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# **Small Business Financing: Survey Evidence in West Texas<sup>±</sup>**

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We investigate the financial sources of small firms through a survey of sample firms from West Texas. Evidence shows that the two most common start-up financing alternatives are personal savings and commercial bank loans. Commercial banks remain the most popular source of financing for present and future needs, followed by leasing companies and credit unions. Informal types of financing such as business credit cards, and trade credit are used in addition to lines of credit for transaction and working capital purposes. Firms typically review their financial performance monthly and use common cash balances as the primary financial tool.

## **Introduction**

Small businesses play a critical role in the U.S. economy. About 98% of all employers have less than 110 employees. Nearly one-fourth of all businesses are dissolved within two years of beginning their operations and over one-half cease operations within four years (Leach and Melicher (2005)). The success of a small business is closely tied to the planning and management process. Sound financial planning and management increase the odds of survival for a small business and lead to future growth. While the Federal Reserve Banks have

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conducted a few small business surveys to provide research data at the national level, there are few comprehensive studies on small business financing at the regional level.

In this paper, we investigate financial aspects of small business in West Texas, a region with tremendous growth in small business. We survey 1,050 small businesses to explore why entrepreneurs start their businesses, the availability of various sources of financing, and the use of financial planning and management techniques. Specifically, we collect data on the motives for starting a small business in West Texas, sources of start-up financing, types of financial services used, frequency of financial planning and evaluation, and the sensitivity of financial decisions by characteristics of small businesses and business owners.

This study is important because it fills a gap in previous research by performing an in-depth analysis of the financial decisions of 310 small businesses in West Texas, a region best known for its rich oil reserves. With the increasing demand for energy worldwide, the thriving small business growth in West Texas is foreseeable in the near future. Unlike some other studies that examine small business financing at a macro or national level, we examine this topic at a micro or regional level. Although we revisit some small business topics investigated by others (Buttner and Rosen (1989); Cole and Wolken (1995); Berger and Udell (1998)), we update and expand their research. In conducting empirical research, Bruner (2002) notes, "The task must be to look for patterns of confirmation across approaches and studies much like one sees an image in a mosaic of stones."

In addition, we use primary data to examine three major aspects of financial decisions and various hypotheses that are not fully explained by existing literature. The results elaborate the financing pattern of small business in West Texas and can help business owners be aware of industry conditions and improve their financing strategy. The study should be of interest to those academicians, managers, and policy makers concerned with small business. For example, policy makers may use information obtained in this study to help them develop more effective strategies to support regional small business growth.

Evidence shows that the dominant motive for starting a small business is to achieve financial reward. The two most common start-up financing options are personal savings and commercial bank loans. Female and older entrepreneurs prefer to use personal savings whereas male entrepreneurs prefer commercial bank loans. Small businesses rely heavily on lines of credit, business credit cards, and trade credit for transaction and working capital purposes. Commercial banks remain the most popular source of financing for both present and future needs, followed by leasing companies and credit unions. Venture capital firms are receiving growing interests as the fourth most important financing source for future funding. The failure rate of loan applications appears low in West Texas. Despite the fact that minorities applied much more frequently for business loans than did those belonging to the "white" category in ethnicity there is little evidence of discrimination because none in the minority group reports being denied a loan.

Regarding financial planning, the majority of firms review their financial performance once a month and use common cash balance as the primary financial tool. As expected, the small businesses with frequent cash flow difficulties do not evaluate their performance as frequently as their counterparts and are more likely to have loan applications denied. In contrast, the small businesses with more assets and those owned by highly educated entrepreneurs tend to use complicated financial tools to review their financial performance more frequently and engage in more advanced planning, though the majority plans for only the next one to two years. Finally, the majority of small businesses in West Texas prefer outright sales to harvest.

The structure of the paper is as follows. Section I reviews the literature on various issues investigated in the paper. Section II describes the sample and methodology. Section III reports and analyzes the survey results. Finally, Section IV concludes.

## **I. Literature Review**

Capital is one of the key ingredients facilitating the growth of small businesses. Unlike large corporations, small businesses usually do not have easy access to public capital and may rely on private capital, limiting the types of financing available to them. Numerous studies have documented inadequate financial resources as a primary cause of small business failure (Wucinich (1979); Welsch and White (1981); Gaskill, Van Auken, and Manning (1993); Van Auken and Neeley (1996); Coleman (2000)). The uniqueness of small businesses as compared to larger enterprises has caused researchers to investigate specific characteristics of small firms that may contribute to their financing decisions.

The lack of quality financial information about small business increases the risk of investing in such a venture. At the start-up stage, lenders commonly base their decision on the creditworthiness of the entrepreneur, rather than the business. Even after the business exists for a period of time, the business may still remain opaque relative to large business because of the unavailability of public information. As a result, lenders tend to charge higher rates to compensate for their additional risk or decline to lend. Small firms are forced to rely heavily on trade credit and other informal sources of financing such as personal savings, personal credit cards, home equity loans, and loans from friends and family (Ang (1992); Peterson and Rajan (1994); Ang, Lin, and Tyler (1995); Berger and Udell (1995); Binks and Ennew (1996); Cole and Wolken (1996); Berger and Udell (1998)). Danielson and Scott (2004) attribute small businesses' reliance on potentially expensive sources of funds such as trade credit and credit cards to the unavailability of bank loans, as evidence of small business using a pecking order of debt financing, as reported by Chittenden, Hall, and Hutchinson (1996) and Romano, Tanewski, and Smyrnios (2001).

Another firm characteristic that may affect financing decisions of a small business is the business cycle. Berger and Udell (1998) propose a financial growth cycle for small business where small businesses at different business cycles apply different forms of financing. They contend that changes in optimal capital structure are a function of the firm size, age, and information availability. The three largest sources of funding are the principal owner, commercial banks, and trade creditors. Surprisingly, credit card debt appears unimportant but debt from financial institutions seems to be an important source of funding to very young firms. This finding is contrary to the conventional view that such funding would be available to businesses that have acquired substantial tangible assets. According to Berger and Udell, debt provided by financial institutions is often based on resources against the personal wealth of the entrepreneur through guarantees or pledges of personal collateral rather than that of the business.

In addition to firm characteristics, the demographic origins of small business owners may also affect financing decisions. Cooper, Gimeno-Gascon, and Woo (1994) argue that general human capital represented by the entrepreneur's education, gender, and race might reflect the extent to which the entrepreneur has had the opportunity to develop relevant skills and contacts. In general, the lending decision of a creditor is based on the borrower's creditability and expected cash flow of the project. However, many studies document significantly higher loan denial rates among black and Hispanic entrepreneurs than among whites with the same observable characteristics (Duca and Rosenthal, (1993); Munnell, Tootell, Browne, and McEneaney, (1996); Dymski, (2001); Cavalluzzo, Cavalluzzo, and Wolken,

(2002)). Coleman (2004) suggests there may be cultural biases in the lending process against black firm owners. While education does help to reduce the relative disadvantages in borrowing for women and many minorities, black males continue to be less willing and less able to secure external loans.

Gender of the entrepreneur may be part of the lending decision-making process. Gender bias might help to explain why financing is a more acute problem for women entrepreneurs than the rest of the population. Some contend the presence of adverse discrimination in the lending process that places women at a disadvantage (Neider (1987); Brophy (1989); Riding and Swift (1990); Brush (1992); Scherr, Sugrue, and Ward (1993)). While Buttner and Rosen (1989, 1992), Riding and Swift (1990), and Fabowale, Orser, and Riding (1995) do not find strong evidence of discrimination in the lending process, Fabowale et al. indicate that women were less satisfied than men with their banking relationships. Riding and Swift show that women were given higher collateral requirements for lines of credit. Marlow (1997) also shows that more female firm owners felt discrimination pressures in obtaining bank loans than males. Furthermore, Cole and Wolken (1995) and Coleman and Carsky (1996a, 1996b) report that female-owned businesses were less likely to use external debt capital, such as bank loans, as a source of capital than male-owned businesses.

Numerous potential differences between male and female business owners might explain why female-owned businesses seek different sources of financing from male-owned businesses. First, female owners may have less access to capital due to a lower level of education or experience than male owners (Brush and Hisrich (1991); Cooper et al. (1994)). Second, female owners may be more risk averse than male owners (Cooper (1993); Anna et al. (1999)). Third, female owners may be less concerned with financial rewards than male owners (Brush (1992); Rosa, Carter, and Hamilton (1994)). Finally, female owners may have more family commitments and less time to search for the best financing alternative than male owners (Birley (1986); Fasci and Valdez (1998)).

