THE ROLE OF CREDIT CARDS IN PROVIDING FINANCING FOR SMALL BUSINESSES

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1. INTRODUCTION

When Mark Fasciano and Ari Kahn started their software company, FatWire, in 1996, each of them contributed $20,000 from their credit cards to pay for the equipment and services that the company needed. In 2001, the company was named to Deloitte and Touche's Fast 50 list of rapidly growing technology firms in New York. Today the company generates $10 million in annual sales, and its newest clients include Crown Media, Hallmark Channel, Bank of America, Andersen Windows and Aventis Behring.[1] Business successes like these have helped the U.S. economy grow. Small businesses provide most workers with their first jobs and initial on-the-job training in basic skills and employ more than half of the private work force.[2]

Stories like FatWire's abound.[3] Financing a business is difficult, and entrepreneurs tend to resort to credit cards for financing when other loan sources are scarce. Personal credit cards provide an increasingly large pool of capital for small business startups. Credit cards did not even exist in their current form before 1966. They have grown explosively since the end of the 1981-1983 recession. According to data from the *Survey of Consumer Finances* (SCF), which is discussed in more detail below, the amount of credit card financing available to the American public was $1.5 trillion in 2001.[4] That pool of credit was just as available to people to start their own businesses as it was to buy stereo equipment. Indeed, $298 billion of credit card financing was available to households headed by someone who had their own business in 2001. And, of course, credit cards have continued to grow since 2001 so that the amount of credit card financing available to consumers in general and small business owners in particular is even larger today.

Of course, stories of credit cards helping people to start successful businesses do not show that credit cards are an important source of financing any more than stories of successful businesses started in garages show that having a garage is key to business prosperity. This paper examines the role of credit cards in financing small businesses using two sources of data. The SCF provides general

1 Bridget McCrea, *Masters of Survival,* Fortune Small Business, December 21, 2002.

2 *Id*.

3 *See id. See also* John Tucker, *More Businesses Start Up on Plastic Entrepreneurs Use Credit Cards to Get Set Up,* The Idaho Statesman, December 28, 1997, at 1e.; and John Pletz, *Need Capital? Just Charge It*, Indianapolis Business Journal, October 27, 1997, at 39.

4 The SCF survey has strengths and weaknesses. It provides data on the use of credit cards from a random sample of the population along with extensive detail on the socioeconomic characteristics of these households, but the data people report to survey takers often are not completely reliable. For example, people tend to understate the amount of debt they have. So the SCF is not the best source of data, for example, on the total bankcard debt of the American public—Visa and MasterCard have more reliable information—but the SCF is the best source of data for making comparisons between different segments of the public. Other estimates place the amount of credit available at over $4 trillion.

information on the use of credit cards by small business owners from 1970-2001. The *1998 Survey of Small Business Finance* (SSBF) provides detailed information on the use of credit cards by small businesses in that year. Together, these data sources provide a broad and deep understanding of how small businesses use credit cards.[5]

II. CREDIT CARDS AND SMALL BUSINESSES

Before we get into our main story, it is useful to say a few words about our two protagonists. We begin with credit cards and then turn to small businesses.

A. Credit Cards

Credit cards are available from four systems—two associations of banks and two proprietary companies.[6] The bank associations are Visa and MasterCard. Member banks of these associations issue cards under those brand names.[7] Discover Financial Services is a proprietary company that issues the Discover and Private Issue credit cards.[8] American Express is a proprietary company that issues the Optima and Blue credit cards.[9] In addition to personal credit cards, American Express, MasterCard and Visa have developed credit card products that are targeted towards small businesses, as we discuss in part B below.

B. Small Businesses

There are many different ways of defining small businesses.[10] The U.S. Small Business Administration defines small businesses as those with fewer than 500

5 This paper focuses only on payment cards that provide lines of credit. Certain cards, such as the American Express Corporate Card and the Visa Purchasing Card enable businesses to charge purchases but not to finance these purchases (except for the interest-free loan between the date of purchase and the due date for the monthly bill).

6 *See* David S. Evans, "The Growth and Diffusion of Credit Card Society," The Payment Card Economic Review: *The Industry and Its Legal Challenges*, Volume 2, Winter 2003. *See also* David S. Evans and Richard L. Schmalensee, *Paying with Plastic, The Digital Revolution in Buying and Borrowing* (MIT Press, 1999) for more details on credit cards and their role in the economy.

7 The term "bank cards" refers to credit cards issued by MasterCard and Visa.

8 Lisa Fickenscher, *Dean Witter Discovered That New Card Strategy Required the Old Name,* American Banker, October 16, 1998. *See also* Discover website (last visited February 24, 2003) <http://www.discovercard.com/discover/data/>, and Private Issue website (last visited February 24, 2003) <http://www.privateissue.com/>.

