (Nickell, Perraudin, and Varotto, 2000). This paper helps to fill this gap by providing evidence from new debt issues on whether ratings are viewed consistently across industries and if their relation to debt prices and terms has changed over time.

The academic literature has also long acknowledged that assessment of credit quality for banks and other financial institutions is unique. The fact that common predictive models of financial distress such as Altman's Z-Score (1968) and Ohlson's O-Score (1980) cannot be applied to financial institutions provides validation for this view. The underlying characteristics of the industry that are frequently cited in making credit assessment difficult include: i) the opacity of the assets held by financial institutions; ii) inadequate disclosure requirements; iii) the

interconnectedness of the industry; iv) the propensity for government intervention and v) its confidence-sensitive nature. These characteristics suggest that to some extent important information influencing the credit quality of financial institutions is "hidden" from market participants. Consistent with this possibility is the finding by Iannotta (2011) that hidden information, which he defines to be information not captured by either credit ratings or easily observed characteristics, is related both to credit spreads and spread dispersion for a sample of banks. Unfortunately, Iannotta restricts his sample to banks alone so that we do not know whether hidden information is incorporated into spreads for all firms or is unique to this sector. This highlights a very common practice in financial research: research focused on financial institutions tends to restrict itself to analysis of only this industry while research based on multiple industries tends to eliminate financials from its sample. As a consequence, we have little guidance to offer investors faced with the choice between the purchase of an A-rated bond issued by Citibank and a similar A-rated bond issued by IBM. Our work brings together these two literatures by providing one of the few comparisons of lending spreads and terms for financial versus non-financial firms.[2]

Using data on new public bond issues and syndicated loan facilities during the years 1985 to 2010 we test for systematic differences in the lending terms extended to financial institutions versus corporate borrowers with the same credit rating. We look for differences in the spreads charged on both bonds and loans and assess whether the loans have more stringent financial covenants or are more likely to be secured by collateral. We examine the data over the entire 26 year period and across various sub-periods corresponding to years in which rating agencies were criticized for failing to identify high profile corporate governance scandals in the early 2000s and subsequent critiques for their role in rating structured finance products. In our bond analysis, we examine ratings from both Moody's and Standard & Poor's given existing evidence that the market does not always view ratings from these agencies to be perfect substitutes.[3]

[2] Closest to our work is that of Santos (2009) who examines spread differentials on new bond issues by banks and industrials during times of economic recession and expansion. Using data from 1982 to 2002 he finds that during non-recessionary periods, bank bonds have slightly higher spreads (4 bps) but spread differentials change dramatically during recessionary periods with spreads become far larger for non-bank firms.

[3] For instance Santos (2009) finds that the spreads on bonds with split ratings only increase if Moody's provides a rating that is higher than S&P. Benmelech and Dlugosz (2010) examine ratings assigned by the two different agencies for structured finance products and find that ratings assigned by S&P were systematically higher than those assigned by Moody's.

We find significant evidence of differential borrowing terms offered to financial institutions versus other corporate borrowers. In the bond market where lending is more at arm's length, lenders demand a premium from financial institutions in the form of a higher yield spread when compared to corporate borrowers with the same credit rating. After controlling for firm, issue, and economic conditions, we find evidence of systematically higher spreads for financial institutions throughout our sample period however the premium is greatest in the most recent subsample from 2006 to 2010. In addition, we find that this phenomenon is not limited to banks or bank holding companies but exists for a wide range of financial institutions including non-depository institutions and brokerages.

For syndicated loan facilities we fail to find systematically different pricing for financial institutions but find instead that the terms of loans are significantly more stringent for these borrowers. We suggest that since it may be more difficult to sell loans than public bonds, emphasis here is on the structure of the deal rather than its price. While a secondary market clearly exists to permit the selling of bank loans, the lead bank who generally holds the largest share of the loan, frequently maintains a significant portion of their holding until maturity (Sufi, 2007; Altman, Gande, and Saunders, 2010). Consistent with the unwillingness of at least some lenders to sell the debt we confirm that covenants play an important role in loan arrangements and are more numerous for financial institutions. A significant discrepancy is also found for the use of collateral. Our evidence shows that at every rating category, collateral is more likely to be required to back the debt of financial institutions than other corporations and that this is particularly the case in the period from 2006 to 2010.

Overall, our findings suggest a systematically different interpretation of ratings assigned to financial institutions versus corporate borrowers. While criticisms of rating agencies have peaked during the most recent financial crisis, our results suggest that there has been some acknowledgement on the part of lenders that financial institutions of a given rating level required more stringent lending conditions even prior to the crisis. Despite these earlier signs of discrepancies however, our results strongly suggest that deviations in lending terms have become more significant in recent years consistent with a changing or perhaps even diminished role for ratings in financial markets.

The rest of our paper proceeds as follows. In the next section, Section II, we develop our formal hypotheses as supported by a brief review of the relevant literature. This is followed by a description of our data collection procedures and empirical specification in Section III. Section IV provides summary statistics on credit rating levels and key control variables for financial versus industrial firms. Our primary empirical results for the bond market are presented next followed by an analysis of syndicated loans. We begin by presenting results for the entire 26 year period and then conduct separate analyses for various sub-periods to see if our findings are consistent over time. We conclude with a discussion of the implications of our research for both investors and financial regulators.

II. Motivation and Hypothesis Development

Standard practice among practitioners and academics treats credit ratings consistently across firms, regardless of the industry they operate in. While the specific drivers of default will be unique to each industry the *likelihood* of default occurring is viewed to be similar if the credit rating assigned is the same. For instance, the distinction between investment and speculative grade debt is always BBB/Baa regardless of industry, time of rating assignment, or even the borrower's country of origin. This underlying assumption of consistency is made explicit by the rating agencies with S&P clearly stating that one objective of their most recent revision to bank rating methodology is to ensure that bank ratings maintain their comparability with other industries (S&P, Request for Comment: Banks Rating Methodology, January 6, 2011).

Comparability of ratings across industries is essential given that credit ratings have been used in formal laws since their appearance in the Banking Act in 1936. While the Dodd Frank Act seeks to reduce formal reliance on ratings, investors and other market participants continue to use them in ways which require consistent interpretation. For instance, Bannier and Wiemann (2012) and Kraft (2011) discuss the extensive use of ratings in debt covenants while Cantor, Gwilym, and Thomas (2007) provide evidence on portfolios managers' use of credit ratings to outline the permissible holdings of a fund.[4] In this way, ratings provide a method for communicating the credit risk associated with an investment regardless of each individual investment's characteristics.

[4] See Purda (2011) for a more detailed discussion of the role of ratings in both formal regulations and portfolio guidelines.

Like practitioners, researchers also rely on an underlying assumption of consistency for similarly rated firms. As put quite simply by Rauh and Sufi (2010), "The empirical analysis necessitates a summary measure of credit quality, a purpose served by issuer credit ratings." (Review of Financial Studies 23 (12) p 4246). Studies focused on non-financial issuers including work by Denis and Mihov (2003), Cheng and Subramanyam (2008) and Gopalan, Song, and Yerramilli (2013), in addition to those focused on financial issuers alone (Penas and Unal, 2004; Santos, 2009; Ianotta, 2011) have all made similar use of ratings as a consistent empirical proxy for credit quality.

While the assumption of consistency of ratings has long been used, it is also possible that systematic biases enter the rating process. The nature of what may drive these biases attracted attention even before the 2007 crisis when the major rating agencies maintained Enron's investment grade rating until four days prior to its default in 2001. When a similar pattern emerged for WorldCom, critics of rating agencies pointed to the inherent conflict of interest in the issuer-pays model where borrowers pay for presumably impartial credit assessments. While there is some evidence that unsolicited ratings, that is ratings that are neither requested nor paid for by the borrower, are lower than solicited ratings for corporations (Poon, 2003) and banks specifically (Poon, Lee, and Gup, 2009) it is not clear that this is driven solely by a willingness to assign more lenient ratings to paying customers. Other possible explanations include selection bias causing poor credit quality borrowers to simply avoid securing ratings or an increased degree of conservatism on the part of the rating agency when they have not communicated directly with a firm's management.

A second criticism related to the structure of the rating industry is its oligopolistic nature. The dominance by a few major players has been suggested to lead to the possibility of collusion under certain conditions (Stolper, 2009) or the provision of more lenient ratings as a defense against possible competitors (Becker and Milbourn, 2011). In addition, the privileged status given to the largest agencies by way of the Securities Exchange Commission (SEC) granting them Nationally Recognized Statistical Rating Organization status (NRSROs) has been suggested to raise significant entry barriers for new rating agencies (White, 2010) and delay the timeliness of rating updates by NRSRO firms (Johnson, 2004; Beaver, Shakespeare, and Soliman, 2006).

While these criticisms and the response of rating agencies have undergone extensive study (Cheng and Neamtiu, 2009) we must assume that there is a difference in the severity of the challenges to impartial ratings across industries if bias is responsible for systematic differences in rating assignment for financial firms. This increase in severity of the conflict of interest could potentially lead to greater incentives for more lenient ratings for financial institutions.

Perhaps the explosive growth in the structured finance product market provides the required incentive for leniency towards financial firms. As Ashcraft, Goldsmith-Pinkham, Hull, and Vickery (2011) suggest, mortgage backed security (MBS) prices were highly sensitive to the rating they received at issue with the vast majority receiving the highest possible rating of AAA. In contrast to corporate bonds, issuers of these securities were highly concentrated. He, Qian, and Strahan (2011) document that between the years 2000 and 2006 the top five private issuers of MBS accounted for between 38% and 47% of the market, a market that was based on approximately $600 billion of subprime mortgages near its peak. In 2006, He et al. report that Moody's revenue from these securities, which were of course issued primarily by financial institutions, surpassed the rating agency's revenue earned from the much more diffuse group of corporate borrowers. While theoretical models have suggested the conditions under which rating agencies may be motivated to overestimate credit quality at the risk of damaging their reputation for impartiality (Bolton, Freixas, and Shapiro, 2012; Jarrow and Xu, 2010) He et al. provide the first empirical evidence that ratings assigned to MBS were higher for issuers that represented a larger proportion of the market. They conclude that larger-issuer deals were more likely to receive inflated ratings. It is important to bear in mind however that these ratings were for the MBS issues themselves rather than the underlying issuing firms. For this rationale to apply in our setting, it must be that preferential treatment extended to the ratings of the issuing financial institutions, not just the MBS they issued. To our knowledge, our paper is the first to examine this possibility.