## **II. Research Design**

### **A. Survey Instrument**

The final version of the four-page questionnaire contains 28 questions (later referred to as Q#) that are partitioned into three parts (see Appendix A). The first part focuses on company data. The second part consists of questions on the motivation, financing alternatives, financial management, and financial planning of the small businesses in West Texas. Most questions in this section are forced-choice but some are open-ended questions. The last section contains questions about demographic information of the business owners.

### **B. Sample**

We derived our initial sample from a list of small businesses registered with the Chamber of Commerce in Odessa and Midland, Texas. Following the definition of small business by the Small Business Administration, we generated a sample of 1,050 firms with less than 500 employees. We sent the questionnaire to the owners of each sample firm as they would be in the best position to answer questions on financial decisions. To ensure the questionnaires were properly answered, we included a statement in the cover letter asking the business owners to complete the questionnaire and assured them their responses would be kept confidential. To preserve anonymity and confidentiality, we did not code the survey. Finally, we enclosed a prepaid self-addressed envelope to facilitate a response to the survey. We mailed the initial survey on July 20, 2005 and a follow-up survey on August 12, 2005. We received a total of 310 usable responses, representing a 29.5% response rate.

As with any survey-based research, this study may contain non-response bias. Because we could not identify respondents versus non-respondents, we used an approach suggested by Wallace and Mellor (1988) to test for non-response bias. Specifically, we compared the responses to four firm characteristics – age (Q1), size (Q2), stage in business cycle (Q4), and number of employees (Q5) – of the 224 firms that returned the survey after the first mailing to those responses of the 86 firms after the second mailing. The underlying premise of this approach is that the later respondents tend to resemble non-respondents more than do earlier respondents.

Based on the chi-square tests, the evidence on non-response bias is mixed. No significant differences at the 0.05 level exist between responses to the first and second mailings on firm size ( $\chi^2 = 2.575$  with  $df = 4$ ) and stage in business cycle ( $\chi^2 = 4.267$  with  $df = 3$ ). Yet, there are significant differences at normal levels for age ( $\chi^2 = 9.550$  with  $df = 4$ ) and number of employees ( $\chi^2 = 10.026$  with  $df = 4$ ). Compared to firms responding to the first mailing, those responding to the second mailing tend to be younger and employ more people in the business.

### C. Hypotheses

In this paper, we use the general form of regressions below to test the hypotheses:

$$DV = \alpha + \beta_1 \text{Ethnicity} + \beta_2 \text{Education} + \beta_3 \text{Gender} + \beta_4 \text{Age} + \beta_5 \text{Firm size} \\ + \beta_6 \text{Firm age} + \beta_7 \text{Cash flow} + \beta_8 \text{Growth} + \beta_9 \text{Maturity} \\ + \beta_{10} \text{Survival} + \beta_{11} \text{Other stage} + \varepsilon$$

where

- DV = the dependent variable in each hypothesis.
- Ethnicity = a dummy variable in which 1 if the owner is white, 0 otherwise.
- Education = a dummy variable in which 1 if the owner has college degree or higher, 0 otherwise.
- Gender = a dummy variable in which 1 if the owner is male, 0 otherwise.
- Age = owner's age in years.
- Firm size = the log form of firm size measured by total assets.
- Firm age = firm's age in number of years in operation.
- Cash flow = a dummy variable in which 1 if occasional or frequent cash flow difficulty occurs, 0 otherwise.
- Growth = a dummy variable in which 1 if the business is at the growth stage, 0 otherwise.
- Maturity = a dummy variable in which 1 if the business is at the maturity stage, 0 otherwise.
- Survival = a dummy variable in which 1 if the business is at the survival stage, 0 otherwise.
- Other stage = a dummy variable in which 1 if the business is at a stage other than the above stages, 0 otherwise.
- $\alpha, \beta_1 - \beta_{11}$  = coefficients.

We hypothesize that a significant relation exists between:

H<sub>1</sub>: The perceived importance of start-up financing and the demographic factors of the business owner such as age, gender, ethnicity, and education. The dependent variable is the perceived importance assigned by respondents ranging from 1 to 5. We expect to find female, young, minority, and less educated business owners to value internal sources of funds such as

personal saving more and external sources of funds such as commercial bank less important than their counterparts.

H<sub>2</sub>: The usage of financial services and the demographic factors of the business owner such as age, gender, ethnicity, education, and firm characteristics such as firm size, firm age, and business cycle. The dependent variable is a dummy variable in which 1 if the financial service is chosen, 0 otherwise. We expect to find female, young, minority, and less educated business owners and businesses of relatively small size, short history, and at growth stage using commercial banks less than their counterpart.

H<sub>3</sub>: The failure rate of loan application and the demographic factors of the business owner such as age, gender, ethnicity, education, and firm characteristics such as firm size, firm age, business cycle, and cash flow situation. The dependent variable is the loan denial rate. We expect to find female, young, minority, and less education business owners and businesses of relatively small size and short history to have a higher loan denial rate than their counterpart.

H<sub>4</sub>: The occurrence of cash flow difficulties and firm characteristics such as firm size, firm age, and business cycle. The dependent variable is a dummy variable in which 1 if the business indicates occasional or frequent cash flow difficulty, 0 otherwise.

H<sub>5</sub>: The frequency of financial review and the demographic factors of the business owner such as age, gender, ethnicity, education, and firm characteristics such as firm size, firm age, business cycle, and cash flow situation. The dependent variable is the frequency of financial review in a year. We expect to find business owners with relatively high education and age and business of relatively large size, high age, sound cash flow situation, and at growth stage to review their financial situation more frequently than their counterpart.

H<sub>6</sub>: The usage of different financial planning techniques and the demographic factors of business owner such as age, gender, ethnicity, education, and firm characteristics such as firm size, firm age, business cycle, and cash flow situation. The dependent variable is the number of financial planning techniques used. We expect to find business owners with relatively high education and businesses of relatively large size, high age, sound cash flow situation, and at growth stage to use more different financing planning techniques than their counterpart.

We use multiple regression analysis to test hypotheses H<sub>1</sub>, H<sub>3</sub>, H<sub>5</sub>, and H<sub>6</sub> and logit regressions to test hypotheses H<sub>2</sub> and H<sub>4</sub>.

### **III. SURVEY RESULTS**

#### **A. Characteristics of Firms and Their Owners**

Panel A of Table I shows the gender (Q25), age (Q26), ethnicity (Q27), education (Q28), and experience (Q7) of the principal owners. Respondents are typically male (85.9%), at least 50 years old (68.4%), white (91.6%), have no college degree (54.2%), and more than 15 years of experience managing or owning a business (82.2%).

Panel B of Table I partitions the sample by industry (Q3), firm size (Q2), firm age (Q1), number of employees (Q5), and stage in the business cycle (Q4). The most common industry types (Q3) are mining including firms in the oil services industry (28.4%), retail (17.4%), service (16.1%), and manufacturing (10.6%). In terms of firm size, 46.4% of the firms have an asset value of greater than \$1 million. The majority of firms (53.2%) have been under the current ownership for more than 20 years. About two-thirds (67.7%) of the firms have 20 or fewer employees. Regarding the stage in the business cycle, most firms are either in the growth (47.6%) or maturity stage (42.4%) with the remainder in the start-up (2.2%) or survival (7.8%) stage.

**B. Motives for Starting a Small Business**

Panel A of Table II presents our findings on the motives for starting a small business in West Texas. Because respondents could indicate more than one objective, the percentages sum to greater than 100 for the 310 firms indicating a specific motive. The dominant motive is financial rewards (61.9%), followed by the desire to be entrepreneur (43.9%) and to provide career progression (20.3%). No other motive amounts to as much as 10% of the responses (Q6).

**C. Financing Patterns of Small Business**

Panel B of Table II shows the major sources of start-up financing. Because respondents could indicate more than one source of start-up funds, the percentages sum to greater than 100. Small businesses use different financing patterns at various stages of the business cycle. As previously indicated, prior studies suggest that small businesses tend to use private sources of financing at start-up due to the difficulty of accessing external sources of funds. Our results support this notion.

