

The Relationship Between Owner Characteristics and Use of Bootstrap Financing Methods

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ABSTRACT. Bootstrap finance methods are important to small firms because these techniques provide access to capital, appeal to funding preferences, are widely-used, and are often cost-effective. Despite the wide use of bootstrap financing methods among small firms, little is known about the relationship between owner traits and bootstrap financing. This study used a sample of 247 small firms to examine the relationship between education, age and gender relative to six groups of bootstrap financing methods identified through factor analysis as internally-, socially-, or subsidy-oriented. The analysis identified significant differences between owners grouped by their personal characteristics and the bootstrap approaches they chose. The results may be used by small firm owners, educators, and advisors to find better mixes of financial resources.

RÉSUMÉ. Les diverses méthodes de financement d'amorçage sont importantes pour les petites entreprises, car elles leur donnent accès à du capital, attirent des entrepreneurs ayant diverses préférences de financement, sont très répandues et souvent rentables. Malgré que le financement d'amorçage soit très répandu chez les petites entreprises, on ne connaît que peu de choses du lien entre les caractéristiques des propriétaires et le financement d'amorçage. Cette étude utilise un échantillon de 247 petites entreprises afin d'examiner la relation entre le niveau d'éducation, l'âge et le sexe et les six groupes de méthodes de financement d'amorçage. Une analyse factorielle permet de distinguer trois types de financement : le premier favorisant des approches internes ou personnelles ; le deuxième favorisant des méthodes à caractère social, et le troisième favorisant des subventions. L'analyse a permis d'identifier des différences significatives entre les groupes de propriétaires selon leurs caractéristiques personnelles et les méthodes de financement d'amorçage qu'ils ont choisies. Ces résultats peuvent être utilisés par des propriétaires de petites entreprises, des éducateurs et des conseillers afin de trouver un meilleur équilibre entre les divers types de ressources financières disponibles.

Introduction

Resource acquisition has been one of the more important activities for successful entrepreneurs and small business owner-managers (Shane and Venkataraman, 2000). Prior research has shown that small business owner-managers' preferences and traits (Chaganti, DeCarolis and Deeds, 1995; Berger and Udell, 1998; Coleman, 2007; Orser, Riding and Manley, 2006) and business's internal structural issues influence financial decisions, which include the use of debt and equity, as well as internally-generated funds (Calomiris and Hubbard, 1990; Carter et al., 2007). Most previous research used small or new publicly held companies that negotiated with the financial institutions to gain funding (Levenson and Willard, 2000). Privately-held companies that avoid external financing may offer an opportunity to observe financial preferences more clearly due to reduced agency problems or credit rationing (Ebben and Johnson, 2006; Winborg and Landstrom, 2001), and financial decisions could reflect owner preferences more transparently (Ang, 1991).

This study examines the relationships between entrepreneurs' characteristics, gender, education, and age, and their use of bootstrapping finance methods. Few studies have examined the relationship between bootstrap financing and entrepreneurs' characteristics,

such as age, education, and gender, despite recognition of the importance of these connections (Honig, 1998). Most research in bootstrap methods have investigated at the firm level (Ebben and Johnson, 2006; Winborg and Landstrom, 2001) rather than at the individual level of the business founder or owner (Carter et al., 2003; Carter and Van Auken, 2005; Van Auken, 2005). Few studies analyzed the owner characteristics and this set of resource acquisition techniques used to fill the “funding gap” in their companies (Harrison and Mason, 2007). Firm survival depends on access to capital, and bootstrap capital provides financing alternatives to small firms that are confronted with restricted access to traditional capital. Bootstrap financing is often easier to acquire, perceived as less expensive, and can be an important source of capital when traditional sources are unavailable. Better insights into entrepreneurs’ capital choice tendencies may enable advisors and educators to offer more and better alternative methods to satisfy capital needs. The relevance of the study is also evident in the context of the growing importance of gender in small firm research and better understanding of owner characteristics in small firm success.

