FDIC Center for Financial Research Working Paper

No. 2007-04

On Loan Sales, Loan Contracting, and Lending Relationships

March 2007

Federal Deposit Insurance Corporation • Center for Financial Research

On Loan Sales, Loan Contracting, and Lending Relationships

Steven Drucker and Manju Puri*

March 2007

ABSTRACT

This paper examines the secondary market for loan sales, focusing on whether loan contract design can reduce agency problems in loan sales and the benefits and costs to corporate borrowers. We argue that covenants aid loan sales by protecting the loan buyer from potential losses caused by informationally-advantaged borrowers and loan sellers. Using loan-level data, we find that sold loans contain more restrictive covenant packages, particularly when agency problems are more severe. Why do borrowers agree to incur the additional costs associated with loan sales? We show that borrowers whose loans are sold have high leverage ratios, and loan sales increase their access to loans. Also, contrary to concerns that loan sales weaken lending relationships, we find more durable lending relationships when loans are sold.

JEL Codes: G21, G32

Keywords: Loan Sales, Covenants, Financial Contracting, Lending Relationships

* Drucker is from the Graduate School of Business, Columbia University. Email: sd2281@columbia.edu. Phone: 212-854-4151. Puri is from the Fuqua School of Business, Duke University, and NBER. Email: mpuri@duke.edu. Phone: 919-660-7657. We thank Ken Ayotte, Mitchell Berlin, Arnoud Boot, Chris Mayer, Mitchell Petersen, Anil Shivdasani, Anjan Thakor, Haluk Unal, Ayako Yasuda, and seminar participants at the FDIC Center for Financial Research, London School of Economics, Ohio University, Rutgers, University of Michigan, the 6th Annual FDIC Bank Research Conference, NYU / NY Federal Reserve Bank Joint Conference on Financial Intermediation, SUNY-Binghamton, and the Washington University in St. Louis Corporate Finance Conference for helpful comments. We acknowledge funding from the FDIC Center for Financial Research.

1 Introduction

Banks are increasingly selling loans to other banks and non-bank financial institutions. In 2005, non-financial U.S. corporations raised $1.5 trillion through loan syndications, where lenders arrange loans and sell a portion to other lenders at loan origination. After syndication, loans are traded in a fast growing secondary market. As Figure 1 shows, U.S. secondary loan market volume reached $176.3 billion in 2005 from a mere $8.0 billion traded in 1991, a compound annual growth rate of 25 percent.[1] In contrast with typical loan syndications, the secondary loan sales market is dominated by leveraged, risky loans and the majority of loans are purchased by nonbank, institutional investors (Yago & McCarthy 2004). As such, the secondary loan sales market is economically important, allowing banks to diversify their loan portfolios, comply with risk-adequacy regulations, and continue to fund profitable projects even when capital constrained or when facing higher internal lending costs (see e.g., Pavel & Phillis 1987; Pennacchi 1988).[2]

While there are clear reasons for banks to sell loans, moral hazard and adverse selection problems would appear to place significant limitations on loan selling. In particular, lenders have less incentive to screen and monitor borrowers when shedding the credit risk (Pennacchi 1988; Gorton & Pennacchi 1995) and an incentive to sell loans that they privately know are likely to perform poorly. Also, since loan buyers are likely to be less informed than the original lenders, agency problems between borrowers and lenders can be worsened. One possibility is that loan contracts are designed to reduce agency problems associated with loan selling. This contrasts with an alternative view where lenders expend little effort on loan contracting when they will not be holding the loan.

Further, there are concerns that loan selling negatively impacts borrowers. If the loan originator acts mainly as a middleman between borrowers and investors, lending relationships may suffer. However, loan selling may actually benefit borrowers. By separating origination from funding, loan selling may allow for additional funds to flow into the loan market. By

[1] See Gorton & Haubrich (1990) and Bhasin & Carey (2000) for early evidence on loan sales and syndications. See Thomas & Wang (2004) for more recent developments.

[2] See Berger & Udell (1993) for an extensive review of banks motivations for selling loans, and Demsetz (2000) for some empirical evidence.

allowing banks to reduce credit risk, banks may gain flexibility in their lending relationships, increasing their ability to lend to their borrowers on a continuing basis.

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.

We focus on loan contracting as a mechanism to mitigate agency problems in loan sales. We contend that covenants, which are restrictions on how borrowers can operate and carry themselves financially, can increase the likelihood of sale. By providing loan buyers with a way to monitor the firm, covenants allow buyers to limit losses when a borrower performs unexpectedly poorly. Covenant violations allow for quick intervention, which protects the buyer from wealth expropriation by the borrower and reduces the importance of the seller's information and effort. However, since loan sales can expand ownership to include more uninformed lenders, covenant enforcement and renegotiation may be difficult. This may limit the effectiveness of covenants in aiding loan sales.

Our results show that sold loans have more restrictive covenant packages than loans that are not sold, as indicated by the inclusion of significantly more covenants and covenants with less "slack".[3] In support of the interpretation that covenants facilitate loan sales by reducing agency costs, we find that that the use of more restrictive covenants has a larger effect on salability when agency problems are likely to be prominent. First, we find that tighter covenants increase the likelihood of sale when public credit rating agencies disagree about the credit quality of the borrower, a proxy for information asymmetry. Second, we find that tighter covenants increase the likelihood of sale when lenders are not as reputable.

Since covenants are written into the contract at origination, for covenants to facilitate sale, it is necessary that lenders anticipate selling loans in the secondary market. In support, over

[3] "Slack" is 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.

sixty percent of loans are first traded within one month of loan origination and nearly ninety percent are sold within one year. Further, while loans are first traded close to origination, we show that loans are traded for an extended period of time – more than half of sold loans trade more than two years after origination. Thus, it is possible that sold loans have contractual features that improve loan liquidity, well-beyond what is needed in typical loan syndications. Consistent with this view, sold loans have additional and tighter covenants than syndicated loans that are held by the original lenders. This is consistent with covenants mitigating agency problems that are relevant to secondary loan sales.

While covenants appear to reduce agency problems, they may not solve these issues completely. Consistent with this view, we find that problems of information asymmetry limit the types of loans that are sold. The analysis shows that nearly ninety percent of sold loans versus less than forty percent of loans that are not sold have borrowers with a public debt credit rating. In addition, credit lines, which require extensive monitoring, are less likely to be sold than term loans. Further, loans originated by lead banks that are ranked in the top-10 by loan market share are weakly more likely to be sold, providing some support that lender reputation helps reduce information asymmetries and aids loan selling.

For borrowers, it can be costly to be restricted by covenants, due to reduced financial flexibility. Also, loan sales may make it more difficult to renegotiate loans, as the borrower will have to deal with multiple lenders, some of whom may not be in a long-term relationship.[4] Why do borrowers agree to incur the additional costs associated with loan sales? Our analysis reveals that to offset these costs, loan sales help borrowers by increasing their access to loans. In particular, sold loans are nearly two times larger than loans that are held by the original lenders, which significantly increases firms' interest-bearing debt levels and leverage ratios relative to a matched group of borrowers whose loans are not sold. Further, sold loans are significantly more likely to fund capital-intensive acquisitions and leveraged buyouts than loans that are not sold. We contend that increased credit availability arises from loan selling because the vast majority of loan buyers are nonbank institutions that generally do not originate loans, but can provide additional funding to borrowers. Since the borrowers are riskier firms, concerns about credit risk

[4] 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).

or capital adequacy may prevent traditional lenders from providing the needed capital. As such, these results relate to the broader literature on supply-side frictions and access to debt capital (see e.g., Faulkender & Petersen 2006; Sufi 2006).

Additionally, despite concerns that loan sales harm lending relationships, we show that borrowers whose loans are sold benefit from more durable lending relationships. One possible reason is that credit risk management through loan sales provides lenders with the capability to lend to the same borrowers in the future. In support of this explanation, loan sales are associated with more durable relationships for borrowers who have low distance-to-default. This suggests that the positive relationship between loan sales and lending relationships is strongest for those firms that are most likely to benefit from relationship lending.

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

In debt markets, borrowers and lenders are not likely to be equally informed. Borrowers have an incentive to misreport their quality to lenders at loan origination and, after receiving loans, borrowers may attempt to expropriate wealth from lenders. Theory suggests that lenders can limit the negative effects of the borrower's information advantage by including covenants in the loan contract. 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. Other covenants include restrictions on dividend payments and "sweeps," which ensure that the proceeds from asset sales, debt issuance, and / or equity issuance are applied toward the reduction of debt.

Covenants can reduce borrower-lender agency problems in a number of ways. First, covenant violations allow the lender to intervene before severe losses are realized. In particular,

if a borrower violates a 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). This provides lenders with significant rights, *ex post*. Second, covenants have an *ex ante* role by constraining the borrower from taking actions that are detrimental to the lender. Third, covenants provide incentives to monitor the borrower (Rajan & Winton 1995) or can be a cheaper form of monitoring (Berlin & Loeys 1988). Empirically, Dichev & Skinner (2002) indicate that covenants are "screening devices" in private debt contracts that can limit borrower's moral hazard, and Smith & Warner (1979) show that covenants are used to reduce agency problems between shareholders and bondholders in public debt markets.

In a loan sale, borrower-lender agency problems will be larger if loan buyers are less informed about the borrower. This is likely to be the case because most loans are originated by commercial banks that are thought to have a "special" ability to produce private information on borrower quality (see e.g. Diamond 1984; Ramakrishnan & Thakor 1984; Fama 1985; Boyd & Prescott 1986; Diamond 1991). In contrast, loan buyers are likely to be nonbanks, such as loan funds, finance companies, insurers, investment banks, and hedge funds. Survey evidence suggests that over seventy-five percent of purchases of low-rated loans are made by nonbank financial institutions or other institutional investors (Board of Governors of the Federal Reserve System 2003). Therefore, to reduce the larger agency problems, we hypothesize that sold loans will contain additional, more restrictive covenants.

In addition, loan selling introduces an agency problem between the loan seller and loan buyer. 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?

Loan covenants may help mitigate moral hazard and adverse selection problems associated with loan selling by reducing the importance of the seller's due diligence and / or its information advantage. First, covenants are linked to observable financial data, making it relatively easy for loan buyers to observe a violation. Theory suggests that 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, by being able to intervene early, loan buyers limit their losses when the borrower performs poorly. Therefore, even if the buyer purchases a problematic loan, restrictive covenants provide a type of insurance. As such, we again expect that additional, more restrictive covenants will increase the likelihood of loan selling, particularly when agency problems are more severe. Still, since covenants are unlikely to completely reduce agency problems, there may be limitations on the types of loans that can be sold.

