

## **Discrimination Facing Small Minority-Owned and Women-Owned Businesses in Commercial Credit Markets**

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Before the Committee on Small Business and Entrepreneurship

United States Senate

September 11, 2008

Chairman Kerry, Ranking Member Snowe, and Members of the Committee:

Thank you for the opportunity to appear here today. My name is Jon Wainwright. I hold a Ph.D. in economics from the University of Texas at Austin. Currently, I am a Vice President with National Economic Research Associates, also known as NERA Economic Consulting, in Chicago, Illinois and Austin, Texas.

NERA is an international firm of economists who understand how markets work. We provide economic analysis and advice to corporations, governments, law firms, regulatory agencies, trade associations, and international agencies. Our global team of more than 600 professionals operates in over 20 offices across North America, Europe, and Asia Pacific. NERA provides practical economic advice related to highly complex business and legal issues arising from competition, regulation, public policy, strategy, finance, and litigation. Founded in 1961 as National Economic Research Associates, our more than 45 years of experience creating strategies, studies, reports, expert testimony, and policy recommendations reflects our specialization in industrial and financial economics. Because of our commitment to deliver unbiased findings, we are widely recognized for our independence. Our clients come to us expecting integrity and the unvarnished truth.

I would like to ask the Committee's permission to include my entire testimony in the record as if read in full and to supplement my testimony with additional material if needed.

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## **I. Introduction**

For almost twenty years, I have devoted the greater part of my professional life to studying race and sex discrimination and its impact on business enterprise and entrepreneurship in the United States.

I have served as the project director and principal investigator for 28 studies of business discrimination against minorities and women completed since 2000 and prior to that time worked on perhaps a dozen more. I have authored a book on the subject and have provided expert testimony in federal and state courts on these and other labor and business related matters on 13 occasions.

I would like to address myself today to the question of race-based and gender-based discrimination in access to capital and credit by small businesses. I have studied this issue in great detail over the past decade and I would like to share with you today the data, methods, findings, and conclusions drawn from this research.

## **II. Discrimination Facing Small Minority-Owned and Women-Owned Businesses in Commercial Credit Markets**

Discrimination occurs whenever the terms of a transaction are affected by personal characteristics of the participants that are not relevant to the transaction. Among such characteristics, the most commonly considered are race, ethnicity, and gender. In labor markets, this might translate into equally productive workers in similar jobs being paid different salaries because of their race, ethnicity or gender. In credit markets, it might translate into loan approvals differing across race or gender groups with otherwise similar financial backgrounds.

A key question is whether there is evidence consistent with the presence of discrimination in the credit market against small minority-owned or women-owned businesses. Discrimination in the credit market against such businesses can have an important effect on the likelihood that they will succeed. Moreover, discrimination in the credit market might even prevent such businesses from opening in the first place.

To answer this question I employ data from the *National Survey of Small Business Finances* (SSBF) to test for the existence of discrimination in the small business credit market for 1993, 1998, and 2003. These surveys are based on a large representative sample of firms with fewer than 500 employees and are compiled through a joint effort of the U.S. Small Business Administration and the Board of Governors of the Federal Reserve System. The 1993 and 1998 surveys deliberately oversampled minority-owned and women-owned firms but the 2003 survey did not.<sup>1</sup>

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<sup>1</sup> The 2003 survey took other steps, however, to increase the likelihood that minority-owned and women-owned firms were captured in the sampling frame. For more details, see NORC (2005), p. 11.

The SSBF data provide qualitative and quantitative evidence consistent with the presence of discrimination against minorities in the credit market for small businesses. For example, I find that African-American-owned firms are much more likely to report being seriously concerned with credit market problems and to report being less likely to apply for credit because they fear their loan application will be denied. Moreover, after controlling for a large number of financial and other characteristics of the firms, I find that African-American-owned firms, Hispanic-owned firms, and to a lesser extent other minority-owned firms are substantially and statistically significantly more likely to be denied credit than are White-owned firms. I find some evidence that women are discriminated against in this market as well. The principal results are as follows:

- Minority-owned firms were more likely to report that they did not apply for a loan over the preceding three years because they feared the loan would be denied.
- When minority-owned firms did apply for a loan their loan requests were substantially more likely to be denied than non-minorities, even when differences like firm size and credit history are accounted for.
- When minority-owned firms *did* receive a loan they were obligated to pay higher interest rates on the loans than was true of comparable White-owned firms.
- A larger proportion of minority-owned firms than White-owned firms report that credit market conditions are a serious concern.
- A larger share of minority-owned firms than White-owned firms believes that the availability of credit is the most important issue likely to confront them in the upcoming year.
- There is no evidence that discrimination in the market for credit is significantly different in different regions of the country, or in the construction industries than it is in the nation or the economy as a whole.
- There is no evidence that the level of discrimination in the market for credit has diminished between 1993 and 2003.

The remainder of this report is structured as follows. First, I outline the main theories of discrimination and discuss how they might be tested. Second, I examine the evidence of the existence of capital/liquidity constraints facing individuals in the mortgage market, households in the non-mortgage loan market, and small businesses in the commercial credit market. Third, I describe the data files used in remainder of the report and then examine in more detail problems faced by minority-owned firms in obtaining credit. Fourth, I provide a series of answers to potential criticisms. Finally, I present my conclusions.

## A. Theoretical Framework and Review of the Literature

Most recent economic studies of discrimination draw on the analyses contained in Gary Becker's (1957) *The Economics of Discrimination*. Becker's main contribution was to translate the notion of discrimination into financial terms. Discrimination, in this view, results from the desire of owners, workers, or customers to avoid contact with certain groups. This being the case, transactions with the undesired groups would require more favorable terms than those that occur with a desired group. Assume that the primary objective of a financial institution is to maximize their expected profits. The expected return on a loan will depend on the interest rate charged and the likelihood that a borrower defaults. The financial institution would approve any loan for which the expected return on the loan exceeded the cost of the funds to the institution. Discrimination would then result in either (a) higher interest rates being charged to undesired groups having otherwise similar characteristics to the desired group or (b) requiring better characteristics (*i.e.* a lower expected default rate) from the undesired group at any given interest rate. In other words, applicants from the disadvantaged group might either be appraised more rigorously, or they would be given less favorable terms on the loan, or both.

A similar connection between the likelihood of loan approval and the race, ethnicity, or gender of the applicant might also be found if lenders employ statistical discrimination—meaning that lenders use personal characteristics such as race, ethnicity, or gender to infer the likelihood of default on the loan. If experience has suggested that certain groups of individuals are on average more or less likely to default, then the lender may use this information to economize on the costs of gathering more directly relevant information. Hence, discrimination would not reflect the preferences of the owner but would rather reflect an attempt to minimize costs. Empirically, the racial, ethnic, or gender characteristics of the applicant could proxy for unobserved characteristics of their creditworthiness.

The *Equal Credit Opportunity Act*<sup>2</sup> prohibits discrimination in access to credit by race and would apply to both Becker-type and statistical discrimination.

There has been an active debate about whether banks discriminate against minority applicants for home mortgages. In particular, banks have sometimes been accused of “redlining”—that is, not granting loans for properties located in certain geographic areas. To analyze that issue, the Home Mortgage Disclosure Act was passed to require lenders to disclose information on the geographic location of their home mortgage loans. These data, however, were not sufficient to assess whether or not there was discrimination in the market for mortgage loans.

In 1992, researchers at the Federal Reserve Bank of Boston collected additional information from mortgage lenders (Munnell et al., 1996). In particular, they tried to

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<sup>2</sup> 15 U.S.C. 1691, *et seq.*

collect any information that might be deemed economically relevant to whether a loan would be approved. In the raw data, Whites had 10 percent of their loans rejected whereas rejection rates were 28 percent for both African-Americans and Hispanics. Even after the creditworthiness of the borrowers (including, *e.g.*, the amount of the debt, debt-to-income ratio, credit history, and loan characteristics.) were controlled for, African-Americans were still found to be 7 percentage points less likely to be granted the loan. A variety of criticisms have been launched at this study (see, for example, Horne, 1994; Day and Liebowitz, 1998; Harrison, 1998). Responses to these criticisms are found in Browne and Tootell (1995).

In addition to the type of statistical analysis done in the Munnell et al. (1996) study, two other approaches have been used to measure discrimination in mortgage markets. First, Federal Reserve regulators can examine a lending institution's files to try to identify any cases where a loan rejection looks suspicious. Second, audit studies have been used with paired "identical" applicants. Such studies have also found evidence of discrimination (*e.g.* Cloud and Galster, 1993) although the audit approach is not without its critics (Heckman, 1998).

Another relevant literature is concerned with the severity of liquidity constraints affecting consumers in non-mortgage credit markets. A consumer is said to be liquidity-constrained when lenders refuse to make the household a loan or offer the household less than they wished to borrow (Ferri and Simon, 1997). Studies have suggested that roughly twenty percent of U.S. families are liquidity-constrained (Hall and Mishkin, 1982; Jappelli, 1990). As might be expected, liquidity-constrained households are typically younger, with less wealth and accumulated savings (Hayashi, 1985; Jappelli, 1990). The research shows non-White households to be substantially more likely to be liquidity-constrained even when a variety of financial characteristics of households are controlled for (Jappelli, 1990; Ferri and Simon, 1997).

I now turn to the more directly relevant evidence on liquidity constraints facing small businesses. Just like individuals and households, businesses can also face liquidity constraints.<sup>3</sup> Liquidity constraints can be a problem in starting a business as well as in

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<sup>3</sup> Evans and Leighton (1989) and Evans and Jovanovic (1989) have argued formally that entrepreneurs face difficulties borrowing money. As in the discussion above, such individuals are labeled liquidity-constrained by economists. Using data from the *National Longitudinal Survey of Youth* from 1966-1981 and the *Current Population Surveys* from 1968-1987, these authors found that, all else equal, people with greater family assets are more likely to switch to self-employment from employment. Blanchflower and Oswald (1998) studied the probability that an individual reports him or herself as self-employed. Consistent with the existence of capital constraints on potential entrepreneurs, their econometric estimates imply that the probability of being self-employed depends positively upon whether the individual ever received an inheritance or gift. Second, when directly questioned in interview surveys, potential entrepreneurs say that raising capital is their principal problem. Holtz-Eakin et al. (1994a, 1994b) examine flows in and out of self-employment and find that inheritances both raise entry and slow exit. Black, de Meza and Jeffreys (1996) find that housing equity plays an important role in shaping the supply of entrepreneurs. Lindh and Ohlsson (1996) suggest that the probability of being self-employed increases when people receive windfall gains in the form of lottery winnings and inheritances.

running it. Discrimination in the credit market against minority-owned small businesses can have a devastating effect on the success of such businesses, and even prevent them from opening in the first place. Evidence of the latter effect is provided in the economics literature on self-employment.<sup>4</sup>

Difficulty accessing capital has long been recognized as one of, if not the, most significant barrier to minority business success. In his 2003 report for *Builders Association of Greater Chicago v. the City of Chicago*,<sup>5</sup> Professor Timothy Bates argued that “from its origins, the black-business community has been constrained by limited access to credit, limited opportunities for education and training, and White stereotypes about suitable roles for minorities in society” (Bates, 1989; Bates, 1993; Bates, 1973). Indeed, as Bates points out, it was Gunnar Myrdal who observed back in the 1940s that,

“The Negro businessman ... encounters greater difficulties than whites in securing credit. This is partly due to the marginal position of Negro business. It is also partly due to prejudicial opinions among whites concerning business ability and personal reliability of Negroes. In either case a vicious circle is in operation keeping Negro business down” (Myrdal, 1944, 308).

Bates goes on to argue that commercial banks lend most easily to White males who possess significant amounts of equity capital to invest in their businesses (Bates, 1991a). Apart from banks, an important source of debt capital for small business is likely to be family and friends, but the low wealth of African-American households reduces the availability of debt capital that family and friends could invest in small business operations (Bates, 1993; Bates, 1991b).

Additional evidence indicates that capital constraints for African-American-owned businesses are particularly large. For instance, Bates (1989) finds that racial differences in levels of financial capital do have a significant effect upon racial patterns in business failure rates. Fairlie and Meyer (1996) find that racial groups with higher levels of unearned income have higher levels of self-employment. In an important paper Fairlie (1998) uses data from the 1968-1989 *Panel Study of Income Dynamics* to examine why African-American men are one-third as likely to be self-employed as White men. He finds that the large discrepancy is due to an African-American transition rate into self-employment that is approximately one half the White rate and an African-American transition rate out of self-employment that is twice the White rate. He finds that capital constraints—measured by interest income and lump-sum cash payments—significantly

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<sup>4</sup> See, e.g., NERA, *Race, Sex, and Business Enterprise: Evidence from Denver, Colorado*, Chapter V, pp. 81-84; NERA, *Race, Sex, and Business Enterprise: Evidence from the State of Maryland*, Chapter V, pp. 107-110. Copies of these and other studies I have directed were provided to this Committee as a supplement to my testimony on 22 May 2007 and are available online at <http://sbc.senate.gov/hearings/20070522.cfm>.

<sup>5</sup> 298 F.Supp.2d 725 (N.D. Ill. 2003).

reduce the flow into self-employment from wage/salary work, with this effect being nearly 7 times larger for African-American self-employed than for White self-employed persons. Fairlie then attempts to decompose the racial gap in the transition rate into self-employment into a part due to differences in the distributions of individual characteristics and a part due to differences in the processes generating the transitions. He finds that differences in the distributions of characteristics between African-Americans and Whites explain only a part of the racial gap in the transition rate into self-employment. In addition, racial differences in specific variables, such as levels of assets and the likelihood of having a self-employed father provide important contributions to the gap. He concludes, however, that “the remaining part of the gap is large and is due to racial differences in the coefficients. Unfortunately, we know much less about the causes of these differences. They may be partly caused by lending or consumer discrimination against blacks” (1998, p.14).

There is also research into racial differences in access to credit among small businesses. Cavalluzzo and Cavalluzzo (1998) use data from the 1988-1989 SSBF to analyze differences in application rates, denial rates, and other outcomes by race, ethnicity, and gender in a manner similar to the econometric models reported in this study. This paper documents that a large discrepancy exists in credit access between Whites and minority-owned firms that cannot be explained by a handful of firm characteristics. Unfortunately, these earlier SSBF data did not over-sample minority-owned firms and included limited information on a firm’s credit history and that of its owner, thus reducing the ability to provide a powerful test of the impact of race, ethnicity or gender on loan decisions. In an unpublished paper, Cole (1998) uses the 1993 SSBF and estimates models of loan denials similar in nature to those discussed in this report.