9 See American Express website (last visited February 24, 2003) <http://www66.americanexpress.com/cards/apply/jsp/fmac/i_know_which.jsp?csi=0/20/b/2/0/05511073979/20/n&from=0>.

10 For general background on small businesses, *see* William A. Brock and David S. Evans, *The Economics of Small Businesses: Their Role and Regulation in the U.S. Economy* (New York: Holmes and Meier, 1986).

employees. According to that definition, there were roughly 26 million non-farm small businesses in the United States in 2001.[11] Small businesses, those with less than 500 employees, accounted for 99 percent of all businesses that year.[12]

Another way of defining small businesses is by type of business organization. There are four major types of business organizations for tax purposes. C corporations file 1120-C tax returns with the Internal Revenue Service and pay taxes on corporate income. Sole proprietorships are unincorporated businesses that have a single owner, who reports his business earnings as part of his personal tax return. Partnerships have several owners, each of whom has a financial interest in the business and reports his business earnings as part of his personal tax return. S corporations do not pay tax on their income; instead, income and expenses are passed through to shareholders. Only businesses with fewer than 75 shareholders can obtain this often-preferred tax treatment. According to the SSBF, which contains data on businesses with less than 500 employees, approximately 20 percent are organized as C corporations, 49 percent as sole proprietorships, 7 percent as partnerships, and 24 percent as S corporations.[13]

Finally, people who say they are "self-employed" are small business owners. Many census surveys ask people whether they work for themselves (self-employed) or work for someone else (wage workers). The self-employed are generally people who own, sometimes with others, their own incorporated (C or S) or unincorporated (sole proprietor or partnership) business.[14] The number of small businesses has grown considerably over time. The number of sole proprietorships, partnerships and S corporations—which are comprised mostly of small businesses—rose from 6.9 million in 1970 to 22.2 million in 1999, while the number of C corporations rose from 1.4 million to 2.2 million. The number of self-employed individuals who work full-time for themselves grew from 8 million in 1970 to 10.6 million in 1995, then dipped to 9.7 million in 1999, and 9.6 in 2001.[15]

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11 Small Business Administration Office of Advocacy, *Small Business Economic Indicators for 2001,* February 2003, at 3 (visited February 24, 2003) <http://www.sba.gov/advo/stats/sbei01.pdf>.

12 *Id*. at 11.

13 Although the large majority of non-S corporations are C corporations, the IRS recognizes several other types of businesses as corporations. Because the SSBF does not distinguish between these different types of corporations, whenever we mention "C corporations," this refers to "C and other corporations."

14 The IRS recognizes many types of businesses as corporations, including joint-stock companies, S corporations, insurance companies, and unincorporated associations such as business trusts.

15 These figures are based on Current Population Survey (CPS) data.

III. FINANCING SMALL FIRMS

A budding entrepreneur has various resources for obtaining financing, ranging from personal savings to securing a loan from friends, family, a local bank, or a bank loan guaranteed by the Small Business Administration.[16] Venture capital may be another source. Venture capital firms and other investors provided $18.2 billion of venture capital to American businesses in 2002.[17]

Friends and family do not necessarily require a high rate of return on their loans, but are often not able to provide the large sums of money needed to get a business off the ground. Banks and venture capital firms do not provide loans to every dreamer off the street. Candidates for such funding must be able to prove they are a good risk, providing several years of financial statements, information on existing debts and accounts receivable and payable, lease details, projected future income streams and signed personal financial statements. SBA-backed loans require borrowers to prove their good character and their expertise and commitment to business success—and to put up a large portion of their own funds.

Obtaining funds from venture capital firms is likewise challenging. Venture capital firms fund approximately one out of every 100 or 200 proposals they receive.[18] And venture capital usually comes with strings attached: the entrepreneur has to give the venture capital firm a significant stake in her business and allow the firm some managerial oversight.

A. The Economics of Lending

A number of factors make it difficult for potential entrepreneurs to secure funds to start their businesses and for existing entrepreneurs to get funds to finance business expansion. Lending is inherently risky, but lending to small businesses is especially so. Most small businesses fail within a short span of time. In fact, less than half of new firms remain in operation five years after their birth.[19]

Banks typically charge higher interest rates to small business borrowers than to large business borrowers, however charging higher interest rates does not free lenders from risk. People tend to be less prudent with other people's money than with their own, a lender's problem economists refer to as "moral hazard." And

16 Although SBA provides no grants on their own, they currently have a portfolio of loan guarantees worth more than $45 billion. *See* SBA, *Learn About SBA* (last visited March 3, 2003) <http://www.sba.gov/aboutsba/>.

17 *See* VentureOne, *Industry Information, Statistics* (visited November 6, 2003) <http://www.ventureone.com/index.html>.

18 Josh Lerner, "The Returns to Investments in Innovative Activities: An Overview and An Analysis of Software Industry," in *Microsoft, Antitrust and the New Economy* (David Evans, ed., 2002).