While agency problems could lead to more restrictive covenant packages in loans that are sold, limitations on covenant enforcement and renegotiation could lead to the opposite relationship. In particular, restrictive covenants will cause more covenant violations. These events are noisy signals because they can only be based on observable, verifiable information (Berlin & Mester 1992). As a result, violations may not always indicate that the borrower is taking actions not in the lender's interest. Since "uninformed" loan buyers may be poorly equipped to evaluate the reason for a covenant violation, they may respond improperly, which can impose additional costs on borrowers (Carey *et al.* 1993). Also, renegotiation may be more difficult with loan buyers who are less likely than relationship-lending commercial banks to take a long-term view of a company's prospects. If the costs of covenant enforcement or renegotiation are too high, then sold loans could have fewer and looser covenants. Overall, the relationship between loan sales and covenants is an empirical question.

2.2 Loan Sales, Access to Loans, and Lending Relationships

In a frictionless loan market, loans will be available for borrowers with positive net present value projects. Therefore, for loan sales to improve credit availability there must be frictions in the lending market that prevent loans from being funded otherwise. One potential friction is that banks have to comply with capital adequacy regulations and internal risk controls. A second possible restriction is that banks may be limited in their ability to raise deposits to fund loans. Theory suggests that if banks are unable to raise deposits outside of the areas in which they operate, or depositors have high costs of monitoring banks, then banks may not be able to fund risky, profitable loans (Bernanke & Gertler 1987; Samolyk 1989). Loan sales can help relax these constraints by allowing lenders to raise funds from, and share credit risks with, other

institutions that are unable to fund the loans directly. This could occur if loan sellers have a comparative advantage in locating and screening projects, or it is sufficiently costly for loan buyers to originate loans (Carlstrom & Samolyk 1995). Two important aspects of the loan sales market are consistent with these frictions being relevant. First, leveraged loans are the largest and fastest growing segment of the secondary market. The value of leveraged loans traded rose twenty-three percent between 2001 and 2003, and leveraged trades accounted for over eighty percent of the value of par (non-distressed) trades over this period. (Yago & McCarthy 2004). This suggests that loan sales allow risky loans to be funded. Second, the majority of loans are purchased by nonbank institutions that do not originate loans in the primary market. It may be more costly or difficult for these investors to originate loans, so loan trading may allow nonbanks to use their capital to increase credit availability and allow lenders to manage credit risk. As a result, we hypothesize that loan sales increase borrower's access to loans.

The effect of loan sales on lending relationships is also unresolved. There is concern that loan sales sever ties between the borrower and lender. This may harm borrowers because lending relationships have been shown to increase credit availability (see e.g. Petersen & Rajan; Cole 1998), 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).[5] 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. However, there are compelling reasons for borrowers and lenders to continue to interact after loans are sold. First, banks may be selling loans to reduce, rather than remove, exposure to individual borrowers. By sharing credit risk with other institutions, the bank may gain flexibility when originating future loans for a borrower. This scenario is most likely to occur when borrowers are risky. 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, the typical minimum sale level for term loans is $1.0 million, suggesting that lenders are indeed selling off smaller pieces of their loans (Cummings 2005).

[5] See Ongena & Smith (2000) for an excellent review of the relationship banking literature.

3 Data and Descriptive Statistics

3.1 Data Sources and Sample Selection

We use four different data sources to construct a unique, disaggregate dataset of loan contracts. The dataset identifies loans that are sold in the secondary market, loan contract, borrower, and lender characteristics. To identify loans that are sold in the secondary market, we use 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 (Loan Pricing Corporation (LPC) and LSTA) from relationships with over thirty leading dealers / traders.[6] The service covers approximately 80% of the U.S. secondary loan market trading volume. The unit of observation in the database is a pair between a loan facility and a quotation date. For each observation, the dataset provides the following fields: (i) date of the quote; (ii) loan identification number (LIN); (iii) facility ID; (iv) borrower name; (v) type of facility; (vi) number of quotes; (vii) average of the bid quotes; (viii) average of the ask quotes; and (ix) the mean of the average bid and average ask quotes. There are 2.5 million observations between May 1998 and September 2005 that correspond to the quotation history of 7,372 unique facilities.

There are two limitations to using this database. First, the LSTA database includes loan quotations, but does not indicate actual trades. We identify traded loans using the quoted prices in the database, but do not need to use the actual prices at which loans are sold. To further identify loans that are actively sold, we re-estimated our models using those loans that have multiple quotes on a quotation date.[7] The main results in this paper are robust to this restricted definition of loan sale. Second, the LSTA database does not include the identities of the loan sellers and loan buyers. However, by merging the LSTA database with three additional data sources, we collect detailed information on loan contract, borrower, and lead lender

[6] 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.

[7] Across all observations (facility-quotation date pairs), the number of quotes ranges from one to eighteen. For each sold loan, we calculate the maximum number of quotes among all of its trading days. The mean (median) is 3.68 (3.00) quotes.

characteristics. We exploit cross-sectional differences in a number of these characteristics when designing our hypothesis tests.

We collect individual loan contracts from Loan Pricing Corporation's (LPC) *DealScan* database for the time period January 1999 through December 2004.[8] LPC *DealScan* collects syndicated and some sole-lender loans from SEC filings, large loan syndicators, and a staff of reporters. The majority of companies in the LPC database are medium to large, public firms. For each loan, LPC provides the identities of the borrower and lenders, the borrower's industry through the standard industrial classification ("SIC") code, the borrower's credit ratings from Standard & Poor's and Moody's, and detailed loan contract terms, such as the loan origination date, maturity, size, type, purpose, detailed information on the covenant package, and some pricing terms. We use 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 merge the LSTA Mark-to-Market database with *Dealscan* using one of two common fields: (i) the facility ID; and / or (ii) the Loan Identification Number (LIN). Matching yields 3,182 facilities that are in the Mark-to-Market database among the 24,823 *DealScan* loans.[9]

In the next section, we will examine the relationship between loan sales and covenants. However, it is clear that covenants are not recorded for a portion of loan facilities in *DealScan*. To provide some comparison with the actual use of covenants, we rely on LSTA estimates for the time period 2003 through 2004 (Coffey 2005). This study reports that approximately 95% of syndicated loans to BBB-rated borrowers and 80% of A-rated loans 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 are reported to have financial covenants. In order to reconcile these differences, we keep only those loans where *DealScan* reports the existence of at least one covenant. This includes loans that have financial covenants, a dividend restriction, or a sweep covenant. Only five percent of loans that

[8] We restrict the sample to loans originated after January 1999 because coverage of the secondary loan market in the LSTA mark-to-market database is relatively incomplete prior to this date.

[9] 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.

are traded in the secondary market are dropped by this criterion. 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.

We supplement the loan contracts with borrower 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. We construct measures of firm size (logarithm of assets), profitability (net income-to-assets), leverage (debt-to-asset ratio), and risk (distance-to-default).[10] Appendix A provides detailed descriptions of all variables that are used in the empirical tests.[11] After dropping loans that have no reported covenants and loans that are not matched to Compustat and CRSP, the final sample ("full sample") includes 7,261 loan facilities, of which 1,075 are quoted for sale in the secondary loan market.

From the sample of 7,261 loan facilities, we construct a subsample where we can measure the restrictiveness of covenants. This subset includes loans where the borrower must maintain a minimum level of net worth or tangible net worth ("net worth sample"). There are two major reasons why we focus on net worth covenants. First, prior research indicates that this covenant is commonly associated with technical default (Beneish & Press 1993; Chen & Wei 1993; Sweeney 1994). Second, a firm's net worth is standardized and explicit, which allows for accurate measurement of 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. Thus, the net worth sample contains loans with an economically important covenant whose impact can be studied accurately. The net worth sample includes 2,674 facilities, of which 204 loans are quoted for trade.

[10] 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.

[11] 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.

3.2 Descriptive Statistics

Table 1 provides summary statistics for the two samples used in this study. The 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 most likely loan purpose being general corporate use or recapitalization / debt repayment. It is the case, however, that borrowers in the net worth sample are smaller, as measured by asset size, and they are also less likely to be rated by Standard & Poor's. Further, loans in the net worth sample are more likely to be originated by lead lenders that are ranked below 10^{th} based on market share, a commonly used proxy for reputation (see e.g. Megginson & Weiss 1991; Gande *et al.* 1997; Sufi 2005). Overall, these loans may be more information problematic than in the full sample, suggesting that the net worth sample provides a good testing ground to examine agency problems in loan selling.

Table 2 provides univariate differences in borrower, loan, and lender characteristics across loans that are sold and loans that are not sold. Interestingly, 88% of sold loans versus 39% of loans that are held by the original lenders involve borrowers that have a credit rating, a significant difference (T-ratio = 29.82). This may be driven by the fact that nonbanks are the major buyers of loans. These institutions may not be as adept at collecting private information as banks and thus rely heavily on public sources of information. Consistent with this, we find that sold loans are more likely to be term loans than 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). Credit lines require more intensive monitoring because the borrower has an incentive to access the credit line when it is performing poorly (see e.g. Avery & Berger 1991; Berger & Udell 1995). In addition, 82 percent of sold loans are originated by lead lenders ranked in the top-10 as opposed to only 60 percent of loans that are not sold, a significant difference (T-stat = 13.79). This result is consistent with reputation reducing agency problems in loan selling.

In contrast to the public debt market, which is dominated by investment-grade issuance, sold loans tend to be "leveraged loans," with borrowers predominately junk rated, having

significantly higher leverage and lower distance-to-default.[12] The supply of such loans may be due to lenders using the loan sales market to manage their exposure to risky firms. On the demand side, it is possible that the institutional investors that dominate the market prefer leveraged, risky loans rather than investment-grade loans.

Additional comparisons suggest a link between loan sales and situations where borrowers require additional funds. First, sold loans are extremely large -- the amount raised by the borrower on traded loans is 1.8 times higher than the amount raised on loans that are held by the original lenders. Second, the loan is for the capital-intensive purpose of acquisition or leveraged buyout for 32 percent of sold loans as opposed to only 16 percent of not sold loans. Third, borrowers on loans that are sold have significantly higher leverage (debt-to-asset ratio), suggesting that sold borrowers rely heavily on debt capital, in general. We further explore the relationship between loan sales and access to loans in Section 5.1.

4 Loan Sales and Loan Contracting

The discussion in Section 2 suggests that restrictive covenant packages may reduce agency problems and increase the likelihood of selling loans. On the other hand, sold loans may have fewer and looser covenants because enforcement of violations and renegotiation can be more difficult when there are additional, uninformed lenders. In this section, we empirically test these alternative viewpoints by estimating the relationship between covenant packages and loan salability. We also address some important issues related to the interpretation of the results. Namely, we provide evidence that suggests lenders anticipate selling loans in the secondary market when designing the loan contract at origination. We also document critical distinctions between secondary market loan sales and loan syndications. We further provide more refined empirical tests of the hypothesis that covenants increase salability by reducing agency problems.