Panel B (1) shows the sources of funds used by the principal business owner upon starting the business (Q8). The most common form of start-up financing is personal savings (69.4%), followed by loans from commercial banks (44.8%), and family and friends (16.8%). Consistent with the literature, venture capitalists and business angels represent minor sources of funds at the start-up stage with 2.6% and 1.9% of the responding firms, respectively (Q8). Panel B (2) indicates the importance attached to various financing sources for a start-up business (Q9). The identical rankings of Panels B (1) and B (2) suggest that the importance attached to various sources of funds at the start-up stage is consistent with their current usage.

As previously noted, Berger and Udell (1998) posit that small businesses have a financial growth cycle in which their financial needs and options change with growth opportunities. Thus, we designed several questions to identify the different financial services used by small businesses to finance their daily operations and future expansion. The percentages in Table III sum to greater than 100 because respondents could give more than one answer to each question.

Panel A of Table III shows the financial services commonly used to support daily operation and growth (Q10). Of the 310 responding small businesses, 64.2% use lines of credit. Unlike large corporations, small businesses use non-traditional financial services such as business credit cards (50.6%) and personal credit cards (16.1%). At least a quarter of the small firms also use trade credit (42.3%), vehicle loans (32.6%), and equipment loans (24.5%) to support daily operation and growth.

To investigate whether demographic factors of business owners play a role in the selection of financial services, we used chi-square tests to examine whether significant differences exist in the use of financial services by gender, ethnicity, education, and age of the business owners. For purposes of conducting these tests, we collapsed the respondents by age into those above and below 50 and by ethnicity into white and minority, which consists of African-American, Hispanic, Asian, and others. Of the 32 potential chi-square tests, we were unable to conduct 8 tests due to the small cell size of less than 5. Of the 24 tests conducted, the only significant difference was the use of personal credit cards. In this instance ( $\chi^2 = 4.123$ , significant at the 0.05 level), more minorities (37.0%) use personal credit cards for business purposes than do whites (14.5%).

We specifically looked into the uses of trade credit for working capital purposes (Q15 and Q16). Although not reported in Table II, our results show that 65.2% of the respondents do



not use trade credit. Among the users of trade credit, 23.5% use free trade credit only, 1.3% use costly trade credit, and 10.0% use both.

In addition, the survey asked the respondents to indicate the common purposes of using financial services for their businesses (Q11). As shown in Panel B of Table III, transaction purposes dominate with 42.3% of the respondents followed closely by working capital management (41.9%), and financing business expansion (36.1%). Panel C of Table III shows the types of banking accounts held for working capital purposes (Q17). Almost all firms (98.4%) hold checking accounts and 42.3% hold money market accounts. A much smaller percentage of small businesses use interest-earning accounts such as savings accounts (26.1%) and certificates of deposit (18.7%).

The perceived importance of start-up financing (Q9) may lead to future usage of financial services. Thus, we examined the top two sources of start-up financing that owners prefer to use for future funding, personal savings, and commercial bank loans, respectively, as shown in Panel B of Table II. We tested the hypothesis ( $H_1$ ) that the preference of start-up financing choice is related to the demographic factors of the business owner such as age, gender, ethnicity, and education. As shown in Column A of Table IV, female and older entrepreneurs significantly favor using personal savings as start-up funds at the 0.01 and 0.10 levels, respectively. In contrast, Column B of Table IV indicates male entrepreneurs view commercial banks as an important source of start-up financing at the 0.10 level. Our findings mirror the results obtained by Coleman and Carsky (1996a, 1996b) and Coleman (2000) that female-owned businesses are significantly less likely to use external debt capital than male-owned business. This result may reflect the perception that banks and other potential creditors consider businesses owned by women entrepreneurs as relatively risky.

To examine the three most commonly used financial services -- lines of credit, business credit cards, and trade credit as shown in Panel A of Table III, we use logit regressions to test hypothesis ( $H_2$ ) that the usage of these financial services is related to the characteristics of small business and business owner. Evidence in Columns C and D of Table IV reveals that firm size is the only significant variable in explaining the use of lines of credit and business credit cards. The "larger" small businesses tend to use more lines of credit whereas the "smaller" small businesses prefer business credit cards. As shown in Column E of Table IV, older businesses tend to use trade credit.

Table V shows the responses to Q12 and Q23 concerning the past and expected future sources of financial services used by small businesses. The responses relating to questions seeking out perceptions and the type of financial sources to be used in the future tend to be subjective and prone to respondents' biases. Thus, interpreting these data requires caution. Almost 91% of the respondents report that commercial banks served as the most common source for receiving financial services in the past. Leasing (14.6%) and credit unions (5.5%) rank a distant second and third place, respectively. Less than 5% of the respondents reported using any other financial services in the past. In the future, 84.5% of the respondents expect to rely on commercial banks as the primary source of financial services. Respondents, however, expect to use the other financial services much more frequently in the future than in the past. For example, between about 37% and 43% of the respondents expect to use each of the other nine financial services in the future. An implication of these results is respondents perceive that financial services unavailable to their businesses in the past may be accessible to them in the future.

Using the data shown in Table V, we calculated Spearman's rank order correlation coefficient,  $r_s$ , between the rankings of the 10 financial services used in the past and likely to be used in the future. The  $r_s$  of 0.7003 is significant at the 0.05 level ( $t = 2.77$  with  $df = 8$ ). Thus,

the rankings are highly correlated despite the large differences in the percentage usage of financial services between the past and future.

We also conducted chi-square tests to further investigate whether the usage of financial services varies significantly by the characteristics of business owners such as gender, ethnicity, education, and age. Of the 40 potential chi-square tests, we were unable to conduct 31 tests due to the small cell size of less than 5. Of the 9 tests conducted, the only significant difference at normal levels was the use of commercial banks by different gender group. In this instance ( $\chi^2 = 8.705$ , significant at the 0.01 level), a greater percentage of males (79.6%) use commercial banks for business purposes than do females (11.3%). Consistent with the findings of Cole and Wolken (1995), Coleman and Carsky (1996a, 1996b) and Coleman (2000), male-owned businesses were more likely to use commercial bank loans as a source of capital than female-owned businesses.

As commercial banks currently are and are likely to continue to be the primary source of financing, we investigated the small businesses access to commercial loans in the past five years to see whether perceived discrimination exists in terms of loan applications in West Texas. Panel A of Table VI shows how many times the firm applied for a loan in the past five years by the ethnicity of business owners (Q13). The results show that 29.8% have never applied for a commercial loan, 41.7% of the sample firms applied once or twice, 9.7% applied three to four times, and 18.8% applied more than 4 times. Small businesses run by a minority owner applied for loans much more frequently than those run by white owners. Panel B of Table VI indicates how many times the firm was denied for a commercial loan in the past five years by the ethnicity of business owners (Q14). The failure rate of loan applications appears low in West Texas. The results show that 95.4% of the responding firms were never denied for a loan application, 4.2% was denied once or twice, and 0.3% was denied more than four times. Business owners from the minority group in West Texas were never denied for their loan applications, unlike the evidence reported by Duca and Rosenthal, (1993), Munnell, Tootell, Browne, and McEneaney, (1996), Dymski, (2001), Cavalluzzo, Cavalluzzo, and Wolken, (2002), and Coleman (2004).

#### **D. Financial Management of Small Business**

Another issue examined is how small businesses in West Texas manage financial activities. The failure of a loan application might result from a poor financial position, especially poor cash flow management. Panel C of Table VI presents the results for Q18 for the frequency of cash flow difficulties. A majority of the responding firms report experiencing cash flows difficulties either occasionally (47.4%) or frequently (13.7%), but others indicate that such problems occur rarely (21.0%) or never (17.4%).

To further examine whether poor cash flow conditions contribute to the failure of commercial loan applications, we tested the hypothesis ( $H_3$ ) that a significant relation exists between the failure rate of loan applications and the characteristics of small business and business owner. Column A of Table VIII indicates that the financial position of a firm, proxied by the frequency of cash flow difficulties, is significantly related to the success of a loan application. Firms that incur cash flow difficulties are more likely to have their loan applications denied. There appears to be no significant discrimination in terms of race, age, education, and gender in the loan approval process in West Texas.