If overly optimistic ratings for financial institutions were provided as a result of their dominance in the structured finance product market and therefore the increasingly large revenue stream they represented for rating agencies, then we would expect the extent of rating inflation for these firms to be concentrated during the period of time when this market was large. If investors were aware of these inflated ratings they would begin to require more stringent borrowing terms as the structured finance product market grew or require differential terms

primarily for those institutions directly involved in this market. If instead there are systematic reasons that it is more difficult to assess the credit quality of financial institutions then discrepancies in the treatment of financial firm borrowers should be long-standing during the sample period. We turn now to a brief discussion of what these reasons may be.

Morgan (2002) suggests that one possible reason for greater variation in opinions of bank credit quality lies in the nature of their assets. Financial institutions have low levels of tangible assets, such as property and equipment, whose values are easily verifiable. In addition, they serve as lenders to firms that require a higher degree of monitoring than can be provided by arm's length investors through the bond market (Diamond, 1984). As a result, they hold as their primary assets the loans of opaque firms, making them opaque themselves. Consistent with this rationale, Livingston, Naranjo and Zhou (2007) establish that more opaque firms, measured by financial statement variables, extent of analyst coverage, and market micro-structure proxies, experience a greater level of disagreement between ratings assigned by Moody's and S&P. These disagreements imply that the agencies hold different views on the true underlying creditworthiness of the firm.

Related to the opacity of financial institution holdings is the extent and method of disclosing these holdings to investors. Laux and Leuz (2010) examine whether fair-value accounting contributed to the severity of the crisis for investment banks and bank holding companies while Barth and Landsman (2010) question whether disclosures related to asset securitizations and derivatives were sufficient to allow investors to deduce a bank's risk. As a result, both the nature of the underlying assets and the information provided about them may make accurate credit assessments for financial institutions a challenge.

The interconnectedness of the financial system may also make default risk somewhat unpredictable since a relatively small macro-economic shock may have significant adverse consequences across the entire industry. Financial contagion implies that failure in one bank may be transmitted to others through defaults on inter-bank loans, fire sale prices on assets or a general lack of confidence in the industry.[5] Compounding the difficulties in establishing the consequences of shocks to the financial system is the regulatory environment in which these

[5] See Allen and Gale (2007) and Kaufman (1994) for excellent reviews on the implications of financial crisis and bank contagion.

firms operate. While Pasiouras, Gaganis, and Zopounidis (2006) confirm that country-level bank regulation and supervision influences the rating levels assigned to a sample of international banks, predicting how extensive regulatory intervention will be in times of crisis remains difficult. In many cases, regulators and governments have a role in deciding which of these institutions will fail depending on their size (Flannery and Sorescu, 1996), the number of impacted firms, or the overall health of the financial sector (Acharya and Yorulmazer, 2007; Brown and Dinc, 2009). Determining ex-ante which financial institutions will be saved is extremely difficult.

A final unique feature of the industry is its confidence sensitivity. For financial institutions to be viable, depositors and investors must feel that their funds are safe. A loss of confidence can result in the dramatic deterioration of a financial firm's creditworthiness in a short period of time. The "silent" bank run experienced by Wachovia in September 2008 resulting in the withdrawal of approximately $5 billion in deposits in a single day, illustrates this point.[6] Given the highly leveraged capital structure of financial institutions and their generally low levels of equity, it does not take long for persistent withdrawals to place the viability of a bank in question. In response to criticisms that the rating assigned to Lehman Brothers was inappropriate, S&P cited the confidence-sensitive nature of the financial industry as enabling negative market sentiment to over-ride firm fundamentals and ultimately expedite a firm's default (S&P, 2008).

With previous research on rating consistency and the unique features of financial institutions as background, we formulate our formal hypotheses. Our null hypothesis is that lenders do not provide differential terms for financial institutions when compared to corporate borrowers. That is the cost of debt and its terms are similar for firms with the same credit rating regardless of their industry:

> **H0*:*** *The terms of borrowing for corporate and financial firms are the same for similarly rated firms.*

Empirical findings consistent with the null would imply that investors treat ratings consistently across financial and industrial firms and are not aware of any systematic differences. Alternatively, it is possible that investors interpret rating levels differently such that a financial

[6] Rothacker, Rick (2008), "$5 Billion Withdrawn in One Day in Silent Run", The Charlotte Observer

firm with an A rating is believed to pose a greater risk and therefore require more stringent borrowing terms than a similarly rated non-financial firm.

H1: *Borrowing terms are stricter for financial firms than for similarly rated non-financial firms.*

In our empirical tests we explore two versions of this alternative. The first is that discrepancies in borrowing terms across financial and non-financial firms have been long-standing. We then divide our sample into various sub-periods to explore whether any observed differences are concentrated in specific years when incentives for rating agencies to favor financial borrowers may have been greater.

III. Data Collection Procedure and Empirical Specification

A) Data Collection

We examine the price and borrowing terms extended to financial institutions and other corporations in both the public bond and syndicated loan markets. Our data for public bond issues comes from the SDC New Issues database and covers all public straight debt issues undertaken by US firms during the years 1985 to 2010. To be included in our sample, a bond issue must have a credit rating available from SDC, which reduces our sample size significantly (by 8006 issues). In addition, we require that the bond is denominated in US dollars, is non-callable, and has more than one year to maturity. To make sure that our results are not driven by rare or unique types of bonds, we further drop any type of security with less than 50 observations.[7] This results in a dataset composed of 11 different types of bonds including "Bonds", "Debentures", "Global Bonds", "Global MTNS", "Global Notes", "InterNotes", "Medium Term Notes", "Senior Notes", "Notes", "Sr Sub Notes", "Sub Notes". We use dummy variables for each category of bond to account for their different features that may not be captured by other firm or issue level variables yet may still influence yield. While clearly there are differences in the security granted for senior versus subordinate debt categories, the bond-level ratings collected from SDC should reflect adjustments in credit quality as a result of differences in these specific terms.

From the SDC database we download the Bond Yield Spread over benchmark as our key dependent variable measuring bond price. Since one shortcoming of SDC is that it does not

[7] Adding these observations back does not change our results materially since they only constitutes small portion of our observations.

provide details of the covenants on public bonds we work with price exclusively. However, we note that when compared to private debt, public debt in general has far fewer covenants (Bradley and Roberts, 2004).[8] As a result we defer a thorough examination of debt covenants until analysis of the syndicated loan sample.

Our syndicated loan data is taken from DealScan, a database created and marketed by Loan Pricing Corporation (LPC). The basic unit of an observation in Dealscan is a loan, also referred to as a facility or a tranche, however loans are often grouped together in deals or packages. In our regression analysis, we measure loan pricing by the All-in-Drawn spread, denoted by AIS, which is provided at the loan level but it is important to note that collateral and covenant usage are structured at the package level. Unfortunately, Dealscan does not provide credit ratings for individual loans despite their introduction by Moody's and S&P in 1995. As described in Sufi (2009), for firms to receive loan ratings they must first obtain a rating at the issuer level. Once the issuer rating is assigned, a loan rating can be provided to reflect the specific terms of each individual loan. Since the loan level data is not easily retrievable and to allow for a longer sample period, the analysis presented here follows Lee and Mullineaux (2004) and uses an issuer-level rating. We then specifically control for additional borrowing terms, such as covenants and collateral, that may influence the loan spread in a way that is not captured by issuer rating.

We restrict our analysis to loans by US issuers with the primary purpose indicated as "Acquisition Line", "CP backup", "Corp. Purpose", "Debt Repayment", "Takeover", or "Working Capital" since these are the main loan categories within the database. Since different types of loans may have different characteristics related to the creditworthiness, we divide the loan type into the following classes according to DealScan: "364-Day Facility", "Bridge Loan", "Facility-Other", "Letter of Credit", "Revolver line<1 yr", "Revolver Line > 1 yr", "Revolver/Term Loan", "Term Loan", "Term Loan B", and "Others", and use dummy variables for each class to control for the loan type effects.

For each loan we download the AIS which, according to Dealscan is computed as the sum of the coupon spread and any recurring (annual) fees. For loans not based on LIBOR, LPC converts the coupon spread to LIBOR terms by adding or subtracting a constant differential

[8] Previous studies on public bond covenants either hand-collect the information from registration statements (Nash, Netter, and Poulsen, 2003) or use the Mergent FISD database for details of covenants (Billett, King, and Mauer, 2007).

reflecting the historical average of the relevant spreads. Hence, AIS is made comparable across different loans, independent of the underlying fee and rate structure.

Following Bradley and Roberts (2004) we focus our analysis of borrowing terms for each loan on the presence or absence of collateral and the specific covenants described in our Appendix A. These covenants fall under the categories of prepayment restrictions, financial covenants, and dividend restrictions. To control for firm-level characteristics that may also influence loan pricing, we require that the firm be available in CRSP and Compustat for the fiscal year-end preceding the loan agreement. We merge the data of Dealscan and Compustat using the linking table provided by Chava and Roberts (2008).[9]

The resulting bond dataset covers 3,221 bond issues of which 1,654 represent issues from financial institutions with SIC codes of 6000-6999. These codes capture depository institutions (6000-6099), non-depository credit institutions (6100-6199), brokers and dealers (6200-6299), insurance companies (6300-6399), insurance broker (6400-6499), bank holding companies (6700-6799), and real estate companies (6500-6599). The syndicated loan database covers 17,766 loans of which 2,408 are from financial institutions.

B) Empirical Specification

Our primary empirical design to test for differential borrowing terms in the public bond market is based on equation 1:

$$\text{BondYield}_{i,j,t} = \beta_1 + \beta_2 * \text{FIN\_DUM} * \text{RATING}_{i,j,t} + \beta_3 \text{RATING}_{i,j,t} + \beta_4 * \text{FIN\_DUM} + \varepsilon_{i,j,t} \quad (1)$$

where bond yield represents the logarithm of the spread over a benchmark for bond j issued by firm i at time t. A similar framework is used for tests involving the syndicated loan market data with the logarithm of AIS as the dependent variable. For both the bond and loan data we use a pooled-OLS regression and allow for a constant (β_1) in addition to controls for the credit rating assigned to the issue (for bonds) or issuer (for loans) and the industry of the firm, based on Fama and French's twelve industry groups (note that only the financial industry indicator is shown here for illustrative purposes). The primary variable of interest is the interaction term between rating level and the financial industry indicator. We interpret the estimated coefficient on this term, β_2, as representing the differential yield required of financial institution borrowers with the same

[9] The linking table is made available at the CRSP-Thomson Reuters website thanks to the authors.

credit rating as other corporate borrowers. Our null hypothesis, H0, suggests that β_2 will be insignificantly different from zero however our alternative suggests that lenders require additional compensation for lending to financial firms due to either overly optimistic rating assignments or additional risks associated with this industry.

