

Internet Appendices for Institutional Investors and Loan Dynamics: Evidence from Loan Renegotiations

Internet Appendix I – Constructing loan paths

IAI.1. Amended loans

DealScan records the magnitude of changes in loan amount, maturity, and spread, as well as the description of changes in other features of the contract as a result of a loan amendment. We read through all descriptions (comments) to understand whether features other than amount, maturity and spread, such as security status, borrowing base, pricing grid, and the share of each lender are renegotiated as well. We then manually collect additional key information for our research from these comments. We drop loans for which we do not observe any change in the loan terms, and loans whose amendment comment includes “Facility is not amended” or “Facility is not modified,” unless the numerical changes in loan amount, maturity or spread states otherwise. Of the sample of 28,302 facilities that meet our requirements under the section of sample selection, we identify 2,751 facilities with at least one amendment in amount, maturity, or spread.

We then manually check the validity of the reported change in loan amount, maturity, and interest spread across all loans. The column “amount” in the amendment table presents the change in loan amount. However, DealScan also records the change in amount when a portion of the facility is refinanced or when lenders terminate the loan as stated in the comments. We handle the first problem as follow. When a portion of the loan is refinanced, the loan amount is partially reduced by the portion’s amount even though the total commitment might actually increase or remain unchanged. To correct for potentially misleading amendments, we manually check whether any new loan is created as a result of the refinancing. Next, we obtain the characteristics of the

combined loan by computing the weighted average maturity and weighted average spread. The weights are determined by the amount of the remaining old facility and the new refinanced facility. Regarding the second case, we do not consider termination as a renegotiation event.

The column “maturity” is measured as the difference in months between the amended date and the new maturity date. The maturity extension/reduction is computed by taking the difference between the new termination date and old termination date. The LIBOR column indicates the amended premium over LIBOR. We also read through the comments to infer the pricing in case the LIBOR observations are missing. The final sample of amended loans consists of 2,446 unique facilities and 3,745 amendments.

IAI.2. Refinanced loans

Roberts (2015) argues that there are three types of loan renegotiations: amendments; amended and restated agreements; and rollovers. While amendments are explicitly reported as explained above, amended and restated agreements, and rolled-over agreements result in a new contract that replaces the previous contract in the DealScan data. However, we note that loans that are replaced are not necessarily renegotiated loans. For instance, we do not consider it as part of an original loan’s path if the loan is replaced by a new loan from a different lead-lender. In what follows, we explain our method to extract “refinanced” loans from DealScan data.

To identify refinanced loans, we first identify facilities that have the same borrowing firm, lead lender, and loan type. A loan is considered to be the renegotiated version of prior loan if it starts before the prior loan matures. Each refinanced loan will represent one renegotiation round. A complication in identifying refinanced facilities is the common practice in the banking industry that banks package multiple loans and offer the package to the borrower as a part of one contract.

As a result, it is complicated to determine which facility should be selected into a loan path out of multiple facilities that have the same borrowing firm, lead arranger, loan type and are issued on the same date. To overcome this difficulty and facilitate the construction of loan paths, we exclude firms which issues multiple similar loans with respect to type and lead lender on the same date. In the end, we identify additional 3,663 refinanced loans. Combining with 3,745 amendments based on the first method, we obtain a final sample of 7,408 renegotiation rounds that constitute 4,369 unique loan paths.

Table IAI demonstrates the evolution in the lending structure of three loans with nonbank institutional lenders in their lending structure in the next renegotiation round.¹ The first example is a 5-year \$75 million loan to Matrix Service Co, a provider of energy solutions in November 2006. JP Morgan Chase was the lead bank and participated along with three other commercial banks and one nonbank, BMO Capital Markets Financing Inc (an Investment Bank). The syndicate structure remained the same when a new loan negotiation occurred in June 2007. The second example is a 5-year \$75 million loan to Cross Country Healthcare, a provider of healthcare recruiting and workforce solutions in November 2005. When the lending syndicate renegotiated with the borrower in September 2008, a new nonbank, Siemens Credit Corporation (a Finance Company) joined the syndicate. The third example is a 5-year \$175 million loan to ResCare Inc., a provider of residential, therapeutic, job training, and educational support services, in October 2005. A nonbank syndicate member, General Electric Capital Corp (a Finance Company), is present in the syndicate at the time of loan origination in October 2005 but exits the syndicate before the loan is renegotiated with the borrower in June 2006.

¹ The first column in the three examples in Table IAI does not necessarily show the original lending syndicate for the first time the loan is made. Instead, the two columns in each example reflect the change in syndicate structure between two consecutive renegotiation rounds.