Panel D of Table VI shows the responses on the causes of cash flow difficulties (Q19). The percentages sum to greater than 100 because respondents could indicate more than one cause of cash flow difficulties. The most common causes are incurring late payment from

customers (52.6%), uncertain cash flow (32.5%), high working capital requirements (22.6%), and early payment to suppliers (14.0%).

Since cash flow management is crucial to the success of a small business, we tested the hypothesis ( $H_4$ ) that cash flow difficulty is significantly related to firm characteristics such as size, age, and business cycle using logit regression. The dependent variable (cash flow) is 1 if the business indicates occasional or frequent cash flow difficulty, 0 otherwise. As shown in Column B of Table VIII, relatively small firms in terms of assets are more likely to experience cash flow difficulties but such difficulties are not specific to firms at any particular stage of the business cycle.

### **E. Financial Planning of Small Business**

We examined the frequency of evaluating financial performance and the tools used to do so. Financial planning is another critical function to ensure sound financial position of a small business. Panel A of Table VII shows the results to Q20 involving how often businesses evaluate financial performance. The results show that the majority of firms review their financial performance once (52.0%) or twice (11.9%) a month while others review performance less often. Surprisingly, 9.5% of the responding firms indicated that they never review their financial performance.

We tested the hypothesis ( $H_5$ ) that a significant relation exists between the frequency of financial review and the demographic factors of the business owner and firm characteristics. Column C of Table VIII shows the regression results for financial review, with the frequency of financial review in a year as the dependent variable. This evidence indicates that larger-sized firms with highly educated owners emphasize the importance of financial review.

Panel B of Table VII shows the financial tools used by small businesses to evaluate financial performance (Q21). Because the respondents could indicate more than one tool, the sum of the percentages exceeds 100. The results show that 55.2% of the respondents review cash balances, 54.5% calculate profitability and efficiency ratios, and 39.6% check other financial ratios.

To further examine the usage of financial analysis tools by small businesses, we tested the hypothesis ( $H_6$ ) that the usage of complicated financial tools, as measured by the number of financial planning tools used, is related to the characteristics of small business and business owner. As shown in Column D of Table VIII, the number of financial tools used by small business is significantly positively related to the firm size and the education level of business owner and significantly negatively related to the age of business owners. Larger firms owned by young, highly educated owners tend to use more complicated financial tools to review their financial performance than their counterparts.

Questions on financial planning aspects also included the time horizon of future financial plans (Q22). As shown in Panel C of Table VII, the vast majority of the responding firms (74.0%) report that they plan for the next one to two years, 19.4% plan for the next three to five years, and 6.6% plan beyond five years. Thus, the planning horizon of the responding tends to be short term.

As ventures reach the peak of their profitability and productivity, the owners usually exit a business through: (1) a systematic liquidation of assets to the owners, (2) an outright sale of the venture to others, or (3) an initial public offering of new shares followed by a secondary offer of existing owners' shares. Table IX reports the results to Q24 on the expected exit strategy. The vast majority (70.8%) of the sample firms plan for an outright sale, 6.7% prefers a systematic liquidation, 2.6% plan for an initial public offering, while the remaining 19.9% prefer other ways of harvesting such as gifts to heirs.

#### **IV. Conclusion**

Using a survey, we investigate the financial aspects of small businesses in West Texas including financing patterns, financial management, and financial planning. Evidence shows that the dominant motive for starting a small business is financial rewards. The primary start-up financing is personal savings followed by commercial bank loans. Female and older entrepreneurs prefer to use personal savings whereas male entrepreneurs prefer commercial bank loans. For this region of the U.S., venture capitalists and business angels are not important sources of funds at the start-up stage.

With respect to the financing patterns of daily operations and future expansion, commercial bank loans remain the most popular source of financing for both present and future needs followed by leasing companies. Firms with frequent cash flow difficulties are more likely to fail in their loan applications. Nevertheless, the failure rate of loan applications appears low and no apparent evidence of discrimination exists in West Texas. Unlike large corporations, small businesses rely heavily on informal types of financing such as business credit cards in addition to trade credit and lines of credit for transaction and working capital purposes. Small businesses with relatively large asset sizes tend to use more lines of credit whereas those with relatively small sizes prefer business credit cards.

Regarding financial planning, more than half of firms review their financial performance monthly and use cash balances as the primary financial tool. Larger firms with highly educated owners tend to use more complicated financial tools to review their financial performance and engage in more advanced financial planning. Typically, firms make future financial plans for only the next one to two years. Finally, the most common expected exit strategy is the outright sale of the business.

While our analysis has revealed substantial evidence on the financial decisions of small businesses in West Texas, these findings may not apply to small businesses in other regions of the United States. Thus, other researchers may want to survey small business owners to confirm these results at a regional or national level. Other topics for future research include investigating how sources of small business financing may change over the business cycle and during different economic conditions in response to changes in monetary or fiscal policies and improvements in financial services. Given the growing financial education support to small business owners, another research topic would be to evaluate whether the usage of analytical tools increases the effectiveness of financial management and the frequency of financial planning efforts.

**REFERENCES**

- Anna, Alexandra L., Gaylen N. Chandler, Erik Jansen, and Neal P. Mero, 1999, Women business owners in traditional and non-traditional industries, Journal of Business Venturing 15 (3), 279-303.
- Ang, James S., 1992, On the theory of finance for privately held firms, Journal of Small Business Finance 1 (3), 185-203.
- Ang, James S., James W. Lin, and Floyd Tyler, 1995, Evidence on the lack of separation between business and personal risks among small businesses, Journal of Small Business Finance 4 (2/3), 197-210.
- Berger, Allen N., and Gregory F. Udell, 1995, Relationship lending and lines of credit in small firm finance, Journal of Business 68 (3), 351-381.
- Berger, Allen N., and Gregory F. Udell, 1998, The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle, Journal of Banking and Finance 22 (6), 613-673.
- Binks, Martin R., and Christine T. Ennew, 1996, Growing firms and credit constraint, Small Business Economics 8 (1), 17-25.
- Birley, Sue, 1986, The roles of new firms: Births, deaths, and job generation, Strategic Management Journal 7 (4), 361-376.
- Brophy, David, 1989, Financing women-owned entrepreneurial firms. In women-owned businesses, ed. O. Hagan, C. Rivchun, and D. Sexton. (New York: Praeger).
- Bruner, Robert F., 2002, Does M&A pay? A survey of evidence from the decision-maker, Journal of Applied Finance 12 (1), 48-68.
- Brush, Candida G., 1992, Research on women business owners: Past trends, a new perspective and future directions, Entrepreneurship Theory and Practice 16 (4), 5-30.
- Brush, Candida G., and Robert D. Hisrich, 1991, Antecedent influences on women-owned businesses, Journal of Managerial Psychology 6 (2), 9-16.
- Buttner, Holly E., and Benson Rosen, 1989, Funding new business ventures: Are decision makers biased against women entrepreneurs? Journal of Business Venturing 4 (4), 249-261.

- Buttner, Holly E., and Benson Rosen, 1992, Rejection in the loan application process: Male and female entrepreneurs' perceptions and subsequent intentions, Journal of Small Business Management 30 (1), 58-65.
- Cavalluzzo, Ken S., Linda C. Cavalluzzo, and John D. Wolken, 2002, Competition, small business financing, and discrimination: Evidence from a new survey, Journal of Business 75 (4), 641-679.
- Chittenden, Francis, Graham Hall, and Patrick Hutchinson, 1996, Small firm growth, access to capital markets and financial structure: Review of issues and an empirical investigation, Small Business Economics 8 (1), 59-67.
- Cole, Rebel A., and John D. Wolken, 1995, Financial services used by small businesses: Evidence from the 1993 National Survey of Small Business Finance, Federal Reserve Bulletin (July), 629-666.
- Coleman, Susan, 2000, Access to capital and terms of credit: A comparison of men- and women-owned small businesses, Journal of Small Business Management 38 (3), 37-53.
- Coleman, Susan, 2004, Access to debt capital for women- and minority-owned small firms: Does educational attainment have an impact? Journal of Developmental Entrepreneurship 9 (2), 127-143.
- Coleman, Susan, and Mary Carsky, 1996a, Financing small business: Strategies employed by women entrepreneurs, Journal of Applied Management and Entrepreneurship 3 (1), 28-42.
- Coleman, Susan, and Mary Carsky, 1996b, Women owned businesses and bank switching: The role of customer service, Journal of Entrepreneurial and Small Business Finance 5 (1), 75-84.
- Cooper, Arnold C., 1993, Challenges in predicting new firm performance, Journal of Business Venturing 8 (3), 241-253.
- Cooper, Arnold C., Javier F. Gimeno-Gascon, and Carolyn Y. Woo, 1994, Initial human and financial capital as predictors of new venture performance, Journal of Business Venturing 9 (5), 371-395.
- Danielson, Morris G, and Jonathan A. Scott, 2004, Bank loan availability and trade credit demand, Financial Review 39 (4), 579-600.
- Duca, John, and Stuart Rosenthal, 1993, Borrowing constraints, household debt, and racial discrimination in loan markets, Journal of Financial Intermediation 3 (1), 77-103.
- Dymski, Gary A. 2001, Is discrimination disappearing? Residential credit market evidence, 1992-98, International Journal of Social Economics 28 (10-12), 1025-1045.