19 *The State of Small Business A Report of the President*, United States Government Printing Office (Washington: 1997) at 29.

lenders that charge high interest rates tend to attract higher-risk borrowers, which economists refer to as "adverse selection." The only way to deal with these problems is to ration credit—to limit the amount that individuals can borrow.[20] In certain cases, the lender may decide that the most profitable loan is no loan at all.

Another uncertainty can exacerbate the problems of moral hazard and adverse selection and increase lenders' incentives to limit credit. Lenders generally have less information about a business venture's prospects than the borrowing entrepreneur does—this is what economists call "asymmetric information." It is difficult for lenders to identify those entrepreneurs likely to have successful businesses and those likely to fail.

Moral hazard, adverse selection and asymmetric information conspire to create liquidity constraints for small businesses, which can prevent some prospective entrepreneurs lacking personal assets from starting a business. A number of studies have documented the existence of liquidity constraints for small businesses. Evans and Jovanovic found that people with more assets were more likely to start businesses, and they showed that wealthier people were not more likely to start a business because they were better entrepreneurs.[21] According to their results, which were admittedly rough and meant for illustrative purposes, liquidity constraints deterred about 300,000 people from starting their own businesses in 1976 and reduced the amount of investment in small businesses by about $2.7 billion in 1976 dollars ($7.1 billion in 2002 dollars).

Subsequent studies have confirmed Evans and Jovanovic's findings. These studies showed that people who get purely exogenous increases in assets—manna from heaven, so to speak—are more likely to start businesses. Holtz-Eakin, Joulfaian, and Rosen found that people who received inheritances are more likely to continue their existing small businesses and own larger ones.[22] And Blanchflower and Oswald found that people in the U.K. who received inheritances of £5,000 "were approximately twice as likely to be self-employed in 1981 as those who had received nothing."[23] A recent study by Dunn and Holtz-Eakin also showed that individuals with personal financial assets are more

20 The classic theoretical treatment of credit rationing is Joseph Stiglitz and Andrew Weiss, *Credit Rationing in Markets with Imperfect Information*, The American Economic Review, Volume 71, Number 3, June 1981, pp. 393-411. A useful summary of the subsequent literature is provided by Xavier Freixas and Jean-Charles Rochet, *Microeconomics of Banking,* Ch. 5 (MIT Press, 1997).

21 David S. Evans and Boyan Jovanovic, "An Estimated Model of Entrepreneurial Choice under Liquidity Constraints," *Journal of Political Economy*, Volume 97, Issue 4, 1989, pp. 808-827.

22 Holtz-Eakin, D. Joulfaian, and H. Rosen, "Entrepreneurial Decisions and Liquidity Constraints," *Journal of Political Economy*, Volume 102, 1994b, pp. 53-75.

23 D.G. Blanchflower and A.J. Oswald, "What Makes an Entrepreneur?" *Journal of Labor Economics*, Volume 16, 1998, pp. 26-60.

likely to become entrepreneurs.[24] This empirical evidence of liquidity constraints is buttressed by surveys indicating that obtaining financing is one of the major obstacles in establishing a small business.[25]

B. The Practicalities of Credit Card Lending

The credit card has proven to be a popular and effective vehicle for banks to extend unsecured credit to consumers and small businesses and a convenient way for consumers and small businesses to borrow money from banks. The proliferation of credit cards has also stimulated the formation of credit-scoring firms, which collect information on people's payment records and help banks to assess the risks of lending to particular individuals or businesses. It has also stimulated the development of securitization—a financial device that enables banks to sell the receivables from their credit card loans, diversify away some of the risks of credit card lending, and most importantly, to offer more credit card loans to deserving borrowers.[26]

IV. THE USE OF CREDIT CARDS BY THE SELF-EMPLOYED

The self-employed have benefited from credit cards in the same way other consumers have. Credit cards provide a convenient payment mechanism and a convenient and easily accessible method for borrowing funds to start or expand a business. They also enable the self-employed to choose among a larger group of lending banks than would be available for other types of loans.

A. Credit Card Use by the Self-Employed

In 1970, 26 percent of all households headed by a self-employed worker had at

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24 Thomas Dunn and Douglas Holtz-Eakin, "Financial Capital, Human Capital, and the Transition to Self-Employment: Evidence from Intergenerational Links," *Journal of Labor Economics,* Volume 18, Issue 2, 2000.

25 Evidence from the 2001 SCF suggests that nearly one quarter of all self-employed respondents who applied for loans in the last five years were either denied credit, or not granted as much credit as they had applied for. *See* Board of Governors of the Federal Reserve System, *Survey of Consumer Finances*, 1995. Several programs have developed to provide loans to poor or unemployed individuals. In the United States, the Small Business Administration (SBA) was created to provide loan guarantees and management and technical assistance to America's entrepreneurs. Outside of the United States, the World Bank sponsors micro-finance programs in developing countries. For a discussion of such programs, *see* Marc Bendick, Jr. and Mary Lou Egan, "Transfer Payment Diversion for Small Business Development: British and French Experience," *Industrial and Labor Relations Review*, Vol. 40, No. 4 (July 1987).