Literature Review

Small Firm Financial Complexity

Small firm financial decisions, especially privately held firms, have been complicated by the integration of business and personal goals such as, inter-generational transfers, tax issues, and personal or two-way transactions (Ang, 1991; Gibson, 1992). Some studies have asserted that wealth maximization may not be the primary objective of small firms (Watson and Wilson, 2002). Information asymmetry, high transactions costs, credit rationing, and poor credit ratings have limited small firm access to capital (Norton, 1991; Levenson and Willard, 2000; Watson and Wilson, 2002). Additionally, entrepreneurs may have: (a) required limited external funding (Winborg and Landstrom, 2001), (b) chosen not to seek credit (Orser, Riding and Manley, 2006; Wu, Hedges and Zhang, 2007), (c) preferred internal funding (Chaganti, DeCarolis and Deeds, 1995; Carpenter and Petersen, 2002), and (d) obtained funds from other types of creditors (Vanderberg, 2003).

A number of studies suggested that entrepreneurs’ preferences impact capital acquisition (Avery, Bostic, and Samolyk, 1998; Chaganti, DeCarolis and Deeds, 1995; Buttner and Moore, 1997; Watson, 2002). Myers (1984) contended that a pecking order framework (POF) could be used to understand small firm capital acquisition. Chittenden, Hall and Hutchinson (1996) and Watson and Wilson (2002) found that POF was appropriate for small firms. Since many owner-managers’ financial resources have often included the entrepreneur’s personal wealth, friends and family assets or support, shared facilities, good will, and reputation, these individualistic aspects of new and small venture funding have appeared reasonable (Bhide, 1992; Winborg and Landstrom, 2001). These sources of funding outside the traditional corporate financial structure have been included in bootstrap financing methods.

Bootstrap finance is a set of techniques used by entrepreneurs to gain or supplement financial resources needed for operations (Ebben and Johnson, 2006; Winborg and Landstrom, 2001). Bootstrap financing has been especially important for new firms, which experience high start-up costs and low revenues (Bhide, 1992; Starr and MacMillan, 1990). Researchers have viewed bootstrap finance as resource acquisition methods separate from formally obtained equity or debt (Bhide, 1992). Bootstrapped resources have been widely available (Van Auken and Neeley, 1996), and have been illustrated by practices such as prompt invoicing, borrowing equipment, and winning grants,

respectively (Winborg and Landstrom, 2001). Modest negotiations with vendors and friends may have been involved to acquire some of these resources, but little else was necessary (Bhide, 1992).

Entrepreneur Traits and Bootstrap Financing

Education, age, and gender may shape the bootstrap choices that entrepreneurs make as they have been shown to influence other business decisions (Watson, 2002). Advanced levels of education were shown to increase the likelihood of business owners having access to traditional debt and investment funding (Carter et al., 2003). Higher educational achievement enhanced the ability to obtain commercial bank loans (Fabowale, Orser, and Riding, 1995), to amass personal wealth, to secure external funding more easily, and to improve financial support from stakeholders (Hanlon and Saunders, 2007).

The entrepreneur's age was shown to have a positive influence on gaining credit and to have been a marker for stronger social capital, which improved the person's ability to obtain many types of resources (Adler and Kwon, 2002). The results regarding age and financial performance have been mixed, with some studies demonstrating a positive relationship with profitability (Coleman, 2007), but others finding no link with financial performance (Collins-Dodd, Gordon, and Smart, 2004). The likelihood of starting a business was shown to peak between 45 and 54 years of age (Bates, 1990), but seemed to be more pronounced among men (Delmar and Davidsson, 2000).

Although gender differences may have been modest, Birley (1989) found that female entrepreneurs had relied more heavily on financing from family and friends. Female entrepreneurs have relied more heavily on personal resources—rather than commercial loans or sale of equity—than males (Carter et al., 2003; Chaganti, DeCarolis and Deeds, 1995; Fabowale, Orser and Riding, 1995), and have often managed to operate their businesses through cultivating relationships (Bird and Brush, 2002). Verheul and Thurik (2001) and Watson (2002) found that the amount of start-up financing, and by extension the need for resources, was usually larger for men-owned than for women-owned ventures. Clearly entrepreneurs' traits have influenced owner-managers' actions, and insights into resource choice tendencies may improve decision-making and strengthen businesses.