The present analysis takes advantage of the 1993, 1998, and 2003 SSBF data. All three datasets have better information on creditworthiness than did the earlier SSBF data, and the 1993 and 1998 surveys have larger samples of minority-owned firms than did the earlier data. These datasets are also used to conduct an extensive set of specification checks designed to weigh the possibility that my results are subject to alternative interpretations.

## **B. Empirical Framework and Description of the Data**

### **1. Introduction**

Disputes about discrimination typically originate in differences in the average outcomes for two groups. To determine whether a difference in the loan denial rate for African-American-owned firms compared to White-owned firms is consistent with discrimination, it is necessary to compare African-American- and White-owned firms that have similar risks of default, that is, the fraction of the African-American firms’ loans that would be approved if they had the same creditworthiness as the White-owned firms. A standard approach to this problem is to statistically control for firms’ characteristics relevant to the loan decision. If African-American-owned firms with the



same likelihood of default as White-owned firms are less likely to be approved, then it is appropriate to attribute such a difference to discrimination.

Following Munnell et al. (1996) I estimated the following loan denial equation:

$$(1) \quad \text{Prob}(D_i = 1) = \Phi(\beta_0 + \beta_1 CW_i + \beta_2 X_i + \beta_3 R_i),$$

where  $D_i$  represents an indicator variable for loan denial for firm  $i$  (that is, 1 if the loan is denied and 0 if accepted),  $CW$  represents measures of creditworthiness,  $X$  represents other firm characteristics,  $R$  represents the race, ethnicity or gender of the firm's ownership, and  $\Phi$  is the cumulative normal probability distribution. This econometric model can be thought of as a reduced form version of a structural model that incorporates firms' demand for and financial institutions' supply of loan funds as a function of the interest rate and other factors. Within the framework of this model, a positive estimate of  $\beta_3$  is consistent with the presence of discrimination.

## 2. 1993 SSBF Data

The 1993 SSBF data contain substantial information regarding credit availability on a nationally representative target sample of for-profit, non-farm, non-financial business enterprises with fewer than 500 employees. The survey was conducted during 1994 and 1995; the data relate to the years 1992 and 1993. The data file used here contains 4,637 firms.<sup>6</sup> In this SSBF file, minority-owned firms were over-sampled, but sampling weights are provided to generate nationally representative estimates. Of the firms surveyed, 9.5 percent were owned by African-Americans, 6.4 percent were owned by Hispanics, and 7.4 percent were owned by individuals of other races (*i.e.* Asians, Pacific Islanders, American Indians, and Alaska Natives).<sup>7</sup>

Table 1 presents population-weighted sample means from these data for all firms in the sample that applied for credit. The estimates indicate that African-American-owned firms are almost 2.5 times more likely to have a loan application rejected as are non-Hispanic White-owned firms (hereafter "White") (65.9 percent versus 26.9 percent).<sup>8</sup> Other minority groups are denied at rates higher than Whites as well, but the magnitude of the African-American-White differential is especially striking.

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<sup>6</sup> The median size of firms in the sample was 5.5 and mean size was 31.6 full-time equivalent employees; 440 firms out of 4,637 had 100 or more full-time equivalent employees.

<sup>7</sup> There were also two firms in the "Other race" category in 1993 that reported multiple or mixed race.

<sup>8</sup> Cavalluzzo and Cavalluzzo (1998) examined these outcomes using the 1987 NSSBF and similarly found that denial rates (weighted) are considerably higher for minorities. White-owned firms had a denial rate for loans of 22 percent compared with 56 percent for Blacks, 36 percent for Hispanics, and 24 percent for other races, which are broadly similar to the differences reported here. These estimates for minority groups are estimated with less precision, however, because of the smaller number of minority-owned firms in the 1987 sample.

Minority-owned firms, however, do have characteristics that are different from those of White-owned firms, and such differences may contribute to the gap in loan denial rates. For instance, minority-owned firms were younger, smaller (whether measured in terms of sales or employment), more likely to be located in urban areas, and more likely to have an owner with fewer years of experience than their White counterparts. Minority firms were also less creditworthy, on average, than their White counterparts, as measured by whether (a) the owner had legal judgments against him or her over the previous three years, (b) the firm had been delinquent for more than 60 days on business obligations over the preceding three years, and (c) the owner had been delinquent for more than 60 days on personal obligations over the prior three years. Additionally, compared to White-owned firms, African-American-owned firms were also more likely, on average to have owners who had declared bankruptcy over the preceding seven years.

Minority-owned firms also sought smaller amounts of credit than White-owned firms. This was particularly true for African-American-owned firms, who requested loans that were, on average, about 60 percent smaller than those requested by White-owned firms; and Hispanic-owned firms, who requested loans that about 42 percent smaller than those requested by White-owned firms.

The SSBF database does not identify the specific city or state where the firm is located; instead, data are reported for four census regions and nine census divisions. NERA's various disparity studies have examined disaggregated SSBF results for all four Census regions (Northeast, Midwest, South, and West) and seven of nine divisions (New England, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific). The two remaining divisions (Middle Atlantic and West North Central) are being examined as part of studies that NERA currently has underway for New York State and the City of Minneapolis, respectively.

In all the regions and divisions we have examined, the results are consistent with and similar to those found for the country as a whole. For this reason, I will restrict the remainder of my testimony to the national level. Readers interested in reviewing regional results may refer to the studies that were submitted as a supplement to my May 22, 2007 testimony before this Committee or to those submitted as a supplement to my testimony this morning.

### **C. Qualitative Evidence**

Before moving on to the results of my multivariate analysis, I first report on what business owners themselves say are their main problems. While this evidence is not conclusive in determining whether discrimination exists, it highlights firms' perceptions regarding discrimination in obtaining credit. African-American-owned firms and other minorities report greater difficulty in obtaining credit than do White-owned firms, but report other types of problems no more frequently. This suggests either that discrimination takes place or that perceptions of discrimination exist that are

unwarranted. It therefore complements the econometric analysis provided subsequently, which can distinguish between these two hypotheses.

Table 2 summarizes, for the U.S. as a whole, responses to specific questions about problems that firms confronted over the 12-month period before the date of response. In the top panel, respondents were asked to what extent credit market conditions had been a problem. African-Americans and Hispanics were much more likely to say that it had been a “serious” problem (31.3 percent and 22.9 percent, respectively) than Whites (12.7 percent). The bottom panel of the table reports the results for eight other designated problem areas—(1) training costs; (2) worker’s compensation costs; (3) health insurance costs; (4) IRS regulation or penalties; (5) environmental regulations; (6) The American with Disabilities Act; (7) the Occupational Safety and Health Act; and (8) The Family and Medical Leave Act. Differences by race, ethnicity or gender are much less pronounced in these eight areas than they are in relation to credit market conditions.<sup>9</sup> The finding that African-American-owned and Hispanic-owned firms are largely indistinguishable from White-owned firms in reporting a variety of problems, except for the case of credit, indicates that minority-owned firms perceive credit availability to be a particular problem for them.

Table 3 reports the views of SSBF respondents for the U.S. as a whole on the most important issue businesses expected to face over the next 12 months. Credit availability and cash flow again appear to be more important issues for African-American-owned firms than for White-owned firms. White-owned firms were especially worried about health care costs. Hispanic and other minority-owned firms were especially worried about general business conditions.

Acute credit availability problems for minorities have been reported in surveys other than the SSBF. In the Census Bureau’s 1992 *Characteristics of Business Owners Survey* (CBO), for example, when owners were asked to identify the impact of various issues on their firm’s profitability, 27.0 percent of African-American-owned firms reporting an answer indicated that lack of financial capital had a strong negative impact—compared to only 17.3 percent among White male-owned firms. Hispanic-owned firms and other minority-owned firms also reported higher percentages than White male-owned firms—21.3 percent and 19.7 percent, respectively. Further, owners who had recently discontinued their business because it was unsuccessful were asked in the CBO survey to identify the reasons why. African-American-owned firms, and to a lesser degree Hispanic-owned firms, other minority-owned firms, and women-owned firms, were much more likely than White male-owned firms to report that the reason was due to lack of access to business or personal loans or credit. For unsuccessful firms that were discontinued, 7.3 percent of firms owned by White males reported it was due to lack of access to business loans or credit compared to 15.5 percent for firms owned by African-

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<sup>9</sup> I also estimated a series of ordered Logit equations (not reported here) to control for differences across firms in their creditworthiness, location, industry, size, and the like. It is apparent from these regressions that African-America owned firms were more likely to report that credit market conditions were especially serious.

Americans, 8.8 percent for Hispanics, 6.1 percent for other minorities, and 9.3 percent for women. Another 2.7 percent of White males said it was due to lack of personal loans or credit compared to 8.4 percent for firms owned by African-Americans, 5.8 percent for Hispanics, 6.4 percent of Other minorities, and 3.3 percent for women.<sup>10</sup>

A recent study published by the U.S. Chamber of Commerce (2005) is also consistent with these findings from the 1993 SSBF and the 1992 CBO.<sup>11</sup> The Chamber of Commerce survey was conducted in March and April 2005 and detailed the financing problems experienced by small business owners, 95 percent of whom had less than 100 employees. Over 1,000 business owners were interviewed. This survey showed that minority-owned businesses rely heavily on credit cards to fund their businesses; often do not apply for credit, even though they need it, for fear of being denied; and were especially likely to need working capital.

In particular, as shown in Table 4, minority-owned firms report that availability of credit is their top problem. The biggest difference in responses between minorities and White men and women was availability of credit: 19 percent of White males report credit as their top problem compared with 54 percent for minority males. There was a 15 percentage point difference between minority women and White women. In no other category is there more than a 10 percentage point difference for men or women.

In summary, African-American-owned and Hispanic-owned firms in particular and to a lesser extent other minority-owned firms and woman-owned firms report that they had problems with the availability of credit in the past and expected that such difficulties would continue into the future. Whether or not these perceptions reflect actual discrimination can be distinguished in the econometric analyses to follow.

#### **D. Differences in Loan Denial Rates by Race, Ethnicity or Gender**

Evidence presented to this point indicates that minority-owned firms are more likely to be denied loans and report that their lack of access to credit significantly impairs their business. Can these differences be explained by such things as differences in size, creditworthiness, location, or other factors as some have suggested in the literature on discrimination in mortgage lending (Horne, 1994; Bauer and Cromwell, 1994; and Yezer, Phillips, and Trost, 1994)? To address this question I turn to an econometric examination of whether the loan requests made by minority-owned firms are more likely to be denied, holding constant important differences among firms.

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<sup>10</sup> Bureau of the Census (1997), Table 5a, p. 46 and Table 1, p. 21.

<sup>11</sup> Unfortunately, although the CBO is part of the Economic Census, it was not published in 1997. In 2002, the name was changed to the Survey of Business Owners (SBO). Unfortunately, questions relating to the importance of access to financial loans and credit to business success were not included in the 2002 survey.

In Table 5, I report the results from a series of loan denial Probit regressions of the form specified in Equation (1) using data from the 1993 SSBF for the U.S.<sup>12</sup> As indicated earlier, the 1993-2003 datasets have the particular advantage that they include information that can be used to proxy an applicant’s creditworthiness. I report estimates from these models that can be interpreted as changes or differences in loan denial probabilities depending on the type of variables considered. For indicator variables, such as race, ethnicity, and gender, estimates show differences in loan denial probabilities between the indicated group and the base group.<sup>13</sup> In Column (1) of Table 5 (in which the regression model contains only race and gender indicators), the estimated coefficient of 0.443 on the African-American indicator can be interpreted as indicating that the denial rate for African-American-owned businesses is 44.3 percentage points higher than that for White male-owned firms.<sup>14</sup>

The remainder of Table 5 includes additional explanatory variables to hold constant differences in the characteristics of firms that may vary by race, ethnicity or gender.<sup>15</sup> In Column (2) a number of controls are included that distinguish the creditworthiness of the firm and the owner. Many are statistically significant on a two-tailed test at conventional levels of significance with the expected signs. For instance, having been bankrupt or had legal judgments against the firm or owner raises the probability of denial; stronger sales lower this probability. Even after controlling for these differences in creditworthiness, however, African-American-owned firms remain 29 percentage points more likely than White-owned firms to have their loan request denied.

The models reported in Columns (3) through (5) of Table 5 control for an array of additional characteristics of firms. Column (3) adds 39 additional characteristics of the

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<sup>12</sup> Firms owned 50-50 by minorities and non-minorities are excluded from this and all subsequent analyses, as are non-minority firms owned 50-50 by women and men.

<sup>13</sup> For “continuous” variables, such as profits and sales, estimates can be thought of as changes in loan denial probability when the continuous variable changes by one unit. For example, in Column (2) of Table 5, the estimated coefficient of -0.003 on owner’s years of experience indicates that one additional year of owner’s experience is related to -0.3 percentage point reduction in loan denial rate.

<sup>14</sup> This estimate largely replicates the raw difference in denial rates between Black- and White-owned businesses reported in Table 1. The raw differential observed there ( $0.659 - 0.269 = 0.39$ ) differs slightly from the 0.443 differential reported here because this specification also controls for whether the business is owned by a White Female and because the regressions are unweighted whereas the descriptive statistics are weighted using the sample weights. When a full set of explanatory control variables are included the unweighted estimates are insignificantly different from the weighted estimates, hence in Table 5 and subsequent tables I report only unweighted estimates.

<sup>15</sup> In preliminary analyses, these models were also estimated separately, focusing specifically on the differences in coefficient estimates between Whites and Blacks. The F-Test conducted to determine whether parameter estimates were the same for Blacks and Whites rejected this null hypothesis. Next, the estimates obtained by estimating the model separately by race were used to conduct an Oaxaca (1973) decomposition. The results from this analysis were similar to those obtained by restricting the coefficients to be the same between Blacks and Whites and using the coefficient on the Black indicator variable to measure the gap between groups. In this report, all the results are reported in this simpler format for ease of exposition and interpretation.

firm and the loan application, including such factors as level of employment, change in employment, the size of the loan request, and the use of the loan. Column (4) includes variables to control for differences across regions of the country and major industry group. Column (5) adds variables indicating the month and year in which the loan was requested and the type of financial institution to which the firm applied.<sup>16</sup> In total these three columns add 176 variables to the more parsimonious specification reported in Column (2).<sup>17</sup> Nevertheless, the estimated disadvantage experienced by African-American-owned firms in obtaining credit remains large and statistically significant. The estimate from each of the three additional columns indicates that African-American-owned firms are 24 percentage points more likely than White male-owned firms to have their loan application denied even after controlling for the multitude of factors I have taken into consideration.