Table 2 provides univariate comparisons of covenants across loans that are sold and loans that are not sold. Consistent with covenants being used to reduce agency problems in loan selling, the results show that sold loans have significantly more restrictive covenants and

[12] 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.

additional covenants than loans that are not sold. 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).[13] For the full sample of loans, on average, sold loans have 6.34 covenants as opposed to only 4.28 covenants for loans that are not sold (Z-ratio = 27.48).

4.1 Multivariate Model of Loan Selling

The initial evidence suggests that sold loans have tighter covenants and more covenants. 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 measures net worth slack, and it is expected that loans with less slack will be more likely to be sold. The second variable counts the number of covenants. Based on the univariate results, it is expected that the number of covenants will be positively related to loan selling.

The model also includes 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 junk rated, an indicator for borrowers that are investment-grade 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 larger borrowers (higher logarithm of book assets) and for riskier borrowers (junk rated, 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, and fixed effects for loan type and loan purpose.[14] We expect loan selling to be positively related to the size and

[13] We created a second subsample of loans that have covenants that restrict the borrower to maintain a minimum current ratio. Out of 561 loans with current ratio covenants, only 17 were sold, which ruled out multivariate analysis. Still, a univariate analysis indicated that sold loans have less slack: the difference between the actual current ratio and the minimum allowable current ratio was 0.47 for sold loans as opposed to 0.73 for loans that are not sold, a statistically significant difference at the five percent level.

[14] We considered controlling for seniority and secured status. Seniority has little additional explanatory power because over 99% of loans are senior. *DealScan* indicates whether the loan is secured or not secured for only 87%

maturity of the loan, loan syndication, and term loans. We also include a variable that indicates when a lead lender is ranked in the top-10 and year fixed effects.

One limitation of this model is that it does not control for unobservable characteristics of the lead lenders that may be correlated with loan selling. This could cause the estimated coefficients to suffer from omitted variable bias.[15] To address this concern, we estimate a second model where we add lead lender fixed effects. In order to examine the effects of covenant tightness and the number of covenants on loan selling, we estimate the two models using the net worth sample. We then examine if the effect of the number of covenants on loan selling is robust in the full sample of loans by re-estimating the models while excluding the net worth slack variable, which is only defined for the net worth sample. All models are estimated with loan deal clustered standard errors.[16]

4.1.1 Results

Results of the logit models are displayed in Table 3. Columns (1) and (2) display the results of the models using the net worth sample while in columns (3) and (4), the full sample of loans are included in the estimations. There are two important findings related to the impact of covenants on loan selling. The first main result is that loans which contain more restrictive covenants are significantly more likely to be sold. The estimation in the first 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 7.45%, which is significant at the five percent level. In the second column, we display results of the model that includes lead lender fixed effects. Again, there is a statistically significant negative relationship between net worth slack and loan selling (p-value = 6.6%). The second main result is that loans that contain more covenants are significantly more likely to be sold. The estimation in the first column shows that, for the net worth sample, an increase in the number of covenants by one standard deviation around the mean (from 3.9 to 6.1 covenants) increases the probability of

---

of the loans. For this restricted sample, the estimated relationship between covenants and loan sales are robust to including an indicator for secured loans.

[15] Note that in binary discrete regression models (e.g., logit or probit), not including a relevant regressor (even if it is orthogonal to the other independent variables) depresses the coefficients on the other regressors towards zero, suggesting that our estimates are conservative (Yatchew & Griliches 1985; Cramer 2005).

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

selling loans by 16.43%, which is significant at the 0.01% level. Adding lead lender fixed effects (column 2) does not change the economic or statistical significance of the coefficient. The positive relationship between the number of covenants and loan sales is not sample specific, as there are similar statistical and economic effects of including more covenants on loan selling when using the full sample of loans.

Despite using different samples and specifications, the control variables have the expected signs and are generally statistically significant, especially when estimation is performed using the full sample of loans. One result worth highlighting relates to the methods lenders use to manage credit risk. In particular, the estimates show that loans to junk rated borrowers are significantly more likely to be sold than loans to investment-grade rated and not rated borrowers. While this is consistent with lenders using the loan sales market to manage credit risk, lenders can also potentially shed risk using credit default swaps. However, to date, the credit default swap market is dominated by investment-grade firms.[17] Our findings suggest a partial explanation for this segmentation is that investment-grade borrowers may not be willing to take on the costs of more restrictive covenants that facilitate loan sales. With riskier firms, buyers of the credit risk may desire the explicit protection that can be provided through loan contracting but is more difficult to provide in a credit default swap.

Overall, the results of the multivariate models are consistent with the view that including tighter covenants and additional covenants can reduce agency problems in loan selling. Across different model specifications and samples of loans, the probability of selling loans is decreasing in covenant slack and increasing in the number of covenants.

4.2 Are Loans Structured at Origination to Aid Secondary Market Sale?

The interpretation that covenants are used to reduce agency problems associated with selling loans 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. First, Table 4, 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

[17] A 2003 survey by FitchRatings found that of all credit derivative references entities, the percentages by credit rating were AAA (21%), AA (15%), A (28%), BBB (28%), Below investment-grade (8%) (Bomfim 2005)

origination.[18] Therefore, it is highly likely that lenders anticipate selling these loans in the secondary market when writing the loan contract. In unreported estimations, we re-run the models after restricting the sample to loans that are first quoted at a date "close" to origination (i.e. within six months or one year) and all results are robust to this restriction. Second, Table 2 shows that nearly 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 through H). 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 loan 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 4, 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.[19] This occurs even though loans that are likely to be sold have lower yield spreads at origination (Guner 2006; Gupta *et al.* 2006). However, Table 4, 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 quoted 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*.

[18] There are some loans whose first quotation date occurs before the origination date. In most of these instances, the first trade date is less than one week before the origination date. This suggests that dates might be reported slightly differently in the LPC *DealScan* database and the LSTA mark-to-market pricing database or it could be the case that there exists a pre-loan market where actual transactions will occur after origination at the quoted prices. Of the 115 loans whose first sale is more than two weeks before origination, we determine that most these loans are renegotiated loans. In these instances, it is likely that the renegotiated loan identifier overrode the original loan identifier in the LSTA mark-to-market pricing database. These loans are excluded from the analysis in Table 4. All results are robust to removing these loans completely.

[19] 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 this analysis. 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 and all results in this paper are robust to removing distressed loans.

4.3 Distinctions between Secondary Market Loan Sales and Loan Syndications

The fact that many loans are initially quoted for trade so close to loan origination raises the possibility that secondary market loan selling is simply a minor extension to loan syndications. There are some empirical facts that suggest that this is not the case. First, of all syndicated loans, only 20% are sold in the secondary market. Related, the results in Table 2 show that 69% of loans that are not sold are syndicated. This clearly indicates that many syndicated loans are not traded. Second, while loans are first quoted for trade close to loan origination, they continue to be quoted for a number of years into the future. Table 4, Panel D shows that only 2.3% of loans that are sold stop trading within six months of origination, and fifty percent of sold loans are quoted for trade more than two years after origination. In unreported estimations, we find that the sold loans that are traded after origination for at least six months, one year, or two years have additional, more restrictive covenants. This suggests that sold loans likely have features that allow for a liquid secondary market.

In addition, loan syndication likely suffers from less severe agency problems because lead lenders can alter syndicate structure and composition to reduce adverse selection and moral hazard problems when originating the loan (Lee & Mullineaux 2004; Sufi 2005). Related, primary market loan buyers tend to have relationships with opaque borrowers and are likely to have ongoing relationships with lead lenders (Sufi 2005). Typically, when loans are syndicated, the lead bank holds a portion of the loan to preserve its incentive to monitor borrowers (see e.g. Dennis & Mullineaux 2000; Jones *et al.* 2005). However, when loans are traded in the secondary market, the lead lender can reduce its holdings, diminishing its incentives.

Still, the question remains as to whether there are noticeable distinctions in the covenant packages between loans that are sold in the secondary market and other syndicated loans that are not sold in the secondary market. If covenants are used to mitigate agency problems that are relevant to secondary market loan selling, then we expect sold loans to have tighter covenants and additional covenants relative to syndicated loans that are not sold in the secondary market. We exploit the fact that there are many syndicated loans that do not trade in the secondary market to formally test for differences in the covenant packages of sold loans and other syndicated loans that are held by the original lenders. Specifically, we re-estimate the models

that are described in Section 4.1 using only syndicated loans. The full sample includes 5,352 syndicated loans, of which 1,060 are sold in the secondary market. The net worth sample contains 1,720 syndicated loans, of which 202 are sold.

The results of the logit models are presented in Table 5. The estimation displayed in the first column shows that syndicated loans which contain more restrictive covenants are significantly more likely to be sold in the secondary market. As shown in the second column, the significant negative relationship between net worth slack and loan selling remains after including lead lender fixed effects. Also, syndicated loans that contain more covenants are significantly more likely to be sold in the secondary market. The highly significant positive relationship between the number of covenants and loan sales is robust across the two loan samples and two model specifications. In sum, these results suggest that loans traded in the secondary market are distinct from loans that are syndicated in the primary market but held by the original lenders. The more restrictive covenant package for sold loans is consistent with covenants reducing agency problems that are relevant to secondary loan sales.

4.4 Credit Rating Disagreement and Lender Reputation

In this section, we provide more refined tests of the hypothesis that restrictive covenants increase salability by reducing agency problems. The underlying idea is that if covenants reduce agency problems in loan selling, then one should observe a stronger relationship between more restrictive covenant packages and loan selling in cases where agency problems are more severe.

The extent of agency problems in loan sales depends critically on the private information and incentives of the buyer, seller, and the borrower. An ideal test would therefore take into account the identities of the buyer and seller and their access to private information, such as through relationships with each other or with the borrower. Unfortunately, we are limited by data constraints in that we are not provided with the names of the seller or the buyer. Instead, we rely on more indirect measures of the degree of agency problems, and our tests and results should be viewed with this limitation in mind.

Our first measure of agency problems captures disagreement between Standard & Poor's and Moody's on the long-term debt ratings of borrowers. The idea is that there is more private

information and greater information opacity associated with borrowers when the rating agencies disagree (Morgan 2002). For loans to borrowers that are rated by both rating agencies, we identify loans that have a "common rating" as those where both institutions provide the same credit rating. The remaining loans have a "split rating."