To equation 1 we add controls accounting for firm, issue, and economic characteristics resulting in equation 2, provided below again for the case of bonds:

$$\text{BondYield}_{i,j,t} = \beta_1 + \beta_2 * \text{FIN\_DUM} * \text{RATING}_{i,j,t} + \beta_3 \text{RATING}_{i,j,t} + \beta_4 * \text{FIN\_DUM} + \text{Firm Controls} + \text{Issue Controls} + \text{Macro Economy Controls} + \varepsilon_{i,j,t} \quad (2)$$

While the number of issue controls included is relatively small for the bond yield analysis, these controls become more substantial for the examination of loan pricing given their more extensive use for this type of debt. We include measures reflecting the number of financial covenants, the presence of collateral, dividend restrictions, and prepayment restrictions (in the form of asset, equity, or debt sweeps).[10] In addition, we control for the number of lenders involved in the loan syndicate given evidence that more opaque borrowers are associated with more concentrated syndicates (Lee and Mullineaux, 2004).

IV. Summary Statistics on Rating Level and Key Control Variables

A) Rating Levels for Financial and Non-Financial Firms

Table 1 provides summary statistics for the sample size, key dependent variables measuring bond and loan yield spread, ratings, and control variables for financial and industrial firm-years in our sample. Ratings are defined on a scale from 1 to 7 as described in Appendix A. We use a value of 1 to correspond to a rating of CCC+/Caa3 or below while a rating of 7 corresponds to a rating of AAA/Aaa. As a result of this definition, we expect the rating variable to be negatively associated with yield spread so that higher quality issues require lower yields.

Table 1 provides separate information on rating levels within the bond and loan samples. Within the bond sample, we see that there is no difference in the median level of rating across financial and industrial firms. Both categories of firms receive a median rating level of 5 which

[10] Sweeps are stated as percentage, which corresponds to the fraction of the loan that must be repaid in the event of violation of the covenant. For example, a contract contains 30% asset sweep indicates that firms must repay 30% of the principal value of the loan if the firm sells more than certain amount of its assets. Similar definitions apply to debt and equity sweep.

according to our scale corresponds to an A rating (including A-, A, and A+). The mean rating is slightly lower for industrial firms at approximately 4.4 compared to 4.9 for financial institutions. Moving to the issuer-level ratings for firms participating in the loan market we see that ratings for this sample are generally lower. Rather than a median rating of A the median is BBB for financial institutions and only BB for industrial firms. These lower overall ratings for both categories are consistent with Sufi's (2009) findings that firms with public bonds outstanding tend to be larger, more mature, and have more tangible assets – features that have all been associated with stronger credit ratings. Looking at the mean rating levels for borrowers in the syndicated loan market confirms that financial institutions have higher credit ratings than industrial firms in this market as well as in the public bond market.

Given our observation of higher credit ratings assigned to financial institutions versus industrial firms in general, it is interesting to ask if these discrepancies exist even for the small sample of firms that default. Using data provided by S&P, we track the credit rating assigned to financial and non-financial firms in the five years (60 months) prior to their default for defaults occurring between the years 1982 and 2011. During this time, we note that 161 financial institutions defaulted in comparison to1439 firms from all other industries. The mean rating level is plotted in Figure 1 against event time where time 0 indicates the time of default. Two lines are plotted referring to average rating level for financial and industrial firms respectively.

From the figure we see the persistence of higher ratings for financial institutions even for this subsample of defaulting firms. Financial institutions receive consistently higher ratings than non-financial firms and this continues up until the time of default. The difference in rating stays significant and only shows signs of diminishing in the last four months prior to default. While we refrain from drawing too many inferences from this figure, it does suggest that credit ratings for financial institutions experience more significant adjustment closer to default than firms from other industries. This observation is consistent with rapid changes in credit quality for these institutions since one is hard-pressed to imagine why ratings would be kept at inflated levels for defaulting firms where the risk of damage to the rating agencies' reputation is greatest.

C) Summary Statistics for Key Variables

Table 1 also provides summary statistics for our key control variables and the bond and loan spreads for financial and industrial firms. For bonds we note that the spread across the two

groups is the same at 100 bps however for loans the median spread is much lower for financials when compared to industrial firms (70 bps versus 125 bps). We also note from the table just how important financial firms are to activity in debt capital markets. Issues from financial institutions make up over half of the public bond issues in our sample while they represent a much smaller but still significant portion of loans at 13.5%.

Details of the precise construction of the dependent and control variables and their source are provided in Appendix A. The intention of the control variables is to capture differences in creditworthiness and the priority given to lenders of a particular issue that may be related to yield spread but not fully captured by credit rating. One challenge associated with the firm-specific measures is that common variables associated with credit quality such as the proportion of tangible assets or the level of profitability may differ substantially for financial versus non-financial firms. As a result, we provide industry-adjusted measures for some variables defined as the difference between the value for the firm and the *overall* value in the industry during the year of observation. This difference is then scaled by the standard deviation of differences across all observations in that industry as shown in equation 3 for the example of adjusted return on assets (ROA) for firm i:

$$\text{ROA Adjusted}_i = \frac{(ROA_i - ROA_{Ind})}{stdev(ROA_i - ROA_{Ind})} \qquad (3)$$

Where $\text{ROA}_{\text{Ind}} = \frac{\sum_{i=1}^{N} \text{Net Income}_i}{\sum_{i=1}^{N} \text{Total Assets}_i}$, and N is the number of firms in a particular industry for each year. This variable is updated annually.

The firm-specific variables included in the table reflect common drivers of creditworthiness largely derived from data available in Compustat. In keeping with traditional capital structure research and other studies controlling for the determinants of yield spreads (Knyazeva and Knyazeva, 2012) we control for profitability (ROA), proportion of tangible assets, and leverage. For each of these measures we provide raw and industry-adjusted values. In this way we can examine whether it is the absolute level of a particular variable that influences yield or a firm's relative value compared to what is typical in its industry. Surprisingly, we see that the average raw value for leverage, as measured by total long term debt plus debt in current liabilities over total assets, is not dramatically different between financial and non-financial firms however this definition may miss other sources of leverage more fully captured in our distance to default measure. For this measure we follow adjustments for financial institutions proposed by

Duan and Wang (2012) who suggest that popular approaches such as that used by KMV can distort reflections of credit worthiness for financial institutions by placing too little emphasis on 'other liabilities' which can represent a substantial portion of financial institution leverage.[11]

Additional market indicators of firm performance that we include are the standard deviation of firm equity returns during the past year as taken from CRSP and the market to book ratio of firm assets as measured at the fiscal year-end most recently occurring prior to the debt issue. We also include three variables to account for the degree of investor awareness surrounding the firm given the suggestions that banks may be more opaque than firms from other industries. We include firm size (market capitalization), firm age, and the number of equity analysts following the company's stock. Market capitalization and firm age also proxy for the life cycle of the firm which has previously been shown to be related to capital structure decisions (DeAngelo, DeAngelo, and Stulz, 2010).

Finally we include measures of the maturity structure of the firm's debt given the increased emphasis on refinancing risk following the 2007 financial crisis. Our first measure is simply the amount of debt due within three to five years expressed as a ratio over total assets. We see few differences between financial and non-financial firms on the basis of this measure. However, measuring rollover risk as the amount of long term debt payable within a year over total assets as in Gopalan et al (2013), shows a substantially larger risk for financial institutions with a median value of 0.23 versus 0.07 for industrials. While rollover risk can clearly have devastating results for financial institutions, Gopalan et al point out that it is not unheard of for this risk to be responsible for non-financial defaults as well including those of WorldCom, Enron and Penn Central.

In addition to the firm-specific controls discussed above we include issue-level controls such as the maturity of each bond and loan measured in months. While Penas and Unal's (2004) study of bank bond yields also controls for issue size and seniority, we refrain from directly including these controls for two reasons. First, we find that issue size is frequently missing from the SDC data and would dramatically reduce our sample size of bonds. While we repeat our analysis on the subsample of bonds with this available data and find our results to hold, we do

[11] The Credit Research Initiative at the Risk Management Institute, National University of Singapore provides the suggested distance to default measures on its website.

not tabulate results based on this sample. Second, we control for bond-type fixed effects which will implicitly account for differences in seniority across bonds.

For loans, the specific deal terms we control for in addition to maturity are collateral and covenant terms. Table 1 shows that that with the exception of the covenant intensity measure from Bradley and Roberts (2004) the median values for each specific covenant and collateral usage are similar for financial and industrial firms. The covenant intensity measure, which represents an aggregate measure of covenant use that can range from 0 to 6, has a median value of only 1 for financial institutions versus a much higher value of 3 for industrial firms. Looking at the means for each covenant rather than medians confirms what is suggested by the covenant index. Across all covenants, industrial firms have more stringent requirements, consistent with the generally weaker credit ratings assigned to these firms.

Finally, in addition to firm and issue-specific controls, we incorporate two measures of overall economic conditions since these may dramatically influence the rate at which lenders are willing to lend (Santos, 2009). We include a measure of overall equity market sentiment as provided by Jeffrey Wurgler and described in Baker and Wurgler (2007) and a simple indicator variable equal to one when the economy is in recession (as defined by the NBER) and zero otherwise.

V. Results

A) Univariate Analysis of Bond and Loan Spreads

We begin our examination of differential borrowing terms by looking at summary measures of yield spread for issues within each rating category in Table 2. Beginning with spreads on public bonds, we present the number of bonds issued by financial and industrial firms according to each of S&P's rating categories from AAA to B and provide the corresponding mean, median, and standard deviation of yield spreads. We see from the table that financial firms dominate the top rating category of AAA with 123 of the 152 issues. Despite the relative infrequency with which industrial bonds are awarded this rating, the firms that receive it are able to issue at a substantial discount to financial issuers with the same rating. The mean spread for industrial AAA rated bonds is 42 bps while it is 72 bps for financial firms. The median spread for industrial firms is even lower than its mean at 35 bps and the standard deviation of yield spread is approximately half that of the standard deviation for the financial bond group illustrating a much lower and tighter distribution of bond spreads for non-financial firms.

The number of industrial firm bonds is much closer to the number of financial institution bonds in the AA rating category but we continue to see a similar pattern of lower and less variable yield spreads for industrial bonds. This pattern persists across the A and BBB rating categories with the differences in yield spread between financial and non-financial issuers being statistically significant in all cases. The pattern only reverses for BB and B ratings. At BB ratings, it should be noted that only 24 bonds are issued by financial institutions in comparison to 101 for non-financial issuers. This emphasizes the confidence-sensitivity of the financial sector and the difficulty (if not impossibility) of successfully operating at a non-investment grade level. Since the sample of financial institution debt issues is too small, we do not report results for rating categories below B.

