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Women Entrepreneurs and Financial Capital

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This work examines gender differences among Canadian small and medium enterprise (SME) owners seeking external financing, including commercial debt, leasing, supplier financing, and equity capital after controlling for size and industry sector. The work also examines potential gender differences in owners' strategic choices (application rates) and financiers' evaluative responses (turndown rates). Contrary to previous work that did not control for size and sector of firm, women business owners were equally likely as men to seek all types of external financing, except for external equity capital. Business in which women held majority ownership were significantly less likely to seek equity capital even after controlling for systemic factors. Male and female business owners that do apply for financing were equally likely to obtain capital. When asked the reasons for not seeking financing, the majority of respondents, male and female, specified that financing was not needed. Recommendations about future research are advanced.

Introduction

The ability of women-owned businesses to access financing has been the subject of considerable research and debate over the past 15 years. While gender differences in access to debt capital have been studied extensively (see, among others, Buttner & Rosen, 1988, 1989, 1992; Coleman, 2000; Fabowale, Orser, & Riding, 1995; Riding and Swift, 1990), comparatively little research has been published with respect to women owners' access to, and use of, other forms of external financing including supplier financing and external equity (Brush, Carter, Gatewood, Greene, & Hart, 2001; Mason & Harrison, 2005). This work reports the findings of an empirical investigation of gender differences among owners of Canadian small and medium enterprises (SMEs) seeking external financial capital including commercial debt, leasing, supplier financing, and equity capital.

The study addresses two fundamental questions: Are there significant differences across gender of ownership in access to all or any categories of capital, after controlling for size and industry sector; and if so, do these differences reflect owners' strategic choices (defined in terms of rates of application) or financiers' responses (defined in terms of turndown rates). To do so, the research compares, across gender of firm ownership, and after allowing for other salient factors.

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1. the rates of application for various forms of external capital, including loans, supplier financing, leasing, and equity capital;
2. turndown rates of applications for various forms of capital (including external equity such as venture capital, angel capital, and ownership capital from other sources); and
3. reasons that owners gave for not seeking external financing.

Examination of women entrepreneurs and external capital is important for several reasons. First, this area of inquiry reflects observations that women are increasingly entering business ownership,¹ yet women-owned firms are on average smaller, less profitable, and less likely to grow (Industry Canada, 2005); National Women's Business Council, 2004). Access to capital is perceived to be a primary barrier to the growth for women-owned firms (Prime Minister's Task Force on Women Entrepreneurs, Report and Recommendations, 2003) and hence, wealth creation. Thus, economic development objectives may be compromised.

Second, Brush et al. (2001, p. 1) report that while women are often found on start-up teams, they are "noticeably absent from the leadership positions in venture-funded start-ups." Researchers in the United States and Canada have also suggested that women business owners do not obtain venture capital as frequently as firms owned by men (Brush, Carter, Greene, Hart, & Gatewood, 2002; Carter, Brush, Greene, & Gatewood, 2003; Greene, Brush, Hart, & Saporito, 2001; Prime Minister's Task Force on Women Entrepreneurs, Report and Recommendations, 2003). The presence of venture capital is also associated with entrepreneurial capacity, sustainability, commercialization of innovation, and wealth creation. Bygrave, Hay, Ng, and Reynolds (2002, p. 105) state the importance of venture capital: "Entrepreneurs are the engines that drive new companies, and financing is the fuel that drives them. Hence, financial support, especially equity finance for starting a company, is an important entrepreneurial framework condition." Given that the birth and growth of new firms are the "engines" of national and regional economic welfare, if women cannot, or do not, employ risk capital to facilitate growth and survival, goals of prosperity and the ability of women to attain economic self-sufficiency may be compromised. To the extent that women-owned firms are systematically disadvantaged with respect to access to capital, the potential of such firms—and their owners—may not be realized. Debt and equity suppliers may also be disadvantaged with respect to business development opportunities.

Furthermore, most studies are subject to several criticisms. Fischer, Reuber, and Dyke (1993) articulated specific criteria that are necessary if cross-gender comparisons are to be investigated empirically. They state (1993, p. 155):

Latent hypotheses that women are relatively disadvantaged cannot . . . be tested empirically when men are not included as respondents. Thus, such studies can only help to develop hypotheses relevant to liberal feminism by suggesting the obstacles that may exist.