The results also indicate that Asians/Pacific Islanders had significantly higher denial rates than White males—12 percentage points. There is little evidence in the 1993 national data, however, that denial rates for firms owned by Native Americans or Hispanics were significantly different from the denial rates of firms owned by Whites; or that denial rates for firms owned by White women were significantly different from those for firms owned by White men.

Although the results provided so far strongly indicate that financial institutions treat African-American-owned and White male-owned small businesses differently in lending, other considerations may limit the ability to interpret this finding as discrimination. Of perhaps greatest concern is the possibility that I may not have adequately controlled for differences in the creditworthiness of firms. If African-American-owned firms are less creditworthy and I have failed to sufficiently capture those differences then I would be inadvertently attributing the racial difference in loan denial rates to discrimination. On the other hand, however, if financial institutions discriminate against African-American-owned firms, then the greater likelihood of denial for African-Americans in earlier years is likely to hurt the performance of these firms and appear to make them look less creditworthy. Therefore, controlling for creditworthiness will likely understate the presence of discrimination.

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<sup>16</sup> Approximately four out of five (80.5%) of the firms who required a loan applied to a commercial bank. Overall seventeen different types of financial institution were tabulated, although only the following accounted for more than 1% of the (weighted) total— Finance Companies (4.9%); Savings Banks (2.5%); Savings & Loans (2.3%); Leasing Companies (2.1%); and Credit Unions (2.0%).

<sup>17</sup> Because of confidentiality concerns, one piece of information which I did not have access to in the 1993 or 1998 SSBF was each firm's credit rating. A working paper by Cavalluzzo, Cavalluzzo, and Wolken (1999) was able to incorporate Dun & Bradstreet credit ratings for each firm because the authors' connection to the Federal Reserve Board enabled them to access the confidential firm identifiers. They added these credit rating variables in a model comparable to that reported here and found the results insensitive to the inclusion. The 2003 SSBF includes Dun & Bradstreet credit ratings for each firm. Below, we discuss the impact of incorporating them into a model similar to that presented in Table 5 (see Tables 19 and 20).

As a check on the foregoing results, therefore, my first approach was to identify the types of information that financial institutions collect in order to evaluate a loan application and compare that with the information available to us in the SSBF. First, a selection of small business loan applications was collected from various banks. An Internet search of web sites that provide general business advice to small firms was also conducted. Such sites typically include descriptions of the loan application process and list the kinds of information typically requested of applicants.

Bank loan applications typically request detailed information about both the firm and its owner(s). Regarding the firm, banks typically request information on: (a) type of business, (b) years in business, (c) number of full-time employees, (d) annual sales, (e) organization type (corporation or proprietorship), (f) owner share(s), (g) assets and liabilities, (h) whether the business is a party to any lawsuit, and (i) whether any back taxes are owed. Regarding the owner's personal finances, banks typically ask for: (a) assets and liabilities, (b) sources and levels of income, and (c) whether the owner has any contingent liabilities. Some applications ask explicitly if the firm qualifies as a minority-owned enterprise for the purposes of certain government loan guarantee programs. The race of the applicant, however, would be readily identifiable even in the absence of such a question since most of these loans would be originated through face-to-face contact with a representative of the financial institution.

These criteria seem to match reasonably closely the information available in the 1993 SSBF. The particular strength of the SSBF is the detail available on the firm, which covers much of the information typically requested on loan application forms. The main shortcoming that I have identified in these data is that less detail is available on the finances of the owner of the firm.<sup>18</sup> Although the creditworthiness measures enable identification of those owners who have had serious financial problems (like being delinquent on personal obligations), there is no direct information regarding the owner's assets, liabilities, and income. These factors would be necessary to identify whether the business owner has sufficient personal resources to draw upon should the business encounter difficulties and to determine the personal collateral available should the firm default on its obligation. There are measures of the owner's human capital in the form of education and experience, which likely capture at least some of the differential in available personal wealth across firm owners. Nevertheless, this potentially incomplete characterization of the business owner's personal financial condition may introduce a bias into my analysis if African-American business owners have fewer resources than White business owners.

To assess the potential impact of this problem on my results, I separately examined groups of firms who differ in the degree to which personal finances should influence the loan decision and compare the estimated disadvantage experienced by African-American-owned firms in different groups. First, I examine proprietorships and partnerships

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<sup>18</sup> This deficiency is remedied in the 1998 SSBF and the 2003 SSBF, discussed below, both of which contain information on the owner's home equity, and personal net worth excluding home equity and business equity.

separately from corporations since owners of incorporated businesses are at least somewhat shielded from incurring the costs of a failed business. Second, I divide firms according to size.<sup>19</sup> Both larger small businesses and those that have been in existence for some time are more likely to rely on the business's funds, rather than the owner's, to repay its obligations. Third, I consider firms that have applied for loans to obtain working capital separately from those firms that seek funds for other purposes (mainly to purchase vehicles, machinery and equipment, and buildings or land). Loans made for one of these other purposes are at least partially collateralized because the financial institution could sell them, albeit at a potentially somewhat reduced rate, should the small business default.<sup>20</sup>

Results from these analyses provide no indication that omitting the owner's personal wealth substantially biases the results presented above in Table 5. Estimates presented in row numbers 1 through 9 of Table 6 indicate that African-American-owned small businesses are significantly more likely to have their loan applications rejected regardless of the category of firm considered. In particular, when samples are restricted to corporations, larger firms, and firms seeking credit for uses other than working capital, African-American-owned firms are 21, 24, and 18 percentage points more likely, respectively, to have their loan application rejected even though personal resources should be less important in these categories. Moreover, in each group where there are two types of firms (large and small, etc.), the estimates for the two types of firms are not significantly different from each other.

Another issue is whether the racial differences in loan denial rates among firms with similar characteristics can be attributable to differences in the geographic location of African-American- and White-owned firms. If, for example, African-American-owned firms are more likely to be located in the central city, and a central city location is negatively correlated with profitability and the ability to repay debt, then financial institutions may be acting optimally in rejecting the loan applications of African-American-owned firms at a higher rate. As indicated earlier, this type of behavior is

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<sup>19</sup> As reported earlier, the mean and median size of firms is 5.5 and 31.6 full-time equivalent workers, respectively. Fourteen percent of firms have one or fewer employees and 27 percent have two or fewer employees.

<sup>20</sup> As indicated earlier, greater personal wealth may improve a small business's chances of obtaining credit because it provides collateral should the loan go bad and because wealthy owners can use their own resources to weather bad times, improving the likelihood of repayment. My separate analysis of corporations and proprietorships and of large and small firms does not account for this second reason because corporations and large businesses may still need to draw on the owner's personal wealth to help it survive short-term shocks. Businesses that have been in existence for several years, however, are less likely to experience these shocks, making them less likely to require infusions from the owner's personal wealth. A loan used to purchase equipment that can be sold if the firm defaults similarly insulates the bank from the need to seek repayment directly from the owner.



labeled “statistical discrimination.” In the subsequent text and tables, I present a limited analysis to address whether or not this type of behavior takes place.<sup>21</sup>

To identify whether lenders’ behavior is consistent with this hypothesis I distinguish those firms that self-classified their sales market as being local rather than regional, national, or international. A central city location should have a greater impact on future profit expectations for those firms that operate on a local level. If minority-owned firms are more likely to locate in the central city, racial differences in loan approval rates should be greater in the firms that sell in the local marketplace. The results of this test, reported in row numbers 9 and 10 of Table 6, reject the hypothesis that differences in loan denial rates are attributable to different propensities to locate in the center of a city. Estimates indicate that African-American-owned firms that sell to the local market are 13 percentage points more likely to have their loan applications denied compared to a 23 percent excess denial rate for firms selling primarily to regional, national, or international markets.

I also estimate models that address a potential weakness in the specific functional form with which I control for differences in credit history across firms. As shown in Table 1, African-American-owned firms are considerably more likely to have had troubles in the past in the form of judgments against them, late payments by the firm or its owner, or past bankruptcies. The model specifications reported in Table 5 implicitly assume that these past problems are additive in their effect on loan denials and one might suspect the marginal impact would rise as past problems rise. Therefore, in the final three rows of Table 6, I separated firms by the number of past problems experienced. In Rows 11 through 13, I restricted the sample to those firms that have never had any past credit problems, those firms that reported one problem only, and those firms that reported more than one of these problems, respectively. The results indicate that even African-American-owned firms with clean credit histories are at a significant disadvantage in getting their loans approved, holding constant their other characteristics. In fact, the estimated differential in loan approval rates between African-American- and White-owned firms is statistically indistinguishable within each of these groups.

Finally, I considered whether African-American-owned firms are treated differently from White-owned firms when requesting credit from other sources. The source of credit examined is credit cards. Such an analysis provides a unique advantage because credit card applications are more likely to be filled out and mailed in, so it is more likely that the race of the applicant is unknown to the financial institution, at least in the case of African-American-owned firms and Native American-owned firms, where surname is unlikely to provide any signal about minority status. On the other hand, for Asian and Hispanic applicants, it is possible that surname does provide such a signal, albeit a

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<sup>21</sup> A strong test to distinguish between statistical discrimination and “Becker-Type” discrimination would require a tremendous amount of detail about the specific location of the firm, characteristics of its surrounding area, characteristics of neighboring firms, and the like, which were unavailable to me. As indicated earlier, both forms of discrimination are illegal and this report applies a definition that incorporates both.

somewhat noisy one. The 1993 SSBF asked respondents whether they used either a business or personal credit card for business purposes. Although my analysis of use of credit cards does not condition on application, a finding that African-American- and White-owned small businesses are equally likely to use credit cards may still provide evidence supporting discrimination in small-business lending. In fact, if financial institutions discriminate against African-Americans in providing small business loans, one may even expect to see African-Americans use credit cards more often than Whites since they have fewer alternatives. Even though many institutions may offer both types of credit, they may only be aware of the race of the applicant in a small business loan.<sup>22</sup>

In Table 7, I examine the probability that a firm uses either a business credit card (Row 1) or a personal credit card (Row 2) to finance business expenses holding constant other differences across firms.<sup>23</sup> There is no evidence that African-American-owned firms or Native American-owned firms are less likely to access either business or personal credit cards for business expenses. On the other hand, there is evidence that Asian-owned firms and Hispanic-owned firms are less likely to access business credit cards. I also had information available on the maximum amount that could be billed to these accounts and found no significant differences by race in a regression that modeled the amount that could be charged.

## **E. Differences in Interest Rates Charged on Approved Loans**

Although most of my analysis has addressed whether minority- and White-owned firms are treated equally in terms of their probability of loan denial, another way that differential treatment may emerge is through the interest rate charged for approved loans. Discrimination may be apparent if banks approve loans to equally creditworthy minority- and White-owned firms, but charge the minority-owned firms a higher interest rate. Therefore, I estimated model specifications analogous to those reported previously for loan denials, but now the dependent variable represents the interest rate charged for firms whose loans were approved and the set of explanatory variables includes characteristics of the loan. More formally, the estimated model takes the form:

$$(2) \quad I_i = \beta_0 + \beta_1 CW_i + \beta_2 X_i + \beta_3 R_i + \beta_4 LC_i + \varepsilon_i,$$

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<sup>22</sup> It appears that race may also rarely be known to those institutions that issue credit ratings. As we mentioned above, Cavalluzzo, Cavalluzzo, and Wolken (1999) show that Dun & Bradstreet Credit Ratings are not helpful in explaining racial disparities in loan denials. Although I am not privy to Dun & Bradstreet's methodology for establishing its credit ratings, I do know from long experience that the good indicators of ownership by race are lacking in Dun & Bradstreet's master business identifier file. Indeed, this is the reason why NERA's availability estimation methodology requires us to create a master directory of disadvantaged, minority, and women-owned businesses to enhance Dun & Bradstreet's race and gender identifiers.

<sup>23</sup> On average, 29 percent of all firms use business credit cards and 41 percent use personal credit cards for business use; these levels vary only modestly by race and ethnicity.

where  $I$  represents the interest rate charged on the loan,  $LC$  represents characteristics of the loan (see the notes to Table 5 for a full list of the variables included in this set),  $\varepsilon_i$  is a term capturing random factors, and all other notations are the same as in equation (1).

An important consideration is whether the interest rate may be treated as exogenous, as my reduced form model assumes. In the context of small business loans, in which it is possible that the loan terms may be negotiated in the determination process, this assumption may not be valid. As such, a model that simultaneously estimates the interest rate and the loan decision might be appropriate, except that the interest rate that would be charged to firms whose loans were denied is not available in the SSBF data. Alternatively, one could estimate an interest rate model alone for those firms whose loan was approved, adjusting for the potential bias brought about by sample selection. To properly identify such a model, however, a variable is required that is linked to the loan denial decision, but unrelated to the level of interest charged on approved loans; no such variable exists in the data.

Nevertheless, one would expect these considerations to impose a downward bias on the estimated differential in interest rates charged on loans to African-American-owned firms. Those firms whose loans were rejected would have been charged higher interest rates than those approved. Since African-American-owned businesses were considerably more likely to be rejected holding constant differences in creditworthiness, one would expect any differential in interest rate to be even greater if those firms were included in the sample. I overlook this implication in the results reported below, but its impact should be kept in mind.

The results obtained from estimating equation (2) are reported in Row 1 of Table 8, which includes the complete set of control variables comparable to those in Column 5 of Table 5. Estimates indicated that African-American-owned firms pay rates of interest that are roughly 100 basis points higher than similarly situated White-owned firms. Row 2 shows that even African-American-owned firms with good credit histories are charged higher interest rates relative to White-owned firms.<sup>24</sup>

The remainder of the table presents similar specification checks to those reported in Table 6. Recall that most of these models identify firms for which the firm's own history is likely to be a more important contributor to its creditworthiness. The specifications by sales market are designed to distinguish the impact of central city location. Unfortunately, sample sizes are smaller in these specifications and reduce the power of the analysis. Nevertheless, I still find that regardless of organization type and firm age, African-American-owned firms face statistically significantly higher interest rates. Overall, the evidence presented indicates that African-Americans, and to a lesser extent Hispanics and

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<sup>24</sup> Estimates from firms that have had past credit problems are not presented since the higher likelihood of their being denied credit restricts the size of the sample and limits the ability to provide a powerful test of the interest rates charged if they are approved.

Asians, do face disadvantages in the market for small business credit that do not appear to be attributable to differences in geography or creditworthiness.

## **F. Loan Approval Rates and Access to Credit**

The results presented so far may be biased toward finding too small a disparity between White- and African-American-owned firms because those minority-owned firms that actually apply for credit may represent a selected sample of the most creditworthy. More marginal minority-owned firms whose loans may have been accepted had they been owned by Whites may not even be among the pool of loan applicants. First, these firms may have gone out of business or may not have had the opportunity to commence operations because of their inability to obtain capital. Second, some existing firms may have chosen not to apply for credit because they were afraid their application would be rejected due to prejudice.