26 With securitization a pool of loans is put into a special trust, which is used to back a certificate or note. Investors then buy the certificates or shares in the trust and receive interest and principal payments as the loans are repaid.

least one credit card.[27] By 2001, that figure had grown to 86 percent, representing approximately 10.7 million self-employed households.

By 2001, households headed by the self-employed reported having $298 billion of credit available on their cards, and having borrowed $25.6 billion against those credit lines.[28] The average credit card loans outstanding for households headed by a self-employed worker was $261 in 1970 and $2,412 in 2001—an increase of 9 times.[29] The diffusion of credit cards throughout the economy has resulted in a vast increase in the supply of credit available to small business owners.[30]

To put a face on these statistics, consider three different anecdotes that illustrate the importance of credit card lending for small business owners. When Scott Brennan was 19 and had no collateral and no business history, no single bank would loan him the $100,000 he needed to get his Internet access company started. From the banks' perspective, his was too great a risk. So Brennan borrowed the money he needed from ten different banks via their credit card distribution channel. Today, his company Dreamscape Online is the largest Internet solutions provider in all of central New York State.[31]

Paul Porter needed about $80,000 to start a business making bath cleaning products. In 1995, he and his wife used 25 different credit cards to finance their company. Today, Porter is the chief operating officer, vice-president, and co-owner of Automation Inc. The company, which makes Clean Shower bath cleaner, averaged more than $2 million in sales each month by 1998.[32]

Charlene Connell relied on ten credit cards to finance the startup of her firm, Vital Resources. While waiting early on to get paid for her firm's services, she took out cash advances from her credit cards in order to make payroll. In a relatively short time, Connell accumulated nearly $25,000 in credit card debt. By the time Vital Resources had reached just under $1 million in sales, she was able to

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27 Because of the manner in which the Federal Reserve Board constructed the 1970 sample, it is not possible to project the total number of individuals in the population that corresponds to this percentage.

28 The SCF understates credit card loans considerably. Depending upon the year, MasterCard and Visa members report between two and three times the credit card balances reported in the SCF. Therefore, the amount of loans outstanding to households headed by the self-employed is probably much larger than indicated in the text. For further details on the SCF, *see* Evans, *supra* note 6, Appendix A.

29 All dollar values are expressed in terms of 2002 dollars.

30 Of course, this increased supply provides a substitute for other forms of lending, including other types of bank loans, asset-based lending, factoring, trade credit, and other more sophisticated loans. It is difficult, if not impossible, to determine the net increase in the supply of credit resulting from the expansion of credit cards.

31 Tony Fong, *Entrepreneurs Flash Plastic for Financing*, The Post-Standard, Oct. 14, 1997, at D9; *see also* Dreamscape Online website (visited March 4, 2003) <http://www.dreamscape.com/webwork/profile.shtml>.

32 Phaedra Hise, *Don't Start a Business Without One*, Inc., Feb. 1, 1998, at 50.

obtain a more traditional loan from a commercial bank. The decision to award Connell a $25,000 credit line was based on her excellent record of credit card debt management. By 1996, Vital Resources, Inc., made the Inc. 500 list.[33]

B. Do the Self-Employed Use Their Cards More than Employees?

In 1970, over one fourth of all self-employed households owned credit cards. Only one fifth of wage workers at that time had a credit card. Growth of credit cards for both self-employed households and employees continued through the 1990s. In 2001, 86 percent of all self-employed households owned credit cards compared to 76 percent of all households headed by wage workers.

Up until 1992, the balances of self-employed and non-self-employed households grew virtually in lockstep. Every year up through 1989, non-self-employed households had, on average, slightly more credit card debt than self-employed households. In 1992, this changed dramatically. The balances of self-employed households were 22 percent greater than wage workers' balances in that year. By 1995 the gap grew even further, suggesting that through the mid-1990s self-employed individuals increasingly availed themselves of the credit available on credit cards. In 2001, the balances of wage worker households once again increased compared to self-employed household balances. However, when we control for demographic differences between the two groups—such as age, income level, and education—the self-employed still held much higher balances in 2001.

In 2001, the average self-employed worker in the SCF was eight years older than the average wage worker. The median income of self-employed households was about 32 percent higher than wage-earning households. Additionally, self-employed households were nine percentage points more likely to have a college degree, and fifteen percentage points more likely to own a home.[34] It is possible that differences in credit card ownership and use between the self-employed and the non-self-employed merely reflects these differences in demographic characteristics. To address this issue, we used regression analysis, a statistical technique that permits one to adjust for these sorts of differences.[35] The results allow us to isolate the characteristics associated with being self-employed. In 2001, compared to wage-working households, self-employed households were likely to have one-seventh of a card more and carry $2,667 more in balances. This was not always so. In 1970, for example, self-employed households were likely to have slightly fewer cards and carry somewhat smaller balances than similar wage-working households, although self-employed and wage-working households were statistically indistinguishable from each other in every other way that year.