Table IAI: Three Examples of the Evolvement in Lending Syndicate Structure

Example 1: A 60-month \$75 million loan was given to Matrix Service Company, a provider of energy solutions on November 30, 2006. The lending syndicate structure does not change the next time lenders negotiate with the borrower.

	November 30, 2006	June 29, 2007
Lead Arranger	JP Morgan Chase	JP Morgan Chase
Banks	Amegy Bank LaSalle Bank Wachovia Bank	Amegy Bank LaSalle Bank Wachovia Bank
Nonbanks	BMO Capital Markets Financing Inc	BMO Capital Markets Financing Inc

Example 2: A 60-month \$75 million loan was given to Cross Country HealthCare Inc., a provider of healthcare recruiting and workforce solutions on November 10, 2005. In the next negotiation with the borrower a new nonbank is added to the syndicate.

	November 10, 2005	September 9, 2008
Lead Arranger	Wachovia Bank	Wachovia Bank
Banks	Bank of America Carolina First Bank Commercia Bank LaSalle Bank National City Bank US Bank	Bank of America Carolina First Bank Commercia Bank LaSalle Bank National City Bank US Bank
Nonbanks	General Electric Capital Corp	General Electric Capital Corp <i>Siemens Credit Corp</i>

Example 3: A 60-month \$175 million loan was given to ResCare Inc, a provider of residential, therapeutic, job training, and educational support services on October 3, 2005. In the next negotiation with the borrower, a commercial bank and a nonbank exit the syndicate.

	October 3, 2005	June 7, 2006
Lead Arranger	JP Morgan	JP Morgan
Banks	National City Bank	
Nonbanks	<i>Goldman Sachs & Co</i> <i>General Electric Capital Corp</i>	<i>Goldman Sachs & Co</i>

Internet Appendix II – Institutional differences

In the following we discuss each type of nonbank institution and the relevant differences in their sources of funding and the amount of regulations faced.

IAII.1. Finance companies

Like commercial banks, the primary function of finance companies is to make loans to individuals and corporations. However, finance companies do not accept deposits, but issue short- and long-term debt, such as commercial papers and bonds, to finance loans (Saunders and Cornett, 2014). Because they do not accept deposits, they do not have the severe regulatory monitoring that banks do (Mishkin and Eakins, 2015).² Also, finance companies are likely to be specialized in one segment of the credit market. They have more product expertise because they generally are subsidiaries of nonfinancial industrial companies.

Carey, Post and Sharpe (1998) show that finance companies are more willing to take on riskier customers and borrowers turned away by banks. They find that the nature of ownership of finance companies can affect finance companies' operations. Finance companies that are subsidiaries of manufacturing or commercial firms generally exist to promote the sale of their parents' products. Other finance companies, even though wholly owned, might operate as independent lenders. On the other hand, the operations of finance company subsidiaries of bank holding companies may be constrained to some degree by regulations.

While the loan portfolio of finance companies differs significantly in consumer and small business loans, Carey et al. (1998) argue that finance companies are in direct and active

² State and federal authorities to some extent regulate the terms of debt contracts including the maximum amount of a bank loans. However, Mishkin and Eakins (2015) argue that there are no restrictions on the assets finance companies hold, or how finance companies raise their funds.

competition with banks in providing corporate loans. Using corporate loan data from DealScan, they find that the borrowers of finance companies have generally higher observable risk, especially higher leverage. However, after controlling for borrower risk, Carey et al. (1998) do not find any major difference between corporate lending by finance companies and that of banks when they compare loan terms. Mishkin and Eakins (2015) argue that funding is not necessary difficult for large finance companies because they have access to the money markets and can sell commercial paper. General Electric Capital Co. (GECC), Ally Financial, and CIT Group Inc. are examples of finance companies that provide corporate loans.

IAII.2. Open-end funds (Mutual funds) and closed-end funds

Open-end and closed-end funds pool investors' capital and invest in a variety of financial assets including securities and corporate loans. What makes open-end investment vehicles such as mutual funds different from other types of nonbank institutions is their funding process. Open-end funds have outstanding redeemable shares. When an investor invests in an open-end fund, the fund issues new shares and when the investor sells shares, they are bought back by the fund (the number of shares is not fixed). This is different from closed-end funds that sell a fixed number of shares at an initial public offering, after which the shares typically trade on a secondary market, such as the New York Stock Exchange or the Nasdaq Stock Market.³ Stein (2013) argues that the “demandable” nature of equity in mutual funds makes lending by mutual funds different from lending by banks as mutual funds are subject to more liquidity shocks⁴.