One issue with this measure is that it is defined only for borrowers that are rated by the rating agencies. This is not a major problem because nearly ninety percent of sold loans have a credit rating. A second issue is whether there is enough cross-sectional variation within sold loans to distinguish between low agency and high agency problem loans. On this point, a split rating occurs for twenty-four percent of the rated sold loans in the net worth sample. The lack of variation within sold loans rules out the use of other common measures of information asymmetry.[20]

To examine whether the relationship between covenants and loan selling differs for loans where the borrower has a common rating versus a split rating, we add three variables to the loan sales models from Section 4.1: (i) an indicator for borrowers that have a common rating; (ii) the common rating indicator interacted with net worth slack; and (iii) the common rating indicator interacted with the number of financial covenants. The coefficients associated with net worth slack and the number of covenants gives the direct effect of covenants on the probability of loan selling for loans with a split rating. The interaction terms allow us to test if the effect of covenants on loan selling differs based on whether the loan has a common rating or a split rating. We estimate the model using loans that are rated by both rating agencies.

Results of the logit models using the net worth sample are displayed in the first two columns of Table 6. The results support the view that covenant tightness helps facilitate sale when agency problems are larger. In the first column, the coefficient on net worth slack is significantly negative, indicating that loans with a split rating that contain more restrictive covenants are significantly more likely to be sold. An increase in the slack of the net worth covenant of one standard deviation around the mean decreases the probability of selling loans by 15.32%, which is significant at the one percent level. Also, the coefficient on the interaction of net worth slack with common rating is positive and statistically significant at the five percent

[20] For example, there are no private companies in the sample, eighty-eight percent of sold loans involve a rated borrower, eighty-eight percent of rated borrowers are junk rated, and nearly all sold loans involve a borrower that is "large" based on a comparison with Compustat firms.

level. This indicates that more restrictive covenants increase the likelihood of sale more so among split rating loans than common rating loans. Both effects remain statistically significant after adding lead lender fixed effects (column 2). We also find that in both specifications, including more covenants increases the probability of sale for split rating loans at the 1% significance level. However, between common rating and split rating loans, there is no statistical difference in the effect of the number of covenants on loan selling. In unreported estimations using the full sample of rated loans, we find similar statistical and economic relationships between the number of covenants and the probability of selling loans.

As a second measure of agency problems, we rely on theory that suggests agency problems are larger when the lead lender has a lower reputation. Formal models by Gorton & Haubrich (1987) and Pichler & Wilhelm (2001) show that when lead lenders sell and syndicate loans, fear of reputation loss can limit shirking on information production (screening and monitoring). Further, even if the lead lender is not selling the loan, lower reputation lenders may not produce as high quality information or may lend to unobservably worse borrowers. To examine whether the relationship between covenants and loan selling differs based on lead lender reputation, we extend the loan sales models from Section 4.1 by interacting the indicator for lead lenders that are ranked in the top ten with net worth slack and with the number of covenants.[21] The effect of covenants on the probability of loan selling for lead lenders ranked below the top-10 is given directly by the coefficients associated with net worth slack and the number of covenants. The interaction terms allow us to test if the effect of covenants on loan selling differs based on the reputation of the lead lenders.

The third and fourth columns of Table 6 present the results of the extended models using the net worth sample. Again, the results support the view that covenant tightness helps facilitate sale when agency problems are larger. In the third column, the coefficient on net worth slack is negative and significant at the one percent level, and the coefficient on the interaction of net worth slack with the indicator for lead lenders in the top-10 is positive and significant at the seven percent level. This indicates that more restrictive covenants increase the likelihood of sale when lead lenders are ranked low and the effect of restrictive covenants on selling is statistically different than for highly ranked lead lenders. Economically, a one-standard deviation decrease

[21] Results are robust to different cutoff points for lenders' ranking. In the net worth sample, forty-seven percent of not sold loans and nineteen percent of sold loans have lead lenders that are not in the top-10.

in slack increases the probability of sale by fourteen percent for lowly ranked lead lenders as opposed to only five percent for highly ranked lead lenders. Both coefficients remain statistically significant after adding lead lender fixed effects (column 4). We also find that including more covenants increases the probability of sale when lead lenders are not in the top-10. However, there is no statistical difference in the effect of the number of covenants on loan selling between lowly ranked and highly ranked lead lenders. In unreported estimations using the full sample of rated loans, we again find that the number of covenants is positively related to selling loans when lead lenders are not in the top-10, but no statistical difference in the effect between lowly and highly ranked lead lenders.

5 Loan Sales, Access to Loans, and Lending Relationships

The previous section shows that sold loans have tighter covenants and additional covenants than loans that are not sold. Additional analysis suggests that covenants are used to reduce agency problems that arise from selling loans in the secondary market. While restrictive covenants may help loan selling, they 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 loans and through more durable lending relationships. Increased credit availability could be provided by nonbank institutions, which generally do not originate loans in the primary market but are major loan buyers in the secondary market. Also, loan selling can allow lenders to better handle credit risks, which may improve credit availability and lending relationships.

5.1 Access to Loans

We first examine whether loan sales improve borrowers' access to loans. To do so, we collect each borrower's debt-to-asset ratio, level of interest-bearing debt, and the amount of loans received for fiscal years 1997 through 2005. We examine differences in the debt variables between borrowers whose loans are sold ("Sold Borrowers") and matched borrowers whose

loans are not sold ("Not Sold Borrowers") in the year of origination of the sold loan as well as the years before and after. We match sold borrowers with not sold borrowers using the following criteria: (i) *Year of Borrowing*: the not sold borrower receives at least one loan in the same fiscal year as the sold loan of the sold borrower; and (ii) *Industry*: the not sold borrower has the same two-digit SIC code as the sold borrower. If there is more than one match, then we select based on (iii) *Asset Size*: the not sold borrower with the closest level of assets. We find matches for 520 sold borrowers. The results in Table 7 show that relative to matched firms, sold borrowers have significantly higher average debt-to-asset ratios and interest-bearing debt levels. Further, sold borrowers receive significantly more loans (in dollars) than their matched counterparts, both in the year of the sold loan and the year before the loan is sold.[22] This indicates that sold borrowers rely heavily on debt financing, and in particular, on loans.

We assess if there is a significant increase in leverage ratios, debt levels, and loan funding received during the origination year of the sold loan for sold borrowers relative to the matched not sold borrowers. A differences-in-differences estimate is constructed by calculating the difference in the debt variables between sold and not sold borrowers in the year of the loan sale and subtracting the difference in the year before the loan sale. Consistent with loan selling improving access to debt, the results in Table 7 reveal that borrowers' debt-to-asset ratio and interest-bearing debt levels increase in years leading up to, and rise dramatically in, the origination year of a sold loan. Average interest-bearing debt levels rise by $196 million for sold borrowers in the origination year of the sold loan relative to an increase of only $18 million for not sold borrowers. The differences-in-differences estimates for debt-to-assets and interest-bearing debt are both statistically significant at the one percent level (column 3). Importantly, the increase in debt levels is clearly linked with increases in loans received, which more than doubles from $433 million to $887 million for sold borrowers during the origination year of a sold loan. The increase in loans received is largely driven by sold loans, which are nearly two times larger than loans that are not sold, on average (see Table 2). The differences-in-differences estimate for loans received is significant at the 0.01% level. These results suggest a rationale for

[22] In addition, we compared the number of loan facilities across sold borrowers and matched not sold borrowers and found similar results to those reported for loans received. We also scaled loans received by assets and again find similar economic and statistical results.

concurrent work by Gande & Saunders (2005), who find positive announcement effects on a borrower's equity returns when its loans are sold.[23]

The results in the second column of Table 7 indicate that the differences-in-differences estimates for all three debt variables are not significant for the year before the loan is sold. This suggests that the increases in debt capital in the year of the sold loan are related to loan selling. The results in the fourth column show that for sold borrowers, debt-to-assets, interest-bearing debt levels, and loans received decline in the year after the loan is sold. In contrast, there is very little change for the matched not sold borrowers. The differences-in-differences estimates for all three debt variables are all significantly negative at the one percent level. This suggests that increases in debt that are related to loan selling are temporary.

As already discussed in Section 3.2, sold loans are significantly larger and more likely to be used for the capital-intensive purposes of acquisition or leveraged buyout than loans that are not sold. This suggests that borrowers have a specific need for a large quantity of external funds. The results in this section support that the funding of these loans is in addition to the normal private debt raised by these firms. How does loan selling increase credit availability? One possibility is that lenders can fund additional bank loans because loan selling facilitates credit risk management (see e.g., Cebenoyan & Strahan 2004). Consistent with this is that sold borrowers have higher leverage and are riskier than not sold borrowers. Another explanation is that lenders may be able to expand the lending syndicate to include other lenders that desire liquidity (i.e. institutional investors) by using restrictive covenants. On this point, sold loans have, on average, 14.5 lenders in the syndicate as opposed to an average of 6.9 lenders for loans that are not sold.

5.2 Lending Relationships

While the results from the last section suggest that loan sales benefit borrowers by increasing access to loans, a common concern about loan sales is that borrowers may be harmed if ties are severed with the lender. However, loan sales can allow lenders to better manage credit

[23] While Gande & Saunders (2005) find positive announcement returns, Dahiya *et al.* (2003) find negative abnormal returns around sale announcements of distressed loans, consistent with distressed loan sales revealing the bank's negative private information. Our sample, like Gande & Saunders (2005), has very few distressed loan sales (see Table 4, Panel B).

risks, which may be related to more flexible, ongoing relationships between borrowers and lenders that yield benefits. How loan sales relate to lending relationships is the empirical question that we address in this section.

To track lending relationships, we utilize the identities of the borrower and lead lenders that are provided for loan contracts in *DealScan*. For each of the 7,261 loans in the full sample ("original loans"), we look forward in time to identify if the borrower receives a new loan ("future loans"). In order to allow borrowers from the latter part of the sample to potentially borrow again, we collect loan originations until December 31, 2005, a full year after the sample end date. If a lead lender on any future loan is the same as a lead lender on the original loan, then we assume that the lending relationship has been retained.[24] We then examine for borrowers that receive future loans whether the original loan being sold affects the likelihood of continuing the lending relationship.

One limitation of our analysis is that we are unable to determine if the lead lender is selling the original loan. This information would allow us to directly test for the effect of loan selling by the lead lender on lending relationships. However, it is important to note that even if the lead lender is not the loan seller, the mere existence of a market for the loan can affect lending relationships by reducing the costs of selling. This can allow the lead lender to more easily reduce exposure to a borrower. Our tests and results should be interpreted while taking into account this caveat.

Table 8, Panel A shows that loan selling is positively related to borrowers' receiving future loans. Eighty-five percent of borrowers whose original loans are sold receive a future loan. In contrast, only 69 percent of borrowers whose loans are not sold receive a future loan, a difference that is significant at the one percent level. However, since the results in the prior section indicate that sold borrowers do not receive additional debt capital in the future, it is possible that this result is driven by other factors that are correlated both with loan selling and raising future debt. Therefore, we control for borrower characteristics in a multivariate model, below.

