# On Loan Sales, Loan Contracting, and Lending Relationships

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## ABSTRACT

Banks are increasingly using secondary loan sales to manage credit risk and diversify their portfolios.  However, loan sales fundamentally alter the lending process by separating loan origination from servicing and funding.  How do banks reduce agency problems that arise from selling loans?  How do loan sales affect lending relationships and borrower's access to loans?  Our analysis suggests that sold loans are structured to reduce buyer-seller agency problems.  Sold loans contain additional, more restrictive covenants, particularly when agency problems between buyers and sellers are likely to be more severe, such as when low reputation lenders originate the loan.  When loans are sold, borrowers benefit from increased access to private debt capital, both in the present and in the future.  This potentially balances the costs of more restrictive covenants and borrowing from additional lenders.  Contrary to concerns that that loan selling negatively impacts lending relationships, borrowers whose loans are sold are more likely to retain their lending relationships.  We also provide large-sample evidence on the characteristics of borrowers and lenders that affect salability and find evidence consistent with information asymmetry placing limitations on loan selling.

# 1    Introduction

Banks are increasingly selling loans to other banks and non-bank financial institutions. As Figure 1 shows, U.S. secondary loan market volume reached 154.8 billion dollars in 2004 from a mere 8.0 billion traded in 1991, a compound annual growth rate of 26 percent.[1] The secondary loan sales market is economically important, as it allows banks to diversify their loan portfolios (Pavel & Phillis 1987; Haubrich & Thomson 1996; Demsetz 2000), comply with risk-adequacy regulations (Pavel & Phillis 1987; Pennacchi 1988), and continue to fund profitable projects even when capital constrained or when facing higher internal lending costs (Pennacchi 1988; Carlstrom & Samolyk 1995).[2]

Even though the loan sales market has grown rapidly, the role of banks as information producers appears to place significant limitations on loan selling.[3] By separating loan origination from funding, loan sales can create a moral hazard problem because loan sellers do not have incentive to engage in costly screening and monitoring when shedding the credit risk (Pennacchi 1988; Gorton & Pennacchi 1995). An adverse selection problem exists because banks have an incentive to sell loans that they privately know are likely to perform poorly. Therefore, it remains an important open question as to how these problems are overcome. One possibility is that loan contracts are structured to resolve agency problems associated with loan selling. This contrasts with an alternative view where lenders expend little effort on loan contracting in anticipation of selling loans because they will not be managing the credit risk.

Further, there are concerns that loan selling may negatively impact borrowers. If the loan originator acts mainly as a middleman between borrowers and investors, lending relationships may suffer and borrowers may not receive the associated relationship benefits, such as increased access to capital (see e.g. Petersen & Rajan 1994). However, loan selling may actually benefit borrowers. By separating origination from funding, loan selling may allow for additional funds to flow into the private debt market. By allowing banks to reduce credit risk, banks may gain

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[1] Note that in the secondary loan market (the focus of this study), a loan is sold after origination. This differs from the syndicated loan market, where a lead bank places pieces of the loan at origination. See Gorton & Haubrich (1990) and Bhasin & Carey (2000) for early evidence on loan sales and syndications and Yago & McCarthy (2004) and Thomas & Wang (2004) for more recent developments in the loan sales market.

[2] Other motivations for loan selling are discussed in detail in Berger & Udell (1993).

[3] Many theories highlight banks' unique ability to collect private information through screening and monitoring borrowers (see e.g. Diamond 1984; Ramakrishnan & Thakor 1984; Fama 1985; Boyd & Prescott 1986; Diamond 1991).

flexibility in their lending relationships, increasing their ability to lend to their borrowers in the future.

Does information asymmetry limit the types of loans that are sold? Do banks structure loans to reduce agency problems inherent to selling loans? How do loan sales affect borrowers' access to loans and their lending relationships? In this paper, we empirically explore these questions using a unique dataset of individual loan contracts that is carefully assembled and hand-matched from multiple databases. We identify loans that are sold in the secondary market, and we gather detailed contract information, data on borrowers including each firm's financial characteristics, and we track lending relationships over time.

Consistent with information asymmetry placing limits on loan selling, the results show that sold borrowers are, on average, over 1.5 times larger than borrowers whose loans are not sold, and nearly ninety percent of sold loans have borrowers with a public debt credit rating. In addition, term loans are more likely to be sold than credit lines. Term loans require less ongoing information collection than credit lines because poorly performing borrowers have an incentive to draw on established credit lines (Avery & Berger 1991; Berger & Udell 1995). Further, loans originated by lead banks with higher loan market shares are weakly more likely to be sold, providing some support that lender reputation helps reduce information asymmetries and aids loan selling.

For loans that can be sold, our findings suggest that lenders structure loans to reduce buyer-seller agency problems. A key result is that sold loans have more restrictive covenant packages than loans that are not sold, as indicated by the inclusion of significantly more financial covenants that have less "slack."[4] A restrictive covenant package can increase the likelihood of sale by allowing the buyer to intervene quickly when a borrower performs unexpectedly poorly. The buyer can limit losses after the sale, which reduces the importance of the seller's information and effort. Strengthening this interpretation of covenants, we find that sold loans have more restrictive covenant packages than loans that are held by the original banks when buyer-agency problems are likely to be pronounced. First, tighter covenants improve the likelihood of selling

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[4] Covenants are restrictions on a borrower's financial condition based on observable financial data. "Slack" of a covenant is based on the difference between the actual accounting value and the minimum (or maximum) level allowed in the loan contract. For example, if a firm has a current ratio of 2.0 and a loan contract that specifies it must keep its current ratio above 1.5, then it has slack of 0.5. As explained in Section 3, we focus on the slack of covenants which are triggered if the borrower falls below a minimum (tangible) net worth or current ratio.

loans in the secondary market but have less impact on facilitating loan syndication, which are sales at loan origination. In loan syndications, the lead bank retains a piece of the loan to preserve incentives to collect information, which can reduce agency problems. However, once the loan is traded in the secondary market, the lead bank may exit, increasing agency problems. Second, we find that additional, tighter covenants increase the likelihood of sale when lenders are not as reputable. Agency problems are likely to be larger when banks are not as reputable because reputation can limit shirking on information production and reduce the incentive to sell lemons (Gorton & Haubrich 1987; Pichler & Wilhelm 2001). Also, we explore an alternative explanation that restrictive covenants are used to "signal" the borrower's quality to loan buyers. This view suggests that restrictive covenant packages increase the likelihood of loan selling because covenants allow observably poor quality borrowers to take on extra financial restrictions to signal that they are solid firms, based on unobservable information. Additional tests do not support the signaling explanation.

We find extra support for loans being structured at origination to facilitate sale in the secondary market. First, over sixty percent of loans are sold within one month of loan origination and nearly ninety percent are sold within one year. This suggests that lenders were anticipating selling these loans in the secondary market when writing the loan contract. Second, nearly all of the sold loans are syndicated at origination, and many participating buyers at origination are institutional investors who likely desire to hold a tradable contract. Third, it is not the case that lenders are simply selling loans that have performed poorly, as loans are sold at close to par value and the credit quality of sold borrowers does not change, on average, between origination and sale.

For borrowers, it can be costly to be restricted by covenants, due to reduced financial flexibility. Also, loan sales may make it more difficult for borrowers to renegotiate loans, as the borrower will have to deal with multiple lenders, some of whom may not be in a long-term relationship.[5] These potential costs raise the question of why a borrower would agree to tighter

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[5] An example involves Solutia Inc., a St. Louis chemical company, who had a piece of its original loan sold to an investment fund. Upon seeking an amendment to its line of credit, the buying fund held out until Solutia paid a much higher interest rate (Ip 2002).

covenants and would allow its loans to be sold.[6]  Our analysis reveals that borrowers whose loans are sold are growing companies with high leverage ratios, suggesting a need for debt capital.  Loan sales help these borrowers by increasing access to private debt capital.  In particular, during the origination year of the sold loan, private debt issuance more than doubles, increasing firms' interest-bearing debt levels and leverage ratios.  This is a natural benefit to arise from loan selling because loan buyers tend to be outside the banking system and can provide additional funding to borrowers.[7]  These findings supplement prior research which finds lower loan interest rates when covenants are included in loan contracts (see e.g. Bradley & Roberts 2004) and lower interest rates when loans are likely to be sold (Guner 2006).

Additionally, borrowers whose loans are sold benefit from increased access to future loans and more durable lending relationships.  One possible explanation is that lenders use the loan sales market to manage their exposure to individual companies.  By selling past loans, lenders have a greater ability to lend to the same borrowers in the future.  In support of this explanation, we find that loan sales increase relationship durability for risky borrowers.  Also, loan selling improves lending relationships when lenders have more reputational capital at risk should an individual borrower fail.  Overall, these results help alleviate concerns that loan selling is detrimental to borrowers.  Actually, access to future loans and lending relationships improve considerably for those firms that are most likely to benefit from relationship lending – the high risk borrowers.

This paper extends the growing literature that examines banks' motivations for selling loans and explanations for the rising use of loan sales.  While prior research relies primarily on aggregated, bank-level data, our paper uses disaggregated, loan-level data that allows for a richer examination of both the banks' and borrowers' perspectives.[8]  The analysis of lending after loan sales suggests that banks sell loans to better manage credit risk.  This allows for increased access to private debt and stronger lending relationships, supporting the claim that a key benefit of loan selling is greater credit availability (see e.g. Cebenoyan & Strahan 2004).  Further, this study is one of the first to examine how borrowers are affected by secondary market loan selling.  Our

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[6] Loans are sold on "assignment" in the secondary market, meaning that the loan contract is fully transferred from the seller to the buyer.  When assigning a loan, the lender must receive approval from the borrower in almost all cases.

[7] Typical loan buyers include investment banks, hedge funds, and mutual funds (see e.g. Board of Governors of the Federal Reserve System 2003; Yago & McCarthy 2004).

[8] See Berger & Udell (1993) for a review and Demsetz (2000) for more recent empirical evidence.

results on loan access and lending relationships suggest that borrowers benefit from loan selling. These benefits are supported by evidence in Gande & Saunders (2005), who find positive announcement effects on a borrower's equity returns when its loans are sold. The findings complement Guner (2006), who shows that active loan sellers charge significantly lower loan yield spreads to their corporate borrowers, particularly in cases where the loan is likely to be sold. The benefits from increased capital access are consistent with loan sales reducing supply-side frictions on access to debt capital (Titman 2002; Leary 2005; Faulkender & Petersen 2006). Also, our result that sold loans have restrictive covenant packages reduces concerns that loan selling causes banks to write loan contracts that resemble public bonds, a development that could harm firms that rely on relationship lending (see e.g. Kiff *et al.* 2002).

The remainder of this paper is organized as follows. Section 2 presents existing theory and our hypotheses. Section 3 describes the data and sample selection process. Section 4 provides an analysis of loan sales and loan contracting. Effects of loan sales on access to debt capital and lending relationships are assessed in Section 5. Section 6 concludes.