1. In the United States, the number of majority women-owned businesses grew at two and a half times the national average (The National Women's Business Council, 2004). Women ownership of SMEs has increased by 103% between 1987 and 1999, and now represents about 40% of all firms (in Amatuucci & Sohl, 2004, p. 181). In Canada, 47% of all SMEs in 2001 had at least one female owner. In 2003, women held majority ownership in 18% of SMEs, an increase of 3% from the previous year. Furthermore, women comprised 34% of self-employed individuals in Canada, a proportion that has been rising over the last two decades (Industry Canada, 2005).

They further point out that to make valid cross-gender comparisons, empirical studies must not only include subsamples of both genders but should also control for systemic differences in the attributes of firms (i.e., would similar male- and women-owned firms be equally likely to get financing?). To date, none of the studies of gender and access to venture capital have met these standards.

An additional problem is that none of the previous studies that have focused on the link between gender and external equity capital have taken account of the relative frequencies with which men and women have applied for venture financing.² It can be argued that women-owned firms are less likely than men-owned firms to apply for equity capital. The foundation for this assertion is that women-owned firms tend to be in the retail and services sectors, tend to be smaller, and often less oriented to growth (Carter, 2002; Cliffe, 1998; Orser & Hogarth-Scott, 2003). Such firms are less likely to need venture financing. It therefore seems reasonable to expect that application rates may differ systematically across gender of business ownership. To the extent that women apply for equity capital relatively less frequently, it stands to reason that they would receive equity capital less frequently.

Finally, most existing studies of gender issues in SME financing have examined debt capital, while a few recent studies have considered equity financing. It does not appear that any previous works have simultaneously examined sources of external capital or alternative sources of capital such as leasing or supplier financing. This work argues that it is important to examine the extent to which gender differences are found across forms of external capital and in terms of both the application and acceptance rates. Moreover, most studies have been confined to the analysis of data from the U.S. market. Research is therefore required to broaden the evidence, both with respect to types of financing and if the experiences of women business owners in other countries mirror results from the United States.

This article presents the findings of an empirical analysis of the financing experiences using a carefully designed sample of more than 2,800 Canadian business owners. This large sample permits analysis of the rates of both application for, and approval of, various forms of financial capital and allows these rates to be broken down across gender of ownership. To report on the findings, the article continues with a summary of previous research, a reflection on various theories of gender and business ownership, and articulation of the study hypotheses. The empirical findings are then detailed. The article closes with a discussion of implications for future research and for public policy and practitioners.

The financing of women-owned businesses should be of considerable interest to business owners, policy makers, academics, and practitioners. To the extent that growth and viability of women-owned firms is limited by a relative lack of access to capital, policy makers must address such issues. For academics, gaining further knowledge about those factors that underpin financing decisions would be of benefit in terms of understanding how financial markets operate and the nature of market imperfections. For practitioners, if research conveys a false impression that suppliers of capital are biased or discriminate against women business owners, then the potential of women-led businesses might be unnecessarily constrained if, needlessly fearing bias, owners are unwilling to seek capital.

2. Only Carter et al. (2003) directly considered approval rates, but did so only for women-owned firms and did not provide comparisons with male-owned businesses.

Previous Research: Gender and the Capitalization of SMEs

Research on Debt Capital

Research on debt capital, like the research on equity capital, was originally premised on the belief that women-owned businesses received less favorable debt financing treatment than male-owned firms. Currently, the evidence is convincing to the effect that there is no discrimination in terms of approval/turndown rates as to debt financing.³ This result arises from findings that differences in turndown rates can be accounted for by systemic differences between the characteristics of male and female-owned businesses. Yet, and in spite of the weight of evidence, the debate persists about the relationship of gender to debt financing. In a review of early gender and entrepreneurship studies, Fischer, Reuber, and Dyke (1993, p. 155) state

(Women) receive unequal treatment when they deal with lenders and other resource providers (Belcourt et al., 1991; Goeffee & Scase, 1983; Hisrich & Brush, 1984; Humphreys & McClung, 1981; Stevenson, 1986). They were less likely to have a relevant education (Belcourt et al., 1991; Hisrich & Brush, 1984; Watkins & Watkins, 1983). [And] they were less likely to have relevant management, industry, and entrepreneurial experience (Belcourt et al., 1991; Hisrich & Brush, 1984; Watkins & Watkins, 1983).