[24] In robustness tests, we limit future borrowing to three years after the loan origination. All presented results are robust to this modification.

Further analysis reveals a positive association between loan sales and ongoing lending relationships. As shown in Table 8, 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 lead lender on some future loan, a significant difference at the one percent level. One explanation for this finding 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 8, Panel B show that loan selling is associated with 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 low risk borrowers.

5.2.1 Nested Logit Models

The univariate results provide suggestive evidence that lending relationships are more durable when loans are traded, particularly for risky borrowers. We use nested logit models to determine whether the loan selling is associated with more durable lending relationships after controlling for other factors that affect lending relationships. As shown in Figure 2, we assume a two-stage decision. First, the borrower either receives a future 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 Lead Lender") or exclusively uses other banks as lead lenders ("Doesn't Keep Lead Lender").

Following Maddala (1983), let k index the first-level alternatives and l index the second-level alternatives.[25] Also, let $\boldsymbol{Y_{kl}}$ and $\boldsymbol{Z_k}$ be vectors of explanatory variables specific to the categories (k, l) and (k), respectively. Then each borrower will have a utility U_{kl} for alternative (k,l) that is a function of the explanatory variables. We set $U_{kl} = \boldsymbol{\alpha' Y_{kl}} + \boldsymbol{\beta' Z_k} + \varepsilon_{kl}$, and then the probability of choosing l, conditional on first choosing k, is

$$\Pr_{l|k} = \frac{\exp(\boldsymbol{\alpha}' \boldsymbol{Y_{kl}})}{\sum_{l=1}^{L} \exp(\boldsymbol{\alpha}' \boldsymbol{Y_{kl}})}. \qquad (1)$$

[25] k can be "Borrow Again" or "Doesn't Borrow Again" while l can be "Keep Lead Lender" or "Doesn't Keep Lead Lender."

Define the inclusive values for category (*k)* as

$$IV_k = \ln\left(\sum_{l=1}^{L} \exp(\boldsymbol{\alpha}' \boldsymbol{Y}_{kl})\right), \tag{2}$$

which leaves us with the probability of choosing *k* as

$$\Pr_k = \frac{\exp(\boldsymbol{\beta}' \boldsymbol{Z}_k + \tau_k IV_k)}{\sum_{k=1}^{K} \exp(\boldsymbol{\beta}' \boldsymbol{Z}_k + \tau_k IV_k)}. \tag{3}$$

In our models, we assume the following variables affect the borrowers' ability to receive future loans ($\boldsymbol{Z}_k$): the logarithm of book assets, net income-to-asset ratio, debt-to-asset ratio, distance-to-default, indicators for borrowers that are junk rated and investment-grade rated, and year fixed effects. We expect larger and safer firms to have continued access to loans and therefore anticipate a positive relationship between receiving future loans and assets, net income-to-assets, and firms that are investment-grade rated. 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 lead lenders ($\boldsymbol{Y}_{kl}$), we include an indicator for the original loan is sold, an indicator for a prior lending relationship between the borrower and an original lead lender, an indicator for loans where an original lead lender is ranked in the top-10, and industry fixed effects.[26] Previous evidence suggests that prior lending relationships and lender reputation are positively related to keeping the lead lender (see e.g. Bharath *et al.* 2005). Based on the univariate results, we expect that loan selling will increase the probability that the borrower keeps its lender in the future.

In addition to the base model, we also estimate a second model in which we allow the effects of loan selling, prior lending relationships, and lender reputation on lending relationships to vary based on the credit risk of the firm. To do so, we place loans into terciles based on the borrower's distance-to-default, replace the distance-to-default variable with indicators for middle and high distance-to-default, and interact the distance-to-default indicators with the relevant

[26] All explanatory variables are defined as of the date of the original loan. For example, a borrower and lead lender have a prior lending relationship if a lead lender and borrower had a loan before the origination date of the original loan.

explanatory variables. The coefficients associated with the non-interacted variables give the direct effects for low distance-to-default borrowers. The interaction terms allow us to test if the effects on lending relationships differ across borrower risk class. We expect the positive effect of loan selling on lending relationships to be significant for borrowers with low distance-to-default.

5.2.2 Results

In Table 9, we present the results of the nested logit models. In both specifications, the control variables are highly significant and have the anticipated signs. In the first column, the positive coefficient associated with loans that are sold shows that loan selling is positively related to the borrower and lender retaining a lending relationship, even after controlling for other highly important factors. The effect is significant at the three percent level.

The positive coefficient associated with loan sales in the second column of Table 9 confirms that among higher risk borrowers (those with low distance-to-default), there is an association between loan sales and more durable lending relationships. The coefficient is statistically significant at the one percent level. Economically, for borrowers in the lowest tercile of distance-to-default, the probability of maintaining the lending relationship conditional on receiving a future loan is 8.5 percent higher when the original loan is sold. Further, the coefficient on the interaction of sold loans with high distance-to-default is negative and statistically significant at the two percent level. This indicates the relationship between loan sales and lending relationship durability is statistically significant for the highest risk borrowers when compared with the lowest risk borrowers.

Overall, the results in this section indicate that the durability of lending relationships is positively related to loan selling. Importantly, lending relationships involving high risk borrowers are more durable when loans are sold, consistent with risk management providing for more flexible lending relationships. This counters a major concern about the development of the loan sales market – that relationship lending will be replaced by more transactional forms of lending, thereby harming borrowers that rely on lending relationships to access external capital. In fact, lending relationships are more durable for the firms that are likely to benefit greatly from

the relationship lender's long-run view of company prospects and its ability to reduce the costs of financial distress.

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 for nonbank institutions to invest in loans. However, loan selling separates loan origination, servicing, and funding. This can exacerbate the traditional borrower-lender agency problem and introduce an additional agency problem between the loan seller and loan buyer. Further, the separation of the lending functions can allow new funds to flow into the loan market, but may fundamentally alter the relationship between the borrower and lender. This paper examines whether loan contract design can reduce agency problems in loan sales as well as the benefits and costs to corporate borrowers of having their loans sold.

We argue that covenants can help reduce agency problems in loan sales by giving the loan buyer the means to monitor a borrower's financial condition through easily observable public information, and the right to intervene should a borrower perform poorly. Covenants can limit potential losses by providing the loan buyer with protection against wealth expropriation by the borrower and against buying a loan that the seller either did not screen well or privately knew was poor. Consistent with this view, we find that the sold loans include additional covenants and more restrictive covenants than loans that are not sold. Importantly, the use of tighter covenants has a larger effect on salability when agency problems in loan selling are more pronounced, such as when public information is worse (as proxied by credit rating agency disagreement) and when loans are originated by low reputation lead lenders. The results are consistent with the benefits of using covenants to aid loan sales outweighing the potential costs of poor covenant enforcement and / or more difficult renegotiations for borrowers.

The interpretation that covenants are used to reduce agency problems from selling loans in the secondary market relies on lenders structuring 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, lenders

are not simply selling loans that have performed poorly *ex post*, 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. Additional analysis indicates that loans that are sold in the secondary market do indeed have additional and tighter covenants than syndicated loans that are held by the original lenders. This suggests that covenants mitigate agency problems that are relevant to secondary market loan selling.

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 loans. In particular, we find borrowers whose loans are sold have debt-to-asset ratios and interest-bearing debt levels increase significantly in the year the sold loan is originated relative to a matched group of borrowers whose loans are not sold. The increase in debt is linked directly to sold loans being, on average, nearly two times larger than loans that are held by the original lenders. We argue that increased access to loans is a natural benefit to arise from loan selling because loan buyers tend to be outside the banking system and can provide additional funding. Since the borrowers are predominately riskier firms, concerns about credit risk may prevent traditional lenders from funding the loan in its entirety.

In addition, we find strong evidence that loan sales are associated with more durable lending relationships, which can yield additional benefits for borrowers. Interestingly, the positive relationship between loan sales and lending relationships is strongest for risky borrowers. One interpretation is that lenders use the loan sales market to manage credit risk, which improves fund availability and increases flexibility in lending relationships. The analysis reduces concerns that loan selling destroys lending relationships. In fact, lending relationships are more durable for borrowers that are most likely to benefit from relationship lending – the riskiest firms.

Finally, we document that risky, leveraged loans are sold in the secondary loan sales market. Other research indicates that lenders can fund investment-grade loans by buying credit default swaps (see e.g., Bomfim 2005), and that lenders can fund smaller, more opaque loans through collateralized loan obligations (see e.g., Jobst 2002). This raises some important questions. What are the major benefits and costs to borrowers and lenders of these various funding channels? As banks increasingly fund loans through off-balance sheet methods, will

they continue to maintain lending relationships or will they act more in a transactional capacity? As information technology improves, will nonbank institutions compete extensively with commercial banks for loan originations? It will be important to follow these growing markets into the future to assess these effects.

References

Allen, L., Gottesman, A., 2005. The Information Efficiency of the Equity Market as compared to the Syndicated Bank Loan Market. Baruch College, CUNY

Altman, E., Gande, A., Saunders, A., 2004. Informational Efficiency of Loans versus Bonds: Evidence from Secondary Market Prices. New York University

Avery, R., Berger, A., 1991. Loan Commitments and Bank Risk Exposure. Journal of Banking & Finance 15, 173-192

Beneish, M., Press, E., 1993. Costs of Technical Violation of Accounting-based Debt Covenants. The Accounting Review 68, 233-257

Beneish, M., Press, E., 1995. The Resolution of Technical Default. The Accounting Review 70, 337-353

Berger, A., Udell, G., 1993. Securitization, Loan Sales, and the Liquidity Problem in Banking. In: Klausner M & White LJ (eds.) Structural Change in Banking. Irwin, Homewood, IL.

Berger, A., Udell, G., 1995. Relationship Lending and Lines of Credit in Small Firm Finance. Journal of Business 68, 351-381

Berlin, M., Loeys, J., 1988. Bond Covenants and Delegated Monitoring. Journal of Finance 43, 397-412

Berlin, M., Mester, L., 1992. Debt Covenants and Renegotiation. Journal of Financial Intermediation 2, 95-133

Bernanke, B., Gertler, M., 1987. Banking and Macroeconomic Equilibrium. In: Barnett W & Singleton K (eds.) New Approaches to Monetary Economics. Cambridge University Press, New York, pp. 89-111.

Bharath, S., Dahiya, S., Saunders, A., Srinivasan, A., 2005. So What Do I Get? The Bank's View of Lending Relationships. New York University

Bhasin, V., Carey, M., 2000. The Determinants of Corporate Loan Liquidity. Board of Governors of the Federal Reserve System

Board of Governors of the Federal Reserve System, 2003. Senior Loan Officer Opinion Survey on Bank Lending Practices (October).

