FRBSF ECONOMIC LETTER

Number 2009-09, March 6, 2009

How Will a Credit Crunch Affect Small Business Finance?

There is considerable concern about the duration and severity of the credit crunch caused by the current financial crisis. Some evidence indicates that this could become one of the worst credit crunches in recent history. Economists generally define a credit crunch as a significant contraction in the supply of credit reflected in a tightening of credit conditions. A key barometer of credit conditions, the Federal Reserve's Senior Loan Officer Opinion Survey on Bank Lending Practices, showed a record level of tightening in October 2008 over the previous three months. For large firms, 84.4% of the largest surveyed banks and 82.6% of the smaller surveyed banks reported a tightening of credit standards. For smaller firms, 71.9% of the larger banks and 78.3% of the smaller banks reported tightening. None of the surveyed banks reported any easing of standards. The January 2009 survey also showed severe tightening—though not quite as dramatic as the October numbers. For large firms, 65.5% of large banks and 62.5% of smaller banks cut back credit over the three-month period. For small firms, the percentages were 67.8% and 70.9% respectively. Just as in October, no banks reported any easing over the period.

Small businesses may be particularly vulnerable to a credit crunch. Small companies do not have access to the capital markets. Thus, their sources of external financing are much more limited than large corporations. If these sources shrink, small businesses could be adversely affected. This *Economic Letter* explores how the credit crunch might affect small business access to finance. While it is not possible to know how severe this credit crunch will become, researchers can explore how the crunch could affect small business finance. We begin our analysis by looking at how small businesses access external sources of finance. Then we consider how these sources might be affected by the crunch.

How do small U.S. firms obtain external financing?
Not surprisingly, the largest source of external finance for U.S. small businesses is commercial banks. However, small business finance is more complicated than this for two reasons. First, there are many different types of financing—even different types of bank financing. These are sometimes referred to as *lending technologies* (see Berger and Udell 2006). Second, there are other sources of financing in addition to banks. To get a more complete picture of small business financing we need to look more closely at these two dimensions.

Small business lending can be divided into nine lending technologies, based on the primary method by which loans are underwritten. These technologies can be categorized as either relationship-based or transactions-based.

The first category is *relationship lending*, in which underwriting depends primarily on soft (that is, nonquantifiable) information about the borrower generated by the lender. This includes an assessment of the managerial skill of the entrepreneur and the firm's business strategy. Under relationship lending, the borrower receives multiple financial services from the lender over time, which allows the lender to accumulate information about the borrower. Relationship lending is ideally suited for small businesses that are opaque (because they lack audited financial statements) and lack significant amounts of hard assets that can be pledged as collateral.

Most lending technologies are not based on soft, relationship-based information, but rather on hard, transactions-based information that is easily quantifiable, electronically storable, and readily communicated within the lending institution. *Financial statement lending* is one of these transactions-based technologies. In this type, hard information culled from audited financial statements and ratios calculated from these statements are the primary sources of information. Small business borrowers with financial statements tend to be larger and more transparent, and tend to show strong financial ratios.

The remaining transactions-based lending technologies can be used for small firms regardless of

their transparency. *Asset-based lending* provides working capital financing to riskier small businesses. Asset-based loans are secured by accounts receivable and inventory and involve intensive, continuous collateral monitoring to calibrate maximum loan advances. Because asset-based lending is principally underwritten on the basis of specific collateral, the level of firm transparency is relatively inconsequential.

Factoring is similar to the accounts receivable side of asset-based lending, except that instead of lending against receivables the lender purchases the receivables. *Equipment lending* and *real estate-based lending* are technologies in which loan underwriting is principally based on the appraised value of the underlying assets pledged as collateral. *Leasing* is quite similar, except that it involves renting fixed assets. These lending technologies are well-suited for opaque small businesses because loans are primarily underwritten based on the value of underlying assets instead of firms' business prospects.

Small-business credit scoring is a relatively new lending technology, used mostly by larger banks, based on statistical default models and targeted explicitly to opaque microbusinesses that typically borrow less than $250,000.

The final lending technology is *trade credit*. Economists debate whether trade creditors deploy a unique underwriting technology. Some argue that trade creditors have a special advantage because of their knowledge of their borrower's inputs. Others argue that trade creditors merely employ one or more of the technologies listed earlier. Thus, it is not clear whether trade credit is principally a relationship-based or a transactions-based technology.