- Fabowale, Lola, Barbara Orser, and Allan Riding, 1995, Gender, structural factors and credit terms between Canadian small businesses and financial institutions, Entrepreneurship Theory and Practice 19 (4), 41-65.
- Fasci, Martha A., and Jude Valdez, 1998, A performance contrast of male- and female-owned small accounting practices, Journal of Small Business Management 36 (3), 1-7.
- Gaskill, LuAnn Ricketts, Howard E. Van Auken, and Ronald A. Manning, 1993, A factor analytic study of the perceived causes of small business failure, Journal of Small Business Management 31 (4), 18-31.
- Leach, Chris, and Ronald W. Melicher, 2005, Entrepreneurial Finance, (South Western College Publisher).
- Marlow, Susan, 1997, Self-employed women – new opportunities, old challenges? Entrepreneurship and Regional Development 9 (3), 199-210.
- Munnell, Alicia H., Geoffrey M. B. Tootell, Lynn E. Browne, and James McEneaney, 1996, Mortgage lending in Boston: Interpreting HMDA data, American Economic Review 86 (1), 25-53.
- Neider, Linda, 1987, A preliminary investigation of female entrepreneurs in Florida, Journal of Small Business Management 25 (3), 22-29.
- Petersen, Mitchell A., and Raghuram G. Rajan, 1994, The benefits of lending relationships: Evidence from small business data, Journal of Finance 49 (1), 3-38.
- Riding, Allan L., and Catherine S. Swift, 1990, Women business owners and terms of credit: Some empirical findings of the Canadian experience, Journal of Business Venturing 5 (5), 327-340
- Romano, Claudio A., George A. Tanewski, and Kosmas X. Smyrnios, 2001, Capital structure decision making: A model for family business, Journal of Business Venturing 16 (3), 285-310.
- Rosa, Peter, Sara Carter, and Daphne Hamilton, 1994, Gender as a determinant of small business performance: Insights from a British study, Small Business Economics 8 (6), 463-478.
- Scherr, Frederick C., Timothy F. Sugrue, and Janice B. Ward, 1993, Financing the small business firm start-up: Determinants of debt use, Journal of Small Business Finance 3 (1), 17-36.
- Van Auken, Howard E., and Lynn Neeley, 1996, Evidence of bootstrap financing among small start-up firms, Journal of Entrepreneurial and Small Business Finance 5 (3), 233-249.

Wallace, R. S. O. and C. J. Mellor, 1988, Nonresponse bias in mail accounting surveys: A pedagogical note, British Accounting Review 20 (2), 131-139.

Welsch, John A., and Jeffrey F. White, 1981, A small business is not a little big business, Harvard Business Review 59 (4), 18-33.

Wucinich, William, 1979, How to finance a small business, Management Accounting 61 (5), 16-18.



**Table I**  
**Characteristics of Small Business Owners and Their Firms**

In this table, Panel A presents selected demographic characteristics of small business owners including gender, age, ethnicity, education, and experience in managing or owning a business. Panel B presents selected characteristics of small businesses including industry, firm size, firm age, number of employees, and stage in the business cycle. The sample size is 310.

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**Panel A. Gender, Age, Ethnicity, Education, and Experience**

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| <b>Gender (%)</b>             | <b>Age (Years)</b> | <b>(%)</b>   | <b>Ethnicity</b>          | <b>(%)</b> |
|-------------------------------|--------------------|--------------|---------------------------|------------|
| Male                          | 85.9               | < 30         | White                     | 91.6       |
| Female                        | 14.1               | 30 to 39     | Africa-American           | 0.6        |
|                               |                    | 40 to 49     | Hispanic                  | 5.9        |
|                               |                    | 50 to 59     | Asian                     | 0.6        |
|                               |                    | 60 and older | Others                    | 1.3        |
| <b>Education</b>              |                    | <b>(%)</b>   | <b>Experience (Years)</b> | <b>(%)</b> |
| Lower than high school degree |                    | 2.9          | No experience             | 2.3        |
| High school graduates         |                    | 13.1         | 0 - 3                     | 1.6        |
| Some college                  |                    | 31.4         | 4 - 6                     | 1.9        |
| Associate degree              |                    | 3.9          | 7 - 9                     | 1.0        |
| Trade school                  |                    | 2.9          | 10 - 15                   | 11.0       |
| College                       |                    | 36.6         | > 15                      | 82.2       |
| Post graduate                 |                    | 9.2          |                           |            |

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**Panel B. Industry, Firm Size, Firm Age, Number of Employees, and Stage in the Business Cycle**

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| <b>Industry</b>                  | <b>(%)</b> | <b>Firm Size (Assets in \$000)</b> | <b>(%)</b>                             |      |
|----------------------------------|------------|------------------------------------|--|------|
| Mining including oil services    | 28.4       | # 10                               | 0.7                                    |      |
| Retail                           | 17.4       | > 10 # 50                          | 4.3                                    |      |
| Service                          | 16.1       | > 50 # 100                         | 8.9                                    |      |
| Manufacturing                    | 10.6       | > 100 # 500                        | 23.6                                   |      |
| Construction                     | 9.4        | > 500 # 1,000                      | 16.1                                   |      |
| Real estate and finance          | 5.8        | > 1,000                            | 46.4                                   |      |
| Transportation and communication | 3.5        |                                    |  |      |
| Wholesale                        | 1.6        |                                    |  |      |
| Agriculture                      | 1.3        |                                    |  |      |
| Other                            | 5.9        |                                    |  |      |
| <b>Firm Age (Years)</b>          | <b>(%)</b> | <b>Number of Employees</b>         | <b>Stage in the Business Cycle (%)</b> |      |
| 1 to 5                           | 13.9       | 2 to 5                             | 31.1                                   |      |
| 6 to 10                          | 9.0        | 6 to 20                            | 36.6                                   |      |
| 11 to 20                         | 23.9       | 21 to 50                           | 19.4                                   |      |
| > 20                             | 53.2       | 51 to 100                          | 6.8                                    |      |
|                                  |            | > 100                              | 6.1                                    |      |
|                                  |            |                                    | Start-up                               | 2.2  |
|                                  |            |                                    | Growth                                 | 47.6 |
|                                  |            |                                    | Maturity                               | 42.4 |
|                                  |            |                                    | Survival                               | 7.8  |

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**Table II**  
**Motives and Financing Sources of Starting up a Small Business**

In this table, Panel A presents the motives for starting a small business. Panel B reports the current usage and importance of different sources of start-up financing. Because respondents could indicate more than one motive for starting a business or source of start-up funds, the percentages sum to greater than 100. The sample size is 310.

| <b>Panel A.</b>                |                  |  |             |  |
|--------------------------------|------------------|--|-------------|--|
| <b>Motives</b>                 | <b>Firms (%)</b> |  | <b>Rank</b> |  |
| Financial rewards              | 61.9             |  | 1           |  |
| Desire to be an entrepreneur   | 43.9             |  | 2           |  |
| Career progression             | 20.3             |  | 3           |  |
| Influence of family or friends | 7.7              |  | 4           |  |
| Unemployed before start-up     | 6.1              |  | 5           |  |
| Tax credit or savings          | 2.6              |  | 6           |  |
| Flexibility                    | 1.0              |  | 7           |  |
| Contribution to the community  | 0.3              |  | 8           |  |

  

| <b>Panel B.</b>                  |                         |             |                                     |             |
|----------------------------------|-------------------------|-------------|-------------------------------------|-------------|
| <b>Sources of Start-up Funds</b> | <b>(1) Actual Usage</b> |             | <b>(2) Perception of Importance</b> |             |
|                                  | <b>Firms (%)</b>        | <b>Rank</b> | <b>Mean</b>                         | <b>Rank</b> |
| Personal savings                 | 69.4                    | 1           | 4.48                                | 1           |
| Commercial banks                 | 44.8                    | 2           | 4.35                                | 2           |
| Family and friends               | 16.8                    | 3           | 2.43                                | 3           |
| Government assistance program    | 3.9                     | 4           | 2.34                                | 4           |
| Venture capitalists              | 2.6                     | 5           | 2.29                                | 5           |
| Business angels                  | 1.9                     | 6           | 2.19                                | 6           |

**Table III**  
**Use of Financial Services in Small Business Operations**

In this table, Panel A presents the types of financial services used by small business operations. Panel B reports the purpose of using financial services. Panel C lists the types of banking accounts held for working capital purposes. Percentages sum to greater than 100 because respondents could indicate more than one response to each question. The sample size is 310.