Bomfim, A., 2005. Understanding Credit Derivatives and Related Instruments. Elsevier Academic Press, Oxford, UK.

Boot, A., Thakor, A., 1994. Moral Hazard and Secured Lending in an Infinitely Repeated Credit Market Game. International Economic Review 35, 899-920

Boyd, J., Prescott, E., 1986. Financial Intermediary-Coalitions. Journal of Economic Theory 38, 211-232

Carey, M., Prowse, S., Rea, J., Udell, G., 1993. The Economics of the Private Placement Market. Board of Governors of the Federal Reserve System

Carlstrom, C., Samolyk, K., 1995. Loan Sales as a Respone to Market-Based Capital Constraints. Journal of Banking & Finance 19, 627-646

Cebenoyan, A.S., Strahan, P., 2004. Risk Management, Capital Structure, and Lending at Banks. Journal of Banking & Finance 28, 19-43

Chava, S., Roberts, M.R., 2005. Is Financial Contracting Costly? An Empirical Analysis of Debt Covenants and Corporate Investment. University of Pennsylvania

Chen, K.C., Wei, K.C.J., 1993. Creditors' Decisions to Waive Violations of Accounting-based Debt Covenants. The Accounting Review 68, 218-232

Coffey, M., 2005. Opportunity Knocks... and Borrowers Answer. LSTA Loan Market Chronicle, 39-44

Cole, R.A., 1998. The Importance of Relationships to the Availability of Credit. Journal of Banking and Finance 22, 959-977

Cramer, J.S., 2005. Omitted Variables and Misspecified Disturbances in the Logit Model. University of Amsterdam and Tinbergen Institute

Crosbie, P.J., Bohn, J., 2003. Modeling Default Risk. Moody's/KMV

Cummings, N., 2005. How Funds Have Forged Changes in the Tranche B Term Loan Market. LSTA Loan Market Chronicle, 79-81

Dahiya, S., Puri, M., Saunders, A., 2003. Bank Borrowers and Loan Sales: New Evidence on the Uniqueness of Bank Loans. Journal of Business 76, 563-582

Demsetz, R., 2000. Bank Loan Sales: A New Look at the Motivations for Secondary Market Activities. Journal of Financial Research 23, 192-222

Dennis, S., Mullineaux, D., 2000. Syndicated Loans. Journal of Financial Intermediation 9, 404-426

Diamond, D., 1984. Financial Intermediation and Delegated Monitoring. Review of Economic Studies 51, 393-414

Diamond, D., 1991. Monitoring and Reputation: The Choice Between Bank Loans and Directly Placed Debt. Journal of Political Economy 99, 689-721

Dichev, I., Skinner, D., 2002. Large-Sample Evidence on the Debt Covenant Hypothesis. Journal of Accounting Research 40, 1091-1123

Fama, E., 1985. What's Different About Banks? Journal of Monetary Economics 10, 10-19

Faulkender, M., Petersen, M., 2006. Does the Source of Capital Affect Capital Structure? Review of Financial Studies 19, 45-79

Gande, A., Puri, M., Saunders, A., Walter, I., 1997. Bank Underwriting of Debt Securities: Modern Evidence. Review of Financial Studies 10, 1175-1202

Gande, A., Saunders, A., 2005. Are Banks Still Special when there is a Secondary Market for Loans? Vanderbilt University

Gorton, G., Haubrich, J., 1987. Loan Sales, Recourse, and Reputation: An Analysis of Secondary Loan Participations. University of Pennsylvania

Gorton, G., Haubrich, J., 1990. The Loan Sales Market. In: Kaufman G (ed.) Research in Financial Services, Vol 2. JAI Press, pp. 85-135.

Gorton, G., Pennacchi, G., 1995. Banks and Loan Sales: Marketing Nonmarketable Assets. Journal of Monetary Economics 35, 389-411

Guner, A.B., 2006. Loan Sales and the Cost of Corporate Borrowing. Review of Financial Studies 16, 687-716

Gupta, A., Singh, A., Zebedee, A., 2006. Liquidity in the Pricing of Syndicated Loans. Case Western Reserve University

Harhoff, D., Korting, T., 1998. Lending Relationships in Germany: Empirical Evidence from Survey Data. Journal of Banking & Finance 22, 1317-1353

Hoshi, T., Kashyap, A., Scharfstein, D., 1990. The Role of Banks in Reducing the Costs of Financial Distress in Japan. Journal of Financial Economics 27, 67-88

Hoshi, T., Kashyap, A., Scharfstein, D., 1991. Corporate Structure, Liquidity, and Investment: Evidence from Japanese Industrial Groups. Quarterly Journal of Economics 106, 33-60

Ip, G., 2002. Credit Report: Suddenly, Banks are Acting a lot like Bond Markets. In: Wall Street Journal (September 17), p. A1

Jobst, A., 2002. Collateralised Loan Obligations (CLOs): A Primer. London School of Economics

Jones, J., Lang, W., Nigro, P., 2005. Agent Bank Behavior in Bank Loan Syndications. Journal of Financial Research 28, 385-402

Lee, S., Mullineaux, D., 2004. Monitoring, Financial Distress, and the Structure of Commercial Lending Syndicates. Financial Management 33, 107-130

Maddala, G.S., 1983. Limited Dependent and Qualitative Variables in Econometrics. Cambridge University Press, New York.

Megginson, W., Weiss, K., 1991. Venture Capitalist Certification in Initial Public Offerings. Journal of Finance 46, 879-903

Merton, R.C., 1974. On the Pricing of Corporate Debt: The Risk Structure of Interest Rates. Journal of Finance 29, 449-470

Moerman, R., 2005. The Role of Information Asymmetry and Financial Reporting Quality in Debt Contracting: Evidence from the Secondary Loan Market. University of Chicago

Morgan, D., 2002. Rating Banks: Risk and Uncertainty in an Opaque Industry. American Economic Review 92, 874-888

Ongena, S., Smith, D.C., 2000. Bank relationships: A Review. In: Harker PT & Zenios SA (eds.) The Performance of Financial Institutions: Efficiency, Innovation, and Regulation. Cambridge University Press, Cambridge and New York.

Pavel, C., Phillis, D., 1987. Why Commercial Banks Sell Loans: An Empirical Analysis. Economic Perspectives of the Federal Reserve Bank of Chicago July/August, 3-14

Pennacchi, G., 1988. Loan Sales and the Cost of Bank Capital. Journal of Finance 43, 375-396

Petersen, M., Rajan, R., 1994. The Benefits of Lending Relationships: Evidence from Small Business Data. Journal of Finance 49, 3-37

Pichler, P., Wilhelm, W., 2001. A Theory of the Syndicate: Form Follows Function. Journal of Finance 56, 2237-2264

Rajan, R., Winton, A., 1995. Covenants and Collateral as Incentives to Monitor. Journal of Finance 50, 1113-1145

Ramakrishnan, R., Thakor, A., 1984. Information Reliability and a Theory of Financial Intermediation. Review of Economic Studies 22, 415-432

Samolyk, K., 1989. The Role of Banks in Influencing Regional Flows of Funds. Federal Reserve Bank of Cleveland

Scott, J., Dunkelberg, W.C., 1999. Bank Consolidation and Small Business Lending: A Small Firm Perspective. In: Blanton J, Williams A & Rhine S (eds.) Business Access to Capital and Credit. Federal Reserve Research Conference, pp. 338-361.

Smith, C., Warner, J., 1979. On Financial Contracting: An Analysis of Bond Covenants. Journal of Financial Economics 7, 117-161

Sufi, A., 2005. Information Asymmetry and Financing Arrangements: Evidence from Syndicated Loans. Journal of Finance, Forthcoming

Sufi, A., 2006. The Real Effects of Debt Certification: Evidence from the Introduction of Bank Loan Ratings. University of Chicago

Sweeney, A., 1994. Debt Covenant Violations and Managers' Accounting Responses. Journal of Accounting and Economics 17, 281-308

Thomas, H., Wang, Z., 2004. The Integration of Bank Syndicated Loan and Junk Bond Markets. Journal of Banking & Finance 28, 299-329

Yago, G., McCarthy, D., 2004. The U.S. Leveraged Loan Market: A Primer. Milken Institute

Yatchew, A., Griliches, Z., 1985. Specification Error in Probit Models. Review of Economics and Statistics 67, 134-139

Appendix A: Variable Construction

Variable	Description
Loan is Sold	Indicator that equals one if loan is in the LSTA mark-to-market database
Net Worth Slack	For loans in the "net worth sample": $= \frac{(Tangible)\ Net\ Worth - Covenant\ Min\ Level}{Book\ Assets}$ • *Net Worth* = Total Assets minus Total Liabilities (Compustat Quarterly #44 - #54) • *Tangible Net Worth* = Current Assets plus Net PP&E plus Other Assets minus Total Liabilities (Compustat Quarterly #40 + #42 + #43 - #54). • *Book Assets* is Compustat Quarterly #44 • *Covenant Min Level* is specified in *DealScan*
# of Covenants	Total Number of Financial Covenants plus number of sweep covenants (asset, equity, and debt) plus one if loan has a dividend restriction
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 based on KMV/Merton methodology described in Crosbie & Bohn (2003) $= \frac{V_A - D}{V_A * \sigma_A}$ • *D* is Debt, defined as the debt in current liabilities plus one-half long term debt (Compustat Quarterly #45 + ½ * #51) • V_A is the market value of assets and σ_A is the one-year asset volatility. V_A and σ_A are unobservable, but are approximated by using the market value of equity (V_E), the one-year equity volatility (σ_E), the 3-month treasury bill rate (r), and debt (D) and solving (Merton 1974)'s model of pricing a firm's debt and equity for a one-year time horizon ($T = 1$): $V_E = V_A * N(d_1) - e^{-rT} * D * N(d_2)$ $\sigma_E = \frac{V_A}{V_E} * N(d_1) * \sigma_A$ *where* $d_1 = \frac{\ln\left(\frac{V_A}{D}\right) + \left(r + \frac{\sigma_A^2}{2}\right)T}{\sigma_A \sqrt{T}}$ $d_2 = d_1 - \sigma_A \sqrt{T}$ *N( )* is the cumulative normal distribution

Investment-Grade Rated	Indicator that equals one if the borrower has a Standard & Poor's long term debt rating of BBB or above at loan origination
Junk Rated	Indicator that equals one if the borrower has a Standard & Poor's long term debt rating of BB or below at loan origination
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
Lead Lender in Top-10	Indicator equals one if a lead lender is among the ten highest loan market shares. To calculate loan market shares, 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. We rank the lenders on a yearly basis, based on the market share in the previous year.
Common Rating	Indicator that equals one if Moody's and Standard & Poor's have the same long term debt ratings. The variable is not coded for borrowers that are unrated by Moody's or Standard & Poor's.
Prior Lending Relationship	Indicator that equals one if a lead lender provided a previous loan to the borrower. In lender mergers, we assume that the acquirer takes on the target's lending relationships.
Lead Lender Fixed Effects	Indicator variables for lead lenders
Loan Type Fixed Effects	Three Indicators Credit Line: Revolver/Line of Credit, 364-day Facility, or Limited Line Term Loan: Term Loan (Regular; A through H), Delay Draw Term Loan, Revolver/Term Loan Other Loan Type: All other types of lending facilities
Loan Purpose Fixed Effects	Six Indicators Acquisition: Acquisition or takeover General: General corporate purposes, capital expenditure, or working capital Other: Debtor-in-Possession, CP Backup, Credit Enhancement or ESOP Recapitalization: Recapitalization or Debt Repayment LBO: LBO/MBO 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. Appendix A contains full descriptions for each variable.