In the next portion of Table 2 we report results based on Moody's rating categories demonstrating similar findings. At all investment grade level ratings, financial institutions pay significantly higher spreads in comparison to industrial firms and the spreads are more varied for financials. In turning to the spreads on syndicated loans in Panel B of the table, we find that the discrepancies in pricing are slightly diminished. While still statistically significant for AA through BBB rated categories, the premium paid by financial institutions over similarly rated loans issued by non-financial borrowers is not apparent for AAA bonds. Evidence of greater dispersion of the yield spread is also not as pronounced in the case of bonds. Overall, the summary statistics for loans are somewhat consistent but not nearly as dramatic as what we see in the bond spreads.

Figure 2 shows the difference in bond and loan spreads for financial and non-financial issuers during the entire sample period. For illustrative purposes we select the A rating category and plot the difference between spreads for financial and corporate borrowers for both bonds and loans. In the figure, a positive value indicates that financial institutions pay a premium when compared to similarly rated non-financials. While we do see times that the difference in spreads for loans dips below the 0 axis, indicating that financial institutions can issue at cheaper spreads, the vast majority of the chart shows positive values consistent with a long-standing premium required of financial institution borrowers. Also immediately apparent from the figure is the extent to which this premium jumped for public bond issues during the financial crisis. While the differential spreads for A-rated financial issuer loans never moves beyond 60 bps, the differential soars to approximately 150 bps for bonds issued by financial institutions in 2008. Clearly our

analysis must now move on to multivariate study to establish whether these preliminary findings of higher yields for financial institution borrowers are driven by borrower characteristics not captured by credit rating or are a function of only the most recent financial crisis.

B) Multivariate Analysis of Bond Yields from 1985-2010

Panel A of Table 3 presents estimated coefficients based on equations 1 and 2 for the public bond data. The first three columns of the table use ratings assigned by S&P while the remaining three columns repeat the analysis using Moody's ratings. In each case, the columns move from the most basic model specification, reflecting equation 1, to more elaborate specifications including controls for firm, issue, and economic conditions. The key variable of interest in each specification is the interaction term between the rating level and the financial institution indicator which we expect to be positive if lenders require a premium for providing funds to financial institutions.

The first observation from the table is that regardless of rating agency or controls used, the financial institution interaction term is positive and statistically significant at the one percent level indicating that financial institution borrowers pay a higher spread for issuing bonds compared to similarly rated industrial firms. This result holds in the most basic specification based on only industry, year, and bond-type fixed effects and in the more elaborate versions in which we control for firm and issue characteristics (columns 2 and 5) and economic conditions (columns 3 and 6).

To get a sense of the differential pricing terms for financial and industrial issues we use the most complete model specification for S&P credit ratings (Column 3) as an example. For an industrial firm, a one notch credit rating upgrade on our numerical scale will result in a 24.9% drop in the yield spread. Given that the median value of this spread for industrial firms is 100 bps during our sample period this translates to 24.9 bps. However, for a financial firm, a similar one notch upgrade will only result in a drop of the yield spread by approximately 10% (-0.25 +0.15) or 10 bps, hence, the premium paid by financial institutions in the bond market is not only statistically but also economically significant.

Among the control variables, we find that many of the firm-level characteristics do not come across as being meaningfully related to bond spread. While we show results based on the industry-adjusted values for some variables, including raw values does not enhance their significance. We suggest that this is because many of these same characteristics are used as

determinants of the rating level itself and therefore provide little incremental information once rating is accounted for. In all specifications rating shows the strongest relation to yield spread. While criticisms of rating agencies have been extensive, there is no doubt that they continue to show a strong relation to bond credit quality in that highly rated bonds require low yields in comparison to poorly rated bonds.

Control variables that appear to provide additional explanatory power for the bond yield spread beyond what is in the rating may obtain this information from equity markets. The standard deviation of a company's stock return shows a negative relation to yield spread that is weakly statistically significant. While the negative sign seems counter-intuitive in that more volatile firms could be interpreted as posing greater credit risk, it is important to note that this measure is not market-adjusted and captures volatility on the upside as well as downside. More specific to credit quality is the distance to default measure which is strongly and negatively related to yield spread in that firms with larger distance to default require smaller yields.

Firm age appears to capture information not within credit ratings with more mature firms requiring smaller yields while the maturity of the bond issue has the opposite effect with longer issues requiring higher yields.

Panel B of Table 3 explores whether the observed premium is required for all financial institutions or is concentrated within institutions of a certain type. As previously indicated we divide our sample into seven different categories of financial firms corresponding to their SIC codes. We interact each of these seven kinds of institutions with rating level and repeat the same model specifications from panel A of the table. We begin again with the most basic model in column 1, proceed to add firm and issue controls in column 2, and finally add the economic controls for market sentiment and recessions in column 3. Again the first three columns are based on S&P ratings while the next three repeat the analysis for Moody's ratings.

Our analysis shows that in almost all cases, the interaction terms are positive indicating a higher yield spread for financial institutions regardless of the type of institution. Results are consistent between Moody's and S&P with the exception of insurance firms which have the only negative coefficient estimates (although not significantly so) when interacted with S&P ratings. The most significant coefficient estimates appear to be for bank holding companies, real estate firms, and non-deposit taking institutions which are all found to have positive coefficient estimates at the one percent level or better regardless of rating agency or model specification.

Brokerage firms also show signs of requiring a premium above industrial firms of a similar rating when the rating is assigned by Moody's however we do not see this same premium when the rating is provided by S&P.

C) Multivariate Analysis of Loan Spreads and Terms from 1985 – 2010

Having found evidence of systematically higher yields for financial institution borrowers in the public bond market we turn now to examining whether these same results hold when financial institutions seek debt through syndicated loans. As in the bond analysis we control for firm-level, issue-specific, and economic conditions however, since lenders for syndicated loans incorporate more numerous conditions in the borrowing contract, the issue-level controls are much more substantial than those used in the bond analysis.

Table 4 presents the results of the multivariate analysis with AIS as the dependent variable. Column 1 provides the most basic specification including issuer rating and the financial and rating level interaction term while controlling for industry, year, and loan type fixed effects. While the rating used here is at the borrower rather than loan level, we confirm its important relation to yield spread with the highly significant coefficient estimate (T-stat of -38.96) indicating that better rated borrowers pay less on their syndicated loans. This very simple specification suggests similar results as the bond data in that the interaction term is significantly positive consistent with financial institutions paying more for syndicated loans compared to similarly rated industrial borrowers.

Incorporating firm and loan-level characteristics in Columns 2 and 3 of Table 4 removes the observed yield premium for financial institutions, demonstrating the importance of borrowing terms in the syndicated loan market. While rating level and distance to default maintain their important relation to yield spread for loans, as they did for bonds, few other firm or economy-wide control variables have much significance. Two exceptions to this statement are the increasing importance of industry-adjusted profitability (ROA) for loans when compared to public bonds and the emergence of the number of analysts covering the company as an important determinant for yield spread. We suggest that analyst following may be more important in the loan market given the increased participation of younger and smaller firms compared to the public bond market.

Unsurprisingly, almost all of the borrowing terms included in the model specifications reported in Columns 2 and 3 are significantly related to the AIS. The use of financial covenants,

collateral, dividend restrictions, and prepayment restricts (in the form of asset, debt, or equity sweeps) are all positively related to yield spread indicating that these terms are more likely on higher yielding loans. This finding is consistent with riskier loans requiring both higher yield spreads and more stringent borrowing terms rather than the introduction of these covenants resulting in yield savings for the borrower.

With the exception of dividend restrictions, the positive relation between more stringent borrowing terms and the AIS is significant at the one percent level. The strongest relationship appears for the use of collateral. From Column 3 of Table 4 we note that, when compared with loans that have no collateral usage, the collateral secured loans pay a 41.1% higher premium. The impact outweighs all the other determinants of AIS spread.

Given the significance of collateral we use it as our starting point for exploring whether more stringent borrowing conditions for financial institutions take the place of the required premiums witnessed in the bond market. In other words, if we control for spread and rating level, is it the case that lenders in the syndicated loan market require additional terms for financial institutions as compensation for either inflated ratings or greater inherent risks associated with these borrowers?

Table 5 Panel A provides this analysis. In this table we use the collateral dummy indicator as the dependent variable rather than the AIS and use a pooled probit model to estimate the coefficients for our same set of firm, issue, and economic controls. To these controls we add the yield spread since it is no longer used as the dependent variable and keep our same focus on the interaction between rating level and the financial industry indicator. As in the models based on spread, we interpret a significantly positive coefficient on the interaction term as indicating that for a given rating level, financial institutions are more likely to provide collateral than non-financial firms, consistent with stricter borrowing conditions for financial firms. Note that since collateral and covenants are determined at the package rather than loan level, the number of observations available for this analysis declines substantially below what is available for the examination of loan spreads.

In all model specifications provided in Table 5, Panel A we find evidence of additional collateral usage for financial firms. Since the magnitude of the coefficients in the probit model is not easily interpreted we examine the marginal effect of being a financial institution compared to a similarly rated industrial firm on the probability of using collateral in the last column of the

table. We find that when compared to industrial firms, the impact of a one notch upgrade will only result in a decreased probability of using collateral of 2.1% (-0.238+0.211) for financial firms. For industrial firms experiencing the same credit rating upgrade, the decline in the probability of collateral use is much more substantial at 23.8%. Among the controls, we note that older and larger firms are less likely to secure their loans with collateral while longer maturity loans and firms facing a higher degree of roll over risk are more likely to use collateral.

Panel B of Table 5 examines whether the increased use of collateral is concentrated in financial institutions of a particular type or influences the various categories of institutions in a similar way. Generally speaking we find similar results with depository, brokerage, and insurance companies all being significantly more likely to use collateral. The relation for bank holding companies and non-depository institutions are not meaningfully different from zero and the real estate category leaves the analysis due to its small sample size.

While not reported here, we examine whether other borrowing terms are also more likely to be required of financial institutions. Although collateral showed the greatest degree of association with the AIS, and therefore is presumably also strongly associated with a borrower's credit quality, it is not the only way in which a lender may seek to tighten borrowing conditions. In un-tabulated results, we use the same identification strategy as in collateral usage to explore the difference of prepayment restrictions (asset, equity, and debt sweeps), dividend restrictions, and the number of financial covenants between financial and industrial firms with the same credit rating. We find similar results (although weaker in terms of the statistically significance) with asset sweep usage and dividend restrictions. Using the covenant intensity index from Bradley and Roberts (2004) as the dependent variable in an ordered probit model, we confirm that loans from financial firms have much stricter covenant intensity compared to industrial firms with the same credit rating.