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| <b>Panel A.</b>                    |                  |             |
|------------------------------------|------------------|-------------|
| <b>Types of Financial Services</b> | <b>Firms (%)</b> | <b>Rank</b> |
| Lines of credit                    | 64.2             | 1           |
| Business credit cards              | 50.6             | 2           |
| Trade credit                       | 42.3             | 3           |
| Vehicle loans                      | 32.6             | 4           |
| Equipment loans                    | 24.5             | 5           |
| Personal credit cards              | 16.1             | 6           |
| Capital leases                     | 12.6             | 7           |
| Mortgages                          | 10.6             | 8           |
| Loans from partners/individuals    | 7.7              | 9           |
| Others                             | 5.2              | 10          |
| Factoring                          | 1.9              | 11          |

  

| <b>Panel B.</b>                            |                  |             |
|--|------------------|-------------|
| <b>Purpose of Using Financial Services</b> | <b>Firms (%)</b> | <b>Rank</b> |
| Transaction purposes                       | 42.3             | 1           |
| Working capital management                 | 41.9             | 2           |
| Financing business expansion               | 36.1             | 3           |
| Credit related purposes                    | 19.0             | 4           |
| Low financing costs                        | 11.9             | 5           |
| Others                                     | 3.2              | 6           |

  

| <b>Panel C.</b>  |                  |             |
|--|------------------|-------------|
| <b>Types of Banking Accounts Held for Working Capital Purposes</b> | <b>Firms (%)</b> | <b>Rank</b> |
| Checking accounts  | 98.4             | 1           |
| Money market accounts  | 42.3             | 2           |
| Saving accounts  | 26.1             | 3           |
| Certificates of deposit  | 18.7             | 4           |
| Others   | 5.2              | 5           |

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**Table IV**  
**Regression Analysis of the Determinants of Start-up Sources**  
**of Financing and Regular Usage of Financial Services**

This table presents the multiple regression results for the importance of personal savings and commercial banks as start-up financing for regression (A) and (B), and logit regression results for the use of lines of credit, business credit cards, and trade credit for regression (C), (D), and (E), respectively. The independent variables include demographic characteristics of small business owners and firm characteristics. Using dummy variables, ethnicity is 1 if the owner is white, 0 otherwise. Education is 1 if the owner has a college degree or higher, 0 otherwise. Gender is 1 if the owner is male, 0 otherwise. Age is measured in number of years. Growth is 1 if the business is at the growth stage, 0 otherwise. Maturity is 1 if the business is at the maturity stage, 0 otherwise. Survival is 1 if the business is at the survival stage, 0 otherwise. Other stage is 1 if the business is at a stage other than the above stages, 0 otherwise. Firm size is measured by the log value of total assets. Firm age is measured by the number of years. P-values are in parentheses. The sample size is 310.

| Variables      | Personal Savings<br>(A) | Commercial Banks<br>(B) | Lines of Credit<br>(C) | Business Credit Cards<br>(D) | Trade Credit<br>(E) |
|----------------|-------------------------|-------------------------|------------------------|------------------------------|---------------------|
| Constant       | 4.496                   | 4.370                   | -2.700                 | 3.691                        | -4.510              |
| Ethnicity      | -0.240<br>(0.213)       | -0.198<br>(0.353)       | -0.195<br>(0.673)      | 0.503<br>(0.245)             | 0.730<br>(0.116)    |
| Education      | 0.054<br>(0.619)        | 0.122<br>(0.310)        | 0.194<br>(0.452)       | -0.275<br>(0.263)            | -0.351<br>(0.163)   |
| Gender         | -0.503***<br>(0.002)    | 0.333*<br>(0.059)       | 0.251<br>(0.490)       | -0.416<br>(0.257)            | 0.077<br>(0.837)    |
| Age            | 0.011*<br>(0.054)       | -0.001<br>(0.891)       | -0.014<br>(0.376)      | -0.023<br>(0.128)            | 0.002<br>(0.902)    |
| Growth         |                         |                         | -0.320<br>(0.534)      | 0.798<br>(0.108)             | 0.568<br>(0.267)    |
| Maturity       |                         |                         | -0.311<br>(0.534)      | 0.749<br>(0.122)             | 0.590<br>(0.233)    |
| Survival       |                         |                         | 0.312<br>(0.591)       | 0.418<br>(0.443)             | 0.258<br>(0.635)    |
| Other stage    |                         |                         | -1.009<br>(0.300)      | -0.105<br>(0.910)            | 1.937**<br>(0.040)  |
| Firm size      |                         |                         | 0.327**<br>(0.003)     | -0.226**<br>(0.043)          | 0.165<br>(0.149)    |
| Firm age       |                         |                         | 0.001<br>(0.984)       | 0.001<br>(0.998)             | 0.036**<br>(0.013)  |
| R <sup>2</sup> | 0.04                    | 0.01                    |                        |                              |                     |
| F-statistic    | 3.776**                 | 1.517                   |                        |                              |                     |

\* \*\*, \*\*\* Significant at the 0.10, 0.05, and 0.01 levels, respectively.

**Table V**  
**Past and Expected Future Sources of Financial Services**  
**Used by Small Businesses**

This table shows the sources of financial services used by small businesses for daily operations in the past and likely to be used in the future. The Spearman rank order correlation coefficient of 0.7003 between the rankings of the past and expected future sources of financial services used by small businesses is significant at the 0.05 level. The sample size is 310.

| <b>Service Providers</b>    | <b><u>In the Past</u></b> |             | <b><u>In the Future</u></b> |             |
|-----------------------------|---------------------------|-------------|-----------------------------|-------------|
|                             | <b>Firms (%)</b>          | <b>Rank</b> | <b>Firms (%)</b>            | <b>Rank</b> |
| Commercial bank             | 90.9                      | 1           | 84.5                        | 1           |
| Leasing company             | 14.6                      | 2           | 43.2                        | 2           |
| Credit union                | 5.5                       | 3           | 40.3                        | 3           |
| Saving and loan association | 4.2                       | 4           | 39.7                        | 4.5         |
| Finance company             | 3.2                       | 5           | 39.0                        | 6           |
| Insurance company           | 2.9                       | 6           | 36.8                        | 10          |
| Saving bank                 | 2.6                       | 7           | 38.7                        | 7.5         |
| Brokerage or mutual fund    | 1.9                       | 8.5         | 38.7                        | 7.5         |
| Mortgage bank               | 1.9                       | 8.5         | 37.7                        | 9           |
| Venture capital firm        | 0.6                       | 10          | 39.7                        | 4.5         |

**Table VI**  
**Commercial Loan Application and Cash Flow**  
**Management of Small Businesses**

In this table, Panels A and B present the frequency of small business loan applications and loan denials of different ethnicity groups in the past five years. The minority group includes African-American, Hispanic, Asian, and others. Panel C presents the frequency that firms have ever had cash flow difficulty. Panel D lists the different causes of cash flow difficulties. In Panel D, the percentages sum to greater than 100 because respondents could give more than one response. The sample size is 310.