Twelve years later, a Canadian study (Prime Minister's Task Force on Women Entrepreneurs, Report and Recommendations, 2003, p. 55) again cites similar perceptions about women business owners' access to debt capital, mentioning, ". . . lack of experience in dealing with lending institutions, inability to build a credit rating, lack of financial literacy, absence of networks, inherent gender bias and rigid lending policies [and that] [s]ome women entrepreneurs also reported that they feel intimidated by lending institutions."

Moreover, Buttner and Rosen (1992) found that fewer women, relative to men, applied for debt capital, but they could not explain this finding. Cavalluzzo, Cavalluzzo, John, and Wolken (2002) and Fielden, Davidson, Dawe, and Makin (2003) confirmed this result and reported that women owners were less likely to have applied for credit because of a belief that they would not be able to attain it. Borrowing a term from Kon and Storey (2003), some of these women may be "discouraged borrowers"—good borrowers who do not apply for a bank loan because they feel they will be rejected. If women are less likely to apply for debt, it may also be true that they are less likely to seek equity financing. This prompts the question of whether the phenomenon of discouraged borrowers might be present in the equity capital markets.

Research about External Equity Capital

The question of whether women owners are relatively disadvantaged with respect to access to equity capital has been considered in several contexts (Amatucci & Sohl, 2004; Brush et al., 2002; Carter et al., 2003; Chaganti, DeCarolis, & Deeds, 1995; Greene et al., 2001; Verheul & Thurik, 2001, among others). The studies generally agree that the share

3. See, among others, Riding and Swift (1990), Fabowale et al. (1995), Cavalluzzo and Cavalluzzo (1998, interest rates do not differ), Carter and Rosa (1998), Haines, Orser, and Riding (1999), Haynes and Haynes (1999), Coleman (2000, 2002), Verheul and Thurik (2001), Cavalluzzo, Cavalluzzo, and Wolken (2002), and Industry Canada (2005).

of the equity invested in women-owned firms has increased over recent years, yet there remains a significant disparity between the proportion of women-owned businesses and the proportion of women-owned firms that have obtained equity capital. For example, Greene et al. (2001) report that women-led businesses received 2.4% of all equity investments and 4.1% of venture capital investments in 1998. This research team also reports that women-owned and women-led businesses account for approximately 40% of U.S. firms, yet less than 5% of the venture capital investments made in the United States over the past 40 years have been to women-led businesses (Brush et al., 2002). Similarly, Carter et al. (2003) has documented that only 17% of 235 American women business owners had secured external equity to finance their businesses. Similar findings have been reported in other countries (Industry Canada, 2005; Verheul & Thurik, 2001).

Previous research also implies that male-owned businesses may be more likely than women-owned businesses to seek external equity than internal equity. Chaganti et al. (1995) found that while gender was not an issue when predicting the capital structure of small businesses, female owners showed a preference for internal versus external equity when compared with male owners. Other studies have confirmed that women are more likely than men to use internal sources of financing (such as personal savings or love money) rather than external sources of financing (Bennet & Dann, 2000; Haynes & Haynes, 1999). Although these findings do not specifically address application rates for the different types of equity capital, they are suggestive that women may be less likely to seek external equity from a venture capital firm or an angel investor.

It is also conceivable that approval rates may differ across gender of ownership. Several factors may influence approval rates. From a demand perspective, Menzies, Diochon, and Gasse (2004) and others have found that women are less likely than men to own high-technology businesses and are less likely to own intellectual property. These are attributes that may make women-owned firms less legitimate or attractive to venture capital providers. Orser and Hogarth-Scott (2003) have shown that women-owned businesses are less likely to grow, and are less likely to seek growth, than their male counterparts. Greene et al. (2001) speculate that women seeking equity might be perceived as having different values, goals, or behaviors than their male counterparts. These attitudes may create the view that women-owned firms are riskier investments as the prospect of growth is a fundamental aspect of eligibility for venture capital (Bygrave & Timmons, 1992). From a demand perspective, Brush, Carter, Greene, Hart, and Gatewood (2000, p. 3) suggest that (1) structural barriers such as gender differences in social networks may result in women remaining outside the formal, predominately male venture capital network; and (2) gender differences in human capital, including managerial track record, render it more difficult for female entrepreneurs to make connections in order to make deals.

It is also plausible that women may seek equity financing from sources other than institutional venture capital funds. Equity capital can be provided by a range of suppliers that include family and friends, employees, and formal and informal venture investors. Previous studies have not examined this distinction. Amatucci and Sohl (2004) and Brush et al. (2002) have both noted that there is little research about how women entrepreneurs go about securing equity capital.