Although I have no direct evidence regarding the first proposition, data from the 1993 SSBF provide some evidence for the second: African-American- and Hispanic-owned firms are much more likely to report that they did not apply for a loan, even though they needed credit, because they thought they would be rejected. Table 9 reports estimates from Probit models in which the dependent variable is an indicator variable representing failure to apply for a loan fearing denial for all firms. The first row presents racial differences without controlling for any other characteristics of firms, and the results indicate that African-American- and Hispanic-owned firms are 40 and 23 percentage points more likely than White-owned firms to withhold an application fearing denial.

Of course, some of this difference may be attributable to differences in creditworthiness across firms since firms that are bad credit risks should be afraid that their loan would be denied. To adjust for this, the second row of Table 9 reports comparable models that control for differences in creditworthiness and other characteristics of firms. The results from this specification show that the greater fear of rejection among African-American- and Hispanic-owned firms can partially be explained by these differences. Nevertheless, a gap of 26 and 16 percentage points still exists for African-American- and Hispanic-owned firms relative to White-owned firms with similar characteristics. In fact, when asked directly why they were afraid to apply for loans, minority-owned firms were far more likely to report prejudice as the reason (19 percent for African-American-owned firms, 8 percent for Hispanic-owned firms, and 3 percent for White-owned firms).<sup>25</sup> As section (b) of Table 9 shows, African-American-owned firms in construction also appear to be fearful of applying because of the possibility of their application being turned down.<sup>26</sup>

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<sup>25</sup> Other reasons given, including “too little collateral,” “poor credit history,” and “poor balance sheet,” are comparable across groups. Firms could report more than one reason.

<sup>26</sup> It was not possible to report separate construction results in earlier tables because of small sample sizes.

If these minority-owned firms had applied for credit and were rejected because of discrimination, estimates of racial disparities based only upon loan applicants (as in Table 5) would be understated. The perception of prejudice among these firms, however, does not necessarily imply that selection bias is present. Those firms that failed to apply because they feared rejection may have had similar loan denial rates as other minority-owned firms with comparable levels of creditworthiness that did apply. If those firms chose to apply for a loan, differences by race in the combined denial rate of the actual and potential applicants would be the same as what I have estimated for the observed sample of applicants.

More formally, suppose that loan denial rates for equally creditworthy White- and minority-owned firms that applied for credit are  $\theta^W$  and  $\theta^M$ , respectively; the measure of discrimination employed in the previous analysis is  $\theta^M - \theta^W$ . Now suppose that firms that are equally creditworthy, but chose not to apply for a loan because they feared rejection, would have been denied at the rates  $\theta^W$  and  $\psi^M$  for White- and minority-owned firms, respectively. Among the White-owned firms, the denial rate is identical regardless of whether the firm chose to apply or not, conditional upon creditworthiness. Among minority-owned firms, however, those who were afraid to apply may have been denied at a higher rate (perhaps because of their greater propensity to locate in the central city or other factors that are related to their race, but unrelated to creditworthiness) compared with other minority-owned firms. Then the correct representation of the disadvantage faced by minority-owned firms is  $[\eta\theta^M + (1-\eta)\psi^M] - \theta^W$ , where  $\eta$  represents the share of minority-owned firms desiring credit that submitted an application. My earlier findings are biased if  $\theta^M$  is not equal to  $\psi^M$ .

One approach that is frequently employed to address such a problem is to estimate a “Heckman-correction” that would formally model the application process in conjunction with the loan outcome for those who applied. The difficulty with this methodology in the present context is that it is only correctly implemented when some variable is present that is correlated with a firm’s decision to apply for a loan, but is independent of the financial institution’s decision to approve or deny the request. Unfortunately, the SSBF data do not appear to contain any variables that would satisfy these conditions, so I am unable to implement this methodology.<sup>27</sup>

As an alternative that answers a different, but related, question I consider the ability of firms to get credit among those who desired it, regardless of whether or not they applied. This amounts to analyzing access to credit rather than loan approval and includes in the

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<sup>27</sup> The only variable that potentially could meet these conditions in the SSBF data is the distance between a firm and the nearest financial institution. If greater distance reduced a firm’s information regarding the availability of funds, it might be related to the decision to apply for a loan. On the other hand, the creditworthiness of the firm should be independent of its location and should be unlikely to enter into the approval process. Unfortunately, I did not find a direct relationship between distance to the nearest financial institution and the probability of applying for a loan. This may be due to the fact that few firms are located more than a very short distance from the nearest financial institution.

denominator those firms that needed credit but did not apply because they feared rejection. If differences by race in this rate among all firms who needed credit are greater than differences by race in the rate of denial among loan applicants, then this would indicate that African-American- and other minority-owned firms have even less access to credit than an analysis of loan applicants would indicate.

To test this proposition, I estimate a regression model comparable to the one reported in Table 6 for the sample of firms that applied for a loan, except that this analysis considers all firms seeking credit and treats those who did not apply for fear of rejection as denials. The sample excludes firms that did not need additional credit in the preceding three years. The results, reported in Table 10, are consistent with the previous analysis; I find that selection is not much of an issue for African-American-owned firms nationally or in the construction sub-sample, or for Asian-owned firms nationally. Regardless of whether I consider denial rates among applicants or denial rates among firms that desired additional credit, African-American-owned firms are 20-30 percentage points less likely to obtain credit once control variables are included and even higher than that when they are not. For Hispanic-owned firms, however, selection bias is evident. Among the pool of loan applicants, Hispanic-owned firms are not statistically significantly more likely to be denied than other firms with the same characteristics (see *e.g.* Table 5, column 5). Among the pool of firms seeking additional credit, however, Hispanic-owned firms are 16 percentage points more likely to be denied access to credit, and this difference is statistically significant.

## **G. Analysis of Credit Market Discrimination in the U.S. in 1998**

I turn next to an examination of the extent to which discrimination in the credit market changed after 1993 using data from the 1998 SSBF.<sup>28</sup> This section updates the several estimates obtained above using the 1993 SSBF. Two complications are that the overall sample size is smaller and a number of the questions have been changed. However, the result is still clear – African-American-owned firms face discrimination in the credit market. In addition, there is evidence of discrimination in the credit market against other minority-owned firms as well. I present four sections of evidence, all of which are consistent with my findings from the 1993 survey.

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<sup>28</sup> The target population of the survey was for-profit businesses with fewer than 500 employees that were either a single establishment or the headquarters of a multiple establishment company, and were not agricultural firms, financial institutions, or government entities. These firms also had to be in business during December 1998. Data were collected for fiscal year-end 1998. Like its 1993 counterpart, the purpose of this survey was to gather information about small business financial behavior and the use of financial services and financial service providers by these firms. The objectives of the survey were to collect information that can inform researchers and policy makers on the availability of credit to small businesses; the location of the sources of financial services; the types of financial services used, including checking accounts, savings accounts, various types of credit, credit cards, trade credit, and equity injections; as well as the firm's recent credit acquisition experiences. The survey also investigated the level of debt held by these firms and their accessibility to credit. Additionally, the survey collected information on firm and owner demographics, as well as the firm's recent income statement and balance sheet.

## 1. Qualitative Evidence

Consistent with the 1993 survey, African-American-owned firms in the 1998 survey report in Table 11 that the biggest problem their firm currently faces is “financing and interest rates.” In the 1993 survey, respondents were asked to report problems in the preceding 12 months (Table 2) and over the next 12 months (Table 3). Interestingly, even though credit availability was by far the most important category for African-Americans (21 percent in Table 3), interest rates were relatively unimportant (2 percent). The 1998 SSBF, however, did not report separate categories.

## 2. Differences in Loan Denial Rates by Race/Ethnicity

In 1998 as in 1993, in comparison with firms owned by White males, minority and female-owned firms were less creditworthy, more likely to have their loan applications turned down, more likely not to apply for a loan for fear of being denied, and consistently smaller and younger. Moreover, their owners had lower amounts of both home and non-home equity. Minority-owned firms in general, and African-American-owned firms in particular, were much less likely to be classified as having a “low risk” credit rating by Dun & Bradstreet.<sup>29</sup>

In the 1993 survey, respondents were asked “During the last three years has the firm applied for credit or asked for the renewal of terms on an existing loan?” In 1998, a narrower question limited to new loans was asked – “Did the firm apply for new loans in the last three years?” In 1993, 43 percent answered the question in the affirmative compared with 27 percent in 1998. Despite the fact that in 1993 the question was broader, the pattern of denials by race and sex is similar across the years. As can be seen below, minority-owned firms were especially likely to have their loan applications denied.

Percentage of Loan Applications Denied		
	1993	1998
White males	26.2%	24.4%
African-Americans	65.9%	62.3%
Asians, Native Americans, etc.	39.9%	47.0%
Hispanics	35.9%	49.9%
White females	30.1%	23.5%
Overall	28.8%	28.6%

Similarly, the proportion of firms reporting that they did not apply for fear of being denied is similar by race, ethnicity, and gender across the two years. More than half of African-American owners did not apply for a loan for fear of being denied compared with only one out of five White males.

<sup>29</sup> Information on home and non-home equity or on the Dun & Bradstreet credit rating was not available in the 1993 survey.

Percentage Not Applying for Fear of Denial		
	1993	1998
White males	22.5%	20.2%
African-Americans	60.7%	53.9%
Asians, Native Americans, etc.	27.5%	23.1%
Hispanics	41.5%	34.3%
White females	22.7%	24.2%
Overall	24.7%	23.3%

In the 1998 SSBF survey, respondents who were denied loans were asked if they believed there were reasons other than the official ones provided by their financial institution as to why their loan applications were turned down. Among numerous options provided were the following:

- a) Prejudice on a racial/ethnic basis.
- b) Prejudice against women.
- c) Prejudice against the business location.
- d) Prejudice against the business type.
- e) Prejudice or discrimination (not-specified or other).

Among firm owners who had applied for credit within the last three years and were denied, 34.1 percent believed there were reasons for their denial beyond the official explanation provided by the financial institution. Among Whites, 7.7 percent suspected some sort of prejudice. By contrast, the figure among minorities was 25.8 percent. Among owners who needed credit but did not apply for fear of denial, a similar pattern was observed. Only 1.7 percent of Whites stated prejudice was the reason, whereas among minorities the figure was 6.8 percent.

In Table 5 the determinants of loan denial rates were estimated using data from the 1993 SSBF. It was found that African-American-owned firms were almost twice as likely to have their loans denied than White male-owned firms, even after controlling for a host of variables included primarily to control for the possibility that minority-owned firms are smaller and less creditworthy than those owned by White men.

A similar exercise is performed below in Tables 11 using data from the 1998 SSBF. Column 1 in Table 12 shows that African-American-owned firms in 1998 had a 42.2 percentage point higher probability of denial than White male-owned firms before taking account of creditworthiness of the firm or any other characteristics. For 1993 the comparable figure was 44.3 percentage points. The addition of a large number of controls reduces the percentage point differential for African-Americans to 21.8 in column 6 as the full set of controls is added. For 1993 the comparable figure was 24.1 percentage points.



The main difference between 1993 and 1998 is that now I now find evidence that the probability of denial is significantly higher for Hispanic-owned firms as well. In Table 12, column 5, Hispanic-owned firms have a 17.1 percentage point higher probability of being denied than White male-owned firms. In Table 5, by contrast, denial probabilities for Hispanic-owned firms were *not* significantly different from those of White male-owned firms. If anything, discrimination in the small business credit market appears to have expanded during the late 1990s.

Although tempered by the smaller sample size available, the quality of the experiment is somewhat better using the 1998 data than it was using the 1993 data due to the availability of an improved set of controls for the creditworthiness of the firm and its owner. In 1998, three new variables are included regarding the financial viability of the firm:

- a) The value of the equity, if any, in the owner’s home.
- b) The owner’s net worth excluding home equity and equity in the firm.
- c) The firm’s 1999 Dun & Bradstreet credit rating in five categories (low, moderate, average, significant, and high) indicating the likelihood of loan default.<sup>30</sup>

Despite the fact that these new variables do help to predict loan denials,<sup>31</sup> the estimated race differences including these variables are unchanged from those reported above.<sup>32</sup> This suggests that the large estimated differences in the denial probabilities that were estimated in 1993 were not biased significantly upwards by the fact that these variables were unavailable.

### 3. Effect of 1998 Survey Design Changes on Differences in Loan Denial Rates

The question used to examine the 1998 data was somewhat narrower than the question used in the 1993 survey because it was changed by the survey designers. The 1998 question asked about new loans over the preceding three years, whereas the 1993 question covered all loans including renewals. Responses in 1998 were as follows:

Applied for New Loans Last Three Years	Number	Percent
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<sup>30</sup> The D&B Commercial Credit Score Report predicts the likelihood of a company paying in a delinquent manner (90+ days past terms) during the next 12 months based on the information in D&B’s file. The score is intended to help firms decide quickly whether to accept or reject accounts, adjust terms or credit limits, or conduct a more extensive review based on the report D&B provides. Firms can also determine the company’s relative ranking among other businesses in the D&B database.

<sup>31</sup> The coefficients and t-statistics on the credit score variables when they were included alone in a U.S. loan denial model was as follows: moderate risk = .228 (2.45), average risk = .295 (3.25); significant risk = .319 (3.28); high risk = .391 (3.53), n =924 pseudo r<sup>2</sup> =.0253. Excluded category ‘low risk’.

<sup>32</sup> This confirms the findings of Cavalluzzo, Cavalluzzo and Wolken (1999) who performed a similar exercise with the 1993 data.

Did not apply	2,599	73.0%
Always approved	713	20.0%
Always denied	166	4.7%
Sometimes approved/sometimes denied	83	2.3%
<b>Total</b>	<b>3,561</b>	<b>100.0%</b>

The dependent variable used Table 12 was set to one if the loan application was always denied and was set to zero if the application was always approved or sometimes approved/sometimes denied. An alternative dependent variable – *denylast* – is set to one if the application is always denied, set to zero if always approved. Those responding “sometimes approved/sometimes denied” are excluded from the analysis. Column (1) of Table 13 replicates column 1 of Table 12 using *denylast* as the dependent variable with the smaller sub-sample. African-Americans, Hispanics, Asians, and White females are all confirmed to face higher denial rates than White males using this specification. For African-Americans and Hispanics, the difference is 46 and 36 percentage points, respectively. For Asians, the difference is 19 percentage points, and for White females, 8 percentage points.

Results consistent with discrimination are confirmed for African-Americans and Hispanics in Column (2) of Table 13 when a host of demographic and financial characteristics and geographic and industry indicators are included.