| <b>Panel A. Frequency of Loan Applications</b>      |              | <b>Firms (%)</b> |              |
|---|--------------|------------------|--------------|
|   | <b>White</b> | <b>Minority</b>  | <b>Total</b> |
| Never   | 3.9          | 25.9             | 29.8         |
| 1 to 2 times  | 2.5          | 39.2             | 41.7         |
| 3 to 4 times  | 1.3          | 8.4              | 9.7          |
| More than 4 times                                   | 1.3          | 17.5             | 18.8         |
| <b>Panel B. Frequency of Loan Denial</b>            |              |                  |              |
| Never   | 87.2         | 8.2              | 95.4         |
| 1 to 2 times  | 4.2          | 0.0              | 4.2          |
| 3 to 4 times  | 0.0          | 0.0              | 0.0          |
| More than 4 times                                   | 0.3          | 0.0              | 0.3          |
| <b>Panel C. Frequency of Cash Flow Difficulties</b> |              |                  |              |
| Never   |              | 17.4             |              |
| Quite rare and unusual                              |              | 21.0             |              |
| Occasionally  |              | 47.4             |              |
| Fairly frequent but not permanent                   |              | 13.5             |              |
| Uncertain   |              | 0.7              |              |
| <b>Panel D. Causes of Cash Flow Difficulties</b>    |              |                  |              |
| Late payment from customers                         |              | 52.6             |              |
| Unbalanced cash flow                                |              | 32.5             |              |
| High levels of working capital required by business |              | 22.6             |              |
| Early payment to suppliers                          |              | 14.0             |              |
| Difficulty in getting credit                        |              | 1.3              |              |
| Others  |              | 7.1              |              |

Note: Percentages may not add to 100 due to rounding.

**Table VII**  
**Financial Performance Evaluation and**  
**Financial Planning of Small Businesses**

In this table, Panel A describes the frequency of financial evaluation; Panel B reports the different financial evaluation tools used by small businesses; and Panel C lists the time horizon of financial planning. The sample size is 310.

| <b>Panel A. Frequency of Financial Evaluation</b>  | <b>Firms (%)</b> |
|--|------------------|
| Twice a month                                      | 11.9             |
| Once a month                                       | 52.0             |
| Once a quarter                                     | 13.6             |
| Twice a year                                       | 5.2              |
| Once a year  | 7.8              |
| Never  | 9.5              |
| <b>Panel B. Financial Evaluation Tools</b>         |                  |
| Cash balances                                      | 55.2             |
| Profitability and efficiency ratios                | 54.5             |
| Other financial ratios                             | 39.6             |
| Industry averages                                  | 12.0             |
| Cash conversion period                             | 7.5              |
| Leverage ratios                                    | 5.2              |
| <b>Panel C. Time Horizon of Financial Planning</b> |                  |
| 1 to 2 years                                       | 74.0             |
| 3 to 5 years                                       | 19.4             |
| Beyond 5 years                                     | 6.6              |

**Table VIII**  
**Regression Analysis on the Determinants of Loan Application**  
**Success and Financial Review and Planning**

This table presents the multiple regression results with the loan denial rate, frequency of financial review, and number of financial planning tools as the dependent variable for regression (A), (C), and (D), and logic regression result with occurrence of cash flow difficulty as the dependent variable for regression (B) respectively. The independent variables include demographic characteristics of small business owners and firm characteristics. Ethnicity is 1 if the owner is white, 0 otherwise. Education is 1 if the owner has a college degree or higher, 0 otherwise. Gender is 1 if the owner is male, 0 otherwise. Age is measured in number of years. Growth is 1 if the business is at the growth stage, 0 otherwise. Maturity is 1 if the business is at the maturity stage, 0 otherwise. Survival is 1 if the business is at the survival stage, 0 otherwise. Other stage is 1 if the business is at a stage other than the above stages, 0 otherwise. Cash flow is 1 if occasional or frequent cash flow difficulty occurs, 0 otherwise. Firm size is measured by the log form of total assets. Firm age is measured by the number of years. P-values are in parentheses. The sample size is 310.

| Variables      | Loan Denial<br>Rate<br>(A) | Cash Flow<br>Difficulty<br>(B) | Financial<br>Review<br>(C) | Financial<br>Planning<br>(D) |
|----------------|----------------------------|--------------------------------|----------------------------|------------------------------|
| Constant       | -0.294                     | 3.740                          | 14.880                     | 1.561                        |
| Ethnicity      | 0.133<br>(0.143)           |                                | -0.816<br>(0.581)          | 0.404<br>(0.115)             |
| Education      | 0.030<br>(0.557)           |                                | 1.968**<br>(0.021)         | 0.324**<br>(0.028)           |
| Gender         | 0.011<br>(0.890)           |                                | -0.062<br>(0.960)          | -0.056<br>(0.801)            |
| Age            | -0.001<br>(0.654)          |                                | -0.080<br>(0.110)          | -0.028***<br>(0.001)         |
| Growth         | 0.175<br>(0.681)           | -0.474<br>(0.365)              | -2.736<br>(0.694)          | 0.966<br>(0.400)             |
| Maturity       | 0.139<br>(0.743)           | -0.732<br>(0.152)              | -1.918<br>(0.782)          | 0.949<br>(0.407)             |
| Survival       | 0.489<br>(0.257)           | -0.128<br>(0.729)              | -2.041<br>(0.772)          | 1.135<br>(0.332)             |
| Other stage    | 0.157<br>(0.734)           | -0.354<br>(0.724)              | 3.857<br>(0.609)           | 2.001<br>(0.110)             |
| Cash flow      | 0.103**<br>(0.046)         |                                | 0.874<br>(0.301)           | 0.055<br>(0.707)             |
| Firm size      | -0.001<br>(0.969)          | -0.200*<br>(0.075)             | 0.001*<br>(0.074)          | 0.001***<br>(0.007)          |
| Firm age       | 0.003<br>(0.262)           | -0.003<br>(0.846)              | -0.008<br>(0.871)          | 0.011<br>(0.178)             |
| R <sup>2</sup> | 0.04                       |                                | 0.03                       | 0.05                         |
| F-statistic    | 2.035**                    |                                | 1.675*                     | 2.335**                      |

\* \*\* \*\*\* Significant at the 0.10, 0.05, and 0.01 levels, respectively.



**Table IX**  
**Exit Strategy of Small Businesses**

This table reports the expected exit strategy of the sample firms. The sample size is 310.

| <b>Exit Choices</b>         | <b>Firms (%)</b> |
|-----------------------------|------------------|
| Going public                | 2.6              |
| Systematic liquidation      | 6.7              |
| Outright sale               | 70.8             |
| Other (e.g. gifts to heirs) | 19.9             |

**Appendix A**

**WEST TEXAS SMALL BUSINESS RESEARCH SURVEY**

Please spare a few minutes to complete this questionnaire. Your participation in the Small Business Research Survey will help us to understand your business and give you a chance to get to know the Small Business Perspectives in West Texas. Please be assured that your responses will be treated with the strictest confidence. If you would like to have the survey results sent to you, please attach your business card with the completed questionnaire. The cards will be kept separate to guarantee anonymity for the responses. Your time and cooperation are highly appreciated!

1. What is the age of your business under the current ownership?  

|   |   |
|---|---|
| <input type="checkbox"/> 1 to 5 years   | <input type="checkbox"/> 6 to 10 years      |
| <input type="checkbox"/> 11 to 20 years | <input type="checkbox"/> More than 20 years |
  
2. Please indicate your firm size measured by total assets.  

|   |
|---|
| <input type="checkbox"/> \$10,000 or less   |
| <input type="checkbox"/> More than \$10,000 but less than or equivalent to \$50,000     |
| <input type="checkbox"/> More than \$50,000 but less than or equivalent to \$100,000    |
| <input type="checkbox"/> More than \$100,000 but less than or equivalent to \$500,000   |
| <input type="checkbox"/> More than \$500,000 but less than or equivalent to \$1 million |
| <input type="checkbox"/> More than \$1 million  |
  
3. Which Industry/sector does your business operate in?  
Please specify \_\_\_\_\_
  
4. What best describes the status of your business?  

|   |   |
|---|---|
| <input type="checkbox"/> Start up stage | <input type="checkbox"/> Growth stage   |
| <input type="checkbox"/> Maturity stage | <input type="checkbox"/> Survival stage |
  