33 *Id.*

34 This comparison is based on heads of households.

35 For a discussion on regression analysis and econometrics, see Damodar Guajarati, *Basic Econometrics*, McGraw-Hill, Inc., New York, 1995.

The additional cards held by self-employed relative to wage-worker households had declined in 2001 from the 1990s, possibly due to a greater reliance on small business cards.

V. BUSINESS CREDIT CARDS

MasterCard, Visa and American Express have offered commercial cards to businesses and corporations since the 1980s. The original commercial cards were focused mainly towards providing firms with convenient travel and entertainment services as well as auto leasing and insurance conveniences. Before 1990, American Express had the largest share of this market. Although some of the early card products offered credit lines attached to them, it was not until the 1990s that the card organizations began to actively pursue small businesses and to offer them credit and financing services.

A. Company Use

Between 1993 and 2002, the number of Visa Business cards, geared towards small companies with fewer than 100 employees and sales of up to $10 million per year, has grown from approximately 500,000 to over 11.6 million. During the same time, charges to these cards have increased from $2.2 billion to over $39 billion.[36]

Business cards provide certain services that allow companies to monitor and control business expenses. For instance, different credit limits and purchase restrictions can be set on individual cards to minimize exposure. And periodic (monthly, quarterly or yearly) management reports can provide various forms of data or expense analysis. Business cards also provide a grace period that may help a business by delaying payment obligations, giving the business more time to collect on their receivables. Business cards may therefore provide a substitute for the use of trade credit, and allow businesses to keep less cash on hand to deal with everyday operating expenses.

B. Issuing Banks

On the bankers' side, business credit cards have opened an entirely new market for lending that was previously unprofitable. Before these cards came along, banks wanting to loan to small businesses had to incur costly underwriting fees. Today, banks use scorecards to grant business credit cards, enabling them to realize significant cost savings. According to discussions we have had with various card-issuing banks, loans that previously could cost up to $1,000 to originate, now cost an issuing bank only about $25.

36 Visa USA, Inc. Comparable data for MasterCard and American Express are not available.

Scorecards weight various attributes of both the firm and its principal and allow issuing banks to make immediate lending decisions without the involvement of costly loan officers. The scorecards place a heavy weight not only on the personal credit history of the business owner, but also on the history of the firm, the age and size of the firm, its industry, sales and business strategy. Well-established businesses are more likely to obtain business credit cards than firms without a credit history, and many bank issuers will not even consider issuing a business credit card to a firm less than two years old. For young firms, this creates a classic "chicken-and-the-egg" problem. Oftentimes, young firms start out funding their businesses with personal credit cards. As they and their firm collectively establish a stronger credit history, business credit cards become more widely available.

It appears likely that MasterCard and Visa business cards reduce liquidity constraints for small businesses. In our research we learned that the issuance of business credit cards has resulted in a significant increase in the amount of money lent by banks to small businesses.[37]

VI. THE USE OF CREDIT CARDS BY SMALL BUSINESSES

We now turn to an analysis of the use of personal and business credit cards by businesses with less than 500 employees. As with the preceding analysis, this one focuses only on cards that provide a revolving credit line and does not include charge cards like the American Express Corporate Card or the Visa Purchasing Card.

Our analysis is based on data drawn from the 1998 Survey of Small Business Finances (SSBF), which was conducted during 1999-2000 for the Board of Governors of the Federal Reserve System. These data provide information on business financing and owner characteristics for a sample of U.S. employers. Data were collected for the 1998 fiscal year. The 1998 SSBF consists of a random sample of 3,561 firms, all of which have fewer than 500 employees.[38]

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37 Although we were unable to quantify the total amount of additional funds loaned out on account of business credit cards, it is important to note that business credit cards have enabled banks not only to increase the quantity of loans they offer, but also to increase the size spectrum of these loans. Credit cards have enabled banks to offer small loans that were previously too costly to underwrite and hence were unprofitable.

38 The sample is what is known as a stratified random sample, meaning that some firms have a greater representation in the sample than they do in the population. In particular, minority-owned firms were oversampled. Of the firms surveyed, 7 percent are owned by blacks, 7 percent by Hispanics, and 6 percent by "other." When we report aggregate figures, we use sampling weights provided in the survey to generate nationally representative figures. Appendix A provides more information about the survey and also gives descriptions and means of the variables used in this paper.