#### **4. Differences in Interest Rates, Credit Card Use, and Failure to Apply for Fear of Denial**

Tables 14 through 16 provide confirmation from the 1998 survey of a number of other results from the 1993 survey reported above.

First, Table 14, which is similar to Table 8, finds that conditional on obtaining a loan, African-Americans are charged a higher price for their credit — on average 106 basis points nationally. These results are not significantly different in construction and construction-related industries.<sup>33</sup>

Table 15, which is similar to Table 9, shows that African-American owners are much more likely not to apply for a loan fearing they will be denied. Based on all of the foregoing evidence this is perhaps a sensible decision—if and when they do apply they are almost twice as likely as White male-owned firms to have their application rejected. This is evident in the construction and construction-related industries as well.<sup>34</sup>

<sup>33</sup> There is some indication that White females nationally pay slightly less for their loans, but this difference is not quite statistically significant.

<sup>34</sup> There is some evidence of this phenomenon for Hispanics nationally as well. However the coefficient of 0.173 in Row (2) of Table 15 is not quite statistically significant.

Finally, Table 16, which is comparable to Table 7, suggests that when the financial institution does not know the race or ethnicity of the applicant – as is often the case in an application for a credit card – there are no differences by race or ethnicity in the usage for business purposes of either business or personal credit cards. There was also no evidence of any race effects in the use of credit cards in construction (results not reported here).

My confidence in the strength of the findings from the 1993 SSBF survey is elevated by these findings from the 1998 SSBF survey, which strongly confirm the original results. Unfortunately, African-Americans continue to be discriminated against in the market for small business credit. By 1998, this discrimination appears to be on the increase for African-Americans and to be expanding to impact other minority groups, such as Hispanics, as well. This is an important market failure, and one which federal, state, and municipal government cannot simply ignore if they are to avoid passive participation in a discriminatory marketplace.

## **H. Analysis of Credit Market Discrimination in the U.S. in 2003**

Most recently, a new wave of the SSBF was became available.<sup>35</sup> This is the fourth survey of U.S. small businesses conducted by the Board of Governors since 1987. The survey gathered data from 4,240 firms selected to be representative of small businesses operating in the U.S. at the end of 2003. The survey covered a nationally representative sample of U.S. for profit, non-financial, non-subsidary, nonagricultural, and nongovernmental businesses with fewer than 500 employees that were in operation at year end 2003 and at the time of interview. Most interviews took place between June 2004 and January 2005. The sample was drawn from the Dun & Bradstreet Market Identifier file. The numbers of employees varied from zero to 486 with a weighted median of 3.0 and weighted mean of 8.6.

Unfortunately, the 2003 SSBF did not over-sample minority-owned firms, as in the first three survey waves. According to survey staff, this was due to concerns that doing so would delay the survey timeline and reduce the overall response rate.<sup>36</sup>

In 1998 almost 8 percent of survey respondents were African-American, compared to slightly more than 3 percent in 2003. Hispanics were almost 7 percent in 1998 but less than 4 percent in 2003. Other minorities were 6.5 percent in 1998 but only 5.4 percent in 2003.<sup>37</sup> Although the population weights were adjusted to accommodate these changes,

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<sup>35</sup> See <http://www.federalreserve.gov/pubs/oss/oss3/ssbf03/ssbf03home.html> (viewed 9 September 2008).

<sup>36</sup> See footnote 1, above.

<sup>37</sup> The impact on women was not as pronounced. Females were 23.3 percent in 1998 and 20.9 percent in 2003. For White females, the figures are 17.8 percent in 1998 and 18.2 percent in 2003.

even these weighted percentages are significantly smaller for minorities in 2003 than in 1998.<sup>38</sup>

Mach and Wolken (2006) reported using these data that 13.1% of firms were owned by non-White or Hispanic individuals; the share is statistically lower than in 1998 (14.6%). The shares for African-Americans and Asians each held roughly constant at 4%; the share of American Indians and Alaska natives held at roughly 1%. However the share of Hispanics fell a statistically significant amount from 5.6% to 4.2% which is somewhat surprising given the evidence that Hispanics are a growing share of the U.S. population – up from 12.5% in 2000 to 14.5% in 2005. The percentage of firms owned by females also declined from 72.0% to 64.8%.

Despite these drawbacks, my analysis of the 2003 SSBF yields results that are strongly consistent with those obtained from the 1993 and 1998 survey waves. The remainder of this section presents the findings from this analysis.<sup>39</sup>

## **1. Qualitative Evidence**

Table 17 reports the results of asking business owners for the most important problem currently facing their firm. Consistent with the 1993 and 1998 surveys, firms owned by minority and women-owned firms were more likely to say that their most important problem was “financing and interest rates.” Once again the African-American-White difference was most pronounced—only slightly more than 5 percent of White male business owners reported this as their major problem compared to almost 21 percent of African-American business owners.

## **2. Differences in Loan Denial Rates by Race/Ethnicity**

Table 18 presents estimates of loan denial probabilities for the nation as a whole using a regression model comparable to that which was used with the 1993 and 1998 survey waves.<sup>40</sup>

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<sup>38</sup> Mach and Wolken (2006, Table 2) report that weighted figures for Blacks were 4.1 percent in 1998 and 3.7 percent in 2003. Hispanics were 5.6 and 4.2 percent, respectively. Asians and Pacific Islanders were 4.4 and 4.2 percent, respectively. Native Americans were 0.8 and 1.3 percent, respectively, and women were 24.3 and 22.4 percent, respectively.

<sup>39</sup> The 2003 SSBF data file includes five separate observations per firm. That is to say there are 4240\*5=21,200 observations. These so-called multiple imputations are done via a randomized regression model, and are included because where there are missing observations several alternative estimates are provided. Where values are not missing the values for each of the five imputations are identical. I make use of the data from the first imputation: the results presented here are essentially identical whichever imputation is used. Overall only 1.8 percent of observations in the data file were missing.

<sup>40</sup> In 2003, the credit application question was changed from 1998 to once again include requests for renewals as well as new loans, making it comparable to the 1993 version.

Column (1) in Table 18 (comparable to Table 5 for 1993 and 12 for 1998) shows that African-American-owned firms in 2003 had a 45.9 percentage point higher probability of denial than White male-owned firms before taking account of creditworthiness of the firm or any other characteristics. The addition of a large number of controls reduces the percentage point differential for African-Americans to 9.4 in Column (5) as the full set of controls is added. The coefficients in Column (5) for White females and other minority groups are not significant however.

### **3. Differences in Interest Rates, Credit Card Use, and Failure to Apply for Fear of Denial**

Table 19 models the interest rate charged for those minority-owned and White female-owned firms that were able to successfully obtain a loan (comparable to Table 8 for 1993 and Table 14 for 1998). As found in the earlier surveys, African-American business owners are hurt here as well since they have to pay, on average, 104 more basis points for their loans than White male business owners with identical characteristics. Hispanic business owners, as well, pay 100 more basis points, on average, than their White male counterparts.

Table 20 reports the results of estimating a model where the dependent variable is whether a business or personal credit card is used to pay business expenses (comparable to Table 7 for 1993 and Table 16 for 1998). As noted above, the application procedure for business and personal credit cards is usually automated and not conducted face-to-face. If there were missing variables such as creditworthiness or some such characteristic unobserved to the econometrician, then the race and ethnicity indicator variables should enter significantly in these equations. Unlike earlier years, there is some evidence that African-Americans are less likely to use personal credit cards for business expenses.

Finally, consistent with earlier results, Table 21 (comparable to Tables 9 for 1993 and 15 for 1998), shows that African-American owners are much more likely not to apply for a loan fearing they will be denied. Even after controlling for a host of demographic, financial, geographic, and industry factors, African-American business owners are still almost 17 percentage points more likely to fail to apply for loans for fear of denial—even though they need the credit. In construction and related industries, the trend is even more pronounced at 28.4 percentage points. There is evidence of this phenomenon for White female business owners at the national level as well.

### **I. Further Analysis of Credit Market Discrimination: NERA Surveys 1999-2007**

NERA has conducted local credit market surveys at nine other times and places since 1999. These include the Chicago metropolitan area in 1999, the State of Maryland in 2000, the Jacksonville, Florida metropolitan area in 2002, the Baltimore-Washington, DC metropolitan area in 2003, the St. Louis metropolitan area in 2004, the Denver metropolitan area in 2005, the State of Maryland (again) in 2005, the State of

Massachusetts in 2005, and the Memphis, TN-MS-AR metropolitan area in 2007. The Chicago, Jacksonville, Baltimore, St. Louis, and Denver surveys focused on construction and construction-related industries, while the two Maryland surveys, the Massachusetts surveys and the Memphis surveys included other goods and services as well.

NERA's Chicago, Maryland I, and Jacksonville survey questionnaires followed the format of the 1993 SSBF while our Baltimore, St. Louis, Denver, Maryland II, Massachusetts, and Memphis surveys followed the format of the 1998 SSBF questionnaire.

As a final check on my findings in this report, I combined the results of these nine NERA surveys together in a consistent format and re-estimated the basic loan denial model on this larger file. These results appear below in Table 22, and are remarkably similar to results seen in Tables 5, 12, and 18. Denial probabilities for African-American-owned firms compared to White male-owned firms are 29 percentage points higher—even when creditworthiness controls, other firm and owner characteristics, and interaction terms are included.

Moreover, the NERA surveys found statistically significant loan denial disparities for Hispanic-owned firms and White female-owned firms as well. Denial rates were 18-24 percentage points higher for Hispanic-owned firms and 5-9 percentage points higher for White female-owned firms than for their White male-owned counterparts. Significant loan denial disparities were also observed for Native American-owned firms in some cases (18-19 percentage points higher).

Finally, as shown in Table 23, I modeled the rate of interest charged, conditional upon receiving loan approval, using NERA's nine-jurisdiction dataset. Results are very similar to that observed in Tables 8, 14, and 19. African-Americans pay almost 170 basis points more, on average, for their business credit than do White males, declining to 150 basis points when creditworthiness and other firm and owner controls are accounted for.

On the basis of the foregoing, I conclude that the evidence of credit discrimination from NERA's nine local credit market surveys conducted throughout the nation between 1999-2007 is entirely consistent with the results obtained using data from the 1993, 1998, and 2003 SSBF files.

## **J. Conclusions**

The results presented in this report indicate that African-American-owned firms face serious obstacles in obtaining credit that are unrelated to their creditworthiness, industry, or geographic location. In a number of cases this is true as well for Hispanic-owned firms, Asian-owned firms, Native American-owned firms, and White female-owned firms.

As in any regression-based study, my analysis hinges upon the proposition that all the factors that are related to loan denial rates have been included in the statistical model. If, for example, African-American business owners possess some unobservable characteristic that makes them less creditworthy, then my statistical finding would overstate the difference in loan denial rates. To check on this possibility, the models I estimated include an extensive array of factors that could conceivably affect loan decisions. Moreover, I also estimated several alternative specifications that could potentially identify the impact of such a bias. Moreover, NERA has conducted our own surveys on numerous occasions and in numerous places across the U.S.. Throughout, we have consistently found that African-Americans are disadvantaged in the small business credit market and that our specification tests support the interpretation of discrimination.

Another potential criticism is that this study has examined loan denial rates rather than loan default rates; some have claimed that the latter provides a more appropriate strategy for identifying discrimination. For example, if banks only approve loans for relatively good African-American firms then African-American firms should exhibit relatively low default rates. Such an approach has several significant shortcomings that are detailed in Browne and Tootell (1995) and Ladd (1998). For instance, it relies on the distribution of default probabilities being similar for African-American and White applicants meeting the acceptance standard used for White firms. A further problem is that it assumes that the loan originators know with a high degree of precision what determines defaults. However, very little hard information exists on what causes default. Additionally, it would be hard to disentangle the factors associated with differences in default rates between White- and African-American-owned firms given the fact that the African-American-owned firms that obtain credit are typically charged higher interest rates, as I have demonstrated. Finally, such an analysis would require longitudinal data, tracking firms for several years following loan origination. Such data do not exist. While I have highlighted the potential limitations of such an analysis, I believe it would be fruitful for this sort of longitudinal data collection to take place and for future research to investigate this question more fully.

In addition, many of the criticisms levied against the home mortgage loan discrimination study of Munnell et al. (1996) could perhaps be used here as well. Yet these criticisms have been effectively countered by, for example, Browne and Tootell (1995) and Tootell (1996). What is important to keep in mind in reference to this work compared with Munnell et al. (1996) is the magnitude of the estimated racial disparity. The absolute size of the raw racial differences found in the mortgage study are considerably smaller than those observed in this study regarding business credit.<sup>41</sup>

The magnitude of the racial difference in small business loan approval rates is substantial, even after controlling for observed differences in creditworthiness, and considerably

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<sup>41</sup> In the Boston Fed study 10 percent of White mortgage applications were rejected compared with 28 percent for Blacks. Loan denial rates (weighted) for business credit in this study ranged from 8.3 to 26.2 percent for White males and between 50.0 and 65.9 percent for Black-owned firms (depending on which SSBF survey is used).

larger than that found in the analysis of discrimination in mortgage markets. Why do the results for small business loans differ so markedly from those obtained from mortgage loans? First, many mortgages are sold in the secondary market and a substantial fraction of mortgage lenders have little intention of keeping the loans they make. This added “distance” in the transaction might reduce the likelihood of discrimination. As Day and Liebowitz (1998, p.6) point out, “economic self-interest, therefore, should reduce racial discrimination in this market more completely than in many others.” A highly sophisticated secondary market for loans to small firms does not exist. Second, the presence of special programs and regulatory incentives to encourage banks and others to increase their mortgage lending to minorities gives these groups some advantages in obtaining a mortgage.

Clearly, a portion of the difference in denial rates between White males and other groups in both types of studies appears to be due to differences in the characteristics of the applicants. Even after controlling for these differences, however, the gap in denial rates in the small business credit market is considerably larger than that found in the mortgage market. The gap in denial rates between Blacks and Whites with similar characteristics is between 34-46 percentage points in the small business credit market compared with 7 percentage points in the mortgage market.

My analysis finds significant evidence that African-American-owned businesses face impediments to obtaining credit that go well beyond observable differences in their creditworthiness. These firms are more likely to report that credit availability was a problem in the past and expect it to be a problem in the future. In fact, these concerns prevented more African-American-owned firms from applying for loans because they feared being turned down due to prejudice or discrimination. I also found that loan denial rates are significantly higher for African-American-owned firms than for White male-owned firms even after taking into account differences in an extensive array of measures of creditworthiness and other characteristics. This result appears to be largely insensitive to geographic location or to changes in econometric specification. Comparable findings are observed for other minority business owners and for White women as well, although not with as much consistency as the findings for African-Americans.