Research Issues

Traditional financial theory of capital structure suggests that owners should acquire capital in a mix that maximizes wealth by minimizing the firm's overall cost of capital through optimal levels of equity and debt (Besley and Brigham, 2005). Figure 1 depicts a possible decision-making process. The search for capital would begin after the entrepreneur determines a need for financing. Small firms operate in a financial environment that is different from that of large firms due to issues such as information asymmetry and high transactions costs. The final capital acquisition decision would be affected by multiple circumstances that are not consistent with traditional finance theory (Romano, Tenewski and Smyrnios, 2000). These differences lead to limited access to capital markets and significant resource acquisition challenges. Small firms typically have limited financing choices that result in turning to sources of capital that are easy to obtain and readily available (Gregory et al., 2005). Small firms searching for capital are constrained by not having access to segments of the financial markets and lack of information about financing alternatives (Van Auken, 2000; Gibson, 1992). Vos, et al. (2007) suggested that small firms have a pecking order preference for financing, which is likely affected by ease and availability of financing options. Ease, availability, and other owner considerations determine

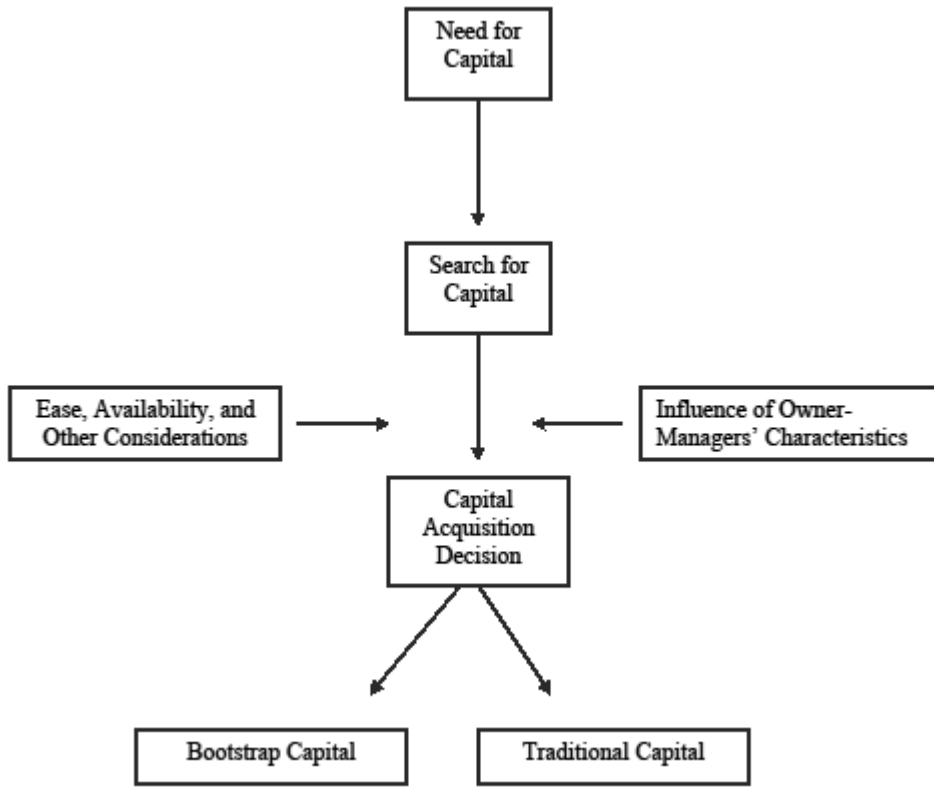


Figure 1. Capital Acquisition Process

whether bootstrap or more traditional sources of capital are acquired.

Bootstrap financing has been a widespread solution (Ebben and Johnson, 2006; Winborg and Landstrom, 2001) that has allowed small firms to access a broader range of financing alternatives. Previous studies have examined the role and usage of bootstrap financing, but have not examined differences in bootstrap usage depending on owner characteristics.