Alternatively, discrimination is possibly a factor that influences the observation of a relatively lower occurrence of equity financing in women-owned businesses. Amatucci and Sohl (2004) report on a case study involving five entrepreneurs who had been financed by angels. They noted strong statements expressed by some of their subjects concerning the difficulties that women encountered. Some of their subjects attributed these difficulties to investor assumptions or stereotyping regarding owners' management potential, despite their extensive business backgrounds.

In summary, evidence indicates that a lower proportion of women-owned businesses than of men-owned businesses have received external equity funding from venture capital investors; however, the reasons for this observation remain ambiguous. It is essential to identify the explanation because the nature of remediation is dictated by the cause(s) of the differences. If the problem is that fewer women apply, further research is needed regarding the perceptions that women-owned businesses have about equity financing. If, as in the debt capital literature, women are “discouraged,” then other implications arise for both equity providers, suppliers of capital, and policy makers. If discrimination is found, the remediation may be recourse to legal approaches. Next, a consideration of theoretical perspectives further informs the discussion about the social constructions of gender with respect to business owners and external capital.

Theoretical Considerations and Hypothesis Development

The literature about women’s entrepreneurship reveals three stylized facts regarding women-owned firms, when compared with firms owned by men. First, it is generally accepted that firms owned by women are more likely to be concentrated in the retail and services sectors. Second, women-owned firms are, on average, less likely to seek growth than counterpart firms owned by men. Finally, women-owned firms are less likely to apply for debt financing. These stylized facts have emerged from research that is almost entirely empirical, and theoretical explanations have not, generally speaking, been advanced. Accordingly, this study returns to concepts developed through feminist economic thought to present theoretical rationales behind these empirical observations. Four theories may be pertinent: role investment theory, the theory of occupation crowding, socialization theory, and discrimination theory.

Role Investment Theory

Role investment theory (see, e.g., Bielby & Bielby, 1988; England, 1984; Lobel, 1991) is premised on an understanding of family decision making such that spousal partners employ trade-offs about their respective roles within the family. According to this theory, women tend to invest in roles within the household (parenting, homemaking, etc.), while men invest their time in the paid workforce. This leads to differences in role specification and specialization. In the small business context, this would imply gender differences in the investment of commercial activities and hence, managerial experience, gender differences in social networks (and hence, business relationships), and time allocations to business development.

In the particular context of this study, the concepts of “masculine” and “feminine” roles appear to be manifested through different levels of risk tolerance across genders. Traditionally, men specialized or invested in financial roles. Financial decisions, according to role investment theory, are usually considered to fall into this category (Stan, 2005). Empirically, Beyer and Bowden (1997) have shown that lower levels of risk aversion and a greater tendency of overconfidence are present in males, but only for tasks that are considered masculine in nature. Women have specialized in social and domestic roles. These differences are linked to financial decision making and risk tolerance. Odean and Barber (2001) compared the trading practices of male and female investors, hypothesizing that men, being overconfident and less risk averse, would buy and sell stocks more frequently than women. With a data set of 78,000 persons, they found that

portfolio turnover was approximately 50% greater for men than for women, and that the performance of the men's portfolios was worse than that of the women's investments (as described by Stan, 2005, p. 29). Barsky, Juster, Kimball, and Shapiro (1997) compared risk tolerance by gender, finding higher levels of risk tolerance for males compared with females.

Role investment theory also explains gender differences in business decision making between spouses. Orser and Hogarth-Scott (2003) provide partial empirical support for this contention. They report that women business owners are more likely than male business owners to consider the opinions of their respective spousal partners for their decision to pursue business growth. Women business owners were also less likely to seek growth of their firms. It follows that women-owned firms would, on average, be less likely to require risk capital.

This theoretical perspective implies the initial set of hypotheses to be examined here:

Hypothesis 1a: Women and men bring different human capital (education, years of management experience) to the firm.

Hypothesis 1b: Women and men bring different social capital (length of banking relationship, whether or not the business banker is the personal banker) to the firm.

Hypothesis 1c: Women business owners are less likely than male business owners to pursue growth of their firms.