Overall, the evidence is very strong that MWBE firms, especially African-American owned firms, face large and statistically significant disadvantages in the market for small business credit. The larger size and significance of the effects found in the analyses above, compared to mortgage market analyses, significantly reduces the possibility that the observed differences can be explained away by some quirk of the econometric estimation procedures and, instead, strongly suggests that the observed differences are due to discrimination.



## **K. Note on Venture Capital and Small Business Investment**

### **Company Financing**

One final note concerns venture capital and related types of financing, which I understand is a topic of current interest to the Committee. As part of my preparation for today’s testimony, I reviewed the codebooks for the 1993, 1998, and 2003 SSBF datasets. The good news is that all three datasets ask questions about the use of venture capital and related financing by minority and female firms compared to White male firms. In all three survey years, it is possible for respondents to choose among almost 20 different kinds of financial institutions relevant to various questions and one of these choices is venture capital firm or small business investment company (SBIC). The 1998 and 2003 surveys also ask if the firm successfully raised any equity from a venture capital firm. The 1993 survey, however, included the most questions, including (1) whether the firm looked to venture capital or SBIC firms for short-term financing needs; (2) whether the firm tried to raise equity from a venture capital firm, and (3) if so, whether they were successful; (4) whether the firm’s most recent infusion of equity came from a venture capital firm and (5) if so, how much was raised.

The bad news is that the sample sizes for the responses to most of these questions, especially in the 1998 and 2003 surveys, are far too small to allow useful any comparisons by race and sex.

The 1993 survey, however, provides some usable results because it did the best job at over-sampling minority and female business owners, as mentioned earlier in this report. In response to the question of whether the firm had tried to raise equity capital from a venture capital firm, 30% of White male respondents replied in the affirmative. A similar percentage of Black respondents (29%) said “Yes” as well. For Hispanic and “Other” minority respondents, the affirmative percentage was even higher, at 46% and 59%, respectively. For White females, however, it was only 18%.

**Did the Firm Try to Raise Equity Capital From a Venture Capital Firm?**

<b>Race/Sex</b>	<b>Yes</b>	<b>No</b>
White male	30.2%	69.8%
White female	17.8%	82.2%
Black	28.9%	71.1%
Hispanic	45.6%	54.5%
Other minority	58.7%	41.3%

The owner of the firm was next asked if they were successful in raising outside equity, from any source, including venture capital firms or SBICs. Almost 32% of White male respondents replied in the affirmative. By contrast, only 12% of Black respondents did so. For Hispanic business owners, on the other hand, the percentage replying “Yes” was 36% and for White females it was even higher, at almost 60%.

**Was the Firm Successful in Raising Outside Equity?**

<b>Race/Sex</b>	<b>Yes</b>	<b>No</b>
White male	31.5%	68.4%
White female	59.6%	40.4%
Black	11.7%	88.3%
Hispanic	35.9%	64.1%
Other minority	26.8%	73.2%

It should be noted at this point that the same 1993 SSBF data also showed that White male firms that successfully raised equity typically raised almost 4 times more, on average, than other types of firms, and almost 5 times more, on average than what was raised by Black-owned firms.

**Was the Firm Successful in Raising Outside Equity from a Venture Capital Firm?**

<b>Race/Sex</b>	<b>Yes</b>	<b>No</b>
White male	13.8%	86.2%
White female	51.7%	48.3%
Black	40.5%	59.5%
Hispanic	21.1%	78.9%
Other minority	19.0%	81.0%

Finally, when I restricted the results of the previous question to whether the firm was successful raising outside equity from a venture capital firm, the affirmative percentages for Blacks, other minorities, and White women increased substantially compared to White males. This could be taken as an indication of the usefulness of venture capital and SBIC financing to MWBE firms. However, these results should be interpreted cautiously given their age and the relatively small sample sizes involved. I hope that future versions of the SSBF will increase their overall sample sizes and return to the practice of over-

sampling minority-owned and female-owned firms, thereby allowing more detailed and definitive inquiries to be made into the role played by this particular kind of financing for such firms.

Thank you. I will be glad to take any questions.

## L. Tables

**Table 1. Selected Population-Weighted Sample Means of Loan Applicants from 1993 SSBF Data**

	All	White	African-American	Hispanic	Other Races
% of Firms Denied in the Last Three Years	28.8	26.9	65.9	35.9	39.9
<i>Credit History of Firm/Owners</i>					
% Owners with Judgments Against Them	4.8	4.1	16.9	5.2	15.2
% Firms Delinquent in Business Obligations	24.2	23.1	49.0	25.1	31.6
% Owners Delinquent on Personal Obligations	14.0	12.6	43.4	14.8	24.5
% Owners Declared Bankruptcy in Past 7yrs	2.4	2.4	5.3	2.0	0.8
<i>Other Firm Characteristics</i>					
% Female-Owned	17.9	18.1	18.2	9.7	23.1
Sales (in 1,000s of 1992 \$)	1795.0	1870.6	588.6	1361.3	1309.1
Profits (in 1,000s of 1992 \$)	86.7	84.5	59.9	189.5	54.0
Assets (in 1,000s of 1992 \$)	889.4	922.5	230.3	745.6	747.3
Liabilities (in 1,000s of 1992 \$)	547.4	572.8	146.2	308.6	486.0
Owner's Years of Experience	18.3	18.7	15.3	15.9	14.9
Owner's Share of Business	77.1	76.5	86.4	83.9	77.1
% ≤ 8 <sup>th</sup> Grade Education	0.8	0.7	0.0	3.4	1.0
% 9 <sup>th</sup> -11 <sup>th</sup> Grade Education	2.2	2.2	3.7	1.8	1.2
% High School Graduate	19.6	19.7	12.8	27.7	14.9
% Some College	28.0	28.3	36.0	20.6	19.8
% College Graduate	29.2	29.2	28.0	24.1	36.5
% Postgraduate Education	20.2	19.9	19.5	22.3	26.6
% Line of credit	48.7	49.1	35.8	52.8	43.7
Total Full-time Employment in 1990	11.4	11.8	6.8	9.3	8.8
Total Full-time Employment in 1992	13.6	13.9	8.3	10.8	12.3
Firm age, in years	13.4	13.6	11.5	13.3	9.3
% New Firm Since 1990	9.4	9.4	13.0	6.4	9.5
% Firms Located in MSA	76.5	75.1	91.2	90.7	85.7
% Sole Proprietorship	32.8	32.3	48.6	38.2	24.2
% Partnership	7.8	7.8	7.7	6.7	7.9
% S Corporation	26.1	27.1	11.7	13.7	27.1
% C Corporation	33.4	32.8	32.1	41.4	40.8
% Existing Relationship with Lender	24.6	24.7	12.8	29.6	25.7
% Firms with Local Sales Market	54.1	54.7	42.9	55.0	47.4
<i>Characteristics of Loan Application</i>					
Amount Requested (in 1,000s of 1992\$)	300.4	310.8	126.5	179.1	310.5
% Loans to be Used for Working Capital	8.4	8.8	4.9	4.6	5.5
% Loans to be Used for Equipment/Machinery	2.3	2.4	1.7	0.2	0.6
% Loans to be Used for Land/Buildings	0.4	0.4	0.9	0.0	0.0
% Loan to be Backed by Real Estate	28.3	28.6	24.7	26.2	24.7
Sample Size (unweighted)	2,007	1,648	170	96	93

Source: NERA calculations from 1993 SSBF.

Notes: Sample weights are used to provide statistics that are nationally representative of all small businesses. Sample restricted to firms that applied for a loan over the preceding three years.

**Table 2. Problems Firms Experienced During Preceding 12 Months - USA**

	All	White	African-American	Hispanic	Other Races
<i>Credit Market Conditions</i>					
Percent reporting not a problem	66.2	67.3	43.1	58.9	65.8
Percent reporting somewhat of a problem	20.1	19.9	25.6	18.2	21.3
Percent reporting serious problem	13.7	12.7	31.3	22.9	12.9
<i>Other Potential Problems (% reporting problem is serious)</i>					
Training costs	6.5	6.6	7.2	6.3	4.3
Worker's compensation costs	21.7	21.0	19.3	30.6	28.7
Health insurance costs	32.5	31.6	38.1	44.3	35.0
IRS regulation or penalties	12.3	11.8	17.1	17.9	13.2
Environmental regulations	8.5	8.5	5.6	7.4	11.0
Americans with Disabilities Act	2.7	2.6	3.6	2.7	3.9
Occupational Safety and Health Act	4.5	4.5	3.9	3.6	6.2
Family and Medical Leave Act	2.7	2.5	4.5	3.1	4.8
Number of observations (unweighted)	2,007	1,648	170	96	93

Source: NERA calculations from 1993 SSBF.

**Table 3. Percentage of Firms Reporting Most Important Issues Affecting Them Over the Next 12 Months - USA**

	<b>All</b>	<b>White</b>	<b>African-American</b>	<b>Hispanic</b>	<b>Other Races</b>
Credit availability	5.9	5.5	20.5	5.3	4.3
Health care, health insurance	21.1	22.1	12.3	13.7	14.8
Taxes, tax policy	5.7	5.7	2.6	8.7	3.3
General U.S. business conditions	11.8	11.5	8.9	14.4	17.4
High interest rates	5.4	5.7	1.8	3.5	3.4
Costs of conducting business	3.3	3.3	3.8	3.8	3.6
Labor force problems	3.5	3.3	3.9	5.5	3.6
Profits, cash flow, expansion, sales	10.3	9.9	20.3	9.8	11.9
Number of observations (unweighted)	4,388	3,383	424	262	319

Source: NERA calculations from 1993 SSBF.

**Table 4. Types of Problems Facing Your Business, by Race and Gender (%)**

	<b>White male</b>	<b>White female</b>	<b>Minority male</b>	<b>Minority female</b>	<b>African-American</b>	<b>Hispanic</b>	<b>Asian</b>
Availability of credit	19	23	54	38	46	52	34
Rising health care costs	60	49	50	41	31	42	66
Excessive tax burden	49	46	48	42	46	34	51
Lack of qualified workers	37	28	33	17	22	20	34
Rising energy costs	37	35	36	35	29	34	44
Rising costs of materials	44	47	36	47	53	42	32
Legal reform	21	15	15	12	11	10	17
Number firms	415	356	80	81	55	50	41

Source: U.S. Chamber of Commerce (2005), Appendix tables, page 55, downloadable at [http://www.uschamber.com/publications/reports/access\\_to\\_capital.htm](http://www.uschamber.com/publications/reports/access_to_capital.htm) (viewed 9 September 2008).

Notes: Total percentages may be greater than 100% due to respondents having the option to select multiple choices. Minorities also include 14 firms owned by Native Americans.

**Table 5. Determinants of Loan Denial Rates – USA**

	(1)	(2)	(3)	(4)	(5)
African-American	0.443 (11.21)	0.288 (6.84)	0.237 (5.57)	0.235 (5.22)	0.241 (5.13)
Asian	0.225 (4.21)	0.171 (3.18)	0.140 (2.56)	0.121 (2.15)	0.119 (2.07)
American Indian/Alaskan Eskimo	-0.016 (0.11)	-0.141 (1.06)	-0.097 (0.71)	-0.052 (0.35)	-0.083 (0.56)
Hispanic	0.129 (2.62)	0.070 (1.42)	0.067 (1.36)	0.035 (0.70)	0.031 (0.63)
White female	0.088 (2.65)	0.048 (1.45)	0.047 (1.45)	0.036 (1.06)	0.033 (0.94)
Judgments		0.143 (2.84)	0.129 (2.56)	0.124 (2.40)	0.121 (2.29)
Firm delinquent		0.176 (6.50)	0.178 (6.43)	0.195 (6.77)	0.208 (7.00)
Personally delinquent		0.161 (4.45)	0.128 (3.56)	0.124 (3.38)	0.119 (3.17)
Bankrupt past 7 yrs		0.208 (3.11)	0.179 (2.68)	0.162 (2.37)	0.167 (2.33)
\$1992 profits (*10 <sup>8</sup> )		-0.000 (0.89)	-0.000 (1.64)	-0.000 (1.78)	-0.000 (1.83)
\$1992 sales (*10 <sup>8</sup> )		-0.000 (3.08)	-0.000 (3.38)	-0.000 (3.28)	-0.000 (3.38)
\$1992 assets (*10 <sup>8</sup> )		0.000 (0.51)	0.000 (0.60)	0.000 (0.40)	0.000 (0.37)
\$1992 liabilities (*10 <sup>8</sup> )		0.000 (0.61)	0.000 (1.11)	0.000 (1.04)	0.000 (1.17)
Owner years experience		-0.003 (2.59)	-0.001 (1.30)	-0.002 (1.55)	-0.002 (1.72)
Owners' share of business		0.001 (1.91)	0.000 (0.71)	0.000 (0.26)	0.000 (0.30)
Owner's Education (5 indicator variables)	No	Yes	Yes	Yes	Yes
Other Firm Characteristics (17 variables)	No	No	Yes	Yes	Yes
Characteristics of the Loan (13 variables)	No	No	Yes	Yes	Yes
Region (8 indicator variables)	No	No	No	Yes	Yes
Industry (60 indicator variables)	No	No	No	Yes	Yes
Month /Year of Application (51 indicator variables)	No	No	No	No	Yes
Type of Financial Institution (16 indicator vars.)	No	No	No	No	Yes
N	2,007	2,007	2,006	1,985	1,973
Pseudo R <sup>2</sup>	.0608	.1412	.2276	.2539	.2725
Chi <sup>2</sup>	143.6	333.4	537.3	595.4	635.8
Log likelihood	-1108.8	-1013.8	-911.6	-874.8	-848.7

Source: NERA calculations from 1993 SSBF.

Notes: Reported estimates are derivatives from Probit models, t-Statistics are in parentheses. "Other firm characteristics" include variables indicating whether the firm had a line of credit, 1990 employment, firm age, metropolitan area, a new firm since 1990, legal form of organization (sole proprietorship, partnership, S-corporation, or C-corporation), 1990-1992 employment change, existing long run relation with lender, geographic scope of market (local, regional, national or international), the value of the firm's inventory, the level of wages and salaries paid to workers, the firm's cash holdings, and the value of land held by the firm. "Characteristics of the loan" include the size of the loan applied for, a variable indicating whether the loan was backed by real estate, and twelve variables indicating the intended use of the loan.