The SSBF asks several questions about credit cards and distinguishes between personal and business cards, including whether the firm used an owner's personal credit card to pay business expenses, and whether the firm used a business or corporate credit card to pay business expenses during 1998.[39]

A. The Use of Personal and Business Cards

In the SSBF sample, 46 percent of firms' owners used their personal credit cards to help finance business operations. A smaller, but still large, 34 percent used business credit cards. And 12 percent used both sorts of cards. Overall, 68 percent of America's small firms used some kind of credit card in 1998 to pay for business expenses.[40] Credit cards provide a short-term loan, during the billing cycle and the grace period before payment is due. In addition, 16 percent revolved balances beyond the grace period. The SSBF data also shows that bigger firms are more likely to use business credit cards and less likely to use personal credit cards.

We used a statistical technique known as probit analysis to examine the relationship between various characteristics and the probability that a business will use a personal or business credit card to finance his or her business. This technique also enables us to examine the effect of a particular characteristic while "holding all other characteristics constant." The analysis, presented in Table 1, suggests credit cards are particularly important to businesses that have poor credit histories—businesses that are especially likely to have difficulty raising capital from traditional sources. Firms delinquent with payments at any time in the three years before the survey were five percentage points more likely to use the owner's personal credit card for business related activities. Firms who needed credit, but failed to apply for that credit for fear of rejection, were twelve percentage points more likely to use their personal card. Likewise, firms were seven percentage points more likely to use a personal credit card if they were denied credit in the three years prior to the survey.

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39 Board of Governors of the Federal Reserve System, *1998 Survey of Small Business Finances, Annotated Survey Questionnaire*, at 60, 62.

40 The SSBF results are consistent with another survey. The most recent National Small Business United (NSBU)/Arthur Andersen Survey of Small and Mid-Sized Businesses found that 50 percent of businesses surveyed counted credit cards as a source for business financing in 2000. In 1998 the NSBU reports that the figure was 47 percent. Over the same period commercial bank loans decreased marginally in importance from 45 percent of companies with commercial loans in 1998 to 43 percent in 2000. Credit cards and commercial loans were the top two sources for small business finance according to this survey. *See Survey of Small and Mid-Sized Businesses, Trends for 2000,* National Small Business United /Arthur Andersen, November 8, 2002, at 20-21 (visited March 5, 2003) <http://www.nsbu.org/files/nsbu-aa_report_2000.pdf>.

Table 1. Effect of Firm Characteristics on Credit Card Use, 1998

Characteristic	Question	Type of Card	
		Personal	Business
Owner's age	By how much does the probability of card usage increase for each additional year of a firm owner's age?	-0.1%	-0.2%*
Owner's delinquent last 3 years	If a firm owner was delinquent in the past three years, by how much does this increase probability of card usage?	-0.9%	-1.2%
Firm delinquent last 3 years	If a firm was delinquent in the past three years, by how much does this increase probability of card usage?	5.0%*	6.5%*
Fear of rejection	In the 3 years prior to the survey, if the firm needed credit, but failed to apply for fear of rejection, by how much does this increase probability of card usage?	11.9%*	-3.8%
Denied credit in last 3 years	If a firm was denied credit in the 3 years prior to survey, by how much does this increase probability of card usage?	6.8%*	3.6%

Note: *means statistically significant at the 5% level of significance.
Source: 1998 Survey of Small Business Finances

These results suggest that personal and business credit cards help small businesses around liquidity constraints. Without access to both types of cards, it appears likely that many small business owners would have had trouble receiving bank credit.

B. Credit Cards and Liquidity Constraints

While there is striking evidence on the use of credit cards to pay for business expenses, it is important to know which firms actually carried credit card debt beyond an interest free grace period. The National Small Business United (NSBU) survey reported that, in 2000, 24 percent of companies that use credit cards usually carried a balance, while 36 percent of them reported always paying off their monthly balance in full.[41]

Table 2 shows the result of another probit analysis—striking evidence that being credit constrained has a large positive effect on the probability of a business carrying business-related expenses on credit cards. Firms that were denied credit in the last three years were about eight percent more likely to carry business-related credit card balances, while firms who did not apply for credit in the last three years for fear of rejection were twenty six percent more likely to carry balances. Sole proprietorships and partnerships are respectively six and twelve percent more likely to carry positive business-related balances than are corporations.

41 See *Survey of Small and Mid-Sized Businesses, Trends for 2000,* National Small Business United /Arthur Andersen, November 8, 2002, at 21 (visited March 5, 2003) <http://www.nsbu.org/files/nsbu-aa_report_2000.pdf>.

Using another statistical technique called tobit analysis to analyze the data, we found that companies denied credit in the past three years carried an average of about $2,750 more business-related credit card debt, while those who were denied their most recent request for credit carried $15,400 more. These results, in Table 3, show that credit cards provide an important source of credit for some entrepreneurs and relax liquidity constraints.