Our contribution with this study is to provide evidence on the role that business owners' characteristics have on the usage of bootstrap financing. No previous studies have provided this insight despite the important role of bootstrap financing among small firms and the growing importance of both women and men as business owners. While entrepreneur characteristics such as, education (Watson, 2002), age (Adler and Kwon, 2002) and gender (Bird and Brush, 2002) have been shown to influence financial decisions and performance, the relationship between entrepreneurs' traits and use of bootstrap finance techniques has not been examined. We attempt to provide answers to several questions (e.g., do the entrepreneur's gender, education, and age have an impact on the firm's use of bootstrap financing?). Specifically, the study identifies groups of bootstrap financing methods through factor analysis and tests for differences by gender, education, and age.

Having reviewed the literature, we focus our analysis on three testable hypotheses unaddressed by other studies:

H1. More highly educated entrepreneurs will use bootstrap financing more than less educated entrepreneurs.

H2. Older entrepreneurs will use bootstrap financing more than younger entrepreneurs.

H3. Female entrepreneurs will use bootstrap financing more than male entrepreneurs.

Methodology

Sample and Questionnaire

A stratified random sample of 1,498 independently-owned Illinois firms employing fewer than 100 persons was selected from the *Harris Illinois Directories of Services and Manufacturers*, part of Dun & Bradstreet. The sample included enterprises in services, building and construction, retail, wholesale, manufacturing, real estate, hotels and restaurants, arts and entertainment, information, and transportation industries. The sample was expected to be reasonably representative of the U.S. based on the distribution of small ventures' sizes by number of employees and industrial sectors shown through SIC codes (SBA, 2003a and 2003b). In all, 247 useable surveys were returned, providing a response rate of about 16.5%.

The questionnaire design was based on the study by Winborg and Landstrom (2001). The first section asked about characteristics of the firm, including industry (retail, construction, wholesale, service, and manufacturing); number of employees (0, 1–4, 5–9, 10–19, 20–99, and >100), stage of development (start-up, growth maturity, and decline), and 2001 sales in thousands of dollars (<100, 100–249, 250–499, 500–999, 1,000–2,500 and >2,500). The second section of the questionnaire asked owners to report how frequently they used 19 bootstrapping methods (1–5 Likert scale 1 = never use through 5 = often use). These methods included: buy used instead of new equipment; borrow equipment for a short time; lease equipment instead of buy equipment; use temporary employees; delay employees' pay day; pool purchases with other firms; get merchandise on consignment; have a factor to buy your inventory; delay payments to suppliers; barter for goods or services; offer discounts to customers who pay cash; offer discounts to customers who pay early; have customers make down payments; have a factor buy accounts receivable; give up your personal salary for a while; use private credit card for business; use salary from another job; negotiate loans from relatives or friends; and obtain grants from government agencies, foundations, or large corporations. Respondents were also asked to indicate their use of 11 other bootstrapping techniques with a yes (1 = used) or no (0 = not used). These techniques included: invoice customers promptly; charge interest on overdue payments from customers; stop selling to late-paying customers; give preference to customers who pay quickly; minimize money invested in inventory; employ relatives or friends at below-market salaries; run the business at home; share the premises with other businesses; share employees; and share equipment. The procedure to check for disturbances that might have been caused by combining metric and non-metric variables in the factor analysis are described in the next section. The third section of the questionnaire asked about owner characteristics, including gender of owner, owner's age in years, and highest educational level achieved (high school, college, and graduate school).

Analysis

The data were summarized with univariate statistics to find if the respondents and their

companies were reasonably representative and to find the breadth of bootstrap methods use. Factor analysis grouped bootstrap financing methods with the same approach used by Winborg and Landstrom (2001) and included 24 of the total of 30 bootstrap variables. Five variables had been excluded because they had no correlation with any other variable in the model that was 0.20 or higher. Principal components with varimax rotation demonstrated the underlying relationships among bootstrap finance methods. Of the 24 variables which met the correlation threshold, 16 were metric and eight (8) were non-metric, "yes or no," responses. To be confident that combining these types of variables did not disturb the factor analysis results, the factor analysis was first run with only the metric variables and subsequently repeated with the addition of the dichotomous variables (Gorsuch, 1983; Hair et al., 1995). No disturbances were found due to including non-metric with metric variables because the same factors were found in both analyses. The minimum loading required for variables on factors was 0.40, a commonly accepted rule-of-thumb for the minimum loading for "moderate" factor loadings in social science practice when continuous variables are used. Since the variables in this study were measured with Likert-type scales or were dichotomous, magnitudes of 0.60 or 0.45, respectively, could be considered "high" (Norman and Streiner, 1994). T-tests of differences among the factor scores were calculated relative to owner-managers' education, age, and gender.