# 2 Theories and Hypothesis Development

## 2.1 Loan Sales and Loan Contracting

Loan selling represents a significant departure from the traditional lending process because it separates origination, servicing, and funding activities. While it may be efficient to separate these activities (Hess & Smith 1994), agency problems may arise. Through screening and monitoring, banks produce private information on firm quality that enables loans to be originated (see e.g. Diamond 1984; Ramakrishnan & Thakor 1984; Fama 1985; Boyd & Prescott 1986; Diamond 1991). However, since loan sales separate origination from funding, a moral hazard problem arises because loan sellers do not have incentive to engage in costly screening and monitoring (see e.g. Pennacchi 1988; Gorton & Pennacchi 1995). Also, an adverse selection problem exists because banks have an incentive to sell loans that they privately know are likely to perform poorly. How are banks able to sell loans while facing these informational difficulties and incentive problems?

We hypothesize that banks mitigate agency problems associated with loan selling through contract design.[9] In particular, we posit a link between loan sales and the use of financial covenants in loan contracts. Financial covenants are restrictions on a borrower's financial condition. Common financial covenants include that the borrower maintain a minimum net worth, minimum current ratio, minimum interest coverage, or not exceed a maximum leverage ratio. Financial covenants may reduce agency problems between a buyer and seller through two related dimensions. First, financial covenants are linked to observable financial data, making it relatively easy to observe a violation. The use of such a "public monitoring device" may reduce the need for and importance of extensive screening and monitoring by a specialist (Berlin & Loeys 1988). Second, covenant violations allow the lender, or buyer if the loan is sold, to intervene. In particular, if a borrower violates a financial covenant, then it is in "technical default" and the loan contract is usually renegotiated but can be terminated (see e.g. Chen & Wei 1993; Beneish & Press 1995; Chava & Roberts 2005). Since the buyer can limit losses when the firm performs poorly, adverse selection and moral hazard problems are reduced. As such, we expect that banks are more likely to sell loans which contain more financial covenants. Further, we anticipate that sold loans will contain covenants with less slack. We expect these relationships to be strongest when agency problems are more severe.

Buttressing these hypotheses are prior studies which suggest that covenants are successful at mitigating agency problems in other environments. For example, Smith & Warner (1979) show that covenants are used to reduce agency problems between shareholders and bondholders in public debt markets, and Dichev & Skinner (2002) indicate that covenants are "screening devices" in private debt contracts that can limit borrower's moral hazard. Theoretical studies show that covenants can lower agency costs by giving lenders the right to renegotiate should violation occur (Berlin & Mester 1992), providing incentives to monitor the debtor (Rajan & Winton 1995), and allowing for a cheaper form of monitoring a borrower's ability to repay (Berlin & Loeys 1988). In fact, covenants may be more useful in the loan sales market because the agency problems are arguably more severe than in either the public debt market or primary private lending market.

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[9] Another potential mechanism to deal with agency problems in loan selling is lender reputation (Gorton & Haubrich 1987). We examine the role of reputation in our empirical tests.

## 2.2    Loan Sales, Access to Debt Capital, and Lending Relationships

Beyond differences in loan contracting lie the consequences of loan selling for borrowers, lenders, and their relationships.   It may be costly for borrowers to have their loans sold, particularly if they need to renegotiate their loans in the future.   This is because loan sales increase the number of lenders that must agree to a loan modification.   Also, many loan buyers are nonbank institutions, such as hedge funds, pension funds, mutual funds, and investment banks, which are less likely than relationship-lending commercial banks to take a long-term view of a company's prospects, potentially causing a hold-up problem.[10]    Another cost is that loan selling may endanger lending relationships, which have been shown to increase availability of credit (see e.g. Petersen & Rajan; Cole 1998; Scott & Dunkelberg 1999), decrease reliance on collateral (see e.g. Berger & Udell 1995; Scott & Dunkelberg 1999), and reduce the costs of financial distress (Hoshi *et al.* 1990, 1991; Harhoff & Korting 1998).[11]    Such relationship benefits develop through repeated contact between the borrower and lender (see e.g. Diamond 1991; Boot & Thakor 1994), and loan sales may limit these interactions.    Further, while restrictive covenants may help loan selling, borrowers lose flexibility when constrained by tight covenants.

Given this, why would borrowers agree to a more restrictive covenant package and allow their loans to be sold?   We hypothesize that borrowers receive additional benefits through increased access to private debt, both in the present and in the future.   This hypothesis is driven by a key characteristic of the loan sales market -- institutions that generally do not originate loans are the major buyers of loans (see e.g. Board of Governors of the Federal Reserve System 2003; Yago & McCarthy 2004).   Thus, loan trading allows these nonbanks to use their capital in the private debt market.   With a larger investor base, it may be easier for borrowers to gain access to credit when loans are sold.

With regards to future loans and lending relationships, loan sales may not actually sever ties between the borrower and lender.   In fact, there are compelling reasons for borrowers and lenders to continue to interact after loans are sold.    First, banks may be selling loans to reduce,

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[10] See Ip (2002) for cases where investment funds purchased loans and then held up the borrower in renegotiation in order to maximize short term profits.
[11]  See Ongena & Smith (2000) for an excellent review of the relationship banking literature.

as opposed to remove, exposure to individual borrowers. If so, then loan selling can allow banks to share credit risk with others and as a result, have more flexibility when originating future loans for a borrower. This scenario is most likely to occur when borrowers are risky and when lenders have more reputational capital at risk should an individual borrower fail. Second, it is likely that agency problems prevent a bank from selling off the entire loan, thereby preserving the relationship (Pennacchi 1988; Gorton & Pennacchi 1995). In fact, typical minimum assignment levels for term loan sales are $1.0 million. This is lower than the $5.0 million minimum assignment levels seen in the early years of the market, suggesting that banks are indeed selling off smaller pieces of their loans (Cummings 2005). Overall, the effect of loan sales on loan access and lending relationships is an empirical question.

# 3    Data and Descriptive Statistics

## 3.1    Data Sources and Sample Selection

We construct a unique database using four different data sources. Loan origination data is collected from Loan Pricing Corporation's (LPC) *DealScan* database for the time period January 1999 through December 2004. *DealScan* provides loan contract terms and the identity of the borrower and lenders for syndicated loans and some sole-lender loans, mainly covering medium to large sized borrowers. We use syndicated and sole-lender loans to U.S. non-financial borrowers (companies that do not have a one-digit SIC code of six). After removing loans that lack the identity of lead lender(s), loan maturity and loan size, the sample consists of 24,823 loans.

We identify loans that are sold using the Loan Syndications and Trading Association (LSTA) Mark-to-Market Pricing database, a dataset of daily secondary market loan quotations gathered by third-party providers (LPC and LSTA) from relationships with over thirty leading dealers / traders.[12] The service covers approximately 80% of the U.S. secondary loan market trading volume. There are 7,372 unique facilities that trade between May 1998 and September

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[12] The price information from this relatively unexplored database has been used to examine the informational efficiency of loans versus bonds and stocks (Altman *et al.* 2004; Allen & Gottesman 2005), as well as the effect of information asymmetry on debt contracting (Moerman 2005). Our focus differs substantially from these papers.

2005.[13] We link the mark-to-market pricing database to *DealScan* using one of two common fields: (i) the facility ID; and / or (ii) the Loan Identification Number (LIN). Matching yields 3,182 sold facilities among the 24,823 *DealScan* loans.[14]

We gather firm financial characteristics from Compustat Industrial Quarterly and equity market data from CRSP. Since LPC does not provide a reliable identifier that can be used to merge the loan data with other sources, we hand match the borrowers in LPC to Compustat and CRSP by using the borrower name. After merging the databases and constructing a number of borrower, loan, and lender variables, there remain 10,334 loan facilities, of which 1,243 are sold in the secondary loan market.[15] Appendix A provides detailed descriptions of all variables that are used in the empirical tests.

In the next section, we will examine the relationship between loan sales and financial covenants. However, it is clear that covenants are not recorded for a portion of loan facilities in *DealScan*. According to LSTA estimates for the time period 2003 through 2004 provided by Coffey (2005), approximately 95% of loans to BBB-rated borrowers and 80% of A-rated loans in the general population have financial covenants. In contrast, among loans in *DealScan* that were originated during 2003 and 2004, only 56% of loans to BBB-rated borrowers and a mere 31% of loans involving A-rated borrowers contained financial covenants. In order to reconcile these differences, we keep only those loans where *DealScan* reports the existence of at least one general or financial covenant.[16] While we likely lose some loans that actually do not have covenants, after removing these loans, the incidence of financial covenants is consistent with Coffey (2005); 95% of BBB-rated loans and 87% of A-rated loans have financial covenants. Only 5% of loans that are dropped are traded in the secondary market. The final sample ("full sample") includes 7,261 loan facilities, of which 1,075 are sold in the secondary loan market.

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[13] Coverage of the secondary loan market prior to 1999 is relatively incomplete, which is why we restrict the *DealScan* sample to loans that are originated after January 1999.

[14] Loans from the LSTA mark-to-market database are not in the *DealScan* sample for the following reasons: loan was originated before January 1999 (1,118); loan was originated after 2004 (690); borrower is foreign, a financial company, or does not have an SIC code (777); loan is missing information on lead banks, loan maturity, and / or loan size (131); loan does not have a facility ID or LIN (1,474). LPC claims that loans that do not have facility IDs or LINs were traded before 1999.

[15] Variables constructed using Compustat / CRSP data are truncated at the first and ninety-ninth percentile (except debt-to-assets, which is truncated only at the ninety-ninth percentile). All results are robust to winsorizing instead of truncating these variables.

[16] The most common general covenants in *DealScan* are "sweeps," which ensure that proceeds from asset sales, debt issuance, equity issuance, and/or excess cash are applied toward the reduction of debt.

From the sample of 7,261 loan facilities, we construct two subsamples where we can measure the restrictiveness of covenants. The first subset includes loans where the borrower must maintain a minimum level of net worth or tangible net worth ("net worth sample"), and the second subset contains loans where the borrower must maintain a minimum current ratio ("current ratio sample"). We examine these covenants for two major reasons. First, prior research indicates that these covenants are the ones most commonly associated with technical default (Beneish & Press 1993; Chen & Wei 1993; Sweeney 1994). Second, a firm's net worth and current ratio are standardized and explicit, which allows for accurate measurement of their values using Compustat. In contrast, as Dichev & Skinner (2002) point out, there is great ambiguity concerning the measurement of other covenants listed in *DealScan*. For example, covenants that restrict the firm to a maximum debt-to-EBITDA ratio or maximum debt-to-equity ratio may have different definitions of debt or equity. Similar problems occur when attempting to construct other financial ratios. In sum, these subsamples contain loans with covenants that are economically important and whose impact can be studied accurately. The net worth sample includes 2,470 facilities that are not sold and 204 loans that are sold, and the current ratio sample contains 561 loan facilities, of which 17 are loan sales.

## 3.2    Descriptive Statistics

Table 1 provides summary statistics for the three samples used in this study. The three samples are similar across many dimensions, with borrowers having similar levels of profitability and leverage, most lending facilities being credit lines as opposed to term loans, and the loan purpose being for general corporate use, recapitalization, or debt repayment. It is the case, however, that borrowers in the net worth sample and current ratio sample are smaller, as measured by asset size, less likely to be rated by Standard & Poor's, and closer to financial distress, as they have lower distance-to-default.[17] Further, loans in the net worth and current ratio samples are, on average, from lenders with lower market shares, a commonly used proxy for reputation (see e.g. Megginson & Weiss 1991; Gande *et al.* 1997; Lee & Mullineaux 2004; Sufi 2005). Overall, these loans may be more information problematic than in the full sample,

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[17] Distance-to-default uses market-based data to measure the number of standard deviations a borrower is away from default. It is the difference between an estimate of the firm's market value of assets and the firm's debt, divided by a scaled estimate of the firm's asset volatility. One can substitute this "z-score" into a cumulative density function to calculate the probability of default. See Appendix A for more details.

suggesting that the net worth and current ratio samples provide a solid testing ground to examine agency problems in loan selling.