	Full Sample	Net Worth Sample
Variable	Mean / Median or Percentage	Mean / Median or Percentage
Loan is Sold (0,1)	0.148	0.076
Net Worth Slack		0.132 / 0.101
# of Covenants	4.589 / 4.000	5.010 / 5.000
Borrower Characteristics		
Assets	2587.080 / 547.622	1534.996 / 282.691
Net Income-to-Assets	0.002 / 0.007	0.003 / 0.007
Debt-to-Assets	0.324 / 0.308	0.280 / 0.263
Distance-to-Default	2.304 / 1.929	2.110 / 1.844
Has Credit Rating (0,1)	0.460	0.310
Investment-Grade Rated (0,1)	0.192	0.121
Junk Rated (0,1)	0.268	0.189
Loan Characteristics		
Loan Size ($ mil)	202.827 / 85.925	133.626 / 45.764
Loan Maturity (months)	40.616 / 36.033	37.587 / 36.033
Loan is Syndicated (0,1)	0.737	0.643
Lead Lender in Top-10 (0,1)	0.635	0.556
Loan Type		
Credit Line (0,1)	0.668	0.712
Term Loan (0,1)	0.295	0.263
Other Loan Type (0,1)	0.037	0.026
Loan Purpose		
Acquisition Purpose (0,1)	0.164	0.140
General Purpose (0,1)	0.463	0.509
Other Purpose (0,1)	0.097	0.052
Recapitalization Purpose (0,1)	0.210	0.252
LBO Purpose (0,1)	0.020	0.001
Miscellaneous Purpose (0,1)	0.047	0.046
Number of Loans	7261	2674

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
Net Worth Slack [+]	0.07	0.14	-0.07	-9.53***
# of Covenants	6.34	4.28	2.06	27.48***
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	-4.82***
Has Credit Rating (0,1)	0.88	0.39	0.49	29.82***
Investment-Grade Rated (0,1)[++]	0.12	0.53	0.41	23.41***
Junk Rated (0,1)[++]	0.88	0.47	0.41	23.41***
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***
Lead Lender in Top-10 (0,1)	0.82	0.60	0.22	13.79***
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***
LBO Purpose (0,1)	0.05	0.01	0.03	7.15***
Other Purpose (0,1)	0.04	0.11	-0.06	-6.58***
Recapitalization Purpose (0,1)	0.22	0.21	0.01	0.87
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 Rated Loans Only: 944 Loan Sale; 2,394 No Loan Sale

Table 3
Probability of Selling Loans in the Secondary Market

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 (1) and (2). 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.

	Net Worth Sample		Full Sample	
	(1)	(2)	(3)	(4)
Net Worth Slack	-2.436**	-2.623*		
	(1.94)	(1.84)		
# of Covenants	0.357***	0.337***	0.277***	0.252***
	(5.17)	(4.21)	(8.54)	(7.50)
Log of Assets	0.702***	0.651***	0.481***	0.424***
	(4.25)	(3.49)	(5.96)	(5.02)
Net Income-to-Assets	0.823	-4.612	-8.078***	-8.605***
	(0.13)	(0.69)	(2.99)	(3.14)
Debt-to-Assets	0.682*	0.683	0.981***	1.352***
	(1.81)	(0.75)	(3.85)	(4.70)
Distance-to-Default	-0.011	-0.036	-0.186***	-0.198***
	(0.09)	(0.27)	(3.44)	(3.55)
Junk Rated (0,1)	1.460***	1.362***	1.260***	1.101***
	(3.92)	(3.17)	(7.56)	(6.47)
Investment-Grade Rated (0,1)	0.094	-0.054	-0.079	-0.100
	(0.19)	(0.10)	(0.31)	(0.40)
Log of Loan Size	0.857***	0.945***	0.608***	0.604***
	(4.64)	(4.53)	(7.77)	(7.44)
Log of Loan Maturity	1.500***	1.728***	1.362***	1.375***
	(5.68)	(6.00)	(10.14)	(10.62)
Loan is Syndicated (0,1)	1.321*	1.004	1.465***	1.238***
	(1.94)	(1.19)	(4.09)	(3.45)
Lead Lender in Top-10 (0,1)	0.134	-0.557	0.275	0.515**
	(0.39)	(1.02)	(1.60)	(2.11)
Constant	-43.376***	-43.814***	-31.987***	-28.910***
	(11.00)	(10.02)	(18.75)	(15.32)
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
Lead Lender Fixed Effects	No	Yes	No	Yes
Log Likelihood	-318.56	-280.39	-1506.52	-1409.02
Psuedo R-Squared	0.56	0.56	0.51	0.51
Number of Loans	2674	1897	7261	6213

Table 4
Sold Loans: Timing, Pricing, and Performance

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 D displays the time between the loan origination date and the last date the loan is quoted for trade.

Panel A: Time to First Sale

	Number of Loans Sold	Cumulative Percentage
1st month	593	61.77%
2nd month	52	67.19%
3rd month	35	70.83%
4th to 6th month	80	79.17%
7th to 12th month	82	87.71%
2nd year	75	95.52%
3rd year	23	97.92%
4th year	15	99.48%
5th year and longer	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	*Distance-to-Default Changes*	
No Rating Change	93.50%	Median	0.00
Upgrade	0.75%	Mean	0.068
Downgrade	5.75%	Standard Deviation	0.706

Panel D: Time to Last Sale

	Number of Loans Sold	Cumulative Percentage
1st to 3rd month	6	0.63%
4th to 6th month	22	2.29%
7th to 12th month	142	17.71%
13th to 18th month	171	35.52%
19th to 24th month	141	50.21%
3rd year	172	68.13%
4th year	139	82.60%
5th year	116	94.69%
6th year and longer	51	100.00%

Table 5
Probability of Selling Loans in the Secondary Market
Sample Restricted to Syndicated Loans

This table presents results of logit models. Only loans that are syndicated are used when estimating these 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 (1) and (2). 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.

	Net Worth Sample		Full Sample	
	(1)	(2)	(3)	(4)
Net Worth Slack	-2.532*	-2.914**		
	(1.93)	(1.97)		
# of Covenants	0.344***	0.336***	0.266***	0.245***
	(4.92)	(4.28)	(8.12)	(7.19)
Log of Assets	0.693***	0.618***	0.475***	0.417***
	(4.15)	(3.33)	(5.70)	(4.77)
Net Income-to-Assets	0.155	-6.129	-8.577***	-9.166***
	(0.02)	(0.93)	(3.10)	(3.28)
Debt-to-Assets	0.706	0.611	1.467***	1.343***
	(0.90)	(0.65)	(5.56)	(4.63)
Distance-to-Default	-0.005	-0.026	-0.153***	-0.172***
	(0.04)	(0.19)	(2.87)	(3.11)
Junk Rated (0,1)	1.447***	1.382***	1.204***	1.101***
	(3.84)	(3.25)	(7.18)	(6.37)
Investment-Grade Rated (0,1)	0.053	-0.072	-0.112	-0.130
	(0.11)	(0.13)	(0.44)	(0.51)
Log of Loan Size	0.834***	0.958***	0.608***	0.613***
	(4.57)	(4.63)	(7.53)	(7.31)
Log of Loan Maturity	1.473***	1.702***	1.421***	1.422***
	(5.57)	(5.89)	(10.30)	(10.85)
Lead Lender in Top-10 (0,1)	0.154	-0.507	0.239	0.457*
	(0.44)	(0.95)	(1.36)	(1.84)
Constant	-41.377***	-42.249***	-30.687***	-27.753***
	(10.29)	(9.37)	(17.69)	(14.52)
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
Lead Lender Fixed Effects	No	Yes	No	Yes
Log Likelihood	-314.83	-274.79	-1452.45	-1367.76
Psuedo R-Squared	0.49	0.53	0.45	0.47
Number of Loans	1720	1466	5352	5033

Table 6
Probability of Selling Loans: Credit Rating Disagreement and 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. The Net Worth Sample, which includes loans that have a minimum (tangible) net worth covenant, is used in all estimations. "Common Rating" indicates that Moody's and Standard & Poor's have the same long term debt ratings. Since the variable is not coded for borrowers that are unrated by Moody's or Standard & Poor's, the models in columns (1) and (2) are estimated for loans where the borrower has a credit rating. "Lead Lender in Top-10" indicates that a lead lender has a loan market share among the highest ten lenders during the year prior to the loan. 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)
Net Worth Slack	-6.208***	-5.723**	-6.616***	-8.233**
	(3.15)	(2.33)	(2.71)	(2.17)
Common Rating *	4.496**	4.861*		
Net Worth Slack	(1.96)	(1.72)		
Lead Lender in Top-10 *			5.092*	6.991*
Net Worth Slack			(1.81)	(1.73)
# of Covenants	0.392***	0.466***	0.527***	0.463***
	(2.99)	(2.99)	(4.25)	(2.57)
Common Rating *	-0.093	-0.215		
# of Covenants	(0.70)	(1.31)		
Lead Lender in Top-10 *			-0.200	-0.155
# of Covenants			(1.50)	(0.82)
Log of Assets	0.795***	0.784***	0.730***	0.670***
	(4.44)	(3.76)	(4.39)	(3.59)
Net Income-to-Assets	-3.761	-4.831	0.185	-4.896
	(0.50)	(0.56)	(0.03)	(0.76)
Debt-to-Assets	0.803	0.610	0.606	0.625
	(0.95)	(0.64)	(1.14)	(0.67)
Distance-to-Default	0.038	0.028	-0.010	-0.046
	(0.28)	(0.21)	(0.08)	(0.35)
Junk Rated (0,1)	1.334***	1.509***	1.387***	1.387***
	(3.29)	(3.59)	(3.77)	(3.34)
Investment-Grade Rated (0,1)			0.002	-0.028
			(0.00)	(0.05)
Log of Loan Size	0.752***	0.937***	0.850***	0.960***
	(3.38)	(3.57)	(4.61)	(4.63)
Log of Loan Maturity	1.701***	1.858***	1.451***	1.639***
	(5.45)	(5.53)	(5.42)	(5.88)
Loan is Syndicated (0,1)	0.906	0.520	1.165*	0.798
	(1.26)	(0.64)	(1.80)	(0.96)
Lead Lender in Top-10 (0,1)	0.102	-0.219	1.171	0.372
	(0.26)	(0.35)	(1.14)	(0.27)
Common Rating (0,1)	-0.040	0.439		
	(0.04)	(0.40)		
Constant	-44.665***	-45.502***	-46.061***	-44.908***
	(9.42)	(8.06)	(11.04)	(9.77)
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
Lead Lender Fixed Effects	No	Yes	No	Yes
Log Likelihood	-239.25	-210.15	-314.76	-281.93
Psuedo R-Squared	0.45	0.49	0.56	0.56
Number of Loans	829	750	2674	1901

