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Liquidity risk and syndicate structure ☆

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ABSTRACT

We decompose syndicated loan risk into credit, market, and liquidity risk and test how these shape syndicate structure. Commercial banks dominate relative to non-banks in loan syndicates that expose lenders to liquidity risk. This dominance is most pronounced when borrowers have high levels of credit or market risk. We then tie commercial banks' advantage in liquidity risk to access to transactions deposits by comparing investments across banks. The results suggest that risk-management considerations matter most for participants relative to lead arrangers. Links from transactions deposits to liquidity exposure, for instance, are more than 50% larger at participants than at lead arrangers.

1. Introduction

Over the past 20 years the syndicated lending market has grown rapidly, with originations in 2006 surpassing $1.6 trillion (Loan Pricing Corporation). This market offers large firms access to long-term debt finance as well as liquidity support in the form of lines of credit and loan commitments. Many large firms use these lines both to reduce their need for cash and to support their commercial paper programs (Sufi, 2007; Gatev and Strahan, 2006). While financial institutions such as investment banks, insurance companies, and hedge funds play an important role in funding syndicated loans, commercial banks maintain an advantage over competitors in products that expose lenders to systematic liquidity risk.[1] We show that this advantage shapes the structure of loan syndicates. Commercial banks dominate in lending on lines of credit to all types of firms, but their dominance is especially pronounced in issuing large lines to risky borrowers. In contrast, bank dominance is much less pronounced in term lending that is fully funded at origination and thus brings no liquidity risk at all. We produce a comprehensive decomposition of syndicated loan risk into credit, market, and liquidity risk, and test how these factors shape loan syndicate structure. Existing studies have shown that structure varies with borrower attributes related to credit risk and transparency, but ours is the first to demonstrate how liquidity-risk management shapes syndicate structure.[2]

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[1] Nandy and Pei (2008) and Ivashina and Sun (2007) study the role of institutional investors in the syndicated lending market. Nandy and Pei focus on the fact that many institutional investors participate in high risk and high yield loans. Ivashina and Sun offer evidence that such lending in some cases gives investors access to private information.

[2] For example, Dennis and Mullineaux (2000), Lee and Mullineaux (2004), Jones, Lang, and Nigro (2005), and Sufi (2007) all report evidence that the share of the lead bank and the concentration of the syndicate reflect borrower opacity and the resulting moral hazard problem. Ivashina (2009) uses risk-management concerns (industry-level

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Why do commercial banks dominate in the market for credit lines?[3] Kashyap, Rajan, and Stein (2002) explain the combination of transactions deposits and credit lines with a risk-management motive. In their model, as long as liquidity demands from depositors and borrowers are not too correlated, the bank reduces its costly buffer stock of cash by serving both customers.[4] Thus, their model yields a synergy because combining transactions deposits with unused loan commitments allows commercial banks to diversify away liquidity shocks. Gatev and Strahan (2006) extend this idea, showing that commercial banks are endowed with a unique hedge for the *systematic* risk that occurs when many large borrowers simultaneously increase their demand for bank credit during episodes of reduced market liquidity: offsetting inflows into government-protected transactions deposits. Pennacchi (2006) shows that this mechanism failed to operate prior to the creation of the Federal Deposit Insurance Corporation (FDIC), suggesting that government protection helps explain why liquidity flows to the banking system when markets dry up. Commercial banks' structure allows them to sell excess liquidity to firms at precisely those times when they need cash because markets are tight. Thus, deposits afford banks a comparative advantage in offering liquidity insurance relative to other financial intermediaries.

Based on these models, we argue that commercial banks' advantage in syndicated lending ought to show up most strongly in their role as passive participants investing in lines of credit. Risk-management considerations—such as the advantage of transactions deposits—matter more for passive participants compared to lead arrangers. In general, participants provide funds but otherwise rely on the lead lenders for negotiation and pricing of loans and, to a certain degree, in cases of covenant violations or default. Lead lenders therefore must account not only for risk-management concerns associated with loan funding, but also with their ability to understand the borrower and to monitor over the life of the loan. Thus, for a lead lender liquidity risk management is likely to be of second-order importance.