5. How many people does your business employ on a regular basis (including the entrepreneur)?  

|   |   |
|---|---|
| <input type="checkbox"/> 2 to 5 people        | <input type="checkbox"/> 6 to 20 people   |
| <input type="checkbox"/> 21 to 50 people      | <input type="checkbox"/> 51 to 100 people |
| <input type="checkbox"/> More than 100 people |   |
  
6. What are the main objectives in starting up a small business?  

|   |   |
|---|---|
| <input type="checkbox"/> To be an entrepreneur      | <input type="checkbox"/> Financial rewards              |
| <input type="checkbox"/> Unemployed before start-up | <input type="checkbox"/> Career progression             |
| <input type="checkbox"/> Tax credits or savings     | <input type="checkbox"/> Influence of family or friends |
| <input type="checkbox"/> Other (specify) _____      |   |
  
7. How many years of experience has the principal owner had managing or owning a business, including this business?  

|   |   |
|---|---|
| <input type="checkbox"/> No experience at all | <input type="checkbox"/> 0 to 3 years       |
| <input type="checkbox"/> 4 to 6 years         | <input type="checkbox"/> 7 to 9 years       |
| <input type="checkbox"/> 10 to 15 years       | <input type="checkbox"/> More than 15 years |

**Appendix A, continued**

8. What were the sources of funds used by the principal business owner upon starting the business?

|   |  |
|---|--|
| <input type="checkbox"/> Personal savings               | <input type="checkbox"/> Family and friends  |
| <input type="checkbox"/> Commercial banks               | <input type="checkbox"/> Business angels     |
| <input type="checkbox"/> Government assistance programs | <input type="checkbox"/> Venture capitalists |
| <input type="checkbox"/> Other (specify) _____          |  |

9. How important do you think the following sources of financing are for a start-up business?

|                                | Importance |   |   |   |                 |
|--------------------------------|------------|---|---|---|-----------------|
|                                | Very<br>5  | 4 | 3 | 2 | Not at all<br>1 |
| Personal savings               | —          | — | — | — | —               |
| Family and friends             | —          | — | — | — | —               |
| Relationship banking           | —          | — | — | — | —               |
| Government assistance programs | —          | — | — | — | —               |
| Business angels                | —          | — | — | — | —               |
| Venture capitalists            | —          | — | — | — | —               |

10. What are the common uses of financial services by your business to support daily operation and growth?

|  |  |
|--|--|
| <input type="checkbox"/> Business credit cards | <input type="checkbox"/> Personal credit cards           |
| <input type="checkbox"/> Trade credit          | <input type="checkbox"/> Factoring                       |
| <input type="checkbox"/> Lines of credit       | <input type="checkbox"/> Mortgages                       |
| <input type="checkbox"/> Vehicle loans         | <input type="checkbox"/> Equipment Loans                 |
| <input type="checkbox"/> Capital leases        | <input type="checkbox"/> Loans from partners/Individuals |
| <input type="checkbox"/> Other (specify) _____ |  |

11. What are the common purposes of using financial services for your business?

|  |   |
|--|---|
| <input type="checkbox"/> Transaction purposes    | <input type="checkbox"/> Working capital management   |
| <input type="checkbox"/> Credit related purposes | <input type="checkbox"/> Financing business expansion |
| <input type="checkbox"/> Low financing costs     | <input type="checkbox"/> Other (specify) _____        |

12. Where has your business obtained financial services in the past?

|   |   |
|---|---|
| <input type="checkbox"/> Commercial bank              | <input type="checkbox"/> Saving bank          |
| <input type="checkbox"/> Savings and loan association | <input type="checkbox"/> Credit union         |
| <input type="checkbox"/> Finance company              | <input type="checkbox"/> Insurance company    |
| <input type="checkbox"/> Brokerage or mutual fund     | <input type="checkbox"/> Leasing company      |
| <input type="checkbox"/> Mortgage bank                | <input type="checkbox"/> Venture capital firm |

13. How many times has your business applied for a loan in the past five years?

|                                       |  |
|---------------------------------------|--|
| <input type="checkbox"/> Never        | <input type="checkbox"/> 1 to 2 times      |
| <input type="checkbox"/> 3 to 4 times | <input type="checkbox"/> More than 4 times |

14. How many times has your business been denied for a commercial loan in the past five years?

|                                       |  |
|---------------------------------------|--|
| <input type="checkbox"/> Never        | <input type="checkbox"/> 1 to 2 times      |
| <input type="checkbox"/> 3 to 4 times | <input type="checkbox"/> More than 4 times |

**Appendix A, continued**

15. Does your business use trade credit for working capital purposes? If your answer is "No", skip Question 16.

\_\_\_\_\_ Yes \_\_\_\_\_ No

16. Does your business take advantage of the cash discount with free trade credit or use costly trade credit?

\_\_\_\_\_ Free trade credit only \_\_\_\_\_ Costly trade credit only \_\_\_\_\_ Both

17. What are the types of accounts held by your business for working capital purposes?

\_\_\_\_\_ Checking accounts \_\_\_\_\_ Saving accounts  
\_\_\_\_\_ Money market accounts \_\_\_\_\_ Certificates of deposit  
\_\_\_\_\_ Other (specify) \_\_\_\_\_

18. Has your business ever had cash flow difficulty? If never, skip Question 19.

\_\_\_\_\_ Never \_\_\_\_\_ Quite rare and unusual  
\_\_\_\_\_ Occasionally \_\_\_\_\_ Fairly frequent but not permanent  
\_\_\_\_\_ Uncertain

19. Which is/are the main cause(s) of cash flow difficulty?

\_\_\_\_\_ Late payment from customers  
\_\_\_\_\_ Early payment to suppliers  
\_\_\_\_\_ Difficulty in getting credit  
\_\_\_\_\_ Unbalanced cash flow  
\_\_\_\_\_ High levels of working capital required by business  
\_\_\_\_\_ Other (specify) \_\_\_\_\_

20. How often does your business evaluate financial performance? If never, skip Question 21.

\_\_\_\_\_ Twice a month \_\_\_\_\_ Once a month  
\_\_\_\_\_ Once a quarter \_\_\_\_\_ Twice a year  
\_\_\_\_\_ Once a year \_\_\_\_\_ Never

21. What are the tools your business uses to evaluate financial performance?

\_\_\_\_\_ Profitability and efficiency ratios \_\_\_\_\_ Leverage ratios  
\_\_\_\_\_ Other financial ratios \_\_\_\_\_ Cash conversion period  
\_\_\_\_\_ Industry averages \_\_\_\_\_ Cash balances

22. In what time horizon does your business make future financial plans?

\_\_\_\_\_ 1 to 2 years \_\_\_\_\_ 3 to 5 years \_\_\_\_\_ Beyond 5 years

23. Please indicate the sources of capital your business is likely to use in the future.

\_\_\_\_\_ Commercial bank \_\_\_\_\_ Saving bank  
\_\_\_\_\_ Savings and loan association \_\_\_\_\_ Credit union  
\_\_\_\_\_ Finance company \_\_\_\_\_ Insurance company  
\_\_\_\_\_ Brokerage or mutual fund \_\_\_\_\_ Leasing company  
\_\_\_\_\_ Mortgage bank \_\_\_\_\_ Venture capital firm

**Appendix A, continued**

24. What is the expected exit strategy of your business in the future?

- Going public  
 Systematic liquidation  
 Outright sale  
 Other (specify) \_\_\_\_\_

**Demographic information of the principal business owner.**

25. Gender of the principal business owner.  Male  Female

26. Age of the principal business owner.

- Below 30  30 to 39  
 40 to 49  50 to 59  
 60 and older

27. Ethnic group of the principal business owner.

- White  Black  
 Hispanic  Asian  
 Other

28. Highest level of education of the principal business owner:

- Less than high school degree (grade 11 or less)  
 High school graduate or equivalent  
 Some college but no degree granted  
 Associate degree occupational/Academic program  
 Trade School/vocational program  
 College degree (BA, BS, AB, etc.)  
 Post-graduate degree (MBA, MS, MA, Ph.D., JD, MD, DDS, etc.)

**THANK YOU FOR COMPLETING THIS SURVEY! PLEASE RETURN IT IN THE ENCLOSED  
 BUSINESS-REPLY ENVELOPE OR MAIL IT TO:  
 Dr. Wei He, School of Business, 4901 E. University, Odessa, TX 79762**