Table 2 provides univariate comparisons of borrower, loan, and lender characteristics across loans that are sold and loans that are not sold. A comparison of borrower characteristics suggests that there is more public information available on borrowers who have their loans sold, which is consistent with information asymmetry limiting loan selling. In particular, borrowers on loans that are sold are significantly larger, with total assets of $3.9 billion on average versus $2.3 billion on average for borrowers on loans that are not sold. Further, 88% of sold loans versus 39% of loans that are held by the original banks involve borrowers that have a credit rating, a significant difference at the 1% level.

Other comparisons suggest that loans are sold when post-origination monitoring is not as likely to be important. For example, sold loans are more likely to be term loans as opposed to credit lines, with term loans composing 64% of the loan sales sample as opposed to only 24% of the sample of loans that are not sold, a significant difference (T-ratio = 26.86). More monitoring may be needed in a credit line to ensure its value because the bank offers to lend funds to the firm in the future at pre-specified terms, which increases a borrower's incentive to access the credit line when it is performing poorly (see e.g. Avery & Berger 1991; Berger & Udell 1995).

The univariate comparisons also indicate that loan selling is positively related to the lead lender's market share. Among loan sales, the lead bank market share averages 15% as opposed to 9% in loans that are not sold, a significant difference. This result is consistent with Gorton & Haubrich (1987) and Pichler & Wilhelm (2001), who view the reputation of the lead bank as a mechanism to resolve agency problems in loan selling. It also is similar to findings from studies that examine the likelihood of loan syndication (see e.g. Dennis & Mullineaux 2000).

Additional analysis of borrower characteristics shows that in contrast to the public debt market, which is dominated by investment-grade issuance, sold loans tend to be "leveraged loans," with borrowers having significantly higher leverage and lower distance-to-default. This finding is consistent with lenders using the loan sales market to manage credit risk. It also highlights that borrowers who have their loans sold rely heavily on debt capital.

Overall, the descriptive statistics are consistent with loan selling being naturally limited by information asymmetry. Borrowers whose loans are sold are more informationally

transparent, the loan contracts that are sold, on average, require less post-origination monitoring, and lead banks with higher reputations sell loans. In addition, the analysis reveals that borrowers whose loans are sold use more debt in their capital structure than borrowers whose loans are not sold.

# 4    Loan Sales and Loan Contracting

The discussion in Section 2 suggests that financial covenants may be used to mitigate agency problems between loan buyers and sellers. While the descriptive statistics highlight that agency problems may prevent all loans from being sold, restrictive covenant packages may reduce agency problems and increase the likelihood of selling loans. In this section, we examine differences in the use of covenants between loans that are sold in the secondary market and loans that are held by the original banks in order to uncover whether there is evidence that supports this view. We also examine alternative explanations for the use of covenants in sold loans.

Table 2 provides univariate comparisons of financial covenants across loans that are sold and loans that are not sold. Consistent with financial covenants being used to reduce agency problems in loan selling, the results show that sold loans have significantly more financial covenants and more restrictive covenants than loans that are not sold. On average, sold loans have 3.4 covenants as opposed to only 2.7 covenants for loans that are not sold (Z-ratio = 15.62). For loans with (tangible) net worth covenants, the covenant slack, or difference between the actual (tangible) net worth and the minimum level allowed in the loan contract, for sold loans averages 7% of book assets. For loans that are not sold, the covenant slack is set twice as wide at 14% of book assets (Z-Ratio = 9.53). For loans with current ratio covenants, sold loans have average slack of 0.47 while loans that are not sold have average slack of 0.73, a significant difference at the 5% level.[18]

The interpretation that covenants are used to resolve agency problems between buyers and sellers critically depends on lenders structuring loans at origination to facilitate sale to other parties in the secondary market. There are a number of facts supporting that this actually occurs.

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[18] Similar to Chava & Roberts (2005), approximately 7% of loans in the net worth slack sample and 16% of loans in the current ratio sample have negative slack, which would indicate that the borrower is in violation of the covenant at the inception of the loan. This is likely due to measurement error. All results are robust to removing these loans from the samples.

First, Table 3, Panel A shows that over 60 percent of the loans are sold within one month after the date of origination and nearly 90 percent of loans are sold within one year after origination.[19] Therefore, it is highly likely that lenders were anticipating selling these loans in the secondary market when writing the loan contract.[20] Second, as shown in Table 2, almost all loans that are sold in the secondary market are syndicated in the primary market, which is another venue for loan selling. Third, approximately one-third of term loans that are sold are institutional term loans (also known as Term Loan B or C). In these loans, many of the participants at syndication are nonbank institutions who both value liquidity and are major buyers of loans in the secondary market. These institutions would likely want to own a tradable contract.

There is another possible explanation that would refute the view that loans are structured at origination to facilitate sale. Namely, it could be that borrowers on loans that are sold experience a sharp decline in credit quality and that the only loans that can be sold at reasonable prices are those with restrictive covenants. The results in Table 3, Panel B do indeed show that loans are sold at close to par value, as the mean (median) loan is sold at 97.86 (99.78) percent of par and that only 3% of sold loans are distressed.[21] However, Table 3, Panel C shows that sold loans have not declined in credit quality, on average. Among loans where the borrower has a public debt rating at origination, 93.50% have the same rating at the first sale date and only 5.75% experience a credit downgrade. Further, between origination and sale, the mean (median) change in distance-to-default is 0.07 (0.00), an insignificant difference. Taken together, the evidence supports the view that loans are structured *ex ante* to facilitate sale *ex post*.

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[19] There are some loans whose first trade date occurs *before* the origination date. In most of these instances, the first trade date is less than one week before the origination date, suggesting that dates might be reported slightly differently in the LPC *DealScan* database and the LSTA mark-to-market pricing database. However, there are 115 loans whose first sale is more than two weeks before origination. In most cases, we conclude that these loans are renegotiated loans. In these instances, it is likely that the renegotiated loan's identifier overrode the original loan identifier in the LSTA mark-to-market pricing database. These 115 loans are excluded from the analysis in Table 3, Panel A. All results are robust to removing the 115 loans completely.

[20] All results are robust to restricting the sample of loans to those that are sold within one year after origination, as these loans are most likely to have been structured in anticipation of sale.

[21] The price is the midpoint of the mean bid price and mean ask price. Twenty-eight loans do not have an ask price and are excluded from the analysis in Table 3, Panel B. The mean bid price on these 28 loans range from 96.5 to 100.125. Distressed loans are quoted at 80% or below par value. All results are robust to removing distressed loans.

## 4.1    Multivariate Model of Loan Selling

The initial evidence suggests that loans that are sold have more covenants and tighter covenants, on average. In order to determine whether these findings withstand a multivariate specification, we estimate a logit model of the probability of selling loans. The dependent variable indicates that the loan is sold in the secondary market. There are two key independent variables. The first variable captures the number of financial covenants. Based on the univariate results, it is expected that the number of financial covenants will be positively related to loan selling. The second variable measures covenant slack, and it is expected that loans with less slack will be more likely to be sold.

The models also include a number of borrower, loan contract, and lender characteristics that are anticipated to be important determinants of loan selling. Borrower characteristics include the logarithm of book assets, net income-to-asset ratio, debt-to-asset ratio, distance-to-default, an indicator for borrowers that are rated, and industry fixed effects. Based on the results in Table 2 and analysis in Section 3, we expect the probability of loan selling to be higher for more transparent borrowers (higher logarithm of book assets, borrowers with a credit rating) and for riskier borrowers (higher leverage, lower distance-to-default, and lower net income-to-asset ratio). Loan characteristics include the logarithm of the loan size, the logarithm of the loan maturity, an indicator for loans that are syndicated, fixed effects for loan type, and fixed effects for loan purpose. We expect loan selling to be positively related to the size and maturity of the loan, loan syndication, and term loans. We also include the lender's market share, which is expected to increase the likelihood of loan selling, and year fixed effects.

We use three model specifications. First, in order to examine the effect of the number of covenants on loan selling for the full sample of loans, we exclude the covenant slack variables, which are only defined for the net worth and current ratio samples. Second, we focus on the effect of net worth covenant slack by excluding the number of financial covenants from the model. The third model includes both the number of financial covenants and net worth slack and is estimated using the net worth sample. Note that the current ratio sample includes only seventeen loan sales, causing multivariate analysis to be infeasible.

In addition, Table 2 shows that almost all loans that are sold in the secondary market are syndicated in the primary market. To ensure that our results are not being driven by including

sole-lender loans in the control sample, we re-run the models using only syndicated loans. All models are estimated with clustered standard errors because observations for the loan deal may be correlated.[22]

### 4.1.1 Results

Results of the logit models are displayed in Table 4. Columns (1) through (3) display the results of the models using syndicated and sole-lender loans while in columns (4) through (6), only syndicated loans are included in the estimations. Despite using different samples and specifications, the control variables have the expected signs and are generally highly statistically significant.

There are three important findings related to the impact of covenants on loan selling. First, consistent with the univariate results, loans that contain more covenants are significantly more likely to be sold. The estimation in the first column shows that for the full sample of loans, an increase in the number of covenants by one standard deviation around the mean (from 2.1 to 3.5 covenants) increases the probability of selling loans by 12.41%, which is significant at the 1% level (T-ratio = 7.05). This result is not sample specific, as there are similar statistical and economic effects of including more covenants on loan selling when using the restricted sample of loans that include net worth covenants (column (3)) and when limiting the sample to include only syndicated loans (columns (4) and (6)).

The second main result is that loans which contain more restrictive covenants are significantly more likely to be sold. The estimation in the second column indicates that an increase in the slack of the net worth covenant of one standard deviation around the mean (from 6% to 20% of book assets) decreases the probability of selling loans by 11.67%, which is significant at the 1% level (T-ratio = 3.05). The highly significant negative relationship between net worth slack and loan selling remains after including the number of financial covenants as a regressor in the third column and when estimating the model using only syndicated loans in the fifth and sixth column.

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[22] A loan deal is defined as one or more loans to a borrower by the same lender on the same date.

Third, the estimations reveal that the lender's market share is positively related to loan selling, but the result is statistically insignificant in all specification. To the extent that lender's market share proxies for reputation, the results imply that a restrictive covenant package is a more important determinant of loan sales than lender reputation.

In theory, including more covenants and tighter covenants can increase the likelihood a loan buyer can intervene when a borrower performs poorly, which can reduce agency problems in loan selling. The results of the multivariate models are consistent this view of covenants. Across different model specifications and samples of loans, the probability of selling loans is increasing in the number of financial covenants and decreasing in covenant slack. In addition, consistent with the univariate results, we find that loan selling is more likely when borrowers are more informationally transparent, more risky, and when loans are syndicated in the primary market.