Results and Discussion

Respondent Characteristics, Business Owner and Venture

Table 1 shows that most respondents were male, over 40 years old, and had some college education, which is consistent with the population of U.S. business owners (SBA, 2003(b)). Most firms were in the service industry; more than 96% of the businesses were employer-firms, more than 97% were in the growth or later stages of development, and more than 75% of the businesses had annual sales greater than \$250,000.

Use of Bootstrap Financing

Table 2 indicates high usage of bootstrap finance methods among the respondents. Eleven of the techniques, most to enhance cash flow, were used by more than 50% of the respondents; invoicing customers promptly, was used by more than 96% of respondents.

Factor Analysis of Bootstrap Financing Techniques

Results of the factor analysis, which combines the variables into related sets, are shown in Table 3. Six factors with eigenvalues greater than one were clear and consistent with the internal, social, and subsidy factor modes identified by Winborg and Landstrom, (2001). The analysis was acceptable for sampling adequacy with a Kaiser-Meyer-Olkin of 0.618 (Bartlett's test .000) and explained 46.41% of the variance. The strength of these results was comparable to Winborg and Landstrom (2001). The first factor grouped self-funded techniques: give up salary, personal credit card, salary from other job, and pay relations low wages; the second factor combined invoice promptly, stop serving late payers, and prefer fast payers. Factor three included all shared resource variables, while the fourth factor grouped borrowing equipment, buy used equipment, and loans from relatives. Loans from relatives, pooled purchases, and consignment goods, formed the fifth factor. Finally, the sixth factor combined corporate and government grants.

Factors one and two fit Winborg and Landstrom's description of internal bootstrapping, while factors four and five are primarily internally-oriented with some social element. Factor three is clearly socially-focused, while factor six features subsidy methods.

Table 1. Respondent Characteristics (n=247)	
Respondent Characteristic	Percent
Gender	
Male	84.2
Female	15.8
Age	
30-40	9.7
41-50	28.3
51-60	34.8
>60	26.2
Type of Business	
Retail	21.9
Construction	15.8
Wholesale	17.0
Manufacturing	8.9
Service	32.0
Other	4.5
Number of Employees	
<5	25.0
5-9	26.6
10-19	22.2
>19	26.2
Stage of Development	
Beginning	2.5
Growth	36.5
Maturity	54.5
Decline	6.5
2001 Sales	
<250	11.8
250-499	12.6
500-999	16.6
1,000-2,500	25.5
>2500	33.6
Education	
High School	20.6
College	55.1
Graduate School	24.9

T-Test Results

Education. The results showed significant differences between the highest level of education attained and two of the bootstrap factors, self-funded (give up salary, personal credit card, salary from other job, and pay relations low wages) and inventory-focused (pooled purchases, consignment goods, and interest on overdue accounts), which partially support hypothesis 1. Respondents with college-level education used self-funded bootstrapping methods more frequently (5% level of significance) than business owners who did not attend college. This is consistent with previous findings that showed education was the most important factor in a nascent entrepreneur's entry in business (Bates, 1995). Highly-educated respondents relied on self-funded techniques more heavily possibly due to a rational trade-off after they considered their ventures' collateral situations (Chittenden, Hall and Hutchinson, 1996).