Occupational Crowding

Peitchinis (1989, p. 30) describes (Bergmann's (1986) theory of occupational crowding as follows:

. . . discriminated groups crowd into certain occupations and become cross-identified with those occupations [and this] . . . results in excess supply relative to demand . . . which keeps their wages depressed relative to occupations that are not so designated. The same thesis applies to the consequences of market segmentation hypotheses [which] . . . identify two distinct labor markets: a primary market, and a secondary market which is unorganized, crowded, highly competitive, unstable, unsubordinated. For the most part, the primary market is predominantly male the secondary market predominantly female.

Bergmann (1986, p. 128) also speaks of the impact of occupational crowding as follows:

If a group is segregated and furthermore is crowded into a relatively narrow segment of labour market turf, its members will as a result be less productive, and their labor rewards will be lower.

These theories suggest that women, relatively concentrated in the secondary market, crowd into sectors that are more competitive with the attendant lower economic returns. Hence, women are heavily concentrated in occupations and industries with lower lower-paying jobs. Compared with men, women are also more likely to be found in contract, temporary, seasonal, and casual positions (Statistics Canada, 2005). In the small business context, compared with their male counterparts, women are more likely to operate in service-based industries and are less likely to operate firms in knowledge-based and manufacturing industries, the "key sectors driving Canada's growth and innovation" (Carrington, 2006). As such, on average, women-owned enterprises operate in relatively lower growth sectors. Such firms are less likely to grow and are less likely to generate the

returns that would be of interest to equity investors. These observations suggest the second set of hypotheses:

Hypothesis 2a: Women-owned firms are relatively more likely than men-owned firms to operate in the services and retail sectors.

Hypothesis 2b: Women-owned firms are relatively smaller than firms owned by men.

Socialization Theory

This theoretical perspective suggests that individuals maintain an “ideology” or set of ideas constructed in, and by, society. These ideologies help individuals make sense of society and position themselves within a social construct (Crowley & Himmelweit, 1992). Socialization is learned behavior, learning that occurs in childhood and throughout life. Gender differences in the socialization of men and women permeate all social institutions such as family, schools, and culture. As a result, girls and boys grow up to assume socially differentiated roles, role expectations that spill into one’s business activities.

Socialization theory can be used to explain how it is that women may seem to accede in their own oppression and show thereby why equal opportunities cannot be enough to create an equal society. For if women and men are socialized differently, they cannot be expected to behave in the same way when offered the same opportunities. Women are therefore unlikely to fit exactly the roles for which men have been socialized, even if the material barriers to their doing so are removed (Crowley & Himmelweit, 1992).

This theoretical perspective helps explain suggested gender differences in management styles noted by Brenner, Tomkiewicz, and Schein (1989), Buttner (2001), Eagly and Johnson (1990), and others. For example, women managers are typified as more emotional, sensitive, compassionate, and more likely to be collegial (Orser, 2000). Bergmann (1986) contends that economists need to be sensitive to social factors and that because of historical social pressures, women are less likely than men to bring technical expertise to their businesses. The implication of this result is further reason to believe that women may be less likely than men to seek business growth (consistent with hypothesis 1c) and may also be less likely to seek external capital. Accordingly, hypothesis 3a is advanced:

Hypothesis 3a: After controlling for firm-level differences (size, sector, growth orientation) and individual differences (human and social capital), women business owners are less likely to apply for all forms of external capital than men.

Discrimination Hypothesis

The discrimination hypothesis suggests that women are less welcome into certain professional activities even though they bring to the market equivalent ability and qualifications. Discrimination may reflect gender stereotypes and role encapsulation for women (Ely, 1995). In the context of business ownership, entrepreneurship and feminist scholars have historically argued that women have faced language, social, and cultural barriers, and resistance to their participation in the economy (Campbell, 1988; Goffee & Scase, 1985; Hisrich & Brush, 1983; Lavoie, 1984; Orser, Fischer, Hooper, Reuber, & Riding, 1999). Discrimination can be manifested in a variety of ways in the SME financing context including lower approval rates or differences in terms of financing & the degree of difficulty presented in the application process.