D) Sub-Period Analysis for Bonds and Loans

To this point our analysis of bond pricing and syndicated loan terms has focused on the entire sample time period from 1985 to 2010. We have suggested that a consistent appreciation on the part of lenders for the difficulties in assessing credit quality for financial institutions would result in long-standing differences in the borrowing terms for financial and non-financial firms whereas temporarily inflated ratings driven by conflicts of interest would be more concentrated during periods in which the payoff to lenient ratings may be greater. As a result, we

divide our time period into three separate samples. The first corresponds to the years 1985 to 1999, a relatively quiet period preceding the large scale growth of structured finance products. The second sub-period includes the years 2000 to 2005 corresponding to the corporate governance scandals of Enron, WorldCom and others during which rating agencies were heavily criticized for providing inaccurate and untimely ratings (Cheng and Neamtiu, 2009). Finally the last sub-period extends from 2006 to 2010 thereby encompassing the financial crisis and the peak of the structured finance product market.

Table 6 presents our analysis of bond spreads according to these three time periods. Again, we report results based on both S&P and Moody's ratings at the bond-level. For ease of comparison we repeat the primary coefficients of interest on rating level and the interaction term of rating level with the financial institution indicator as reported in Table 3, Panel A for the entire time period. For brevity we refrain from reporting coefficients on the entire set of firm, issue and economic controls.

An interesting trend emerges from the sub-period analysis presented in Table 6. While the interaction term is significant across the entire time period indicating a required yield premium for financial institution borrowers, we find that the strength of this relation has not been consistent over time. In the case of S&P ratings, the interaction term only maintains significance in the most recent sub-period from 2006 to 2010 whereas for Moody's ratings the trend is more gradual with weak statistical significance in the early period compared to highly significant coefficient estimates in the later two periods. Regardless of rating agency, the strongest evidence of additional yield required for financial institutions appears during the years 2006 to 2010.[12] While rating level remains significantly related to bond yield spread, investors appear to require additional compensation for risks faced by financial institutions during this time. This additional compensation is not captured by rating level alone since it is applied inconsistently to financial versus non-financial industries. At a minimum, this suggests that investors were not relying exclusively on rating assignments to capture the risks associated with lending to financial

[12] For robustness we explore alternative ways of capturing the observed trend in increasingly stringent borrowing terms for financial institutions. Including a time variable defined as 0 in 1985, 1 in 1986 etc. we find that this variable has a very significant positive coefficient but does not eliminate the significance of the financial institution interaction term. In addition, we further divide the 2000 to 2005 sub-period to get a sense as to when a yield spread premium first appeared to be associated with Moody's ratings of financial institutions. While there is no evidence of a premium in the 2000 to 2002 period, it does appear between 2003 and 2005.

institutions during this period. Investors appear to be aware of additional risks requiring compensation that are not captured by ratings assigned by either of the two major agencies.

We conduct a similar sub-period analysis for the use of collateral in syndicated loans in Table 7 which reports coefficient estimates based on a probit model with the collateral indicator as the dependent variable and the same controls as used in Table 5. An increasing trend is again apparent for the interaction term between rating level and the finance industry dummy. The additional collateral requirements witnessed for financial institutions during the entire time period increase in strength throughout the three sub-periods. We again see that rating level is a significant determinant of collateral usage however there is no systematic difference in whether it is used by financial versus industrial borrowers of the same rating quality until 2000. From 2000 to 2005 we see a weak increase in the likelihood of financial institutions collateral usage whereas the increase becomes dramatic in the final sub-period. These results are again interpreted as investors requiring additional protection against risks faced by this industry that are inadequately captured by rating level assignment.

VI. Conclusion

We have examined whether financial institution borrowers face stricter lending conditions than industrial firms with the same credit rating. We have suggested that stricter lending terms for financials may be consistent with either an increased difficulty in measuring credit quality for these firms or overly optimistic ratings that do not fully capture the risks associated with this industry. While it is impossible to completely disentangle between these two explanations, we suggest that this industry has long been highlighted as holding opaque assets whose value may change rapidly so that if stricter terms are driven by the inherent differences of the industry, discrepancies in lending terms should be long-standing throughout our sample period.

For public bond issues, we find evidence of a yield premium for financial institutions when compared to similarly rated industrial firms. Evidence of this premium persists even after controlling for firm, issue, and economic conditions and is apparent regardless of whether the bond was rated by S&P or Moody's. We find that the premium extends to a wide range of financial institution types including bank holding companies, non-depository institutions, and brokerages. Closer examination of the data reveals that the premium is most significant for bonds issued between 2006 and 2010, the time period encompassing the peak of the MBS market and

resulting financial crisis. For S&P ratings, a premium for financial institutions is apparent only from 2006 or later while for Moody's ratings the premium is more long-standing and apparent as early as 2000 to 2005. The early onset of this premium suggests that it may not be exclusively driven by suggested conflicts of interest between rating agencies and borrowers arising out of the growth of the structured finance product market. Lenders required compensation above what was suggested by Moody's ratings alone when lending to financial institutions even prior to the financial crisis.

Turning to the syndicated loan market we do not see the same evidence of differential pricing for financial institutions however we do see greater use of additional borrowing terms, particularly as they relate to collateral. During the entire time period, we see that collateral is far more likely to be used by financial institutions when compared to non-financial firms with a similar rating assignment. We see similar results for a measure of covenant intensity indicating that covenants are more numerous for financial institutions compared to similarly rated corporate borrowers. Looking at the various sub-periods we note the same increasing trend as was apparent for bond pricing with additional collateral usage by financials becoming most significant in the 2000 to 2006 period. Again, we take this as evidence that during this period, lenders placed less emphasis on rating level for this industry and required additional terms to protect themselves for risks deemed not to be covered by rating category.

While many researchers and practitioners have suggested that financial institutions have unique characteristics making their credit assessment particularly difficult, we interpret our results as suggesting that until very recently, investors treated credit ratings consistently for financial and non-financial firms. While it may have been difficult to establish, once a credit rating was assigned for a financial institution it was viewed to pose roughly the same risk as a similarly rated firm from another industry. As a result, lenders did not require a differential yield spread on public bonds or more stringent borrowing terms by means of enhanced covenant or collateral usage for syndicated loans. This consistent treatment seems to have diminished as early as 2000, with a significant premium required in the yield spread for public bonds and enhanced security requirements for loans issued by financial institutions. Investors appear to place less faith in the ratings for these institutions and require more stringent borrowing terms for firms from this industry.

We cannot say what has driven this change of heart on the part of investors. Perhaps it is the acknowledgement that these institutions hold increasingly complex assets which are not made transparent by their financial disclosures. As a result, borrowers are more conservative in their lending arrangements for these firms. Alternatively it could be that lenders believe the conflict of interest between rating agencies and financial institutions is more significant than for other industries in recent years and therefore take ratings to be inflated for this industry, systematically requiring more stringent terms than what the rating would suggest. Whatever the rationale, we feel confident that the discrepancy has increased over time. Our evidence suggests that investors require systematically more stringent borrowing terms for financial institutions in recent years and that any rating adjustments that agencies may have made for financial institutions in the wake of the financial crisis were deemed insufficient to accurately capture the risks of these firms.

Our results contribute to our understanding of how investors interpret credit ratings across industries and whether their interpretation has changed over time. In addition, we provide some preliminary evidence to suggest that optimistic ratings provided in the MBS market may have also extended to the financial institutions that provided these securities. We leave a much more thorough analysis of this claim to future work. Our findings also suggest that investors cannot completely claim naïveté as to the true credit quality of financial institutions. Credit ratings were not followed blindly, at least not by lenders in the public debt and syndicated loan markets, who as early as 2000 appear to have required systematically more stringent borrowing terms for financial institutions.

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Appendix A

Rating Scores: Conversion from Letter to Numerical Scale

	S&P rating score	Moody's rating score
1	CCC+ and below	Caa3 and below
2	B+/B/ B-	B1/B2/B3
3	BB+/BB/BB-	Ba1/Ba2/Ba3
4	BBB+/BBB/BBB-	Baa1/Baa2/Baa3
5	A+/A/A-	A1/A2/A3
6	AA+/AA/AA-	Aa1/Aa2/Aa3
7	AAA	Aaa

Appendix A Continued

	Definitions & Construction Method	Sources
Key Borrowing Terms		
Log(BONDYield)	Logarithm of Bond spread over benchmark	SDC
Log(AIS)	Log value of loan spread (All in Drawn Spread)	DealScan
COLLATERAL	Dummy variable =1 if the loan is secured by collaterals	DealScan
COVENANT INTENSITY	Numerical number = Collateral dummy + Asset sweep dummy +debt sweep dummy +equity sweep dummy + Dividend restriction dummy + at least two financial covenants dummy	DealScan (Bradley and Roberts, 2004)
PREPAYMENT RESTRICTION	Asset Sweep =1 if there is sweep agreement on Asset, similar definition goes to Debt sweep and Equity Sweep.	DealScan
FINCOV2	Dummy variable which takes value of one if the loan has at least two covenants on Financial variables	DealScan
DIVIDENDREST	DIVIDENDREST=1 if there is dividend payment restrictions on the loan	DealScan
Independent Variables		
FIN_DUM	Dummy variable =1 if firms are in financial industry, 0 otherwise	Compustat
RATING	Credit Rating Score from S&P or Moody's	Compustat(issuer-level) SDC (issue-level)
FIN_DUM*RATING	Interaction term between financial dummy and rating score	See above
SIZE	Log(price at fiscal yearend* shares outstanding)	Compustat
TANG	Ratio of physical plant, property and equipment to total assets	Compustat
TANG_adj	Industry adjusted TANG as indicated by equation (3)	Compustat
LEVERAGE	(Long term debt + debt in current liability)/total assets	Compustat
LEVERAGE_adj	Industry adjusted leverage as indicated by equation (3)	Compustat
PROFIT	Operating income before depreciation/total assets	Compustat
PROFIT_adj	Industry adjusted Net Income/Total Assets as indicated by equation (3)	Compustat
MTB	(price*shares outstanding+long term debt+debt in current liability+preferred stock liquidating value-deferred tax and investment tax credits)/total assets	Compustat
Log(FIRM AGE)	Log value of firm age in months (the starting date is the 1st day CRSP has price data for the firm)	CRSP
Log(NUM_ANAL	Log value of the number of analysts (# is the monthly maximum number of analysts	I/B/E/S