### 4.1.2  Primary Market Loan Sales

If covenants reduce agency problems in loan selling, then one should observe more covenants and / or tighter covenants in cases where agency problems are more severe. To explore this possibility, we contrast secondary market loan selling with another venue for loan selling -- the primary market of loan syndications.[23] Like secondary loan sales, loan syndication is prone to adverse selection and moral hazard. However, agency problems are likely to be smaller in loan syndication than in secondary market loan sales. First, when loans are syndicated, the lead bank holds a portion of the loan to preserve its incentive to monitor borrowers. However, when loans are traded in the secondary market, the lead bank can reduce its holdings, diminishing its incentives. Second, in loan syndications, additional mechanisms exist to mitigate agency problems. In addition to lead lenders preserving their incentives to monitor by holding onto a larger portion of information problematic loans (see e.g. Dennis *&* Mullineaux 2000; Jones *et al.* 2005), evidence suggests that they alter syndicate structure and composition to reduce adverse selection and moral hazard problems (Lee & Mullineaux 2004; Sufi 2005). Therefore, if covenants are used to mitigate agency problems, we expect that

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[23] For a detailed description of the syndicated loan market, see Dennis & Mullineaux (2000).

covenants will have less of an influence on the likelihood of primary market loan sales relative to secondary market sales.

We use a logit model to examine the effect of covenants on the probability of loan syndication. The dependent variable is an indicator for loans that are syndicated, and we use the same independent variables from the model of loan selling. We use three specifications: (i) the number of financial covenants along with the control variables; (ii) covenant slack along with the control variables; and (iii) the number of financial covenants, covenant slack, and the control variables. The first specification is estimated using the full sample of loans while the second and third specifications are estimated using the net worth sample and current ratio sample. All models are estimated with standard errors that are clustered at the loan deal.

Results of the estimations are displayed in Table 5. On the control variables, the results show that larger firms and borrowers with higher leverage are more likely to receive syndicated loans. Similar to Dennis & Mullineaux (2000), we find that syndication is positively related to the size and maturity of the loan. Also, lenders with higher market share are more likely to syndicate loans, which is consistent with reputation reducing agency problems in loan syndication.

On loan contracting, as shown in the first, third, and fifth columns, loans with more financial covenants are more likely to be syndicated. The economic and statistical effect of the number of covenants on syndication is similar to its influence on secondary market loan selling, with a one standard deviation increase in the number of financial covenants increasing the probability of syndication by between five and sixteen percent. Importantly, while tighter covenants increase the probability of loan syndication, the statistical and economic significance is lower in syndication as compared to secondary loan sales. Economically, a one standard deviation decrease in net worth slack increases the probability of syndication by less than three percent as opposed to nearly twelve percent in secondary loan sales. Similarly, results in the fourth and fifth column show that tighter current ratio slack is only a marginally statistically significant determinant of loan syndication, at best. These results are consistent with covenants being used to reduce agency problems in loan syndication. However, covenants, and in particular covenant tightness, has a larger effect on facilitating loan selling in the secondary market, where agency problems are likely to be more pronounced.

### 4.1.3  Lender Reputation

In addition to differences between primary market and secondary market sales, agency problems may be larger when the lead bank has a lower reputation.  The lead bank is responsible for information production and monitoring because it directly negotiates the loan agreement and any amendments to the loan in the future.  Formal models by Gorton & Haubrich (1987) and Pichler & Wilhelm (2001) show that in loan selling and loan syndication, fear of reputation loss can limit shirking on these responsibilities.  To examine whether the relationship between covenants and loan selling differs based on lender reputation we extend the loan sales model from Section 4.1.  We create an indicator for lead lenders that are ranked among the top ten lenders and another indicator for lenders that are not in the top-10, based on lending market shares.[24]   We replace the variable for the lender's market share with the indicator for lenders ranked in the top-10, and also interact the two indicators with the number of financial covenants and with net worth slack.  As before, the models are estimated with standard errors that are clustered by loan deal.

Table 6 presents the results of the extended models.[25]  The first two columns of Table 6 display the estimates of models that are similar to those in Table 4, except that the variable capturing the lender's market share is replaced with an indicator for lenders that are ranked in the top-10.  The estimation yields statistically and economically similar results.  In the third and fourth columns, we explore whether there are differences in the influence of covenants on loan selling based on the lender's ranking.  Consistent with our hypothesis, the results in the fourth column show that the influence of including additional covenants on salability is more pronounced when lenders are not ranked in the top-10.  Further, tighter net worth slack has a significantly larger effect on the likelihood of loan selling for low ranked lenders versus high ranked lenders.  Economically, a one-standard deviation decrease in slack increases the probability of sale by thirteen percent for low ranked lenders as opposed to only four percent for highly ranked underwriters.  These results support the view that the inclusion of additional

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[24] Results are robust to different cutoff points for lenders' ranking.
[25] The reported estimations include both syndicated and sole-lender loans.  We re-estimated the models using just syndicated loans and the results are statistically and economically similar.

covenants and the tightness of covenants helps to mitigate agency problems in loan selling when such problems are likely to be extreme.

### 4.1.4   Are Covenants used to Signal Borrower Quality?

The results in the previous sections suggest that more restrictive covenant packages are found in sold loans to mitigate agency problems in loan selling. However, there is an alternative hypothesis. Namely, it could be the case that borrowers "signal" that they are of higher quality by agreeing to more restrictive covenants. This is a valid signal because it is costly for the borrower to agree to more restrictive covenants. Importantly, if the signaling hypothesis holds, we would expect the relationship between restrictive covenants and loan selling to be strongest in samples where signaling will have the most impact. This is the case when borrowers are observed to be low quality, but are actually solid firms based on unobservable information. As such, the signaling hypothesis would suggest that covenants should have a larger effect on loan selling among high risk borrowers.

To examine the signaling hypothesis, we again extend the loan sales model from Section 4.1 to allow for differences across borrower risk. We place loans into terciles based on the borrower's distance-to-default, create indicators, replace the distance-to-default variable with the indicators for low and middle distance-to-default, and interact the three dummy variables with the number of financial covenants and net worth slack.[26]   Again, the models are estimated with standard errors that are clustered by loan deal.

Table 7 provides estimations that explore differences in the effect of covenants on loan selling across borrower risk. In the first two columns, we present results from models that are similar to those in Table 4, except that the variable capturing the borrower's distance-to-default is replaced with two indicator variables that identify borrowers in the lowest and middle tercile of distance-to-default. The estimation yields statistically and economically similar results. The results in the third and fourth columns reveal differences in the effect of covenants on loan

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[26] To help interpret distance-to-default, we note that for borrowers that are rated, distance-to-default and a linear credit rating scale (1=AAA, 2=AA, …) have a correlation of -0.4901. Borrowers in the lowest distance-to-default tercile have an average distance-to-default of 1.1, similar to a B to CCC rating. Middle distance-to-default borrowers average 1.99, similar to a rating of BB. High distance-to-default borrowers average 3.82, similar to a rating of AA to A.

selling across borrower risk, and the findings are inconsistent with the signaling hypothesis. First, including more covenants increases the likelihood of sale across all risk classes, but the effect is larger for borrowers with medium and high distance-to-default (lower risk borrowers). Second, tighter net worth slack has a significantly larger effect on the likelihood of loan selling for middle and low risk borrowers when compared with high risk borrowers. In fact, relative to low distance-to-default (high risk) borrowers, a one standard deviation decrease in net worth slack increases the likelihood of loan selling by nineteen percent for middle distance-to-default borrowers and six percent for high distance-to-default (low risk) firms. The signaling hypothesis would suggest that we would find the exact opposite result, with the relationship between restrictive covenants and loan selling being strongest in the sample of low distance-to-default borrowers.

# 5     Loan Sales, Access to Debt Capital, and Lending Relationships

The previous section shows that sold loans have more covenants and tighter covenants than loans that are not sold. Additional analysis suggests that covenants are used to reduce agency problems in loan selling. While restrictive covenants may help loan selling, it can impose costs on borrowers due to reduced flexibility. Further, loan selling may hamper borrowers who need to renegotiate their loans in the future. Given these potential costs, is there a benefit to borrowers from having their loans sold?

In this section, we explore whether borrowers whose loans are sold benefit from increased access to private debt. This is a potential source of benefits because institutions that generally do not originate loans are major loan buyers, which could increase the availability of private debt. Further, loan selling may allow lenders to better handle credit risks, which can improve relationship lending and access to future loans for borrowers. Increased access to loans would be an additional benefit of loan sales beyond lower loan yield spreads (Guner 2006) and help explain why borrowers experience positive announcement returns when their loans are sold (Gande & Saunders 2005).[27]

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[27] While Gande & Saunders (2005) find positive announcement returns, Dahiya *et al.* (2003) find that borrower's equity has negative abnormal returns around sale announcements of *distressed* loans. The negative abnormal returns are supported by nearly half of the firms filing for bankruptcy within three years of the loan sale announcement

## 5.1    Access to Private Debt

We begin by examining whether loan sales are associated with firms having increased access to private debt in the year of the loan sale.  To explore this possibility, we collect each borrower's level of interest-bearing debt, debt-to-asset ratio, and amount of private debt issued for fiscal years 1999 through 2004.  For borrowers whose loans are sold, we examine these variables in the year of origination of a sold loan as well as the years before and after.  We use this data to study sold borrowers' reliance on debt as compared with borrowers whose loans are not sold.  We assess if there is a noticeable increase in debt levels and private debt issuance during the origination year of the sold loan.  Further, we examine growth in these companies by collecting data on sales and the market-to-book ratios of sold borrowers and comparing with borrowers whose loans are not sold.

The results in Table 8 show that borrowers whose loans are sold are growing firms.  For these borrowers, net sales are increasing over time and are approximately 2.5 times larger than the net sales of firms whose loans are not sold.  Also, market-to-book ratios are comparable to borrowers whose loans are not sold.  To finance their growth, these firms rely heavily on debt financing, and in particular, on private debt.  Leverage ratios are nearly two times larger and levels of interest-bearing debt and private debt issuance are three to four times higher than for borrowers whose loans are not sold.  This dependence on private debt in combination with the fact that these are growing firms suggests that borrowers whose loans are sold may benefit considerably from increases in the supply of debt funding.

Consistent with loan selling improving access to debt, the third row of Table 8 reveals that borrowers' interest-bearing debt levels increase in years leading up to, and rise dramatically in, the origination year of a sold loan.  Importantly, the increase in debt levels is clearly linked with higher private debt issuance.  The fifth row of Table 8 shows that private debt issuance more than doubles from $409 million to $879 million during the origination year of a sold loan.  This difference is largely driven by sold loans, which are nearly two times larger than loans that

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despite the fact that these borrowers were not the worst-performing firms at the time of the sale.  This is consistent with distressed loan sales revealing the bank's negative private information.  In contrast to Dahiya *et al.* (2003), our sample, like Gande & Saunders (2005), has very few distressed loan sales (see Table 3, Panel B).   As noted, all results in this paper are robust to removing distressed loans from the sample.

are not sold, on average.[28]   These results are consistent with increased access to private debt around the time of the loan sale providing an offsetting benefit to the potential costs of restrictive covenants and loan selling.