Table 2. Percentage of Respondents Using Each Bootstrap Financing Method (n=247)	
Bootstrap Method	Percent of Firms Using Technique
Invoice customers promptly	96.4
Buy used equipment	77.0
Minimize money invested in inventory	76.2
Stop selling to late-paying customers	73.4
Give preference to customers who pay quickly	71.8
Require down payments	68.6
Use temporary employees	59.3
Use private credit card	59.3
Lease equipment	56.9
Give up personal salary	56.5
Delay payments to suppliers	50.8
Charge interest on overdue payments	41.5
Offer cash discounts	40.3
Barter	37.5
Borrow equipment	26.2
Get merchandise on consignment	25.8
Pool purchases with other firms	21.4
Have client pay product development costs	25.4
Negotiate loans from relatives or friends	16.5
Employ relatives or friends at below-market salaries	14.9
Share the space	14.1
Use salary from another job	14.1
Run the business from home	13.7
Have a factor to buy your inventory	10.9
Share equipment	8.5
Share employees	7.3
Delay employee pay	6.0
Factor accounts receivable	5.7
Obtain government grants	5.2
Obtain foundation grants	1.2
Obtain corporate grants	0.4

Less educated respondents used more inventory-focused bootstrapping than college-educated entrepreneurs (significant at 1%). A possible explanation for this relationship could be the greater incidence of less-educated persons among wholesale businesses that would most likely require a substantial investment in inventory (Bates, 1995). The higher use of capital to support a large inventory may motivate the owners to take actions to reduce their investment. A third explanation may be that owners may choose bootstrapping methods to reduce cash disbursements (Van Auken, 2005).

Age. The results on differences among the bootstrap factors relative to age showed significant differences between older and younger owner-managers on the customer based (invoice promptly, stop serving late payers, and prefer fast payers) factor, providing limited support for hypothesis 2. Respondents under 51 years of age used customer-based bootstrapping techniques more than those older than 50 (significant at 5%), and this might be explained by younger business owners having less experience and, therefore, confidence (Carter and Van Auken, 2005). Customer-based bootstrapping could be a better trade-off for younger entrepreneurs who have less personal resources and lack parity as an attractive borrower compared to older, wealthier owners (Bates, 1990). At the same time,

Table 3. Bootstrap Methods' Factor Loadings						
Bootstrap Methods	Factor 1 Self Funded	Factor 2 Customer Based	Factor 3 Shared	Factor 4 Equipment Focused	Factor 5 Inventory Centered	Factor 6 Subsidized
Give up Salary	.77	-.01	.15	-.06	-.08	-.02
Personal Credit Card	.72	-.01	-.01	.05	.14	-.08
Salary from Other Job	.65	.05	-.04	.08	.07	.07
Relations Low Wage	.49	-.06	-.02	.22	-.32	-.01
Invoice Promptly	.01	.71	-.13	-.01	.01	-.03
Stop Serving Late Payers	-.06	.66	.01	.07	.28	.03
Prefer Fast Payers	.03	.63	.06	.06	-.16	.10
Share Equipment	-.07	.09	.80	.15	.15	-.04
Share Employees	-.04	-.01	.72	-.05	-.09	-.01
Share Space	.19	-.17	.67	.04	.00	.00
Borrow Equipment	-.03	-.01	.15	.74	-.06	.13
Buy Used Equipment	.05	.34	.01	.66	.05	-.14
Loans from Relatives	.26	-.31	-.05	.50	.36	.07
Use Pooled Purchases	.06	.02	.08	.04	.76	.17
Consignment Goods	.06	.06	.04	-.01	.44	-.04
Interest on Overdue	-.22	.20	-.11	.00	.43	-.04
Corporate Grants	.03	-.02	-.02	.04	.18	.82
Foundation Grants	-.05	.08	-.03	-.02	-.05	.82
Eigenvalue	2.88	2.26	1.85	1.57	1.37	1.22
Cumulative Percent Variance Explained	12.0%	21.4%	.29.1%	35.6%	41.3%	46.4%

younger owners may perceive their businesses as more risky and could choose methods to improve cash inflows (Van Auken, 2005). Another point could be that between the ages of 45 and 54 years, men, who made up most of the respondents, are much more likely to begin businesses, especially wholesale or construction firms that are dependent on timely payments from clients (Bates, 1995).