YST)	for the year before the current year)	
ROLL OVER	Long-term debt matured in one year/total debt	Compustat
Debt (3/5)	Long term Debt due in 3 to 5 years / total assets	Compustat
STD	Log value of the standard deviation of firm equity returns in the past one year	CRSP
DTD	Distance to default, after adjusting for the difference of financial firms and industrial firms as suggested by Duan and Wang (2012)	http://www.rmicri.org
LOAN-SIZE	Log value of loan or bond size	SDC for bond and DealScan for Loans
Log(MATURITY)	Log value of the maturity (by months)	SDC for bond and DealScan for Loans
Log(NUM_SYNDICATION)	Log value of the number of syndication members	DealScan
Loan Purpose Fixed Effects	5 different Dummy variables which equal one if the loan primary purpose falls into one of the five categories: "Acquisition Line", "CP backup", "Corp. Purpose", "Debt Repayment", "Takeover", and "Working Capital"	DealScan
Loan Type Fixed Effects	10 dummy variables which equal one if loan type falls into one of the 10 categories: "364-Day Facility", "Bridge Loan", "Facility-Other", "Letter of Credit", "Revolver line<1 yr", "Revolver Line > 1 yr", "Revolver/Term Loan", "Term Loan", "Term Loan B", and "Others".	DealScan
Bond Type Fixed Effects	11 dummy variables which equal one if bond falls into one of the following categories: "Bonds", "Debentures", "Global Bonds", "Global MTNS", "Global Notes", "InterNotes", "Medium Term Notes", "Senior Notes", "Notes", "Sr Sub Notes", "Sub Notes".	SDC
RECESSION DUMMY	= 1 if the time span follows into the time periods between July 1990 and March 1991, or between March 2001 and November 2001, or between December 2007 and June 2009.	http://www.nber.org/cycles.html
SENTIMENT INDEX	the monthly sentiment index constructed by Baker and Wurgler (2007)	http://people.stern.nyu.edu/jwurgler/

Figure 1:

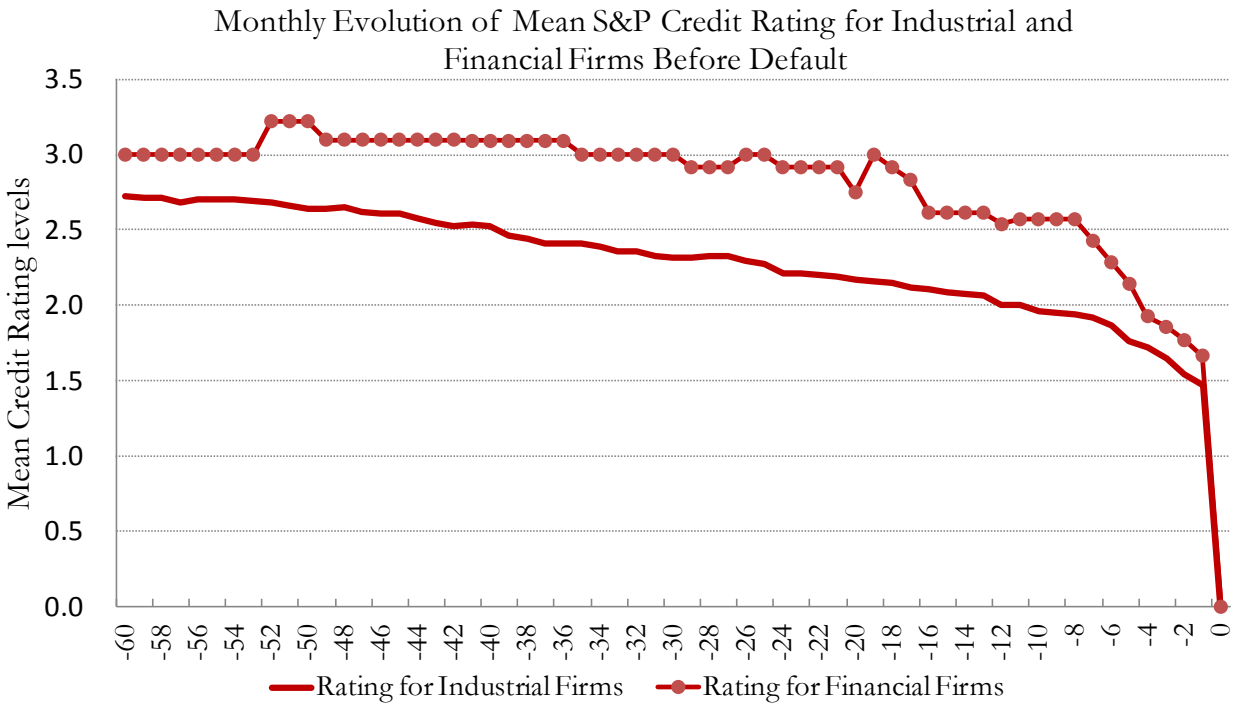
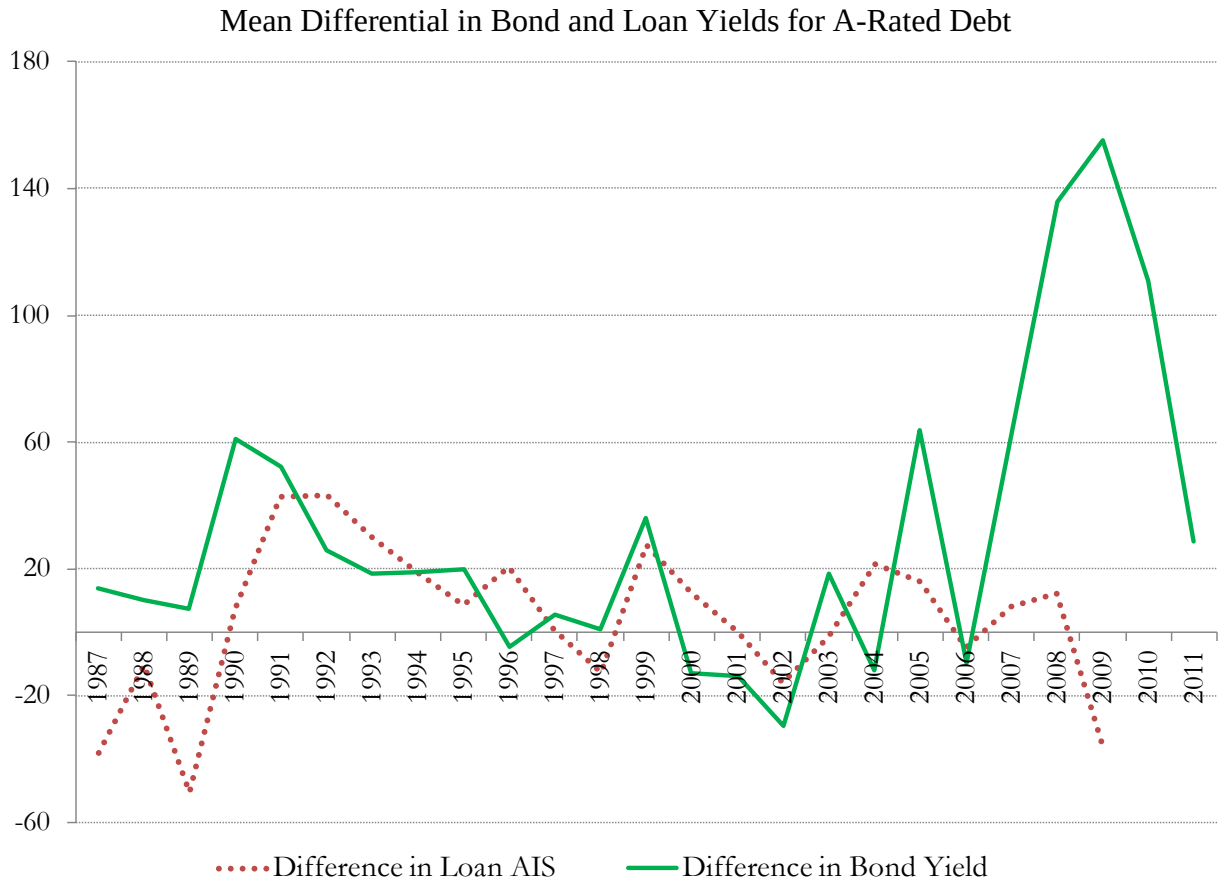


Figure 1 plots the monthly evolution of the mean S&P credit rating for financial and industrial firms during the 60 months prior to default.

Figure 2:



The figure plots the time series of the mean difference in bond spread and the all in spread (AIS) in loans for A-rated financial firm debt versus A-rated non-financial debt. Positive values indicate that on average financial firms pay higher yields than similarly rated non-financial firms in the corresponding year. Values on the vertical axes represent basis points.

Table 1: Summary Statistics of the main variables for industrial firms and financial firms

	Industrial Firm			Financial Firm		
	Mean	**Median**	**Std. Dev.**	**Mean**	**Median**	**Std. Dev.**
SDC Bond Data						
S&P Rating Score **(Issue-Level)**	4.393	5.000	1.197	4.861	5.000	1.337
Moody's Rating Score **(Issue-Level)**	4.374	5.000	1.166	4.893	5.000	1.311
Bond Yield Spread **(bps)**	144.582	100.000	118.852	120.480	100.000	84.389
Bond Size ($MM)	361.463	300.000	225.840	283.644	250.000	249.880
Bond Maturity **(months)**	139.900	120.000	102.651	103.695	84.000	74.840
# of Bond Issues		1,567			1,654	
# of Firm-Years		1,111			672	
DealScan Loan Data						
S&P Rating Score (**Issuer-Level**)	3.391	3.000	1.210	4.390	4.000	1.102
All in Drawn Spread **(bps)**	162.993	125.000	131.192	103.228	70.000	94.656
Loan Size ($MM)	759.397	400.00	1107.478	1040.574	400.00	1657.615
Loan Maturity **(months)**	46.234	53.000	25.059	34.214	36.000	21.748
Collateral Dummy	0.667	1.000	0.471	0.368	0.000	0.482
Covenant Intensity	2.919	3.000	2.072	1.856	1.000	1.670
Total No. Financial Covenant	2.606	2.000	1.217	2.604	2.000	1.168
Prepayment Dummy	0.279	0.000	0.449	0.110	0.000	0.313
Dividend Restriction	0.437	0.000	0.496	0.238	0.000	0.426
Number of Syndication Member	10.790	8.000	10.640	11.218	8.000	11.631
# of Loan Issues		15,358			2,408	
# of Firm-Years		9,257			1,557	
Market Cap ($MM)	7,278.244	1,811.152	16,661.940	10,223.920	2,726.433	20,666.440
Profitability	0.136	0.128	0.067	0.061	0.043	0.058
Tangibility	0.404	0.368	0.244	0.048	0.014	0.118
Leverage	0.382	0.350	0.213	0.352	0.307	0.259
Rollover Risk	0.143	0.074	0.186	0.331	0.237	0.313
Debt matured in 3 to 5 years/Total Asset	0.089	0.054	0.111	0.056	0.003	0.091
Adjusted Profitability	-0.077	0.004	0.854	0.168	0.032	0.611

Adjusted Tangibility	0.129	0.064	1.010	0.029	-0.194	0.940
Adjusted Leverage	0.287	0.152	0.872	0.387	0.200	0.932
Firm Age in months	193.997	155.000	140.921	151.635	121.000	110.801
Standard Deviation of Equity Return	0.105	0.089	0.063	0.083	0.069	0.053
Distance to default	4.651	4.255	2.784	3.936	3.462	2.751
Market to Book	1.520	1.169	1.137	0.966	0.782	0.877
# of Analysts	8.850	7.000	9.451	9.231	5.000	9.927
# of Firm-Year Observations Total		10,368			2,229	

Table 2: Summary Statistics for Spreads on Loans and Bonds

The table provides the mean, median and standard deviation of the bond yield and all-in-drawn spread for similarly rated financial institutions and industrial firms. The S&P and Moody's credit rating for bond issues is from SDC, while the S&P credit rating score for loan data is from Compustat and reflects the issuer-level rating. T-stats in the bottom row indicate whether the difference in mean spread between financial and industrial firms (as measured in basis points) is statistically significant.