Table 7
Loan Sales and Debt Capital

This table provides means of debt characteristics for a sample of borrowers, based on whether their loans are sold. Borrowers are separated into two samples: "Sold Borrowers" have a loan sold at some time between 1999 and 2004; "Not Sold Borrowers" never have a loan sold between 1999 and 2004. For each sold borrower, we identify the origination fiscal year of the sold loan. A matching not sold borrower is found using the following method: (i) *Year of Borrowing:* has a loan in the same fiscal year as sold loan; (ii) *Industry*: has the same two-digit SIC code. If there is more than one match, then we choose based on (iii) *Asset Size*: the not sold borrower with closest level of assets. There are 520 matched borrowers. The matched borrowers are tracked for two years before and one year after the matching year ("Year of the Sold Loan"). The unit of observation is the borrower-fiscal year. Compustat Variables: Interest-Bearing Debt is long-term debt plus debt in current liabilities; Debt-to-Assets is interest-bearing debt divided by book assets. *DealScan* Variable: Private Debt Issuance is total notional amount of loans. Dollar values are expressed in January 1999 dollars. "Sold Borrower" and "Matched Not Sold Borrowers" provide means for the matched borrower samples during the year specified in the column heading. The results of tests for differences in the means of the two samples are displayed next to "p-value for differences in means." A differences-in-differences estimate is constructed by calculating the difference in the year specified in the column heading and subtracting the difference in the year specified under the prior column heading. The results of tests for differences-in-differences are displayed next to "p-value for differences-in-differences (year t vs. t-1)".

	(1)	(2)	(3)	(4)
	2 Years Before Sold Loan	1 Year Before Sold Loan	Year of Sold Loan	1 Year After Sold Loan
Debt-to-Assets				
Sold Borrower	0.451	0.459	0.476	0.452
Matched Not Sold Borrower	0.308	0.311	0.314	0.316
p-value for differences in means	0.000	0.000	0.000	0.000
p-value for differences-in-differences (year t vs. t-1)		0.570	0.009	0.012
Interest-Bearing Debt				
Sold Borrower	1573.231	1661.997	1857.745	1704.480
Matched Not Sold Borrower	1105.061	1128.343	1146.257	1222.903
p-value for differences in means	0.002	0.000	0.000	0.000
p-value for differences-in-differences (year t vs. t-1)		0.117	0.009	0.005
Loans Received (in millions)				
Sold Borrower	447.594	433.296	886.691	306.563
Matched Not Sold Borrower	344.743	281.259	396.260	274.260
p-value for differences in means	0.160	0.000	0.000	0.330
p-value for differences-in-differences (year t vs. t-1)		0.526	0.000	0.000

Table 8
Univariate Analysis: Probability of Keeping the Same Lead Lender

Panel A provides the percentage of borrowers that receive another loan between the loan date and December 31, 2005, split on whether the original loan was sold. For those borrowers that receive at least one future loan, Panel B provides the percentage of borrowers that borrow again from the same lead lender on at least one future loan, split on whether the initial loan was sold. "Low (Mid, High) Distance-to-Default" indicates that the borrower's distance-to-default is in the lowest (middle, highest) one-third of the full sample. 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 ***
Low Distance-to-Default	82.22%	62.69%	19.53%	7.57 ***
Mid Distance-to-Default	86.01%	67.53%	18.47%	6.93 ***
High Distance-to-Default	86.54%	75.80%	10.74%	4.31 ***
Panel B: Conditional on Receiving Another Loan, % that Keep the Same Lead Lender				
Full Sample	83.53%	75.83%	7.70%	5.03 ***
Low Distance-to-Default	79.58%	64.10%	15.48%	5.36 ***
Mid Distance-to-Default	84.75%	75.11%	9.64%	3.57 ***
High Distance-to-Default	85.80%	86.93%	-1.12%	-0.50

Table 9
Multivariate Models: Probability of Keeping the Same Lead Lender

This table presents results of nested logit models. The dependent variable indicates whether the issuer (i) "Doesn't Borrow Again," (ii) "Borrow Again" and "Keep Lead Lender," or (iii) "Borrow Again," and "Doesn't Keep Lead Lender." "Doesn't Borrow Again" indicates that the borrower does not receive any future loans. "Keep Lead Lender" indicates that the borrower receives at least one future loan and keeps an original lead lender in at least one future loan. "Doesn't Keep Lead Lender" indicates that the borrower receives at least one future loan but never keeps the same lead lender. Let "Borrow Again" and "Doesn't Borrow Again" belong to the upper nest and "Keep Lead Lender," and "Doesn't Keep Lead Lender" belong to the lower nest. Independent variables that affect outcomes in both the upper and lower nests are listed under the heading "Keep Lender vs. Doesn't Keep Lender." The displayed coefficients for these variables provide the effect of the variables on keeping the same lender as opposed to not keeping the same lender. Independent variables that only affect the choice in the upper nest are listed under the heading "Borrow Again vs. Doesn't Borrow Again." The displayed coefficients for these variables provide the effect on borrowing again instead of not borrowing again. The variables are described in Appendix A. In column (2), "Mid (High) Distance-to-Default" indicates that the borrower's distance-to-default is in the middle (highest) one-third of the sample. T-ratios are in parentheses. ***, **, * indicates significantly different than zero at the 1%, 5%, and 10% level, respectively.

	(1)	(2)
"Keep Lender" vs. "Doesn't Keep Lender"		
Loan is Sold (0,1)	0.223**	0.523***
	(2.20)	(3.39)
Mid Distance-to-Default * Loan is Sold		-0.185
		(0.79)
High Distance-to-Default * Loan is Sold		-0.610**
		(2.39)
Prior Lending Relationship (0,1)	0.772***	0.332***
	(10.71)	(3.11)
Mid Distance-to-Default * Prior Lending Relationship		0.501***
		(3.44)
High Distance-to-Default * Prior Lending Relationship		0.839***
		(5.12)
Lead Lender in Top-10	1.118***	0.773***
	(15.32)	(7.17)
Mid Distance-to-Default * Lead Lender in Top-10		0.235
		(1.60)
High Distance-to-Default * Lead Lender in Top-10		0.768***
		(4.69)
Constant	0.003	0.010
	(0.03)	(0.09)
Industry Fixed Effects	Yes	Yes
"Borrow Again" vs. "Doesn't Borrow Again"		
Log of Assets	0.427***	0.427***
	(16.03)	(15.87)
Net Income-to-Assets	4.060***	3.507***
	(4.03)	(3.45)
Debt-to-Assets	0.367***	0.358***
	(3.11)	(2.99)
Distance-to-Default	-0.071***	
	(3.02)	
Mid Distance-to-Default (0,1)		0.024
		(0.22)
High Distance-to-Default (0,1)		0.367***
		(2.68)
Junk Rated (0,1)	0.149*	0.157*
	(1.66)	(1.73)
Investment Grade Rated (0,1)	0.380***	0.416***
	(3.02)	(3.29)
Year Fixed Effects	Yes	Yes
Inclusive Value: IV(Borrow Again)	0.503**	0.516**
LR Test: IV(Borrow Again)=1	3.18*	2.53
Log Likelihood	-6251.05	-6166.44
Number of Loans	7261	7261

Figure 1
Loan Sales Market Volume

This chart displays trading volume (in billions of dollars) in the secondary loan sales market from 1991 through 2005. Source: Reuters / Loan Pricing Corporation Traders Survey.

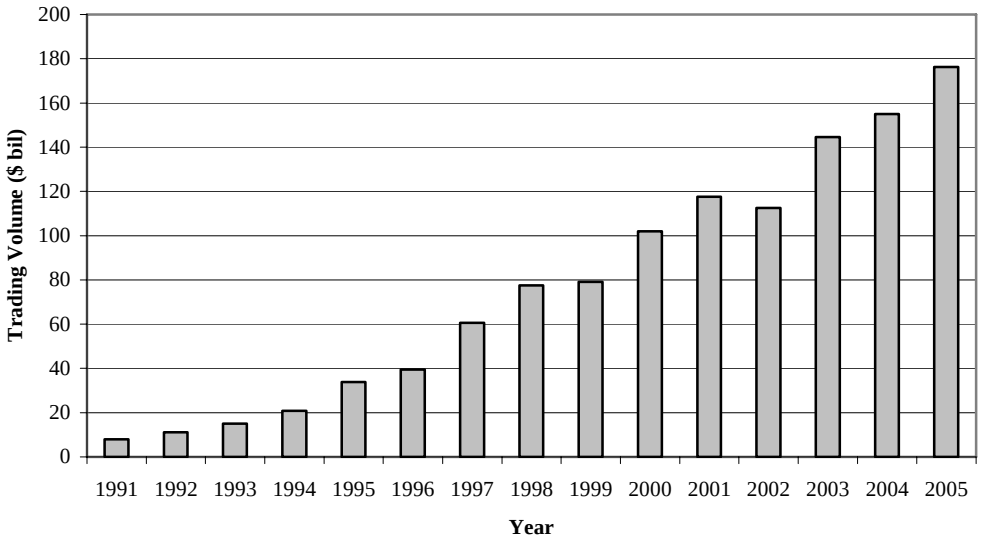

Figure 2
Nesting Structure

This figure presents the nesting structure for the nested logit model. Each borrower has a first-level alternative of receiving future loans ("Borrow Again") or not receiving future loans ("Doesn't Borrow Again"). If the borrower receives future loans, then it has a second-level alternative of keeping the same lead lender ("Keep Lead Lender") or exclusively borrowing from other lead lenders ("Doesn't Keep Lead Lender").