**Table 6. Alternative Models of Loan Denials**

<b>Specification</b>	<b>African-American</b>	<b>Asian</b>	<b>Hispanic</b>	<b>White female</b>	<b>Sample Size</b>
All	0.236 (5.30)	0.115 (2.00)	0.061 (1.06)	0.042 (1.20)	2,006
<i>Organization Type</i>					
1) Proprietorships and Partnerships	0.266 (3.15)	0.240 (2.10)	-0.013 (0.13)	-0.013 (0.18)	536
2) Corporations	0.209 (3.95)	0.071 (1.05)	0.095 (1.31)	0.062 (1.53)	1,457
<i>Age of Firm</i>					
3) 12 Years or Under	0.256 (4.22)	0.042 (2.12)	0.008 (0.10)	0.016 (0.32)	1,074
4) Over 12 Years	0.194 (2.92)	0.035 (0.03)	0.114 (1.41)	0.094 (1.86)	926
<i>1993 Firm Size</i>					
5) Fewer than 10 Employees	0.226 (3.65)	0.093 (1.27)	-0.009 (0.12)	-0.019 (0.38)	868
6) 10 or More Employees	0.242 (3.44)	-0.105 (1.37)	0.141 (1.61)	0.108 (2.16)	1,132
<i>Intended Use of Loan</i>					
7) Working Capital	0.258 (4.65)	0.087 (1.17)	0.046 (0.6)	0.047 (0.97)	1,086
8) Other Use	0.176 (2.30)	0.164 (1.79)	0.086 (0.99)	0.040 (0.83)	913
<i>Scope of Sales Market</i>					
9) Local	0.125 (1.79)	0.127 (1.63)	0.011 (0.15)	0.036 (0.72)	875
10) Regional, National, or international	0.229 (5.36)	0.059 (1.09)	0.086 (1.41)	0.031 (1.07)	1,129
<i>Creditworthiness</i>					
11) No Past Problems	0.269 (4.64)	0.150 (2.57)	0.046 (0.83)	0.079 (2.33)	1,386
12) One Past Problem	0.280 (2.69)	-0.094 (0.54)	0.182 (1.10)	0.007 (0.07)	376
13) More Than One Problem	0.263 (2.39)	0.271 (1.74)	-0.022 (0.11)	-0.178 (1.15)	222

Source: NERA calculations from 1993 SSBF.

Notes: Reported estimates are derivatives from Probit models, t-Statistics are in parentheses. Each line of this table represents a separate regression with the same control variables as Column 3 of Table 5. The dependent variable in all specifications represents an indicator for whether or not a loan application was denied.

**Table 7. Models of Credit Card Use**

<b>Specification</b>	<b>African-American</b>	<b>Asian</b>	<b>Native American</b>	<b>Hispanic</b>	<b>White female</b>	<b>Sample Size</b>
1) Business Credit Card	0.035 (1.35)	-0.096 (3.23)	0.085 (1)	0.024 (0.79)	0.018 (0.83)	4,633
2) Personal Credit Card	0.019 (0.74)	-0.019 (0.63)	0.019 (0.23)	-0.042 (1.4)	0.028 (1.28)	4,633

Source: NERA calculations from 1993 SSBF.

Notes: Reported estimates are derivatives from Probit models, t-statistics are in parentheses. Each line of this table represents a separate regression with the same control variables as Column 3 of Table 5 but excluding the loan characteristics. The dependent variable indicates whether the firm used business or personal credit cards to finance business expenses. In all specifications, the sample size is all firms. Other races are excluded due to sample size limitations.

**Table 8. Models of Interest Rate Charged – USA**

<b>Specification</b>	<b>African-American</b>	<b>Asian</b>	<b>Native American</b>	<b>Hispanic</b>	<b>White female</b>	<b>Sample Size</b>
1) All loans (controls as in column 5, Table 5)	1.034 (3.72)	0.413 (1.37)	-0.427 (0.63)	0.517 (1.97)	0.025 (0.14)	1,454
	<i>Creditworthiness</i>					
2) No credit problems	1.187 (3.27)	0.485 (1.33)	0.910 (1.07)	0.435 (1.48)	0.129 (0.66)	1,137
	<i>Organization Type</i>					
3) Proprietorships and Partnerships	1.735 (2.57)	0.826 (1.03)	2.589 (0.90)	1.008 (1.74)	-0.239 (0.53)	364
4) Corporations	0.660 (2.04)	0.359 (1.07)	-0.585 (0.86)	0.491 (1.53)	0.127 (0.66)	1,090
	<i>1993 Firm Size</i>					
5) Fewer than 10 Employees	1.200 (2.58)	-0.247 (0.41)	-0.010 (0.01)	0.783 (1.75)	-0.311 (1.02)	574
6) 10 or More Employees	0.450 (1.15)	0.446 (1.21)	-0.197 (0.25)	0.515 (1.37)	0.164 (0.77)	880
	<i>Scope of Sales Market</i>					
7) Local	0.751 (1.55)	-0.073 (0.13)	1.773 (1.12)	0.805 (2.05)	0.324 (1.08)	633
8) Regional, National, or International	1.544 (4.26)	1.185 (2.93)	-1.368 (1.85)	0.392 (0.96)	-0.163 (0.73)	821

Source: NERA calculations from 1993 SSBF.

Notes: Reported estimates are Ordinary Least Squares (OLS) coefficients, t-statistics in parentheses. Each line of this table represents a separate regression with all of the control variables as Column 5 of Table 5 (except where specified) as well as: an indicator variable for whether the loan request was for a fixed interest rate loan, the length of the loan, the size of the loan, whether the loan was guaranteed, whether the loan was secured by collateral, and 7 variables identifying the type of collateral used if the loan was secured. The sample consists of firms who had applied for a loan and had their application approved. ‘No credit problems’ means that neither the firm nor the owner had been delinquent on payments over 60 days, no judgments against the owner for the preceding 3 years and the owner had not been bankrupt in the preceding 7 years.

**Table 9. Racial Differences in Failing to Apply for Loans Fearing Denial**

<b>Specification</b>	<b>African-American</b>	<b>Asian</b>	<b>Native American</b>	<b>Hispanic</b>	<b>White female</b>
<b>a) USA</b>					
No Other Control Variables (n=4,637)	0.405 (16.65)	0.099 (3.61)	0.134 (1.72)	0.235 (8.28)	0.031 (1.54)
Full Set of Control Variables (same as Table 5, Column 3 except for loan characteristics) (n=4,633)	0.257 (10.02)	0.054 (1.98)	0.019 (0.27)	0.164 (5.69)	-0.008 (0.38)
<b>b) Construction</b>					
No Other Control Variables (n=781)	0.350 (6.74)	0.109 (1.27)	-0.087 (0.54)	0.150 (2.22)	-0.007 (0.12)
Full Set of Control Variables (same as Table 5, Column 3 except for loan characteristics) (n=781)	0.181 (3.67)	0.064 (0.78)	-0.132 (1.00)	0.040 (0.65)	-0.063 (1.32)

Source: NERA calculations from 1993 SSBF.

Notes: Reported estimates are Probit derivatives, t-Statistics in parentheses. Sample consists of all firms. Dependent variable equals one if the firm said they did not apply for a loan fearing denial, zero otherwise.

**Table 10. Models of Failure to Obtain Credit Among Firms that Desired Additional Credit**

<b>Specification</b>	<b>African-American</b>	<b>Asian</b>	<b>Native American</b>	<b>Hispanic</b>	<b>White female</b>
<b>a) USA</b>					
No Other Control Variables (n=2,646)	0.455 (14.84)	0.298 (6.82)	0.188 (1.57)	0.297 (7.76)	0.126 (4.01)
Full Set of Control Variables (same as Table 5, Column 3 except for loan characteristics) (n=2,643)	0.276 (6.93)	0.180 (3.42)	-0.008 (0.06)	0.165 (3.51)	0.049 (1.38)
<b>b) Construction</b>					
No Other Control Variables (n=463)	0.413 (6.12)	0.196 (1.46)	0.128 (0.36)	0.255 (2.71)	0.043 (0.51)
Full Set of Control Variables (same as Table 5, Column 3 except for loan characteristics) (n=463)	0.257 (2.85)	0.102 (0.53)	-0.180 (0.41)	0.121 (1.00)	-0.094 (1.04)

Source: NERA calculations from 1993 SSBF.

Notes: Reported estimates are Probit derivatives, t-Statistics in parentheses. The sample consists of all firms that applied for loans along with those who needed credit, but did not apply for fear of refusal. Failure to obtain credit includes those firms that were denied and those that did not apply for fear of refusal. Dependent variable is unity if the firm failed to obtain credit and zero if the firm applied for credit and had their loan application approved.

**Table 11. What is the Most Important Problem Facing Your Business Today?**

	White male	African-American	Other	Hispanic	White female	Total
Financing and interest rates	5.8%	18.2%	10.6%	8.1%	6.2%	6.8%
Taxes	7.7%	1.9%	5.3%	3.1%	6.6%	6.9%
Inflation	0.4%	0.6%	0.0%	1.0%	0.4%	0.4%
Poor sales	7.0%	5.9%	11.6%	7.0%	8.3%	7.5%
Cost/availability of labor	3.9%	3.3%	2.4%	3.5%	4.5%	3.9%
Government regulations/red tape	7.1%	3.0%	4.8%	8.1%	6.5%	6.8%
Competition (from larger firms)	11.1%	10.7%	10.6%	18.4%	10.2%	11.3%
Quality of labor	14.4%	11.0%	9.4%	8.7%	9.1%	12.6%
Cost and availability of insurance	2.6%	1.0%	0.8%	0.0%	2.3%	2.2%
Other	11.4%	10.0%	8.3%	16.0%	12.7%	11.7%
Cash flow	4.6%	10.9%	6.3%	3.5%	3.3%	4.6%
Capital other than working capital	1.1%	1.7%	4.1%	0.8%	1.3%	1.3%
Acquiring and retaining new customers	3.1%	3.9%	5.0%	1.8%	3.3%	3.2%
Growth of firm/industry	0.9%	1.0%	1.2%	0.1%	0.4%	0.8%
Overcapacity of firm/industry	0.1%	0.0%	0.0%	0.3%	0.0%	0.1%
Marketing/advertising	2.1%	3.9%	2.5%	2.8%	3.6%	2.5%
Technology	1.4%	1.2%	1.6%	2.6%	1.3%	1.5%
Costs, other than labor	2.7%	1.8%	2.5%	3.6%	3.8%	2.9%
Seasonal/cyclical issues	1.3%	1.2%	0.7%	0.4%	0.7%	1.1%
Bill collection	2.8%	2.2%	2.4%	2.6%	2.8%	2.8%
Too much work/not enough time	3.6%	2.2%	4.3%	1.4%	5.7%	3.9%
No problems	4.6%	4.3%	5.6%	5.8%	6.4%	5.1%
Not ascertainable	0.4%	0.0%	0.0%	0.0%	0.7%	0.4%

Source: NERA calculations from the 1998 SSBF (n=3561).

Notes: Results are weighted.

**Table 12. Determinants of Loan Denial Rates - USA**

	(1)	(2)	(3)	(4)	(5)
African-American	0.422 (7.94)	0.254 (5.36)	0.217 (5.05)	0.192 (4.52)	0.218 (4.74)
Asian	0.148 (2.54)	0.129 (2.52)	0.049 (1.25)	0.023 (0.65)	0.028 (0.77)
Hispanic	0.353 (6.44)	0.269 (5.37)	0.211 (4.69)	0.183 (4.21)	0.171 (4.00)
White female	0.087 (2.22)	0.049 (1.55)	0.024 (0.96)	0.016 (0.66)	0.011 (0.44)
Judgments		0.272 (4.28)	0.249 (4.32)	0.272 (4.47)	0.262 (4.20)
Firm delinquent		0.081 (2.88)	0.115 (4.20)	0.103 (3.88)	0.111 (4.01)
Personally delinquent		0.092 (2.85)	0.039 (1.59)	0.042 (1.69)	0.045 (1.76)
Bankrupt past 7 yrs		0.504 (4.48)	0.406 (3.83)	0.392 (3.67)	0.395 (3.64)
\$1998 sales (*10 <sup>8</sup> )		-0.000 (2.47)	-0.000 (0.26)	0.000 (0.02)	0.000 (0.03)
\$1998 firm equity (*10 <sup>8</sup> )		0.000 (1.40)	0.000 (0.46)	0.000 (0.20)	0.000 (0.06)
Owner home equity (*10 <sup>8</sup> )		0.000 (0.52)	0.000 (1.47)	0.000 (0.96)	0.000 (0.90)
Owner net worth (*10 <sup>8</sup> )		-0.000 (1.25)	-0.000 (1.28)	-0.000 (1.19)	-0.000 (1.24)
Owner years experience		-0.002 (1.42)	-0.001 (0.49)	-0.000 (0.34)	-0.000 (0.21)
Owners' share of business		0.000 (0.75)	-0.000 (0.12)	0.000 (0.03)	-0.000 (0.33)
Dun & Bradstreet credit ratings (4)	No	Yes	Yes	Yes	Yes
Owner's Education (6 indicator variables)	No	Yes	Yes	Yes	Yes
Other Firm Characteristics (17 variables)	No	No	Yes	Yes	Yes
Characteristics of the Loan (1 variable)	No	No	Yes	Yes	Yes
Region (8 indicator variables)	No	No	No	Yes	Yes
Industry (8 indicator variables)	No	No	No	Yes	Yes
Year of Application (5 indicator variables)	No	No	No	No	Yes
Type of Financial Institution (11 indicator vars.)	No	No	No	No	Yes
N	924	924	924	924	905
Pseudo R <sup>2</sup>	.1061	.2842	.3714	.3910	.4015
Chi <sup>2</sup>	90.0	241.1	315.1	331.8	337.8
Log likelihood	-379.3	-303.7	-266.7	-258.3	-251.7

Source: NERA calculations from 1998 SSBF.

Notes: Reported estimates are derivatives from Probit models, t-Statistics are in parentheses. "Other firm characteristics" include variables indicating whether the firm had a line of credit, 1998 full time equivalent employment, firm age, metropolitan area, legal form of organization (sole proprietorship, partnership, LLP, S-corporation, C-corporation, or LLC), existing long run relation with lender, geographic scope of market (regional, national, foreign, or international), the value of the firm's inventory, the firm's cash holdings, and the value of land held by the firm. "Characteristics of the loan" includes the size of the loan applied for.

**Table 13. More Loan Denial Probabilities**

	(1)	(2)
	<i>Denylast</i>	<i>Denylast</i>
African-American	0.457 (8.00)	0.246 (4.76)
Asian	0.185 (2.81)	0.027 (0.65)
Hispanic	0.360 (6.28)	0.171 (3.67)
White female	0.083 (2.00)	0.005 (0.20)
Creditworthiness Controls	No	Yes
Owner's Education	No	Yes
Other Firm Characteristics	No	Yes
Characteristics of the loan	No	Yes
Region	No	Yes
Industry	No	Yes
N	846	846
Pseudo R <sup>2</sup>	.1112	.4265
Chi <sup>2</sup>	90.9	348.7
Log likelihood	-363.3	-234.5

Source: NERA calculations from 1998 SSBF.