Table 2. Effect of Firm Characteristics on the Probability of Carrying Credit Card Balances, 1998

Characteristic	Question	Percent
Denied credit in last 3 years	If a firm was denied credit in the three years prior to the survey, how much more likely is that firm to carry credit-card balances?	7.5%*
Dissuaded from applying for credit	If in the three years prior to the survey a firm needed credit, but did not apply for fear of being turned down, how much more likely is that firm to carry credit-card balances?	26.3%*
Sole proprietor	If a firm is a sole proprietorship, how much more likely is it to carry credit-card balances than is a corporation?	5.6%*
Partnership	If a firm is a partnership, how much more likely is it to carry credit-card balances than is a corporation?	12.3%*
Firm Age	For every additional year a firm has been in existence, how much more likely is that firm to carry credit-card balances?	-0.2%

Note: *indicates statistical significance at the 95% confidence level.
Source: 1998 Survey of Small Business Finances

Table 3. The Effect of Firm Characteristics on Credit Card Balances, 1998

Characteristic	Question	Amount
Denied credit in last 3 years	If a firm was denied credit in the three years prior to the survey, how much greater are that firm's credit-card balances likely to be?	$2,746
Dissuaded from applying for credit	If in the three years prior to the survey a firm needed credit, but did not apply for fear of being turned down, how much greater are that firm's credit-card balances likely to be?	$15,400*
Sole proprietor	If a firm is a sole proprietorship, how much higher are its balances likely to be compared to a corporation?	$3,089*
Partnership	If a firm is a partnership, how much higher are its balances likely to be compared to a corporation?	$6,961*
Age	For every additional year a firm has been in existence, how much greater are its credit-card balances likely to be?	-$100

Note:*indicates statistical significance at the 95% confidence level.
Source: 1998 Survey of Small Business Finances

VII. CREDIT CARDS AND EMPLOYMENT GROWTH

Use of credit cards by business appears to have an effect on the growth of business employment.[42] Using data from a 1993 version of the SSBF—unfortunately, similar data are not available in the 1998 version[43]—we found a striking difference between firms with and without business credit cards. As reported below in Table 4, firms that used business credit cards grew at 10.5 percent while firms that used no credit cards grew at only 5.8 percent over a one-year period. Businesses that just used personal credit cards grew at 7.0 percent. Thus firms with business credit cards expanded much faster than those without any credit cards. These correlations do not establish a causal relationship, but are consistent with the idea that being able to borrow on a company credit card is good for growth.

Table 4. Effect of Firm Characteristics on Employment Growth

Characteristic	Question	One-year growth (%)	Three-year growth (%)
All firms	What is the average growth rate across all firms?	7.5	13.4
Used business card	What is the average growth rate among firms who used business cards?	10.5	18.3
Used personal card	What is the average growth rate among firms who used personal cards?	7.0	15.7
No cards	What is the average growth rate among firms who used no cards at all?	5.8	10.1

Source: 1993 National Survey of Small Business Finances

Three-year growth data also shows a strong correlation between employment growth and use of business credit cards, and to a smaller degree also with use of a personal credit card. Firms whose owners had no credit cards represent the lowest three-year employment increase. Businesses that have business credit cards grow substantially faster than either businesses with only personal credit cards or businesses with no credit cards—which is exactly what one would expect if businesses face liquidity constraints.

There are two explanations for this relationship. First, credit cards in general increase the supply of capital to businesses. But some business owners do not qualify for credit cards at all because they are deemed the most risky. Others qualify for personal cards, but their business does not qualify for a business card. Still other businesses obtain both personal cards and business cards. Liquidity constraints—which hamper the growth of a business—would be lower for businesses with business credit cards that it would be for businesses with personal

42 This discussion is based on Blanchflower, Evans, and Oswald. *See Supra* note 52.

43 Board of Governors of the Federal Reserve System, *1993 National Survey of Small Business Finances*.

cards, while businesses with no credit cards would face higher liquidity constraints. A second reason why firms with business credit cards grow faster than firms with only personal cards or with no cards at may be the following: Better businesses qualify for more credit, and better businesses grow more quickly. These two explanations are not mutually exclusive.

VIII. CONCLUSIONS

During the last quarter century, the growth of credit cards has reduced the liquidity constraints faced by prospective entrepreneurs. The percent of households that owned credit cards increased from 16 percent to 73 percent from 1970 to 2001, and the self-employed were particularly likely to get credit cards. In 1970, 26 percent of households headed by self-employed workers had credit cards compared with 20 percent of households headed by wage workers. By 2001, the figure for the self-employed had jumped to 86 percent while the figure for wage workers had jumped to 76 percent.

Credit cards have become a major source of financing for small businesses and have relaxed liquidity constraints faced by small firms:

- Self-employed workers had $298 billion of credit card loans available to them in 2001.
- The percentage of self-employed households with personal credit cards increased from 26 percent to 86 percent between 1970 and 2001.
- More than two-thirds of all small businesses in 1998 used either personal credit cards or business credit cards to finance their businesses.
- Businesses that were denied credit in the preceding three years were more likely to have personal and business credit cards and charged more on those cards than did businesses that were not denied credit.
- Businesses that had business credit cards grew almost twice as fast as businesses that had no credit cards and somewhat faster than businesses that just had personal credit cards. The theoretical and empirical evidence suggests that at least part of the faster growth is the result of business credit cards helping to relax liquidity constraints.