³ For more information see www.sec.gov/answers/mfclose.htm.

⁴ According to Mishkin and Eakins (2015) by the beginning of 2013, 75% of mutual fund shares were owned by households. The median mutual fund investor is middle class with financial assets of \$190,000 and annual income of \$80,000.

In an open-end fund, new investors purchase shares directly from the open-end fund at a price that is determined by the fund's per-share net asset value (NAV) plus any shareholder fees that the fund imposes at purchase (such as sales loads).⁵ The NAV represents the fund's intrinsic value.

Mutual fund investors have the right to redeem their shares on any given day. Prior studies show that large redemptions impose a substantial cost on mutual funds, especially if their assets are illiquid. These costs include, but are not limited to, transactions costs, commissions, and price impacts due to increases in trading volumes (Edelen, 1999; Alexander, Cici, and Gibson, 2006; Coval and Stafford, 2007). Redemptions may also induce other investors to redeem their own shares (Christoffersen, Evans, Musto, 2013). Ivković and Weisbenner (2009) show that individual investors exhibit relatively high turnover in their mutual fund accounts. Further, Sialm, Starks, and Zhang (2015) show that even in defined contribution (DC) retirement plans, in which participants rarely adjust their portfolio allocations, DC plan sponsors (employers) take an active role by continuously replacing poorly performing funds with those that exhibit superior prior performance. Therefore, mutual funds are expected to take any possible measure to mitigate the damage from redemptions. The implication of this for syndicated lending is that mutual funds are expected to care more about the liquidity of loans than institutions with fewer restrictions on their funding side.

Further, mutual funds are highly regulated.⁶ They are required by law to provide free of charge shareholder reports including financial statements and standardized measures of historical

⁵ Shares are redeemable at their approximate NAV minus any fees the fund imposes at that time (such as deferred sales loads or redemption fees).

⁶ The Securities Act of 1933, the Securities Exchange Act of 1934, The Investment Company Act of 1940, and the Investment Advisers Act of 1940 are some of the main regulations that specify various disclosure guidelines and set restrictions on purchase and sale of fund shares as well operating standards issued by SEC. According to Mishkin and Eakins (2015), mutual funds are the only companies in America that are required by law to have independent directors.

performance and also to disclose fund prospectuses including fund's goals, fees and expenses, investment strategies, and risks.

Further, a mutual fund manager's income is typically a salary plus additional income based on total assets under management. Unlike hedge funds managers, mutual fund managers' compensation is not primarily based on incentive performance fees. Lastly, although closed-end funds are not subject to redeemable shares, they have to raise capital by issuing new securities through seasoned equity offerings.

IAII.3. Hedge funds and private equity firms

The Investment Company Act excludes from the definition of "investment company" any issuer whose outstanding securities are beneficially owned by not more than one hundred persons.⁷ These are known as "private investment companies," the most famous groups of which are hedge funds and private equities. Hedge funds and private equities are typically limited partnerships in which the managing partner is given a broad investment mandate. They rely on deep-pocket "sophisticated high net worth" investors. In addition, hedge funds are characterized by limits on investor's liquidity with lock-up periods of one year or more and additional restrictions on withdrawals. These factors along with relatively low regulatory barriers give hedge fund managers flexibility in composing long-term strategies (Ackermann, McEnally, and Ravenscraft, 1999). Hence, they are not prone to funding shocks the way mutual funds and closed-end funds are. Another major difference with mutual funds is that hedge funds and private equities are characterized by strong performance incentives. The manager's fee is linked to fund performance. In addition, managers often invest a substantial amount of their own money in the fund. Fung and

⁷ Also, that is not making and does not at that time propose to make a public offering of such securities.

Hsieh (1997) indicate that hedge funds follow strategies that are dramatically different from mutual funds.

Ackermann et al. (1999) argue while mutual funds rely more on market forces and government regulation to mitigate principal-agent problems, hedge funds generally emphasize incentive contracts and ownership structure.

IAII.4. Collateralized loan obligations (CLOs)

CLOs are collateralized debt obligations that are backed by corporate loans. Like closed-end or open-end funds which invest in a portfolio of loans, the CLO investment manager also issues securities against a loan portfolio. However, there are two major differences. In funds that invest in bank loans, the securities issued are simple shares, but with CLOs, different types of securities are issued. Also, unlike CLOs, the shares that some funds issue can be redeemed. To structure a CLO, an investment management company assembles a collateral portfolio by acquiring pieces of syndicated corporate loans and issues securities to investors backed by the principal and interest payments from the loans. CLOs are funded by equity and debt. Stein (2013) argues that while demand for loans from CLOs may play a role in driving loan issuance, pricing, and loan structure, CLO equity does not necessarily represent a form of demandable short-term financing and hence does not have the potential to contribute to fire-sale dynamics in the same way as mutual fund financing.