## 5.2    Future Loans and Lending Relationships

We now examine whether borrowers also benefit from future access to loans by studying whether those firms that have their loans sold are more likely to borrow in the future and whether they are more likely to retain their lending relationships than borrowers who do not have their loans sold.  Table 9, Panel A shows that loan selling is positively related to borrowers' access to future loans.  For the full sample of 7,621 loans, 85 percent of borrowers whose loans are sold as opposed to only 69 percent of borrowers whose loans are not sold receive a subsequent loan, a difference that is significant at the one percent level.[29]   Further analysis reveals that borrowers whose loans are sold are more likely to retain their lending relationships.  As shown in Table 9, Panel B, of borrowers that receive a future loan, 84 percent of borrowers with sold loans versus 76 percent of borrowers whose loans are not sold keep the same lender in the future, a significant difference at the one percent level.   This is compelling evidence that lending relationships survive when loans are traded.  It counters a major concern about the development of the loan sales market – that relationship lending will be replaced by more transactional forms of lending where lenders focus only on loan origination as opposed to servicing, thereby harming borrowers that rely on lending relationships to access external capital.

One explanation for loan selling being associated with increased future relationship-based lending is that loan selling allows banks to manage credit risk, increasing flexibility when lending to their borrowers in the future.  Supporting this view, additional tests in Table 9 show that loan selling is associated with increased access to capital and stronger lending relationships for high risk borrowers (those with low distance-to-default), where lenders may need to actively manage credit risk.  In contrast, no difference in lending relationship durability is found among

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[28] Table 2 shows that the average loan size of sold loans is $329 million versus $181 million for loans that are not sold.

[29] We examine subsequent loans that occur until December 31, 2005, a full year after the sample end date.  This allows borrowers from the latter part of the sample to potentially borrow again.  In robustness tests, we limit subsequent borrowing to three years after the loan origination.  All presented results are robust to this modification.

low risk borrowers.  In further support of loan selling increasing flexibility in lending relationships due to risk management, loan selling has a significantly positive impact on lending relationships when the lead lender is highly ranked.  These banks are the largest sellers of loans and also have more reputational capital at stake should a borrower fail, and therefore may have more incentive to reduce exposure to individual companies.

## 5.3    Nested Logit Models

To determine whether these results withstand a multivariate specification, we use nested logit models where each borrower makes a two-stage decision.[30]   First, the borrower either receives a subsequent loan ("Borrow Again") or does not receive another loan ("Doesn't Borrow Again").  Second, if the borrower receives future loans, then it keeps the same lead lender ("Keep Lender") or exclusively uses other banks as lead lenders ("Doesn't Keep Lender").   We assume the following variables affect the borrowers' ability to receive subsequent loans: the logarithm of book assets, net income-to-asset ratio, debt-to-asset ratio, distance-to-default, an indicator for borrowers that are rated, industry fixed effects, and year fixed effects.  We expect larger and safer firms to have continued access to loans and therefore anticipate a positive relationship between borrowing again and assets, net income-to-assets, the credit rating indicator, and distance-to-default.  Also, firms with higher leverage rely on debt financing, so we expect these firms to be more likely to borrow again.  For variables that affect both the access to future loans and the decision to keep or switch lenders, we include an indicator for the original loan is sold, an indicator for a prior lending relationship between the borrower and original lead lender, and the market share of the lead lender.  Previous evidence suggests that prior lending relationships and lender market share will be positively related to keeping the lead lender (see e.g. Bharath *et al.* 2005).

In addition to estimating this base model, we also estimate a second model in which we allow the effects of loan selling, prior lending relationships, and lender reputation on future lending relationships to vary based on the credit risk of the firm.  A third model allows for differential effects according to the lead lender's market share.  Based on the univariate results,

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[30] See Maddala (1983) for more details.

we expect a previous loan sale will increase the probability that the borrower keeps its lender in the future. We also expect the positive effect of loan selling on relationship continuation to be significant for borrowers with low and medium distance-to-default and when the lender is highly ranked.

### 5.3.1 Results

In Table 10, we present the results of the nested logit models. Across all specifications, the control variables are highly significant and have the anticipated signs. The results in the first column show that loan selling increases the likelihood that the borrower receives a future loan and that the borrower and lender retain a lending relationship, even after controlling for other highly important factors. The effect is significant at the five percent level. This finding highlights that after loan selling, borrowers have increased access to future loans because lending relationships survive and prosper.

Consistent with the view that loan selling allows lenders to have more flexible lending relationships due to credit risk management, the results in the second column of Table 10 confirm that among higher risk borrowers (those with low distance-to-default), loan selling significantly increases the probability of receiving a future loan and keeping the lending relationship. The effect is significantly different than zero at the one percent level and significantly different than the influence of loan selling on lending relationships for low risk borrowers at the seven percent level. Economically, for high risk borrowers, the probability of maintaining the lending relationship conditional on borrowing in the future is seven percent higher for borrowers whose loans are sold. Also, the findings in the third column of Table 10 show that loan selling increases future lending and relationship durability when the lead lender is highly ranked, which is when the lender has more reputational capital at risk. When the lender is ranked in the top-10, the probability of keeping the lending relationship conditional on future borrowing is five percent higher when a borrower's loans are sold. In contrast, loan selling does not influence lending relationships when lenders are lowly ranked, but the difference is not statistically significant.

Overall, the results in this section indicate that loan selling has beneficial effects on borrowers' access to future loans and on the durability of their lending relationships. The

analysis shows that borrowers whose loans are sold are more likely to get future loans from their prior lenders. Importantly, lending relationships involving high risk borrowers or high reputation banks are more durable when loans are sold, consistent with loan selling allowing banks to manage credit risk in order to have more flexible lending relationships with their higher risk borrowers. The results in this section help alleviate concerns that loan selling destroys relationship lending. In fact, lending relationships are improved for the most risky borrowers, which are firms that are likely to benefit greatly from relationship lending because of the relationship lender's long-run view of company prospects and ability to reduce the costs of financial distress (Hoshi *et al.* 1990, 1991; Harhoff & Korting 1998).

# 6    Conclusion

The secondary loan sales market has grown in size and importance and now represents a major channel for lenders to manage credit risk and diversify their portfolios. However, since loan selling separates loan origination, servicing, and funding, agency problems arise. Further, the separation of the lending functions can fundamentally alter the relationship between the borrower and lender. This paper examines how lenders overcome agency problems when selling loans as well as the benefits and costs to corporate borrowers of having their loans sold.

We argue that covenants can help mitigate agency problems and facilitate loan selling by giving the buyer the means to monitor a borrower's financial condition and the right to intervene should a borrower perform poorly. Consistent with this view, we find that the sold loans include additional financial covenants and these covenants are more restrictive than in loans that are not sold. Importantly, the use of additional, tighter covenants has a larger effect on salability when agency problems in loan selling are more pronounced: (i) secondary market sales versus primary market sales; and (ii) loans originated by low reputation lenders versus high reputation lenders. We explore an alternative hypothesis that sold loans have more restrictive covenant packages because covenants allow observably poor quality borrowers to "signal" to loan buyers that they are actually good firms based on unobservable information. We do not find empirical support for the signaling hypothesis.

Beyond contracting, a second way to reduce agency problems in loan selling is based on the lender's reputation. Consistent with this, our findings indicate that the likelihood of selling loans is weakly increasing in the lead lender's market share. However, a more restrictive covenant package is significantly more important than the lender's reputation in facilitating secondary market loan selling.

Critical to the argument that covenants are used to reduce agency problems in selling loans in the secondary market is that lenders structure loans at origination in anticipation of selling the loans. Consistent with this, we reveal that over sixty percent of loans are sold within one month of loan origination and nearly ninety percent are sold within one year. Further, almost all of the sold loans are syndicated in the primary market and many participating buyers at origination are institutional investors who are anecdotally known to be active loan traders and would likely desire to hold a tradable loan. In addition, lenders are not simply selling loans that have performed poorly. The analysis reveals that loans are sold at close to par value and the credit quality of sold borrowers does not change, on average, between origination and sale.

Turning to the effect of loan sales on borrowers, while it may be costly for borrowers to have their loans sold, we find that an offsetting benefit is borrowers have increased access to private debt capital, both in the present and in the future. We argue that this is a natural benefit to result from loan selling because loan buyers tend to be outside the banking system and can provide additional funding. In addition, we find strong evidence that the increase in future lending arises from more durable lending relationships. Interestingly, the positive effects of loan sales on lending relationships are strongest for risky borrowers and when lenders are highly reputable. These results suggest that lenders use the loan sales market to reduce credit risk, improving fund availability and increasing flexibility in lending relationships. The analysis reduces concerns that loan selling destroys lending relationships. In fact, lending relationships and access to capital improves for those firms that are most likely to benefit from relationship lending – the riskiest borrowers.

Finally, we document some potential limitations to loan selling. In particular, we show that loans are more likely to be sold when borrowers are larger and also that a credit rating exists for nearly ninety percent of borrowers whose loans are sold. This suggests that lenders hold onto loans for smaller, more informationally opaque borrowers. This raises some important

questions.  As information technology improves, will lenders eventually be able to sell all loans? If so, will they continue to maintain lending relationships or will they simply act in a transactional capacity?  Will today's loan buyers eventually replace commercial banks as loan originators?  It will be important to follow this growing market into the future to assess these effects.

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# Appendix A: Variable Construction

| Variable | Description |
| --- | --- |
| Loan is Sold | Indicator that equals one if loan is in the LSTA mark-to-market database |
| # of Financial Covenants | Total Number of Financial Covenants in *DealScan*. |
| Net Worth Slack | For loans in the "net worth sample": $$= \frac{(Tangible)\ Net\ Worth - Covenant\ Min\ Level}{Book\ Assets}$$ <br>• *Net Worth* = Total Assets minus Total Liabilities (Compustat Quarterly #44 - #54) <br>• *Tangible Net Worth* = Current Assets plus Net PP&E plus Other Assets minus Total Liabilities (Compustat Quarterly #40 + #42 + #43 - #54). <br>• *Book Assets* is Compustat Quarterly #44 <br>• *Covenant Min Level* is specified in *DealScan* |
| Current Ratio Slack | For loans in the "current ratio sample": $$= Current\ Ratio - Covenant\ Min\ Level$$ <br>• *Current ratio* = Current Assets divided by current liabilities (Compustat Quarterly #40 / #49) <br>• *Covenant Min Level* is specified in *DealScan* |
| Assets | Book Assets in Quarter of the loan (Compustat Quarterly #44), in January 1999 dollars. |
| Net Income-to-Assets | Net Income / Book Assets in Quarter of the loan (Compustat Quarterly #8 / #44). |
| Debt-to-Assets | Interest-Bearing Debt / Book Assets in Quarter of the loan (Compustat Quarterly [#45 + #51] / #44). |
| Distance-to-Default | A market-based measure of default risk. We use an approximation based on Crosbie (1999). $$= \frac{Assets_{MV} - Debt}{Assets_{MV} * \sigma_{Assets}}$$ <br>• Debt is the debt in current liabilities plus one-half long term debt (Compustat Quarterly #45 + ½ * #51) <br>• $Assets_{MV}$ is the market value of assets and $\sigma_{Assets}$ is the one-year asset volatility <br>• Asset market value and volatility are unobservable, but are approximated using equity market value, equity volatility, and solving (Merton 1974)'s model of pricing a firm's debt and equity. |
| Has Credit Rating | Indicator that equals one if the loan has a Standard & Poor's long term debt rating |
| Loan Size | Notional size of Loan in January 1999 dollars |
| Loan Maturity | Maturity of Loan (in months) |
| Loan is Syndicated | Indicator that equals one if the loan has more than one lender |