APPENDIX A: THE SURVEY OF SMALL BUSINESS FINANCES

The 1998 Survey of Small Business Finances provides information about a nationally representative sample of small businesses in the United States. The survey was conducted during 1999-2000 for the Board of Governors of the Federal Reserve. The target population is all for-profit, non-financial, non-farm business enterprises that had fewer than 500 employees and were in operation as

of year-end 1998. The sample was drawn from firms listed on the Dun's Market Identifier file as of May, 1998. The DMI list, containing nearly thirteen million businesses, is broadly representative of all businesses but does not include many of the newest startup firms or the self-employed individuals filing business tax returns. In contrast, the Internal Revenue Service reports that for 1999 about 24.5 million individuals filed business tax returns, including over 17.5 million sole proprietorships, of which about 4.3 million reported less than $2,500 in annual receipts. The public use dataset contains 3,561 firms. These firms represent 5.3 million small businesses.

The sample was a stratified random design with over sampling to ensure the ability to estimate separately the reporting domains by employment size groups, urban or rural location, and in census regions. The specific sampling strata were five employment-size groups (0-19, 20-49, 50-99, 100-499, unknown), nine Census regions (East North Central, East South Central, Middle Atlantic, Mountain, New England, Pacific, South Atlantic, West North Central and West South Central), and urban or rural location. In addition, three minority partitions of firms likely to be owned by Asians, African-Americans, and Hispanics were extracted from the Dun's frames prior to sampling to create samples of minority-owned businesses. Each of the minority partitions was proportionately stratified by urban or rural location. Because the larger and minority-owned firms are small percentages of the population of small businesses but are of special interest to researchers, the survey over sampled larger firms (20 to 499 employees), as well as African-American-owned, Asian-owned, and Hispanic-owned firms to ensure sufficient numbers for analyses of these groups.

Businesses were contacted in advance of the survey to determine eligibility, verify addresses, and identify a contact person. Not all businesses were eligible (i.e., met the target-population definition). Some businesses could not be contacted, some failed at least one of the eligibility criteria (e.g., not in business, for profit, etc.), and some had erroneous frame data.

The eligibility rate of sampled businesses averaged about 70 percent. The average duration of the telephone interviews was 42 minutes. The interviews were conducted by the National Opinion Research Center at the University of Chicago (NORC). The survey was voluntary. The response rate was about 33 percent. The survey collected the following types of information from each business:

- Demographic information on the owners and characteristics of the firm, such as the industry to which it belongs, age, and type of organization (sections A, B, C, and D of the questionnaire).
- An inventory of the firm's deposit and savings accounts, capital leases, credit lines, mortgages, motor vehicle loans, equipment loans, other loans, and selected other financial products. For each of these services, the supplier of the service was also identified (sections E, F, and G of the questionnaire, and financial service flags identified by variables beginning with 'T' and having a suffix of 1, 2, … 20).

- Information about the characteristics of the financial service suppliers: type (e.g., bank, individual), location vis-à-vis the firm, method of conducting business, number of years the firm has done business with the supplier, and reasons for choosing the source (sections H of the questionnaire and sections H and section I of the codebook).
- Experience in the past three years in applying for credit (section MLR of the questionnaire). Data from each firm's income statement and balance sheet (sections P, R, and S of the questionnaire).
- Information on the recent credit history of the firm and its owners (section U of the questionnaire).

Generally, the reference period for the survey data is 1998.

The SSBF does not use an equal-probability sample design, so that the weights play a critical role in interpreting the survey data. The weights included with the data set account for the sample design, eligibility and response rates. As is true of all surveys, there is some amount of missing data for nearly every SSBF question. An attempt has been made to impute most missing values. The general model used to perform imputations in the SSBF is a randomized regression model. The methodology employed is similar to that used in the first-stage procedures of the Survey of Consumer Finances.[44] Multiple-categorical response questions (e.g., check all responses that apply) were converted to a series of yes-no responses, and then each of these yes-no responses was estimated using a randomized linear-probability model (i.e., randomized regression where the dependent variable takes on one of two values). Not all variables lend themselves to estimation by regression. In particular, questions that evoked single discrete categorical responses (e.g., type of source) are typically imputed using a randomized hot-deck procedure.

Further details of the survey may be found in Marianne P. Bitler et al. (2001), Marianne P. Bitler (2000), and Catherine Haggerty et al. (2000). Additional documentation, codebooks and data are available for download on the website of the Federal Reserve Board of Governors at http://www.federalreserve.gov/pubs/oss/oss3/ssbf98/ssbf98home.html.

44 *See* Evans, *supra* note 6.