Gender. The results showed significant differences between the genders on three of the six bootstrap factors: self-funded (give up salary, personal credit card, salary from

Table 4. T-tests of Differences in the Bootstrap Factor Scores Between Respondent Education, Age, and Gender (n=247)

Factor	Educational			Age			Gender		
	High School	College	t-statistic	>50	>51	t-statistic	Female	Male	t-statistic
Self-funded	2.681	3.542	-2.05*	2.785	3.190	-0.96	2.889	3.575	2.61*
Customer-based	1.928	1.862	0.47	1.983	1.704	1.96*	1.912	1.625	-2.40*
Shared	0.270	0.393	1.26	0.263	0.403	-1.48	0.300	0.385	-2.18**
Equipment	1.731	1.644	0.34	1.764	1.555	0.91	1.710	1.667	-0.34
Inventory-centered	0.487	0.246	2.43**	0.442	0.388	0.45	0.427	0.250	-1.82
Subsidized	0.022	0.016	0.18	0.028	0	1.68	0.020	0.050	0.90

** Significant at 1%
* Significant at 5%

other job, and pay relations low wages), customer-based (invoice promptly, stop serving late payers, and prefer fast payers), and shared (sharing equipment, employees and space), showing partial support for hypothesis 3. Self-funded bootstrap methods were chosen with greater frequency by the group of male business owner-managers; that greater frequency of use was significant at the 0.05 level. An explanation could be greater personal wealth that men have historically accumulated through higher earning power (Watson, 2002). Another perspective could be that men may not apply for loans (Levenson and Willard, 2000; Wu, Hedges and Zhang, 2007) or may choose self-funding as a personal preference (Avery, Bostic and Samolyk, 1998; Watson, 2002).

Female owner-managers exploited customer-based bootstrapping more than male business persons, significant at the 0.05 level. Women have often acted with a greater sense of commitment to supporters and management through relationships to operate or strategize for their businesses (Bird and Brush, 2002; Buttner and Moore, 1997). This may partially explain more frequent use of customer-based techniques. On the other hand, more intense use of customer-based bootstrapping could be an alternative to borrowing at unfavorable rates and terms (Coleman, 2000). Customer-based bootstrapping may be related to risk preferences since females tend to avoid risk more; for instance, females may limit the size of their firms to reduce risk (Watson and Robinson, 2003). Another point could be that when entrepreneurs perceived more risk, they tended to use more bootstrap techniques to improve cash flows (Van Auken, 2005). Finally, women's greater participation in skilled services, with typically lower resource requirements, could explain this difference between groups (Watson, 1995).

Among male owner-managers, shared bootstrapping methods were used more often. Explanations for this could be that gender may be a moderating factor for more extensive or broader networks among men (Carter et al., 2003), male entrepreneurs' positions in networks may have been stronger (Adler and Kwon, 2002), or diversity in the males' networks could have been greater (Carter et al., 2003). Shared resources could be a strategy for relatively newer ventures' owner-managers to gain legitimacy through their network partners (Starr and MacMillan, 1990). In addition, entrepreneurs have shared information and advice as an element in their growth strategies, but females' networks tend to be smaller (Birley, 1985) and limit their abilities to leverage resources (Adler and Kwon, 2002).

Conclusions

This research examined the choices owner-managers made in techniques to gain resources and how the owner-managers' personal traits were related to those behaviors. The results provided insight into differences between bootstrap finance techniques usage relative to owner characteristics (education, age, and gender). This research extends previous studies examining bootstrap financing and shows results not previously reported. These findings confirm the impact of business owners' characteristics in the usage of bootstrap financing as depicted in Figure 1.

Bootstrapping and Highest Education Attained

Owner-managers with a higher education used self-funding more frequently, which substantiates earlier conclusions that graduate education explained some of the variance in self-funding patterns (Carter et al., 2003), that more education reduced constraints to self-employment (Dolinsky et al., 1993), and that a person's higher educational attainment increased the likelihood of initiating a business (Bates, 1990). Inventory-focused methods were used more frequently by the less educated owner-managers, who could have seen their positions as being riskier (Van Auken, 2005), or who participated in more capital-intensive types of firms (Bates, 1995).

Resource-capture Behaviors and Age

Younger entrepreneurs turned to customer-based bootstrapping with a greater frequency than older entrepreneurs. Other studies' results illustrated that less external resource access among younger business owners could propel them into alternate arrangements (Coleman, 2007; Harrison and Mason, 2007). Younger owner-managers could also perceive themselves to be in a vulnerable or risky situation (Van Auken, 2005).