Focusing on the lending standards for loans with CLO participation, Benmelech, Dlugosz, and Ivashina (2012) argue that contrary to the findings in studies of other forms of securitization, such as mortgage-backed securities (MBSs) vehicles, securitized corporate loans are no riskier than similar loans that were not securitized. The reason is that unlike mortgage securities, corporate

loans are only partially securitized, that is, CLOs form only a fraction of the lending syndicate. Moreover, the bank that originates the loan (the lead bank) typically retains a fraction of the loan on its balance sheet. Lastly, CLOs have a limited life that affects their ability to renegotiate. At some point they are not allowed to reinvest in a borrower.

IAII.5. Investment banks and dealer-brokers

Lim et al. (2014) categorize investment banks and commercial banks in the same group (“banks”) and different from other nonbank institutions. Because we hypothesize that the source of funding matters in a lender’s decision to manage its asset portfolio, we distinguish between investment banks and commercial banks. Commercial banks are financial institutions that take deposits from consumers and provide them with services such as loans, mortgages, and credit cards. Prior research shows that insured depositors’ funding and withdrawals are less sensitive to commercial bank performance or market conditions than are non-insured sources of funding (e.g., Flannery, 1998).

Investment banks are distinguished from commercial banks in that, first, their main source of funding is not deposits. Second, making loans is generally not their primary source of income. Instead, they rely on a variety of income-generating activities including giving advice on restructuring and mergers and acquisitions, investment management, trading, underwriting securities and research. In terms of financing, investment banks have more flexibility than commercial banks (other than the ability to accept deposits). According to Saunders and Cornett (2013), repurchase agreements, payables to customers and other brokers-dealers, and short-term and long-term unsecured debt are the main sources of financing for investment banks. The equity capital levels for investment banks are generally lower than commercial banks.

IAII.6. Insurance companies and other

The goal of insurance companies is to protect individuals and corporations (policy-holders) from adverse events. The insurance industry is generally divided into life insurance services (more than 70% of assets) and property and casualty services. Insurance companies are financed by policy holders or shareholders. Policies are long-term liability contracts. The funding for insurance companies is usually stable. Policy holders withdraw their policies only when they decide that they no longer need or want their policy. Cancelling a policy is sometimes accompanied by a penalty, and some policies have cash settlement values which are lower than the intrinsic value of policy-holders contributions. Further, insurance companies are highly regulated.

Lastly, there are lenders that do not belong to any of the above categories such as Bill and Melinda Gates Foundation, or those that are unknown. These lenders are rare (5% of the total lenders in our sample) and we categorize them in the “other” category.

Internet Appendix III – Lender identification

IAIII.1. Identifying Lender Types

We identify lender types in three rounds. We start with the DealScan field named “Institution Type” to identify the lender classifications. Depository institutions including commercial banks, savings institutions (thrifts), and credit unions are categorized into the first group, Commercial Bank. To identify those institutions, we start from lenders whose type in DealScan is “U.S. Bank” and “Thrift /S&L” and foreign Bank, identified as “African Bank,” “Asia-Pacific Bank,” “East. Europe/Russian Bank,” “Foreign Bank,” “Middle Eastern Bank,” and “Western European Bank.” Lenders identified as “Investment Bank” are put into our second group, Investment Bank. The third category, Finance Companies, includes lenders identified by DealScan as “Finance Company” or “Leasing Company.” “Inst. Invest. Insur. Co.” and “Insurance Company” form our fourth group, Insurance Company. The sixth and seventh categories are Open-end Mutual Funds and Closed-end Funds, and these are identified by DealScan as “Inst. Invest. Prime Fd,” “Mutual Fund,” and “Pension Fund.” We categorize “Distressed (Vulture) Fund” and “Inst. Invest. Hedge Fd” into our eighth category, Hedge Fund/Private Equity. The next category is Collateralized Loan Obligations (CLO) that includes firms identified as “Inst. Invest. CDO.” The remaining lenders form the last category, Other. These are “Corporations,” “Inst. Invest. Other,” “Other,” “Trust Company,” “Specialty,” and lenders with missing DealScan data that did not fit into the other categories.