Panel A: Bond Spreads by Rating Category (basis points)

S&P	AAA		AA		A		BBB		BB		B	
	Fin	Ind	Fin	Ind	Fin	Ind	Fin	Ind	Fin	Ind	Fin	Ind
Mean	72.17	42.27	89.96	66.57	112.01	90.24	169.39	127.17	256.13	312.49	421.92	400.33
Median	72.00	35.00	80.00	63.00	95.50	82.00	143.00	115.00	222.00	315.00	432.00	410.00
Std Dev	43.02	22.92	50.10	29.35	71.73	45.77	97.16	61.61	101.42	99.85	69.00	74.61
#Obs	123	29	194	182	934	622	249	456	24	101	13	154
t-stats		(3.62)		(5.48)		(6.71)		(7.04)		(-2.48)		(1.00)

Moody's	Aaa		Aa		A		Baa		Ba		B	
	Fin	Ind	Fin	Ind	Fin	Ind	Fin	Ind	Fin	Ind	Fin	Ind
Mean	77.35	44.11	97.91	67.21	113.25	86.37	148.28	127.77	236.86	275.76	423.40	398.56
Median	71.00	35.00	90.00	60.00	94.00	80.00	120.00	114.00	224.00	268.00	432.00	410.00
Std Dev	43.78	27.21	52.75	35.08	75.27	41.39	89.27	63.02	94.32	108.50	64.55	75.45
#Obs	123	27	311	160	757	633	321	414	44	143	15	158
t-stats		(3.78)		(6.64)		(8.03)		(3.65)		(-2.14)		(1.23)

Panel B: Loan Spread by S&P Rating Category (basis points)

S&P	AAA		AA		A		BBB		BB		B	
	Fin	Ind	Fin	Ind	Fin	Ind	Fin	Ind	Fin	Ind	Fin	Ind
Mean	33.05	38.13	65.87	31.19	52.49	46.22	107.69	90.50	206.80	197.92	259.15	279.18
Median	15.00	15.00	28.00	20.00	35.00	30.00	90.00	65.00	200.00	175.00	255.00	250.00
Std Dev	45.89	67.33	104.57	41.94	57.91	53.13	67.82	72.11	90.65	96.36	98.97	117.89
#Obs	96	122	225	451	779	2491	952	4039	297	4475	114	3801
t-stats		(-0.63)		(6.13)		(2.81)		(6.69)		(1.54)		(-1.79)

Table 3: Bond Yield Regression

Panel A: Multivariate Results: Bond Spread Analysis for the Years 1985 to 2010 for S&P and Moody's Rated Firms
This table presents the Pooled-OLS regression results when the dependent variable is the Initial Bond Yield Spread over Benchmark. The Model is

$$\text{BondYield}_{i,j,t} = \beta_1 + \beta_2 * \text{FIN\_DUM} * \text{RATING}_{i,j,t} + \beta_3 \text{RATING}_{i,j,t} + \beta_4 * \text{FIN\_DUM} + \text{Firm Controls} + \text{Issue Controls} + \text{Macro Economy Controls} + \varepsilon_{i,j,t}$$

All the regressions are conducted with bond type fixed effects, industry fixed effects, and year fixed effects, and are clustered at both the firm and year dimensions. The Industry fixed effect will absorb the coefficient of FIN_DUM, hence it is not reported here. The key independent variable is FIN_DUM*RATING, which measures the impact of being in the financial sector on the information content of credit rating as it relates to bond price. A positive coefficient indicates that being in the financial industry is associated with an increase in yield spread when compared to other similarly rated bonds issued by non-financial borrowers. ***, **, * denote statistical significance at 1%, 5%, and 10% level, respectively. The regression is conducted at the bond issue-level. Here, the industry category is based on Fama-French 12 industry categories.

	S&P Rating			Moody's Rating		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
FIN_DUM*RATING	0.240***	0.140***	0.145***	0.305***	0.268***	0.268***
	(4.45)	(3.84)	(3.80)	(5.45)	(6.10)	(6.04)
RATING	-0.363***	-0.245***	-0.249***	-0.420***	-0.324***	-0.325***
	(-11.91)	(-6.22)	(-6.28)	(-18.27)	(-13.51)	(-12.65)
SIZE		-0.128***	-0.129***		-0.106***	-0.106***
		(-4.34)	(-4.38)		(-4.16)	(-4.09)
ROA_adj		-0.019	-0.015		-0.005	-0.001
		(-0.58)	(-0.43)		(-0.15)	(-0.04)
TANGIB_adj		0.000	-0.000		0.017	0.016
		(0.02)	(-0.01)		(1.09)	(1.03)
LEVERAGE		-0.139	-0.135		-0.157	-0.152
		(-0.88)	(-0.86)		(-0.99)	(-0.97)
MTB		0.031	0.032		0.049*	0.049*

		(0.99)	(1.07)		(1.78)	(1.85)
Log(FIRM AGE)		-0.071**	-0.071**		-0.061**	-0.063**
		(-2.46)	(-2.55)		(-2.12)	(-2.16)
STD		-1.385*	-1.406*		-1.617**	-1.627**
		(-1.83)	(-1.84)		(-2.14)	(-2.12)
Log(NUM_ANALYST)		-0.025	-0.024		-0.014	-0.013
		(-0.52)	(-0.50)		(-0.29)	(-0.27)
DTD		-0.056***	-0.056***		-0.049***	-0.049***
		(-4.04)	(-4.05)		(-3.61)	(-3.59)
ROLL-OVER		-0.152	-0.149		-0.142	-0.141
		(-1.30)	(-1.26)		(-1.18)	(-1.16)
DEBT DUE (3/5)		0.022	0.045		0.146	0.168
		(0.09)	(0.18)		(0.61)	(0.70)
Log(MATURITY)		0.348***	0.350***		0.344***	0.346***
		(6.46)	(6.50)		(6.32)	(6.36)
SENTIMENT INDEX			0.053			0.073
			(0.73)			(1.01)
RECESSION DUMMY			0.107			0.143
			(0.73)			(0.90)
CONSTANT	4.899***	6.437***	6.269***	4.862***	5.793***	5.574***
	(14.83)	(7.78)	(8.18)	(15.51)	(8.55)	(8.60)
# of Obs	3,189	2,575	2,556	3,189	2,575	2,556
R^2	0.483	0.616	0.616	0.506	0.618	0.618
Industry Fixed	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes	Yes	Yes
Bond Type Fixed	Yes	Yes	Yes	Yes	Yes	Yes

Table 3 Panel B: Bond Spread Analysis for Differential Financial Institutions for the Years 1985 to 2010 for S&P and Moody's Rating.

This table presents similar regressions to Panel A above but provides a finer categorization of the different financial institutions based on two-digit SIC code. To save space, no firm, issue-level or macro-economic condition control variables are reported. Instead, a YES/NO indicator at the bottom of the table is presented to show the different specifications. ***, **, * denote statistical significance at 1%, 5%, and 10% level, respectively.

	S&P Rating			Moody's Rating		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
RATING*Depository	0.076	0.023	0.017	0.147***	0.076*	0.074*
	(1.29)	(0.32)	(0.22)	(3.98)	(1.82)	(1.77)
RATING *Non-depository	0.311***	0.149***	0.155***	0.423***	0.341***	0.341***
	(7.59)	(3.10)	(3.02)	(11.85)	(9.63)	(9.65)
RATING *Brokerage	0.078	0.149*	0.155*	0.221***	0.211***	0.211***
	(0.56)	(1.88)	(1.92)	(4.27)	(6.33)	(6.49)
RATING *Insurance	-0.001	-0.085	-0.086	0.056	0.008	0.005
	(-0.02)	(-1.32)	(-1.31)	(1.33)	(0.14)	(0.09)
RATING *insur-broker	-0.122	0.092***	0.174***	0.055	0.016	0.208***
	(-1.42)	(2.59)	(3.17)	(0.51)	(0.38)	(4.79)
RATING *Bank-Holding	0.334***	0.175***	0.180***	0.233***	0.185***	0.186***
	(5.10)	(2.85)	(2.82)	(3.90)	(2.79)	(2.78)
RATING *Real-Estate	0.362***	0.329***	0.310***	0.373***	0.418***	0.394***
	(8.28)	(4.01)	(3.71)	(6.88)	(7.51)	(6.34)
RATING	-0.370***	-0.229***	-0.234***	-0.431***	-0.336***	-0.337***
	(-11.25)	(-5.35)	(-5.15)	(-20.98)	(-14.26)	(-14.15)
CONSTANT	6.330***	6.482***	5.834***	6.640***	6.227***	5.056***
	(40.10)	(8.60)	(7.23)	(38.10)	(9.04)	(7.41)
# of Obs	3,189	2,575	2,556	3,189	2,575	2,556
R^2	0.549	0.644	0.644	0.574	0.657	0.657
Firm/Issue Controls	No	Yes	Yes	No	Yes	Yes
Macro Controls	No	No	Yes	No	No	Yes

Industry Fixed	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes	Yes	Yes
Bond Type Fixed	Yes	Yes	Yes	Yes	Yes	Yes

Table 4: Multivariate Results: Loan Spread Analysis for the Years 1985 to 2010

This table presents the Pooled-OLS regression results when the dependent variable is the Initial All-in-Drawn Spread for a syndicated loan. The Model is

$$\begin{aligned} &\text{AISSPREAD}_{i,j,t} \\ &\quad = \beta_1 + \beta_2 * \text{FIN\_DUM} * \text{RATING}_{i,j,t} + \beta_3 \text{RATING}_{i,j,t} + \beta_4 * \text{FIN\_DUM} \\ &\quad + \text{Firm Controls} + \text{Issue Controls} + \text{Macro Economy Controls} + \varepsilon_{i,j,t} \end{aligned}$$

All the regressions are conducted with loan type fixed effects, loan Purpose fixed effects, industry fixed effects, and year fixed effects, and are clustered at both the firm and year dimensions. The Industry fixed effect will absorb the coefficient of FIN_DUM, hence it is not reported here. The key independent variable is FIN_DUM*RATING, which measures the impact of being in the financial sector on the information content of credit rating as it relates to loan price. A positive coefficient indicates that being in the financial industry is associated with an increase in yield spread when compared to other similarly rated non-financial borrowers. ***, **, * denote statistical significance at 1%, 5%, and 10% level, respectively. The regression is conducted at the loan-level. Here, the industry category is based on Fama-French 12 industry categories.