**Table 14. Models of Interest Rate Charged**

Specification	African-American	African-American * Construction	Asian	Hispanic	White female
1a) All Loans (as in column 5 of Table 12) n=765	1.064 (2.66)	-	0.559 (1.49)	-0.088 (0.23)	-0.501 (1.93)
1b) All Loans (as in column 5 of Table 12) n=765	1.319 (2.86)	0.635 (0.63)	0.337 (0.78)	0.167 (0.35)	-0.419 (1.47)

Source: NERA calculations from 1998 SSBF.

Notes: Each line of this table represents a separate regression with all of the control variables. The sample consists of firms who had applied for a loan and had their application approved.

**Table 15. Racial Differences in Failing to Apply for Loans Fearing Denial**

Specification	African-American	Asian	Hispanic	White female
<b>a) U.S.</b>				
No Other Control Variables (n=3,448)	0.353 (11.90)	0.046 (1.48)	0.173 (5.77)	0.051 (2.55)
Full Set of Control Variables (n=3,448)	0.208 (7.04)	-0.012 (0.43)	0.052 (1.87)	0.011 (0.59)
<b>b) Construction</b>				
No Other Control Variables (n=613)	0.371 (5.06)	0.117 (1.43)	0.020 (0.26)	0.122 (2.08)
Full Set of Control Variables (n=609)	0.273 (3.69)	0.099 (1.32)	-0.062 (1.13)	0.038 (0.74)

Source: NERA calculations from 1998 SSBF.

Note: Reported estimates are Probit derivatives with t-statistics in parentheses. Full set of control variables as in Column 5 of Table 12, except for loan amount, year of application, and type of lender.

**Table 16. Models of Credit Card Use**

Specification	African-American	Asian	Hispanic	White female	Sample Size
1) Business Credit Card	-0.001 (0.02)	-0.038 (1)	-0.014 (0.38)	-0.018 (0.72)	3,561
2) Personal Credit Card	-0.018 (0.54)	0.016 (0.44)	-0.050 (1.42)	0.012 (0.52)	3,561
3) Business Credit Card Construction & related	0.056 (0.62)	-0.074 (0.7)	0.087 (0.86)	-0.025 (0.35)	624
4) Personal Credit Card Construction & related	0.003 (0.04)	0.047 (0.46)	-0.092 (1.01)	-0.073 (0.99)	624

Source: NERA calculations from 1998 SSBF.

Notes: Each line of this table represents a separate regression with the same control variables as Column 5 of Table 12, except for loan amount, year of application and type of lender. The dependent variable indicates whether the firm used business or personal credit cards to finance business expenses. In all specifications, the sample size includes all firms. Reported estimates are Probit derivatives with t-statistics in parentheses.

**Table 17. What is the Most Important Problem Facing Your Business Today?**

	White male	African-American	Other	Hispanic	White female	Total
Financing and interest rates	5.4%	20.7%	9.1%	5.7%	5.8%	6.3%
Taxes	6.3%	2.4%	4.9%	7.7%	4.3%	5.7%
Inflation	2.7%	1.0%	2.3%	0.5%	1.4%	2.3%
Poor sales or profitability	17.8%	38.5%	28.9%	30.0%	22.5%	20.6%
Cost/availability of labor	1.5%	0.0%	0.6%	1.5%	1.5%	1.4%
Government regulations/red tape	4.7%	1.0%	5.4%	9.6%	2.5%	4.5%
Competition from larger firms	4.0%	2.7%	2.7%	3.6%	3.6%	3.8%
Quality of labor	7.9%	6.9%	5.0%	3.8%	6.5%	7.2%
Cost and availability of insurances	10.3%	1.8%	3.1%	5.2%	6.4%	8.6%
Other	2.6%	1.9%	4.0%	2.8%	1.6%	2.5%
None	5.3%	3.4%	9.4%	4.1%	8.6%	6.0%
Cash flow	6.2%	5.1%	4.6%	7.1%	6.8%	6.3%
Growth	0.9%	2.7%	0.4%	1.1%	0.8%	1.0%
Foreign competition	1.3%	0.0%	1.0%	0.1%	0.7%	1.0%
Competition - other	1.6%	0.8%	1.8%	0.1%	1.1%	1.4%
Availability of materials/resources	0.8%	0.8%	0.6%	1.6%	1.2%	0.9%
Labor problems other than cost or quality	1.2%	2.2%	0.2%	0.0%	1.3%	1.1%
Internal management/administrative problems	4.2%	2.5%	4.3%	1.0%	6.1%	4.4%
Environmental constraints	1.4%	0.7%	1.6%	2.3%	2.0%	1.6%
Advertising and public awareness	2.2%	1.8%	2.4%	1.8%	3.3%	2.4%
Market/economic/industry factors	4.9%	1.9%	4.0%	2.3%	6.2%	4.8%
Health care cost and availability	1.5%	0.0%	0.7%	0.8%	1.4%	1.4%
Energy costs	1.5%	0.0%	0.7%	3.7%	1.2%	1.4%
Costs other than health care and energy	2.2%	1.0%	0.1%	3.6%	1.0%	1.9%
Owner's personal problems	0.3%	0.0%	0.0%	0.0%	0.8%	0.4%
Technology	0.4%	0.0%	0.7%	0.0%	0.5%	0.4%
Dealing with insurance companies	0.3%	0.4%	0.0%	0.0%	0.4%	0.3%
War and September 11th	0.2%	0.0%	1.3%	0.0%	0.5%	0.3%

Source: NERA calculations from the 2003 SSBF (n=3561).

Note: Results are weighted.

**Table 18. Determinants of Loan Denial Rates - USA**

	(1)	(2)	(3)	(4)	(5)
African-American	0.459 (8.38)	0.136 (5.47)	0.105 (4.80)	0.091 (5.04)	0.094 (4.95)
Asian	0.055 (1.51)	0.020 (1.59)	0.009 (1.01)	0.002 (0.49)	0.001 (0.18)
Hispanic	0.067 (1.74)	0.008 (0.83)	0.004 (0.58)	0.001 (0.30)	0.001 (0.25)
Native American and Other	0.184 (2.22)	0.061 (1.95)	0.032 (1.47)	0.021 (1.43)	0.021 (1.49)
White female	0.043 (2.17)	0.003 (0.70)	0.002 (0.49)	0.001 (0.57)	0.002 (0.76)
Judgments against owner		0.007 (0.66)	0.003 (0.35)	0.003 (0.54)	0.006 (0.90)
Judgments against firm		0.005 (1.16)	0.005 (1.42)	0.001 (0.54)	0.001 (0.64)
Firm delinquent		0.032 (3.78)	0.021 (3.23)	0.019 (3.89)	0.021 (4.08)
Personally delinquent		-0.007 (0.69)	-0.006 (1.02)	-0.003 (0.82)	-0.002 (0.58)
Owner Bankrupt past 7 yrs		0.046 (1.36)	0.041 (1.35)	0.052 (1.81)	0.044 (1.66)
Firm Bankrupt past 7 yrs		0.000 (0.03)	0.003 (0.37)	0.001 (0.17)	-0.001 (0.38)
\$1998 sales (*10 <sup>8</sup> )		-0.000 (1.68)	0.000 (0.04)	0.000 (0.29)	0.000 (0.51)
\$1998 firm equity (*10 <sup>8</sup> )		-0.000 (2.23)	-0.000 (1.03)	-0.000 (1.62)	-0.000 (1.63)
Owner home equity (*10 <sup>8</sup> )		0.000 (0.28)	0.000 (0.02)	-0.000 (0.45)	-0.000 (0.26)
Owner net worth (*10 <sup>8</sup> )		-0.000 (2.97)	-0.000 (2.92)	-0.000 (3.06)	-0.000 (3.26)
Owner years experience		0.000 (0.31)	0.000 (1.00)	0.000 (0.82)	0.000 (0.62)
Owners' share of business		0.000 (0.08)	0.000 (0.61)	0.000 (0.38)	0.000 (0.47)
Dun & Bradstreet credit ratings (4)	No	Yes	Yes	Yes	Yes
Owner's Education (6 indicator variables)	No	Yes	Yes	Yes	Yes
Other Firm Characteristics (17 variables)	No	No	Yes	Yes	Yes
Characteristics of the Loan (1 variable)	No	No	Yes	Yes	Yes
Region (8 indicator variables)	No	No	No	Yes	Yes
Industry (8 indicator variables)	No	No	No	Yes	Yes
Year of Application (5 indicator variables)	No	No	No	No	Yes
Type of Financial Institution (11 indicator vars.)	No	No	No	No	Yes
N	1,664	1,655	1,655	1,655	1,605
Pseudo R <sup>2</sup>	.0850	.2267	.2901	.3336	.3681
Chi <sup>2</sup>	74.1	192.9	246.8	283.8	310.3
Log likelihood	-399.1	-328.9	-301.9	-283.4	-266.4

Source: NERA calculations from 2003 SSBF.

Notes: "Other firm characteristics" include variables indicating whether the firm had a line of credit, 2003 total employment, firm age, metropolitan area, legal form of organization (sole proprietorship, partnership, LLP, S-corporation, C-corporation, or LLC), existing long run relation with lender, geographic scope of market (local, regional, national, foreign, or international), the value of the firm's inventory, the firm's cash holdings, the value of land held by the firm, and total salaries and wages paid. "Characteristics of the loan" includes the size of the loan applied for.

**Table 19. Models of Interest Rate Charged**

Specification	African-American	African-American* Construction	Asian	Hispanic	Native and Other	White female
1a) All Loans (as in column 5 of Table 18) n=1,537	1.043 (2.02)		0.442 (1.24)	1.003 (2.76)	0.257 (0.34)	-0.142 (0.72)
1b) All Loans (as in column 5 of Table 18) n=1,537	0.766 (1.30)	-0.641 (0.46)	0.539 (1.33)	1.196 (2.65)	0.636 (0.76)	-0.210 (0.95)

Source: NERA calculations from 2003 SSBF.

Notes: Each line of this table represents a separate regression with all of the control variables as indicated. Additionally, controls were included for whether the loan required a co-signer or guarantor, whether collateral was required and, if so, the type of collateral required. The sample consists of firms who had applied for a loan and had their application approved.

**Table 20. Models of Credit Card Use**

Specification	African-American	Asian	Hispanic	Native American and Other	White female	Sample Size
1) Business Credit Card	-0.063 (1.19)	0.037 (0.84)	-0.005 (0.10)	-0.010 (0.12)	0.002 (0.07)	3,676
2) Personal Credit Card	-0.132 (2.66)	0.036 (0.86)	-0.078 (1.72)	-0.037 (0.44)	0.036 (1.56)	3,676

Source: NERA calculations from 2003 SSBF.

Notes: Each line of this table represents a separate regression with the same control variables as Column 5 of Table 18, except for loan amount, year of application, and type of lender. The dependent variable indicates whether the firm used business or personal credit cards to finance business expenses. In all specifications, the sample size is all firms. Reported estimates are Probit derivatives with t-statistics in parentheses.

**Table 21. Racial Differences in Failing to Apply for Loans Fearing Denial**

Specification	African-American	Asian	Hispanic	Native and Other	White female
<b>a) U.S.</b>					
No Other Control Variables (n=3,704)	0.385 (9.48)	0.059 (1.95)	0.138 (4.01)	0.138 (2.14)	0.072 (4.47)
Full Set of Control Variables (n=3,676)	0.168 (4.75)	0.037 (1.37)	0.048 (1.76)	0.047 (0.93)	0.035 (2.44)
<b>b) Construction</b>					
No Other Control Variables (n=705)	0.492 (4.34)	-0.022 (0.29)	0.090 (1.22)	0.258 (2.17)	0.026 (0.64)
Full Set of Control Variables (n=695)	0.284 (3.02)	0.003 (0.07)	-0.010 (0.38)	0.136 (1.64)	-0.002 (0.09)

Source: NERA calculations from 2003 SSBF.

Notes: Reported estimates are Probit derivatives with t-statistics in parentheses. Full set of control variables as in Column 5 of Table 18, except for loan amount, year of application, and type of lender.



**Table 22. Determinants of Loan Denial Rates – Nine Jurisdictions**

	(1)	(2)
	<i>Most Recent Application</i>	<i>Last Three Years</i>
African-American	0.289 (8.2)	0.293 (7.60)
Hispanic	0.178 (3.86)	0.244 (4.59)
Native American	0.087 (1.69)	0.188 (3.29)
Asian	0.042 (0.72)	0.003 (0.05)
Other race	0.313 (3.07)	0.364 (3.15)
White female	0.046 (1.83)	0.086 (2.96)
Judgments	0.051 (1.23)	0.119 (2.24)
Firm delinquent	0.022 (2.7)	0.057 (5.90)
Personally delinquent	0.076 (7.38)	0.077 (6.03)
Bankrupt past 3yrs	0.228 (3.99)	0.328 (4.74)
N	1,855	1,855
Pseudo R <sup>2</sup>	.1905	.1721
Chi <sup>2</sup>	336.0	363.3
Log likelihood	-714.1	-873.7

Source: NERA Credit Market Surveys, 1999-2007.

Notes: Reported estimates are derivatives from Probit models, t-statistics are in parentheses. Indicator variables are also included for the various jurisdictions.

**Table 23. Determinants of Interest Rates – Nine Jurisdictions**

	(1)	(2)
African-American	1.683 (3.44)	1.491 (2.98)
Asian	1.221 (2.16)	0.789 (1.34)
Hispanic	0.820 (1.48)	0.895 (1.56)
Native American	1.241 (1.52)	1.008 (1.24)
Other race	-1.115 (0.63)	-1.072 (0.61)
White female	0.046 (0.16)	0.018 (0.06)
Judgments		0.537 (0.85)
Firm delinquent		-0.041 (0.36)
Personally delinquent		0.644 (3.65)
Bankrupt past 3yrs		1.184 (1.13)
Creditworthiness, Firm, and Owner Characteristics	No	Yes
Loan Characteristics	Yes	Yes
N	1,490	1,463
Adjusted R <sup>2</sup>	.0831	.1046
F	11.4	11.05

Source: NERA Credit Market Surveys, 1999-2007.

Notes: Reported estimates are OLS regression models, T-statistics are in parentheses. Source: NERA Credit Market Surveys, 1999-2007. Five indicators for primary owner's education level, four indicators for legal form of organization, loan amount applied for, loan amount granted, and month and year of loan application. Seven additional indicators for jurisdiction are also included.

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