The presence of discrimination has been the subject of a continuing debate in the academic literature and popular press. To the extent that the popular press suggests that discrimination with respect to financing exists, women are discouraged from applying for capital. This logic provides two alternative explanations of the findings that women receive a disproportionate low share of capital (Brush et al., 2002; Carter et al., 2003; Greene et al., 2001; Industry Canada, 2005; Verheul & Thurik, 2001). The first is that women are victims of discrimination. The second suggests that women are less likely to seek external capital, fearing turndown. This debate is confounded by attribution theory. According to Rogoff, Lee, and Suh (2004), individuals tend to blame failure (e.g., failure to obtain financing) on external causes while attributing successes to their own efforts. Therefore, it is necessary to distinguish between actual and perceived discrimination. Perceptions of discrimination, even if unfounded, may result in the equity equivalent of the “discouraged borrowers” syndrome, limiting women owners’ applications for, and access to, equity capital. It is crucial therefore to go beyond the statement that women receive disproportionate amounts of external capital than men, because this unexplained assertion may fuel perceptions of discrimination, discouraged borrowers, and may compromise the growth potential of women-owned businesses. Hence, gender differences in perceived discrimination may be reflected in differences in rates of application, leading to hypothesis 3b:

Hypothesis 3b: The primary reason of women for not seeking external capital is a fear that they will be turned down.

Finally, Fischer, Reuber, and Dyke (1993), in their theoretical overview of research on sex, gender, and entrepreneurship, developed the criteria for arriving at a finding of discrimination. According to Fischer and her colleagues, it is necessary both to compare the outcomes of women with those of men and to control for confounding systemic factors such as sector and firm size. Therefore, a finding of discrimination may be sustained if and only if—after controlling for other potential determinants of access to capital and systemic firm- and personal-level differences—women owners are *turned down* with a higher relative frequency than men. Hence, hypothesis 3c:

Hypothesis 3c: After controlling for firm-level differences (size, sector, growth orientation) and individual differences (human and social capital), women business owners are less likely to obtain all forms of external capital than men.

This section has outlined four theoretical rationales that are consistent with the stylized facts about systemic differences between men- and women-owned firms, and that may explain differences in SME financing. Clearly, none of these theories advance unambiguous arguments that women are relatively disadvantaged. These theories do imply that in testing for gender differences in access to capital, it is essential to control for at least the plausible likelihood that women are generally less likely to need or seek external financing and that their firms differ systemically from those owned by men. Accordingly, the next section outlines the data and methodology employed to test these hypotheses.

Data and Methodology

To examine the role of gender of ownership on financing decisions, the research drew on data collected by Statistics Canada (in conjunction with Industry Canada and Finance Canada). Specifically, the 2002 Survey of Financing of Small- and Medium-sized

Enterprises is a large-scale telephone survey administered during the fall of 2002 that collected data regarding the financing experiences of SME owners for the preceding year. It is a carefully designed stratified sample of SMEs that reported business activity during 2001 and that represents private sector commercial businesses with less than \$50 million in annual sales and fewer than 500 employees. The survey was representative of the more than 1.2 million Canadian SMEs that have these attributes and was accurate to 0.008 (0.8%) 19 times out of 20. Because it was collected by Statistics Canada, it boasts a 66% response rate, and sample data comprise a total of 3,842 cases. It is therefore relatively free of nonresponse and selection biases.⁴

The survey focused on gathering information about the firms' financing experiences during the 12-month period preceding the survey administration. In addition, the data comprised baseline "tombstone" data, including size, age, sector; other attributes of firms and owners; and gender breakdowns of the ownership teams. Firms were defined as primarily women owned if more than 50% of the ownership team was female; likewise, firms were defined as primarily male owned if more than 50% of the ownership team was male. Businesses that were 50–50 shared ownership were excluded from analysis. Likewise, firms in the agriculture sector were excluded, leaving a final sample of 2,844 businesses. Because of the relatively small number of women in firms with more than 10 employees, firm sizes corresponding to larger firms were collapsed into a single category: "10 or more employees," which comprised 723 firms owned by men and 73 owned primarily by women. Hence, the final sample comprised 2,844 firms of which 2,357 were men owned, and 487 firms were owned by women.⁵

To test the various hypotheses advanced in this article, several research approaches were used. Each is described in the context of the particular hypothesis being tested.