The other dimension of small business lending focuses on the source of finance. Banks are certainly important, but a distinction should be made between large and small banks. Some evidence indicates that small banks may be better at making relationship loans based on soft information because this does not have to be communicated through the bank's bureaucracy as part of the credit decision-making process. Large banks may have an advantage in some of the transactions technologies because of economies of scale (see Berger et al. 2005). Also, in the past large banks and small banks have not necessarily behaved identically in terms of tightening credit standards. For example, during the credit crunch of 1990–1992 the portfolio allocation away from lending was proportionately less for small banks than for large banks (see Berger and Udell 1994).

Banks are not the sole source of small-business financing. On average, small businesses obtain about half of their financing internally and about half externally. Of this external financing, banks and other depository institutions provide about 40%, trade creditors about 30% and commercial finance companies (CFCs) about 10%. Private individuals provide most of the remainder, either as loans or equity infusions (see Berger and Udell 1998).

How might the credit crunch affect small business finance?

To address this question, we can link lending technologies and financing sources to identify *lending channels*. A two-dimensional lending channel specifies a lending technology and a source of finance (see Taketa and Udell 2007). Figure 1 shows lending channels to small business during normal times. Note that some lending technologies are delivered by multiple sources.

Three lending technologies are delivered solely, or at least primarily, by only one source. Relationship lending appears to be primarily delivered by smaller banks, small business credit scoring by large banks, and trade credit by corporations.

Some lending channels may contract significantly during a credit crunch. Empirical evidence suggests that, during the 1992 credit crunch, bank lending channels contracted. However, some evidence suggests that certain other lending channels expanded during this period.

Many in the asset-based lending industry argue that commercial finance companies expanded this

Figure 1
Lending channels open to small business during normal times

Lending type	Lg banks	Sm banks	CFCs	Corps.
Relationship		x		
Financial statement	x	x		
Asset-based	x	x	x	
Factoring	x	x	x	
Equipment	x	x	x	
Leasing	x	x	x	
Real-estate based	x	x		
Small business credit scoring	x			
Trade credit				x

lending channel during the 1992 credit crunch and enjoyed some of their most profitable years as small and mid-sized companies were "crunched out" of bank lending channels and moved to this alternative source (see Udell 2004). However, it is not clear that commercial finance companies can play this role in the current credit crunch. Since 1992 many large independent commercial finance companies have disappeared. Moreover, many other larger commercial finance companies have been acquired by commercial banks. The banks' own problems could have a spillover effect on their commercial finance affiliates. Further, both the independent and the affiliated large commercial finance companies could see their funding constrained by tightening in the commercial paper market. Smaller independent commercial finance companies that are not affiliated with banks might be able to pick up some of the slack. However, these smaller independent finance companies typically depend on banks or larger finance companies for their own financing and could feel the effects of the credit crunch themselves.

So far, the most visible lending victims in the current financial crisis have been the largest banks. If these banks wind up being hit the hardest by loan losses, then the small-bank lending channels might expand to pick up the slack. However, small banks could ultimately be hit by loan losses proportionately as much as large banks. One cause for concern is that small banks expanded real estate exposure as much as large banks earlier in the decade. If small banks tighten as much as or more than large banks (as appears to be indicated by the loan officer survey data), small businesses that depend on relationship lending could be hit especially hard.

Both large-bank and small-bank real estate-based lending channels may be particularly vulnerable because real estate lies at the heart of the financial crisis. Many entrepreneurs use equity in their own residences to obtain financing, a source that has become much more difficult to tap.

Some evidence suggests that trade credit can be especially important during financial shocks (see Taketa and Udell 2007). It may be difficult for small companies to expand trade credit to other small companies because they too are being "crunched out." However, large companies may be able to fill this role because they get their financing primarily from the capital markets, such as commercial paper, and are not dependent on banks. However, problems in the capital markets, including the commercial paper market, may inhibit this safety valve.

How the current credit crunch will play out is unknown. But, the lending technology paradigm offers a useful way to think about how financing for small businesses will be affected.