Table 1 illustrates our main finding in a simple way. Using the Dealscan data on syndicated loans, we present the average share of lenders that are commercial banks for term loans and lines of credit, and then break out these differences based on borrower type (investment grade v. speculative grade rated v. unrated) and based on the role of the lender (lead v. participant). Across all cells, commercial banks dominate in lines of credit relative to term loans. Their relative dominance is most pronounced, however, for high-risk borrowers; and, their dominance is also most pronounced as participants. For example, among speculative-grade rated firms, the bank share for lines of credit is 18% greater than for term loans. This difference becomes even more pronounced—22%—when we focus only on passive participants, where the liquidity-risk management considerations are paramount. Non-bank lenders, lacking the systematic liquidity risk-hedging externality of transactions deposits, avoid credit lines.

Another way of making our main point is as follows: non-bank investors have successfully competed with banks in term lending to high-risk borrowers, where they have gained nearly half of the market. In contrast, they have much less impact on lending to those same borrowers in the market for lines of credit because of the liquidity risk. To see the evolution of the market, Fig. 1 plots the share of commercial banks in syndicated lending over time. During the early 1990s, commercial banks dominated lending across both borrower types (investment grade v. speculative grade) and loan types (term loans v. lines of credit). Over the subsequent 15 years, however, non-bank investors' share grew sharply, but that growth was concentrated among high-risk borrowers, consistent with the idea that these investors look to take on credit risk. Despite this dramatic market entry, we see much less penetration in lending on lines of credit, where bank dominance remains throughout the sample. In fact,

Table 1
Commercial bank market share in loan syndicates.

Average share of lenders that are commercial banks for term loans and lines of credit, including split samples based on borrower type (investment-grade v. speculative-grade rated v. unrated) and based on the role of the lender (lead v. participant). The sample includes 42,318 syndicated loans from Dealscan data for the 1991–2005 period.

	Percentage of bank lenders to total lenders		
	Lines of credit	Term loans	Difference
Commercial bank share of total lenders			
Rated borrowers			
Investment grade	94.0%	91.0%	3.0%
Speculative grade	80.0%	62.0%	18.0%
Unrated borrowers	88.0%	79.0%	9.0%
Commercial bank share as lead arrangers			
Rated borrowers			
Investment grade	95.0%	93.0%	2.0%
Speculative grade	83.0%	77.0%	6.0%
Unrated borrowers	90.0%	84.0%	6.0%
Commercial bank share as participant lenders			
Rated borrowers			
Investment grade	93.0%	90.0%	3.0%
Speculative grade	79.0%	57.0%	22.0%
Unrated borrowers	87.0%	76.0%	11.0%

(*footnote continued*)
diversification) as an instrument that shifts a lead bank's willingness to fund a fraction of a loan and finds that prices reflect the lead bank's incentive to monitor effectively. Her study suggests that lead banks trade off risk- management concerns against their need to preserve monitoring incentives.

[3] Early literature attempts to understand how banks' role in liquidity production leads to fragility. Diamond and Dybvig (1983) argue that by pooling their funds in an intermediary, agents can insure against idiosyncratic liquidity shocks while still investing most of their wealth in high-return but illiquid projects. This structure leads to the potential for a self-fulfilling bank run and sets up a policy rationale for deposit insurance. More recent theoretical and empirical studies focus on liquidity risk from the asset side. For example, Berger and Bouwman (2008) show the importance of banks in liquidity production on both sides of bank balance sheets, and show that this role has grown sharply over time. There is also a growing literature showing the liquidity risk-management or liquidity shocks to banks affect loan supply. See Paravisini (2004), Khwaja and Mian (2008), Loutskina (2009), and Loutskina and Strahan (2006).

[4] Holding cash raises costs for both agency and tax reasons (Myers and Rajan, 1998).