| | |
|---|---|
| Lender Market Share | Lead lender market share of *DealScan* loans in year prior to loan. We add the notional value of all loans in *DealScan* in which the bank was a lead lender and divide this total by the notional value of all loans during the year. If a merger between lenders occurs during the year, we use the combined market share. If there is more than one lead lender, we use the maximum value. |
| Lender in top-10 | Indicator equals one if the lender is among the ten highest market shares. We rank the lenders on a yearly basis, based on the lender market share in the previous year. If there is more than one lead lender, classification is based on the maximum lender market share. |
| Prior Lending Relationship | Indicator that equals one if the lead lender has provided a previous loan to the borrower. In lender mergers, we assume that the acquirer assumes the target's lending relationships. |
| Loan Type Fixed Effects | Three Indicators<br>    Credit Line: Revolver/Line of Credit, 364-day Facility, or Limited Line<br>    Term Loan: Term Loan (Regular; A through H), Delay Draw Term Loan, Revolver/Term Loan<br>    Other Loan Type: All other types of lending facilities |
| Loan Purpose Fixed Effects | Six Indicators<br>    Acquisition: Acquisition or takeover<br>    General: General corporate purposes, capital expenditure, or working capital<br>    Other: Debtor-in-Possession, CP Backup, Credit Enhancement or ESOP<br>    Recapitalization: Recapitalization or Debt Repayment<br>    LBO: LBO/MBO<br>    Miscellaneous: Project Finance, Trade Finance, Equipment Purchase, Stock Buyback, IPO Related Financing, Exit Financing , Spinoff, Real Estate, Telecom Buildout |
| Industry Fixed Effects | Indicator variables that correspond to the one-digit SIC code of the borrower |
| Year Fixed Effects | Indicator variables for the year of loan origination |

**Table 1**
**Loan Sample Summary Statistics**

This table provides means/medians (or percentages) for the sample of loan facilities.  The time period is January 1999 through December 2004.   "Net Worth Sample" includes loans that have a minimum net worth or tangible net worth covenant.  "Current Ratio Sample" includes loans that have a minimum current ratio covenant.  Appendix A contains full descriptions for each variable.

| Variable | Full Sample<br>Mean / Median<br>or Percentage | Net Worth Sample<br>Mean / Median<br>or Percentage | Current Ratio Sample<br>Mean / Median<br>or Percentage |
|---|---|---|---|
| Loan is Sold (0,1) | 0.148 | 0.076 | 0.030 |
| # of Financial Covenants | 2.813 / 3.000 | 3.386 / 3.000 | 3.804 / 4.000 |
| Net Worth Slack | | 0.132 / 0.101 | |
| Current Ratio Slack | | | 0.727 / 0.404 |
| ***Borrower Characteristics*** | | | |
| Assets | 2587.080 / 547.622 | 1534.996 / 282.691 | 609.186 / 163.809 |
| Net Income-to-Assets | 0.002 / 0.007 | 0.003 / 0.007 | 0.005 / 0.009 |
| Debt-to-Assets | 0.324 / 0.308 | 0.280 / 0.263 | 0.285 / 0.238 |
| Distance-to-Default | 2.304 / 1.929 | 2.110 / 1.844 | 1.988 / 1.736 |
| Has Credit Rating (0,1) | 0.460 | 0.310 | 0.153 |
| ***Loan Characteristics*** | | | |
| Loan Size ($ mil) | 202.827 / 85.925 | 133.626 / 45.764 | 77.021 / 22.73 |
| Loan Maturity (months) | 40.616 / 36.033 | 37.587 / 36.033 | 36.794 / 36.000 |
| Loan is Syndicated (0,1) | 0.737 | 0.643 | 0.476 |
| Lender Market Share | 0.100 / 0.034 | 0.083 / 0.024 | 0.053 / 0.005 |
| ***Loan Type*** | | | |
| Credit Line (0,1) | 0.668 | 0.712 | 0.679 |
| Term Loan (0,1) | 0.295 | 0.263 | 0.285 |
| Other Loan Type (0,1) | 0.037 | 0.026 | 0.036 |
| ***Loan Purpose*** | | | |
| Acquisition Purpose (0,1) | 0.164 | 0.140 | 0.171 |
| General Purpose (0,1) | 0.463 | 0.509 | 0.513 |
| Other Purpose (0,1) | 0.097 | 0.052 | 0.016 |
| Recapitalization Purpose (0,1) | 0.210 | 0.252 | 0.251 |
| LBO Purpose (0,1) | 0.020 | 0.001 | 0.000 |
| Miscellaneous Purpose (0,1) | 0.047 | 0.046 | 0.048 |
| Number of Loans | 7261 | 2674 | 561 |

## Table 2
## Univariate Analysis: Sold Loans vs. Not Sold Loans

This table tests for differences in means or percentages between loans that are sold and loans that are not sold.   \*\*\*, \*\*, \* indicates significantly different than zero at the 1%, 5%, and 10% level, respectively.  Appendix A contains full descriptions for each variable.

| Variable | Loan Sale Mean / Percentage | No Loan Sale Mean / Percentage | Difference | T-Ratio or Z-Ratio |
|---|---|---|---|---|
| # of Financial Covenants | 3.41 | 2.71 | 0.70 | 15.62*** |
| Net Worth Slack [+] | 0.07 | 0.14 | -0.07 | -9.53*** |
| Current Ratio Slack [++] | 0.47 | 0.73 | -0.26 | -1.97** |
| ***Borrower Characteristics*** | | | | |
| Assets | 3981.39 | 2344.78 | 1636.61 | 8.16*** |
| Net Income-to-Assets | -0.002 | 0.003 | -0.005 | -5.86*** |
| Debt-to-Assets | 0.47 | 0.30 | 0.17 | 20.08*** |
| Distance-to-Default | 2.13 | 2.33 | -0.20 | -4.820*** |
| Has Credit Rating (0,1) | 0.88 | 0.39 | 0.49 | 29.82*** |
| ***Loan Characteristics*** | | | | |
| Loan Size ($ mil) | 329.13 | 180.88 | 148.25 | 11.77*** |
| Loan Maturity (months) | 62.21 | 36.86 | 25.35 | 34.74*** |
| Loan is Syndicated (0,1) | 0.99 | 0.69 | 0.29 | 20.09*** |
| Lender Market Share | 0.15 | 0.09 | 0.05 | 14.51*** |
| ***Loan Type*** | | | | |
| Credit Line (0,1) | 0.34 | 0.73 | -0.39 | -24.90*** |
| Term Loan (0,1) | 0.64 | 0.24 | 0.40 | 26.86*** |
| Other Loan Type (0,1) | 0.02 | 0.04 | -0.02 | -2.77*** |
| ***Loan Purpose*** | | | | |
| Acquisition Purpose (0,1) | 0.27 | 0.15 | 0.12 | 9.98*** |
| General Purpose (0,1) | 0.36 | 0.48 | -0.12 | -7.09*** |
| Other Purpose (0,1) | 0.04 | 0.11 | -0.06 | -6.58*** |
| Recapitalization Purpose (0,1) | 0.22 | 0.21 | 0.01 | 0.87 |
| LBO Purpose (0,1) | 0.05 | 0.01 | 0.03 | 7.15*** |
| Miscellaneous Purpose (0,1) | 0.06 | 0.04 | 0.01 | 2.08** |
| Number of Loans | 6,186 | 1,075 | | |

[+] Using Net Worth Sample: 204 Loan Sale; 2,470 No Loan Sale
[++] Using Current Ratio Covenant Sample: 17 Loan Sale; 544 No Loan Sale

## Table 3
## Sold Loans: Timing, Pricing, and Performance from Origination to Sale

Panel A displays the time between the loan origination date and the first date the loan is quoted for trade. Panel B provides the distribution of prices for sold loans at the first date the loan is quoted for trade. The price is the midpoint of the mean bid price and mean ask price and is quoted as a percentage of par. Panel C displays the performance of loans between the origination date and the first date the loan is quoted for trade. An upgrade (downgrade) [no rating change] occurs if the borrower's Standard & Poor's long term debt rating improves (declines) [does not change] between origination and sale. The Standard & Poor's long term debt rating is computed quarterly and is based on the following scale (from highest quality to lowest): AAA, AA, A, BBB, BB, B, CCC, CC, C, and D. Analysis of rating changes is restricted to loans with a credit rating at the origination date of the loan. Distance-to-default change is distance-to-default at the first date the loan is quoted for trade minus distance-to-default at origination.

**Panel A: Time to First Sale**

| | Number of Loans Sold | Cumulative Percentage |
|---|---|---|
| < 1 month | 593 | 61.77% |
| 1 to 2 months | 52 | 67.19% |
| 2 to 3 months | 35 | 70.83% |
| 4 to 6 months | 80 | 79.17% |
| 7 to 12 months | 82 | 87.71% |
| 1 to 2 years | 75 | 95.52% |
| 2 to 3 years | 23 | 97.92% |
| 3 to 4 years | 15 | 99.48% |
| > 4 years | 5 | 100.00% |

**Panel B: Price at First Sale**

| Distribution Percentile | 1% | 5% | 10% | 25% | 50% | 75% | 90% | 95% | 99% |
|---|---|---|---|---|---|---|---|---|---|
| Price (% of Par) | 58.25 | 87.25 | 95.25 | 98.78 | 99.78 | 100.44 | 101.00 | 101.25 | 101.94 |

| | Mean | Std Dev |
|---|---|---|
| | 97.86 | 7.91 |

**Panel C: Performance of Sold Loans between Origination and Sale**

| *Ratings Changes* | Percentage of Sold Loans |
|---|---|
| No Rating Change | 93.50% |
| Upgrade | 0.75% |
| Downgrade | 5.75% |

| *Distance-to-Default Changes* | |
|---|---|
| Median | 0.00 |
| Mean | 0.068 |
| Standard Deviation | 0.706 |

**Table 4**
**Multivariate Models: Probability of Selling Loans**

This table presents results of logit models. The dependent variable is an indicator variable that is one if the loan is sold and zero if the loan is not sold. The independent variables are described in Appendix A. The Net Worth Sample, which includes loans that have a minimum (tangible) net worth covenant, is used in estimations displayed in columns (2), (3), (5), and (6). Standard errors are clustered at the loan deal-level, and T-ratios are in parentheses. ***, **, * indicates significantly different than zero at the 1%, 5%, and 10% level, respectively.