Gender and Gaining Necessary Inputs

Male entrepreneurs chose self-funded methods as a way to acquire resources significantly more often than female business owners. Men may have used self-funded approaches more intensely due to their greater earning power (Watson, 2002) or because they choose not to apply for credit (Wu et al., 2007; Watson and Robinson, 2003). Male owner-managers used shared bootstrapping methods more intensely than the female entrepreneurs. This finding could be explained by male entrepreneurs' more extensive networks or a greater diversity in their networks (Carter et al., 2003); or shared resources could give legitimacy through network partners (Starr and MacMillan, 1990).

Female owner-managers exploited customer-based bootstrapping more regularly than males. This could reflect women's tendency to cultivate commitments to manage their businesses through relationships among stakeholders (Bird and Brush, 2002; Buttner and Moore, 1997). Customer-based bootstrapping could be related to risk preferences since females tend to avoid risk more; Van Auken (2005) showed that entrepreneurs who perceive more risk tended to focus on ways to improve cash flows.

Implications

Entrepreneurs could benefit from pursuing resources through appropriate bootstrap techniques for several reasons. Bootstrapping could allow businesses to obtain inputs in a way that fits their personal preferences (Myers, 1984). Assets gained with bootstrapping methods tend to be acquired more cost effectively (Carpenter and Petersen, 2002), and could be less risky options for venture owners—appealing to more risk averse individuals (Collins-Dodd, Gordon and Smart, 2004; Watson and Robinson, 2003). Written

questionnaire comments showed that some owners: (a) were unaware of the different bootstrap techniques, (b) had no prior knowledge of some bootstrap methods, and (c) wanted more information about these techniques. The respondents reported this although the U.S. has been recognized as a country with excellent organizations to promote networking opportunities and with many publicly available sources of advice and information (Stevenson and Lundström, 2002). It could be beneficial for owners to build their professional networks of advisors and colleagues to obtain better information (Hanlon and Saunders, 2007).

Faculty and advisors to small firms could encourage and assist owner-managers by reducing misinformation about financial management (Carter and Allen, 1997; Levensen and Willard, 2000; Orser, Riding and Manley, 2006). The potential benefits of appropriate borrowing (Bird and Brush, 2002) and fairness among lenders' practices (Carter et al., 2007; Fabowale, Orser and Riding, 1995) could open new opportunities for entrepreneurs and owner-managers of smaller businesses.

Policy-makers could assist owner-managers with initiatives or programs to advance financial education and support judicious use of credit to improve the vigor and growth prospects of small businesses (Bird and Brush, 2002; Carter and Allen, 1997). Good financial management is one of the foundations of any well run enterprise, and even the smallest infusions of resources can propel subsistence businesses into employer firms, aiding economic development for a family, community, or region.

Limitations

At least four limitations for this study were clear. First, the sample included only Illinois companies rather than a national sample. The researchers were cognizant of this possible shortcoming and proceeded with the study once the strong similarities between the Illinois and U.S. industrial base were clear (SBA, 2003(a) and 2003 (b)). Second, the response rate from the one mailing was about 16.5%, which could lead to questions about the non-respondents. However, a dropout analysis (results not shown here) indicated a reasonably uniform response rate across the size strata of firms. Third, the possible inaccuracy in self-reported data often make it not as desirable as data from secondary resources, but the respondents' self-reported business demographic data appeared to reflect expected industry groups' membership and size. Finally, many of the owner-managers who responded had businesses that they judged to be in the growth and mature stages of the firms' life-cycles. The low numbers of those owner-managers with businesses they felt were in the beginning stages of the companies' life-cycles may have modified the results of this research.

Future Research

Investigating the motives or objectives that owner-managers have for their choices among bootstrapping methods to obtain resources (Carter and Van Auken, 2005; Morris et al., 2006; Orser, Riding and Manley, 2006) could enhance the quality of owner-managers' decisions greatly and improve the advice offered by teaching professionals and advisers. A study to re-evaluate how the owner-managers' personal traits align with their preferences for bootstrap methods after controlling for firm size and for industry group, a proxy for capital intensity (Bates, 1995), could lead to a more meaningful understanding of appropriate strategies for business owners to pursue.

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