Gregory F. Udell
Professor, Indiana University,
and Visiting Scholar, FRBSF

References

Berger, Allen N., Nathan H. Miller, Mitchell A. Petersen, Raghuram G. Rajan, and Jeremy C. Stein. 2005. "Does Function Follow Organizational Form? Evidence from the Lending Practices of Large and Small Banks." *Journal of Financial Economics* 76, pp. 237–269.

Berger, Allen N., and Gregory F. Udell. 1994. "Did Risk-Based Capital Allocate Bank Credit and Cause a 'Credit Crunch' in the U.S.?" *Journal of Money, Credit, and Banking* 26, pp. 585–628.

Berger, Allen N., and Gregory F. Udell. 1998. "The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle." *Journal of Banking and Finance* 22, pp. 613–674.

Berger, Allen N., and Gregory F. Udell. 2006. "A More Complete Conceptual Framework for SME Finance." *Journal of Banking and Finance* 30, pp. 2,945–2,966.

Taketa, Kenshi, and Gregory F. Udell. 2007. "Lending Channels and Financial Shocks: The Case of SME Trade Credit and the Japanese Banking Crisis." *Monetary and Economic Studies* (November).

Udell, Gregory F. 2004. *Asset-Based Finance*. New York: The Commercial Finance Association.

ECONOMIC RESEARCH
FEDERAL RESERVE BANK
OF SAN FRANCISCO

P.O. Box 7702
San Francisco, CA 94120

PRESORTED
STANDARD MAIL
U.S. POSTAGE
PAID
PERMIT NO. 752
San Francisco, Calif.

Address Service Requested

Printed on recycled paper
with soybean inks

Index to Recent Issues of *FRBSF Economic Letter*

DATE	NUMBER	TITLE	AUTHOR
8/8	08-24	How and Why Does Age at Kindergarten Entry Matter?	Cascio
8/15	08-25	Treasury Bond Yields and Long-Run Inflation Expectations	Christensen
8/22	08-26	Regional Variation in the Potential Economic Effects of Climate...	Butsic/Hanak/Valletta
9/5	08-27	Summer Reading: New Research in Applied Microeconomics...	Doms
9/19	08-28-29	The U.S. Economic Situation and the Challenges for Monetary Policy	Yellen
9/26	08-30	The EMU Effect on the Currency Denomination of International Bonds	Hale/Spiegel
10/3	08-31	Oil Prices and Inflation	Cavallo
10/17	08-32	Sectoral Reallocation and Unemployment	Valletta/Cleary
10/24	08-33	What Is Liquidity Risk?	Lopez
10/31	08-34	Monetary Policy and Asset Prices	Lansing
11/7	08-35-36	The Mortgage Meltdown, Financial Markets, and the Economy	Yellen
11/21	08-37	Convergence of Long-Term Bond Yields in the Euro Area	Swanson
12/19	08-38	Economic Conditions in Korea and Japan: A Monetary Policymaker's Report	Yellen
1/9	09-01-02	U.S. Monetary Policy Objectives in the Short and Long Run	Yellen
1/14	09-03	The Tech Pulse Index: Recent Trends in Tech-Sector Activity	Hobijn
1/23	09-04	Behavior of Libor in the Current Financial Crisis	Kwan
1/30	09-05	Labor Supply Responses to Changes in Wealth and Credit	Daly/Hobijn/Kwok
2/6	09-06	House Prices and Bank Loan Performance	Krainer
2/13	09-07	Out-of-Market Small Business Loans	Laderman
2/20	09-08	Tax Credits for Job Creation and Retention: What Can We Learn...	Wilson/Notzon

Opinions expressed in the *Economic Letter* do not necessarily reflect the views of the management of the Federal Reserve Bank of San Francisco or of the Board of Governors of the Federal Reserve System. This publication is edited by Sam Zuckerman and Anita Todd. Permission to reprint portions of articles or whole articles must be obtained in writing. Permission to photocopy is unrestricted. Please send editorial comments and requests for subscriptions, address changes, and reprint permission to: Public Information Department, Federal Reserve Bank of San Francisco, P.O. Box 7702, San Francisco, CA 94120, phone (415) 974-2163, fax (415) 974-3341, e-mail sf.pubs@sf.frb.org. **The *Economic Letter* and other publications and information are available on our website, http://www.frbsf.org.**