| | Syndicated and Sole-lender Loans | | | Syndicated Loans Only | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| # of Financial Covenants | 0.351*** | | 0.413*** | 0.337*** | | 0.376*** |
| | (7.05) | | (3.56) | (6.59) | | (3.27) |
| Net Worth Slack | | -3.461*** | -3.071*** | | -3.009** | -2.832** |
| | | (3.05) | (2.59) | | (2.56) | (2.28) |
| Log of Assets | 0.301*** | 0.420*** | 0.524*** | 0.301*** | 0.425*** | 0.516*** |
| | (4.15) | (2.81) | (3.34) | (4.02) | (2.77) | (3.23) |
| Net Income-to-Assets | -10.067*** | -3.938 | -2.045 | -10.542*** | -5.607 | -3.561 |
| | (3.96) | (0.73) | (0.36) | (4.01) | (1.02) | (0.61) |
| Debt-to-Assets | 1.043*** | 0.716*** | 0.748*** | 1.663*** | 1.832** | 1.424* |
| | (3.89) | (3.76) | (3.82) | (5.62) | (2.36) | (1.80) |
| Distance-to-Default | -0.329*** | -0.241** | -0.185 | -0.286*** | -0.198* | -0.161 |
| | (6.26) | (1.98) | (1.47) | (5.57) | (1.65) | (1.29) |
| Has Credit Rating (0,1) | 1.293*** | 1.549*** | 1.456*** | 1.224*** | 1.399*** | 1.364*** |
| | (7.28) | (4.08) | (3.75) | (6.81) | (3.59) | (3.44) |
| Log of Loan Size | 0.541*** | 0.724*** | 0.753*** | 0.531*** | 0.694*** | 0.724*** |
| | (7.62) | (4.43) | (4.48) | (7.19) | (4.28) | (4.38) |
| Log of Loan Maturity | 1.533*** | 1.628*** | 1.564*** | 1.596*** | 1.619*** | 1.556*** |
| | (11.76) | (6.20) | (5.79) | (11.94) | (6.09) | (5.74) |
| Loan is Syndicated (0,1) | 1.765*** | 2.133** | 1.840** | | | |
| | (4.69) | (2.54) | (2.37) | | | |
| Lender Market Share | 0.950 | 0.665 | 1.120 | 0.958 | 0.584 | 0.988 |
| | (1.58) | (0.56) | (0.94) | (1.56) | (0.49) | (0.83) |
| Constant | -27.169*** | -35.267*** | -39.116*** | -26.038*** | -33.073*** | -36.657*** |
| | (16.92) | (10.80) | (10.48) | (16.32) | (9.89) | (9.77) |
| Industry Fixed Effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year Fixed Effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Loan Purpose Fixed Effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Loan Type Fixed Effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Log Likelihood | -1606.88 | -349.55 | -340.97 | -1543.38 | -342.77 | -335.92 |
| Psuedo R-Squared | 0.47 | 0.52 | 0.53 | 0.42 | 0.45 | 0.46 |
| Number of Loans | 7261 | 2674 | 2674 | 5352 | 1720 | 1720 |

**Table 5**
**Multivariate Models: Probability of Loan Syndication**

This table presents results of logit models. The dependent variable is an indicator variable that is one if the loan has more than one lender (syndicated) and zero if the loan has only one lender. The independent variables are described in Appendix A. "Net Worth Sample" includes loans that have a minimum net worth or tangible net worth covenant. "Current Ratio Sample" includes loans that have a minimum current ratio covenant. Standard errors are clustered at the loan deal-level, and T-ratios are in parentheses. ***, **, * indicates significantly different than zero at the 1%, 5%, and 10% level, respectively.

| | Full Sample | Net Worth Sample | | Current Ratio Sample | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| # of Financial Covenants | 0.385*** | | 0.493*** | | 0.523*** |
| | (8.56) | | (6.62) | | (3.23) |
| Net Worth Slack | | -1.072* | -0.788 | | |
| | | (1.77) | (1.27) | | |
| Current Ratio Slack | | | | -0.170 | -0.294* |
| | | | | (1.06) | (1.77) |
| Log of Assets | 0.448*** | 0.469*** | 0.489*** | 0.605*** | 0.613*** |
| | (6.18) | (3.79) | (3.79) | (2.64) | (2.65) |
| Net Income-to-Assets | -0.718 | 5.762* | 2.822 | 1.982 | 1.248 |
| | (0.41) | (1.89) | (0.85) | (0.38) | (0.21) |
| Debt-to-Assets | 0.453** | 0.390** | 0.339** | 0.052 | -0.421 |
| | (2.39) | (2.44) | (2.38) | (0.12) | (0.48) |
| Distance-to-Default | 0.055 | 0.048 | 0.070 | -0.100 | -0.096 |
| | (1.34) | (0.62) | (0.91) | (0.76) | (0.70) |
| Has Credit Rating (0,1) | 0.106 | 0.268 | 0.323 | -0.204 | 0.047 |
| | (0.70) | (0.95) | (1.08) | (0.35) | (0.08) |
| Log of Loan Size | 0.961*** | 1.209*** | 1.239*** | 1.354*** | 1.491*** |
| | (13.94) | (10.32) | (10.05) | (6.97) | (7.35) |
| Log of Loan Maturity | 0.453*** | 0.503*** | 0.414*** | 0.666** | 0.502 |
| | (4.84) | (3.31) | (2.65) | (2.03) | (1.48) |
| Lender Market Share | 5.441*** | 5.832*** | 5.256*** | 7.438*** | 7.468** |
| | (8.61) | (5.43) | (4.84) | (3.00) | (2.50) |
| Constant | -27.215*** | -31.749*** | -33.015*** | -35.814*** | -39.773*** |
| | (20.32) | (14.63) | (14.23) | (7.28) | (7.45) |
| Industry Fixed Effects | Yes | Yes | Yes | Yes | Yes |
| Year Fixed Effects | Yes | Yes | Yes | Yes | Yes |
| Loan Purpose Fixed Effects | Yes | Yes | Yes | Yes | Yes |
| Loan Type Fixed Effects | Yes | Yes | Yes | Yes | Yes |
| Log Likelihood | -2039.76 | -762.00 | -728.36 | -171.70 | -162.16 |
| Psuedo R-Squared | 0.51 | 0.56 | 0.58 | 0.56 | 0.58 |
| Number of Loans | 7261 | 2674 | 2674 | 561 | 561 |

Table 6
**Table 6**
**Multivariate Models: Probability of Selling Loans – Lender Reputation**

This table presents results of logit models. The dependent variable is an indicator variable that is one if the loan is sold and zero if the loan is not sold. The independent variables are described in Appendix A. "Lender (NOT) in Top 10" indicates that the lead bank has (does not have) a loan market share among the highest ten lenders during the year prior to the loan. The net worth covenant sample is used in estimations displayed in columns (2) and (4). Standard errors are clustered at the loan deal-level, and T-ratios are in parentheses. ***, **, * indicates significantly different than zero at the 1%, 5%, and 10% level, respectively.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| # of Financial Covenants | 0.354*** | 0.405*** | | |
| | (7.06) | (3.53) | | |
| Net Worth Slack | | -3.050** | | |
| | | (2.56) | | |
| Lender in Top 10 * # of Financial Covenants | | | 0.394*** | 0.337*** |
| | | | (7.19) | (2.61) |
| Lender NOT in Top 10 * # of Financial Covenants | | | 0.242** | 0.663*** |
| | | | (2.50) | (3.22) |
| Lender in Top 10 * Net Worth Slack | | | | -2.482* |
| | | | | (1.88) |
| Lender NOT in Top 10 * Net Worth Slack | | | | -5.799*** |
| | | | | (2.58) |
| Log of Assets | 0.312*** | 0.541*** | 0.312*** | 0.544*** |
| | (4.40) | (3.50) | (4.47) | (3.53) |
| Net Income-to-Assets | -10.110*** | -2.126 | -9.964*** | -2.222 |
| | (3.98) | (0.37) | (3.95) | (0.39) |
| Debt-to-Assets | 1.046*** | 0.750*** | 1.044*** | 0.740*** |
| | (3.94) | (3.83) | (3.97) | (3.77) |
| Distance-to-Default | -0.325*** | -0.171 | -0.322*** | -0.187 |
| | (6.23) | (1.40) | (6.19) | (1.52) |
| Has Credit Rating (0,1) | 1.282*** | 1.450*** | 1.288*** | 1.420*** |
| | (7.23) | (3.74) | (7.28) | (3.63) |
| Log of Loan Size | 0.541*** | 0.764*** | 0.546*** | 0.758*** |
| | (7.61) | (4.54) | (7.70) | (4.49) |
| Log of Loan Maturity | 1.538*** | 1.576*** | 1.537*** | 1.587*** |
| | (11.85) | (5.76) | (11.82) | (5.84) |
| Loan is Syndicated (0,1) | 1.718*** | 1.864** | 1.780*** | 1.620** |
| | (4.53) | (2.34) | (4.49) | (2.15) |
| Lender in Top 10 (0,1) | 0.302* | 0.098 | -0.233 | 1.220 |
| | (1.83) | (0.30) | (0.58) | (1.08) |
| Constant | -27.520*** | -39.709*** | -27.685*** | -40.324*** |
| | (17.56) | (10.73) | (18.04) | (10.79) |
| Industry Fixed Effects | Yes | Yes | Yes | Yes |
| Year Fixed Effects | Yes | Yes | Yes | Yes |
| Loan Purpose Fixed Effects | Yes | Yes | Yes | Yes |
| Loan Type Fixed Effects | Yes | Yes | Yes | Yes |
| Log Likelihood | -1605.91 | -341.52 | -1603.95 | -339.65 |
| Psuedo R-Squared | 0.47 | 0.53 | 0.47 | 0.53 |
| Number of Loans | 7261 | 2674 | 7261 | 2674 |

This table presents results of logit models. The dependent variable is an indicator variable that is one if the loan is sold and zero if the loan is not sold. The independent variables are described in Appendix A. "High (Mid, Low) Distance-to-Default" indicates that the borrower's distance-to-default is in the highest (middle, lowest) one-third of the sample. The net worth covenant sample is used in estimations displayed in columns (2) and (4). Standard errors are clustered at the loan deal-level, and T-ratios are in parentheses. ***, **, * indicates significantly different than zero at the 1%, 5%, and 10% level, respectively.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| # of Financial Covenants | 0.359*** | 0.418*** | | |
| | (7.19) | (3.61) | | |
| Net Worth Slack | | -3.060*** | | |
| | | (2.62) | | |
| High Distance-to-Default * # of Financial Covenants | | | 0.716*** | 0.620*** |
| | | | (8.69) | (3.88) |
| Mid Distance-to-Default * # of Financial Covenants | | | 0.306*** | 0.417** |
| | | | (4.01) | (2.24) |
| Low Distance-to-Default * # of Financial Covenants | | | 0.195*** | 0.314* |
| | | | (2.71) | (1.90) |
| High Distance-to-Default * Net Worth Slack | | | | -2.585 |
| | | | | (1.14) |
| Mid Distance-to-Default * Net Worth Slack | | | | -8.535*** |
| | | | | (4.51) |
| Low Distance-to-Default * Net Worth Slack | | | | 0.780 |
| | | | | (0.45) |
| Log of Assets | 0.300*** | 0.527*** | 0.329*** | 0.514*** |
| | (4.15) | (3.38) | (4.55) | (3.24) |
| Net Income-to-Assets | -11.544*** | -1.572 | -10.329*** | -2.627 |
| | (4.56) | (0.27) | (4.08) | (0.46) |
| Debt-to-Assets | 1.040*** | 0.760*** | 1.047*** | 0.751*** |
| | (3.77) | (3.83) | (3.94) | (3.84) |
| Low Distance-to-Default (0,1) | 0.745*** | 0.548 | 2.376*** | 1.398 |
| | (4.55) | (1.47) | (6.63) | (1.49) |
| Mid Distance-to-Default (0,1) | 0.469*** | 0.173 | 1.687*** | 1.325 |
| | (3.02) | (0.55) | (4.98) | (1.45) |
| Has Credit Rating (0,1) | 1.297*** | 1.443*** | 1.281*** | 1.435*** |
| | (7.23) | (3.75) | (7.22) | (3.74) |
| Log of Loan Size | 0.534*** | 0.752*** | 0.533*** | 0.809*** |
| | (7.50) | (4.48) | (7.41) | (4.76) |
| Log of Loan Maturity | 1.508*** | 1.573*** | 1.504*** | 1.561*** |
| | (11.61) | (5.71) | (11.33) | (5.82) |
| Loan is Syndicated (0,1) | 1.775*** | 1.872** | 1.785*** | 1.742** |
| | (4.76) | (2.43) | (4.90) | (2.39) |
| Lender Market Share | 0.795 | 1.101 | 0.845 | 1.172 |
| | (1.33) | (0.92) | (1.41) | (0.98) |
| Constant | -28.497*** | -39.642*** | -29.833*** | -41.102*** |
| | (17.99) | (10.40) | (18.06) | (10.64) |
| Industry Fixed Effects | Yes | Yes | Yes | Yes |
| Year Fixed Effects | Yes | Yes | Yes | Yes |
| Loan Purpose Fixed Effects | Yes | Yes | Yes | Yes |
| Loan Type Fixed Effects | Yes | Yes | Yes | Yes |
| Log Likelihood | -1619.82 | -340.48 | -1599.46 | -333.26 |
| Psuedo R-Squared | 0.47 | 0.53 | 0.47 | 0.54 |
| Number of Loans | 7261 | 2674 | 7261 | 2674 |