Table IAIII -1

Type	DealScan's Institutional Type
<i>Commercial Bank</i>	US Bank, Thrift / S&L, Western European Bank, African Bank, Asia-Pacific Bank, East. Europe/Russian Bank, Foreign Bank, and Middle Eastern Bank
<i>Investment Bank</i>	Investment Bank
<i>Finance Company</i>	Finance Company and Leasing Company
<i>Insurance Company</i>	Insurance Company and Inst. Invest. Insur. Co.
<i>Mutual Fund</i>	Mutual Fund, Inst. Invest. Prime Fd, and Pension Fund
<i>Hedge Fund</i>	Inst. Invest. Hedge Fd, Distressed (Vulture) Fund
<i>Collateralized Loan Obligation</i>	Inst. Invest. CDO
<i>Other</i>	Other, Inst. Invest. Other, Corporation, Trust Company and Specialty

In the second round, we use information in fields other than institution type to better identify the lenders. Of the investment funds that we identify in the previous round, we allocate public firms to the category closed-end funds, since public firms cannot be open-end. We also search for the words “savings” and “thrift” in the lender name and manually check if they are considered depository institutions (less than 1% of the lenders). If so we categorize them as Commercial Bank. We also look for the name “CLO” or “CDO” or “obligation” in the lender names and manually check if they should be categorized as CLOs (around 7% of lenders). Next, we search for the words “high-yield,” “high yield,” “prime,” “float,” “loan fund” to identify misclassified loan funds (3% of the lenders) and assign them to closed-end funds if they are public and to open-end funds if they are not.

In the third round, we manually check lenders whose primary Standard Industrial Classification (SIC) code is between 6011 and 6062, or is 6081, 6082, 6099 or 6111, or is between 6712 and 6719, and add them to the list of commercial banks if appropriate. Further, we carefully reassign lenders that are otherwise categorized as investment banks if their SIC code is 6211, as insurance companies if their SIC code is between 6311 and 6361, or it is 6399 or 6411. SIC code

of 6722 belongs to open-end funds, while SIC code of 6726 refers to closed-end funds. At the end of the third round we recategorize about 4% of the lenders.

Last, we manually check the profile of all nonbank institutions using CapitalIQ, Moody's, Bloomberg, SEC filings, and other news contents. We make following adjustments after reading through the company description from different sources. First, we reclassify lenders in the first category (Commercial Bank) as investment banks if their names contain the word "securities", "capital markets", or "financial markets", and their business models focus on investment banking or brokerage services. Second, we change farm credit institutions into finance companies if DealScan mistakenly identifies those lenders as US Banks. Farm credit services do not accept deposit. Instead, they raise capital by selling highly-rated Farm Credit bonds. Third, we treat a lender as a hedge fund if the description defines the company as an employee own hedge fund sponsor, or a private investment advisor that provides services to high net worth individuals and managed separate client-focused portfolios. Fourth, we identify private equities whose names contain the word "capital partners" or whose business models specialize on privatizations, leveraged buyouts, venture capital, divestitures, and restructuring. At the end of this round, we manage to identify 3,046 unique lenders of 11 different institutional types.

IAIII.2. Identifying Lead Lender

The lead lender plays the most important role in performing the due diligence, approaching potential investors, syndicating participating lenders, managing the syndicate, and collecting and distributing interest payments. According to Standard and Poor's (2013), most of the loans have only one lead bank. The league table (the main marketing tool for the banks) requires that no more than two banks can receive the lead bank title within the same syndicate. However, the prestigious

title, in practice, can be assigned to multiple members in the syndicate, especially when they have large stakes in the loan. To identify the lead lender for each syndicate, we first rely on DealScan's indicator whether the bank receives Lead Arranger League credit. We find that many facilities in DealScan can have either no lead bank or multiple lead banks.

To fix the first problem of missing lead bank, we follow Ivashina (2009) and assign the lead bank title to the lender who is defined as "Agent", "Arranger", "Book runner", "Lead Arranger", "Lead Bank", or "Lead Manager". In addition, if a facility is arranged by only one lender, or the agent credit is given to only one lender in the syndicate, that lender will be the lead bank. If a syndicate has multiple lead lenders, we single out the ultimate lead lender who holds the largest share of the loan or whose title is "Admin Agent". We treat the other arrangers as "Loan Arrangers." Thus, loans can have multiple Loan Arrangers but only one Lead Lender. If the bank allocation data is not available or the administrative agent is absent, we treat the whole group of co-agents as one single ultimate lead lender.

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