	S&P Rating		
VARIABLES	(1)	(2)	(3)
FIN_DUM*RATING	0.068***	-0.042	-0.042
	(2.79)	(-1.32)	(-1.32)
RATING	-0.541***	-0.296***	-0.296***
	(-38.96)	(-9.99)	(-9.98)
SIZE		-0.014	-0.014
		(-1.00)	(-1.03)
ROA_adj		-0.035***	-0.035***
		(-3.54)	(-3.51)
TANGIB_adj		-0.006	-0.005
		(-0.60)	(-0.57)
LEVERAGE		0.082*	0.082*
		(1.65)	(1.65)
MTB		0.004	0.004
		(0.40)	(0.39)
ROLL-OVER		-0.054	-0.054
		(-1.17)	(-1.16)
DEBT DUE (3/5)		-0.102	-0.101
		(-1.28)	(-1.26)
Log(FIRM AGE)		-0.005	-0.005
		(-0.58)	(-0.55)
STD		0.338	0.340
		(1.11)	(1.12)

Log(NUM_ANALYST)		-0.060***	-0.060***
		(-3.71)	(-3.72)
DTD		-0.033***	-0.033***
		(-5.79)	(-5.68)
Log(MATURITY)		-0.031	-0.031
		(-1.06)	(-1.06)
FINCOV_IND		0.079***	0.080***
		(4.15)	(4.18)
COLLATERAL_DUM		0.411***	0.411***
		(9.20)	(9.19)
DIVID_RESTRICT		0.037	0.036
		(1.55)	(1.52)
SWEEP_DUM		0.131***	0.131***
		(4.46)	(4.42)
Log(LOAN-SIZE)		-0.031*	-0.030*
		(-1.85)	(-1.83)
Log(1+NUM_SYNDICATION)		-0.002**	-0.002**
		(-2.26)	(-2.29)
SENTIMENT INDEX			-0.018
			(-0.47)
RECESSION DUMMY			0.014
			(0.43)
CONSTANT	6.861***	6.801***	6.767***
	(45.92)	(14.58)	(14.94)
# of Obs	17,775	5,736	5,736
R^2	0.731	0.793	0.793
Industry Fixed	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes
Loan Type Fixed	Yes	Yes	Yes
Loan Purpose Fixed	Yes	Yes	Yes

Table 5 Panel A: Multivariate Results: Differential Collateral Usage on Loans During the Years 1985 to 2010 for S&P Issuer Rating.

This table presents the Pooled-Probit regression results where the dependent variable is Collateral Usage. The Model is

$$\text{Prob(Collateral\_Dummy)}_{i,j,t} = \beta_1 + \beta_2 * \text{FIN\_DUM} * \text{RATING}_{i,j,t} + \beta_3 \text{RATING}_{i,j,t} + \beta_4 * \text{FIN\_DUM} + \text{Firm Controls} + \text{Issue Controls} + \text{Macro Economy Controls} + \varepsilon_{i,j,t}$$

The last column presents the marginal effect for the variables based on the most complete specification (model 3). All regressions are conducted with loan type fixed effects, loan purpose fixed effects, industry fixed effects, and year fixed effects, and are clustered at the firm dimension. The Industry fixed effect will absorb the coefficient of FIN_DUM, hence, not reported here. The key independent variable is FIN_DUM*RATING, which measures the impact of financial dummy on the information content of credit rating as it relates to collateral usage. A positive coefficient indicates that being in the financial industry significantly increases the usage of collateral for a private loan. ***, **, * denote statistical significance at 1%, 5%, and 10% level, respectively. The regression is conducted at the Package-level. Here, the industry category is based on Fama-French 12 industry categories.

	S&P Rating			Marginal
VARIABLES	(1)	(2)	(3)	Effect
FIN_DUM*RATING	0.509***	0.531***	0.528***	0.211***
	(5.58)	(4.35)	(4.32)	(4.41)
RATING	-1.049***	-0.625***	-0.625***	-0.238***
	(-25.08)	(-8.83)	(-8.82)	(-8.32)
SIZE		-0.131***	-0.133***	-0.055***
		(-2.75)	(-2.78)	(-2.92)
ROA_adj		-0.076	-0.076	-0.025
		(-1.54)	(-1.52)	(-1.28)
TANGIB_adj		0.036	0.036	0.013
		(0.88)	(0.88)	(0.412)
LEVERAGE		-0.121	-0.119	-0.029
		(-0.57)	(-0.56)	(-0.35)
MTB		0.086**	0.086**	0.030*
		(2.18)	(2.18)	(1.93)
ROLL-OVER		0.494***	0.498***	0.178***
		(2.88)	(2.91)	(2.63)
DEBT DUE (3/5)		0.062	0.058	0.036
		(0.17)	(0.16)	(0.26)
Log(FIRM AGE)		-0.101**	-0.102**	-0.041**
		(-2.42)	(-2.45)	(-2.48)
STD		1.530*	1.529*	0.643*

		(1.66)	(1.65)	(1.76)
Log(NUM_ANALYST)		0.080	0.081	0.036
		(1.23)	(1.24)	(1.41)
DTD		-0.015	-0.014	-0.006
		(-0.93)	(-0.91)	(-0.93)
Log(MATURITY)		0.182**	0.182**	0.061*
		(2.19)	(2.18)	(1.80)
Log(SPREAD)		0.886***	0.885***	0.353***
		(11.56)	(11.54)	(11.47)
Log(LOAN-SIZE)		0.001	0.002	-0.002
		(0.02)	(0.05)	(-0.11)
Log(1+NUM_SYNDICATION)		-0.005	-0.005	-0.001
		(-1.07)	(-1.08)	(-0.79)
SENTIMENT INDEX			-0.121	-0.048
			(-0.99)	(-1.00)
RECESSION DUMMY			-0.076	-0.028
			(-0.38)	(-0.36)
CONSTANT	4.497***	-1.021	-1.037	n/a
	(4.38)	(-0.74)	(-0.75)	
# of Obs	7,218	4,070	4,070	4,074
Industry Fixed	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes
Loan Type Fixed	Yes	Yes	Yes	Yes
Loan Purpose Fixed	Yes	Yes	Yes	Yes

Table 5 Panel B: Differential Collateral Usage by Financial Institution Type and S&P Ratings during the Entire Period

This table present similar Probit model as Table 5 Panel A, but for finer categories of financial institutions. Firm, issue-level and macro economic control variables are not reported to conserve space. Here, the industry classification is based on the first two-digits of a firm's SIC Code.

	S&P Rating		
VARIABLES	(1)	(2)	(3)
RATING*Depository	0.814***	0.771***	0.767***
	(4.13)	(2.91)	(2.90)
RATING *Non-depository	0.362	-1.030	-1.041*
	(1.64)	(-1.64)	(-1.65)
RATING *Brokerage	0.990***	1.085***	1.084***
	(3.15)	(3.34)	(3.31)
RATING *Insurance	0.623***	0.832***	0.827***
	(4.77)	(4.85)	(4.80)
RATING *insur-broker	-0.812	-6.213***	-6.182***
	(-1.45)	(-12.84)	(-10.47)
RATING *Bank-Holding	0.161	0.089	0.089
	(0.98)	(0.38)	(0.38)
RATING *Real-Estate	0.352	-10.334	-10.405
	(1.02)	(.)	(.)
RATING	-1.057***	-0.611***	-0.610***
	(-25.26)	(-8.32)	(-8.31)
CONSTANT	2.751**	19.842***	19.696***
	(2.07)	(10.22)	(8.90)
# of Obs	7,192	4,010	4,010
Firm/Issue Controls	No	Yes	Yes
Macro Controls	No	No	Yes
Industry Fixed	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes
Loan Type Fixed	Yes	Yes	Yes
Loan Purpose Fixed	Yes	Yes	Yes

Table 6: Multivariate Results: Bond Spread Analysis for Different Sub-Periods

The table presents the subsample analysis for the Bond Yield Spread with the full-specification. All the controls are the same as in Table 3 Panel A Model (3) and (6). Firm, issue level and macro economic control variables are not reported to conserve space. ***, **, * denote statistical significance at 1%, 5%, and 10% level, respectively.

	S&P Rating				Moody's Rating			
	Full Sample	1985-1999	2000-2005	2006-2010	Full Sample	1985-1999	2000-2005	2006-2010
VARIABLES	(1)	(2)	(3)	(4)	(3)	(4)	(5)	(6)
FIN_DUM*RATING	0.142***	0.100	0.054	0.310***	0.264***	0.081*	0.207***	0.447***
	(3.56)	(1.36)	(0.44)	(4.41)	(5.90)	(1.85)	(3.73)	(7.30)
RATING	-0.242***	-0.256***	-0.129	-0.390***	-0.313***	-0.346***	-0.241***	-0.439***
	(-6.20)	(-8.32)	(-1.13)	(-7.73)	(-12.64)	(-10.69)	(-5.57)	(-6.43)
# of Obs	2,564	1,514	725	324	2,564	1,514	725	324
R^2	0.609	0.639	0.500	0.602	0.610	0.667	0.505	0.569
Firm/Issue Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macro Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed	Yes	No	No	No	Yes	No	No	No
Bond Type Fixed	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 7: Multivariate Results: Differential Collateral Usage on Loans for Different Sub-Periods

The table presents the subsample analysis for the Collateral usage. All the controls are the same as in Table 5 Panel A Model (3). Firm, issue-level and macro economic control variables are not reported. The analysis is at the Package-level rather than loan level. ***, **, * denote statistical significance at 1%, 5%, and 10% level, respectively.

VARIABLES	Full Sample (1)	1985-1999 (2)	2000-2005 (3)	2006-2010 (4)
FIN_DUM*RATING	0.504***	0.247	0.379*	1.253***
	(4.07)	(1.20)	(1.77)	(5.33)
RATING	-0.611***	-0.279***	-0.712***	-1.187***
	(-8.45)	(-2.76)	(-6.38)	(-7.47)
# of Obs	4,076	1,031	2,017	988
Firm/Issue Controls	Yes	Yes	Yes	Yes
Macro Controls	Yes	Yes	Yes	Yes
Industry Fixed	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes
Loan Type Fixed	Yes	Yes	Yes	Yes
Loan Purpose Fixed	Yes	Yes	Yes	Yes