**Table 8**
**Loan Sales and Debt Capital**

This table provides means of financial characteristics for the sample of borrowers. The unit of observation is the borrower-fiscal year. Data is collected for each borrower at each fiscal year end between 1999 through 2004. "Borrower Has Loan Sold" provides averages for borrowers that have loans sold at any time during the sample period. "No Loan Sale" provides averages for borrowers that do not have their loans sold during the sample period. "Year of Sold Loan" is the fiscal year when the borrower's sold loan is initially originated. Compustat Variables: Net Sales is revenue; Market-to-Book is the market value of equity divided by the book value of equity; Interest-Bearing Debt is long-term debt plus debt in current liabilities; Debt-to-Assets is interest-bearing debt divided by book assets. Private Debt Issuance is total amount of loans in *DealScan* during fiscal year. Below 1st and 99th percentile are removed for Sales and Market-to-Book. Above 99th percentile are removed for Interest-Bearing Debt, Debt-to-Assets, and Private Debt Issuance. Net Sales, Interest-Bearing Debt, and Private Debt Issuance are expressed in January 1999 dollars.

| | Borrower Has Loan Sold | | | | No Loan Sale |
|---|---|---|---|---|---|
| | 2 Years Before Sold Loan | 1 Year Before Sold Loan | Year of Sold Loan | 1 Year After Sold Loan | All Years |
| Net Sales ($ mil) | 2324.09 | 2460.26 | 2623.52 | 2714.13 | 1094.01 |
| Market-to-Book | 2.41 | 2.41 | 2.47 | 2.16 | 2.36 |
| Interest-Bearing Debt ($ mil) | 1525.82 | 1610.55 | 1898.47 | 1750.18 | 446.10 |
| Debt-to-Assets | 0.43 | 0.43 | 0.46 | 0.43 | 0.25 |
| Private Debt Issuance ($ mil) | 419.42 | 409.32 | 878.69 | 310.92 | 125.60 |
| Number of Observations | 571 | 575 | 567 | 428 | 10,867 |

**Table 9**
**Univariate Analysis: Future Loans and Keeping the Same Lender**

Panel A provides the percentage of borrowers that receive another loan between the loan date and December 31, 2005, split on whether the initial loan was sold. For those borrowers that receive another loan, Panel B provides the percentage of borrowers that keep the same lead lender, split on whether the initial loan was sold. "High (Mid, Low) Distance-to-Default" indicates that the borrower's distance-to-default is in the highest (middle, lowest) one-third of the full sample. "Lender is Ranked (NOT) in Top 10" indicates that the lead bank has (does not have) a loan market share among the highest ten lenders during the year prior to the loan. Z-ratios for the difference in proportions are provided in the last column. ***, **, * indicates significantly different than zero at the 1%, 5%, and 10% level, respectively.

| | Loan Sale Percentage | No Loan Sale Percentage | Difference | Proportion test Z-ratio |
|---|---|---|---|---|
| **Panel A: Percentage that Receive Another Loan** | | | | |
| Full Sample | 84.74% | 68.75% | 15.99% | 10.68 *** |
| | | | | |
| High Distance-to-Default | 86.54% | 75.80% | 10.74% | 4.31 *** |
| Mid Distance-to-Default | 86.01% | 67.53% | 18.47% | 6.93 *** |
| Low Distance-to-Default | 82.22% | 62.69% | 19.53% | 7.57 *** |
| | | | | |
| Lender is Ranked in Top 10 | 86.15% | 76.65% | 9.50% | 6.17 *** |
| Lender is NOT Ranked in Top 10 | 78.35% | 56.76% | 21.59% | 5.87 *** |
| | | | | |
| **Panel B: Conditional on Receiving Another Loan, % that Keep the Same Lead Bank** | | | | |
| Full Sample | 83.53% | 75.83% | 7.70% | 5.03 *** |
| | | | | |
| High Distance-to-Default | 85.80% | 86.93% | -1.12% | -0.50 |
| Mid Distance-to-Default | 84.75% | 75.11% | 9.64% | 3.57 *** |
| Low Distance-to-Default | 79.58% | 64.10% | 15.48% | 5.36 *** |
| | | | | |
| Lender is Ranked in Top 10 | 87.62% | 84.02% | 3.60% | 2.45 ** |
| Lender is NOT Ranked in Top 10 | 63.16% | 59.04% | 4.12% | 0.98 |

<div align="center">

**Table 10**
**Multivariate Models: Future Loans and Keeping the Same Lender**

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This table presents results of nested logit models. The dependent variable indicates whether the issuer decides to either (i) "Doesn't Borrow Again," (ii) "Borrow Again" and "Keep Lender," or (iii) "Borrow Again," and "Doesn't Keep Lender." Let the alternatives of "Borrow Again," and "Doesn't Borrow Again," belong to the upper nest and the alternatives of "Keep Lender," and "Doesn't Keep Lender" belong to the lower nest. Independent variables that only affect the choice in the upper nest are listed under the heading "Borrow Again vs. Doesn't Borrow Again." Independent variables that affect the decisions in both the upper and lower nests are listed under the heading "Keep Lender vs. Doesn't Keep Lender." The variables are described in Appendix A. When running the models, variables that are listed under "Borrow Again vs. Doesn't Borrow Again" are interacted with a dummy variable that indicates the borrower has a subsequent loan in the sample. Displayed coefficients provide the effect of the variables on borrowing again as opposed to not borrowing again. When running the models, variables listed under "Keep Lender vs. Doesn't Keep Lender" are interacted with two choice-specific indicator variables for keeping the lender and switching the lender. Displayed coefficients provide the effect of the variables on keeping the same lender as opposed to not keeping the same lender. In column (2), "High (Mid, Low) Distance-to-Default" indicates that the borrower's distance-to-default is in the highest (middle, lowest) one-third of the sample. In column (3), "Lender (NOT) in Top 10" indicates that the lead bank has (does not have) a loan market share among the highest ten lenders during the year prior to the loan. T-ratios are in parentheses. ***, **, * indicates significantly different than zero at the 1%, 5%, and 10% level, respectively.

| | Base Model | Distance-to-Default | Lender Market Share |
|---|---|---|---|
| | (1) | (2) | (3) |
| **"Keep Lender" vs. "Doesn't Keep Lender"** | | | |
| Loan is Sold (0,1) | 0.196** | | |
| | (1.92) | | |
| High Distance-to-Default * Loan is Sold | | -0.064 | |
| | | (-0.32) | |
| Mid Distance-to-Default * Loan is Sold | | 0.358** | |
| | | (2.00) | |
| Low Distance-to-Default * Loan is Sold | | 0.402*** | |
| | | (2.61) | |
| Lender in Top 10 * Loan is Sold | | | 0.299*** |
| | | | (2.45) |
| Lender NOT in Top 10 * Loan is Sold | | | 0.032 |
| | | | (0.17) |
| Prior Lending Relationship (0,1) | 0.682*** | | |
| | (9.43) | | |
| High Distance-to-Default * Prior Lending Relationship | | 1.114*** | |
| | | (8.75) | |
| Mid Distance-to-Default * Prior Lending Relationship | | 0.847*** | |
| | | (7.78) | |
| Low Distance-to-Default * Prior Lending Relationship | | 0.165 | |
| | | (1.61) | |
| Lender in Top 10 * Prior Lending Relationship | | | 0.660*** |
| | | | (6.72) |
| Lender NOT in Top 10 * Prior Lending Relationship | | | 0.938*** |
| | | | (8.68) |
| Lender Market Share | 6.713*** | | |
| | (16.41) | | |
| High Distance-to-Default * Lender Market Share | | 8.515*** | |
| | | (10.46) | |
| Mid Distance-to-Default * Lender Market Share | | 4.394*** | |
| | | (7.05) | |
| Low Distance-to-Default * Lender Market Share | | 6.128*** | |
| | | (9.12) | |
| Lender in Top 10 | | | 1.234*** |
| | | | (11.32) |
| Constant | 0.179*** | 0.197*** | -0.039 |
| | (3.19) | (3.52) | (-0.55) |

*(continued)*

**Table 10 Continued**

| | Base Model | Distance-to-Default | Lender Market Share |
|---|---|---|---|
| | (1) | (2) | (3) |
| **"Borrow Again" vs. "Doesn't Borrow Again"** | | | |
| Log of Assets | 0.483*** | 0.481*** | 0.471*** |
| | (17.67) | (16.64) | (17.47) |
| Net Income-to-Assets | 3.565*** | 3.361*** | 3.305*** |
| | (3.43) | (3.22) | (3.16) |
| Debt-to-Assets | 0.326*** | 0.343*** | 0.316*** |
| | (2.83) | (2.90) | (2.79) |
| Distance-to-Default | 0.074*** | | 0.077*** |
| | (2.93) | | (3.10) |
| Low Distance-to-Default (0,1) | | -0.391*** | |
| | | (-3.04) | |
| Mid Distance-to-Default (0,1) | | -0.456*** | |
| | | (-3.49) | |
| Has Credit Rating (0,1) | 0.259*** | 0.273*** | 0.257*** |
| | (2.92) | (3.02) | (2.90) |
| Industry Fixed Effects | Yes | Yes | Yes |
| Year Fixed Effects | Yes | Yes | Yes |
| *Inclusive Value:* IV(Borrow Again) | 0.500*** | 0.508** | 0.511*** |
| | (2.63) | (7.99) | (2.58) |
| LR Test: IV(Borrow Again)=1 | 5.70** | 3.61* | 6.36** |
| Log Likelihood | -6000.08 | -5937.23 | -6034.74 |
| Number of Loans | 7621 | 7621 | 7621 |

**Figure 1**
**Loan Sales Market Volume**

This chart displays trading volume (in billions of dollars) in the secondary loan sales market from 1991 through 2004. Source: Reuters / Loan Pricing Corporation Traders Survey.