Empirical Findings

Table 1 reports the results of univariate statistical tests of the first study hypothesis, that women bring less human capital (education, years of management experience) and social capital (length of banking relationship, whether or not the business banker is the personal banker) to the firm. From this table, independent sample *t*-tests of the sample means show that women business owners, when compared with men owners, bring significantly less business experience and report significantly fewer years of association with their financial institutions. Women and men owners were equally likely to be university educated, but women were significantly more likely to hold a degree from a vocational or community college. Women were more likely to conduct personal banking with their financial institution, but this may reflect that their firms were significantly smaller and more likely to be home-based. These observations are consistent with findings of studies from the last two decades and are also consistent with the predictions of role investment and socialization theories, with respect to factors that help explain gender differences in business ownership. The potential influence, with respect to firm-level

4. These data are a rich research resource that allows estimation of the distributions and statistical properties of, among other elements, attributes of the businesses, characteristics of the owners (including a gender breakdown), applications for various types of financing, and the outcomes of these applications. The data allow direct comparisons of businesses owned by women with those owned by men, and the data also speak to both application and acceptance rates.

5. Note that in spite of collapsing categories of larger firms, the number of women owners in certain industries remains small. This will, of course, hold implications for statistical testing.

Table 1

Salient Attributes by Primary Gender of Ownership

	Male majority ownership N = 2,357	Female majority ownership N = 487	<i>p</i> -value of difference (<i>t</i> -test)
Years of industry experience	16.7	12.7	.000***
Has university degree	41.5%	41.1%	.849
Has college diploma	14.2%	19.1%	.011*
Number of years associated with financial institution ⁶	9.7	8.1	.000***
Financial institution does personal banking for owner	68.1%	74.1%	.006**
Number of full-time employee equivalents	19.9	9.1	.000***
Business is home-based	43.6%	49.1%	.027*
Rapid sales growth	14.1%	10.1%	.009**

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$ levels of significance.

attributes, is presented in Table 1. Women-owned firms, on average, were less likely than firms owned by men to have exhibited rapid sales growth (where “rapid sales growth” is defined as more than 30% per year for the most recent 3-year period).

The findings therefore support the first three hypotheses, that women and men bring different human capital (education, years of management experience) to the firm; women and men bring different social capital (length of banking relationship, whether or not the business banker is the personal banker) to the firm; and women business owners are less likely than male business owners to pursue the growth of their firms.

Table 2 presents a breakdown of the sample data by gender of ownership across firm size and sector. The chi-square (χ^2) and contingency coefficients of the data presented in Table 2 for the joint distribution of sector with gender, and the joint distribution of size with gender were statistically significant at *p*-values of less than 0.000. This indicates that size and sector are not independent of gender of ownership. This finding reinforces the necessity of controlling for size and sector in assessing potential gender differences in the rates of application for, and approval of, financing. χ^2 tests of these data revealed that women owners were significantly more likely than men to be concentrated in the whole-sale, retail, and services sectors. These observations provide preliminary empirical support for the rationale of occupational crowding in which women business owners are found in sectors that are of less value to venture capital organizations.

Applications for External Financing

Table 3 presents the relative frequency with which men and women owners sought the four main types of business financing. These findings are consistent with those of Buttner and Rosen (1992) who found women owners less likely than men owners to apply for debt. The table also demonstrates that women business owners are, in general, less likely

6. In order to control for the probability that shorter lender relationships might be attributable to the possibility that women-owned firms are relatively younger, this test was repeated controlling for age of firm, and the difference across genders was confirmed at a *p*-value of 0.000 using one-way analysis of variance.

Table 2

Joint Distribution of Sample Data: Ownership Gender, Size, and Sector

Gender of primary owner(s)	Size of firm (employees)	Sectors					Total
		Other services	Goods producing	Wholesale and retail	Professional services	Total	
Male majority ownership (N = 2,357)	1-4	58	103	19	98	278	
	5-9	204	402	131	373	1,110	
	10 or more	51	103	48	44	246	
	Total men (N)	169	284	145	125	723	
Female majority ownership (N = 487)	Total men (N)	482	892	343	640	2,357	
	1-4	30	11	12	29	82	
	5-9	84	52	56	98	290	
	10 or more	18	7	10	7	42	
Total sample (N = 2,844)	Total women	23	25	19	6	73	
		155	95	97	140	487	
		637	987	440	780	2,844	

Table 3

Rates of Application for Financing by Gender of Firm Ownership

	Male majority ownership (%) (N = 2,357)	Female majority ownership (%) (N = 487)	<i>p</i> -value of difference (<i>t</i> -test)
Applied for a loan	23.63	18.07	0.005**
Applied for a lease	12.56	8.21	0.002**
Applied for supplier financing	28.13	21.36	0.001**
Applied for equity capital	3.99	1.23	0.000***

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$ levels of significance.

than men to seek any form of external capital. In all cases, women were less likely to have sought financing than men, and the differences were statistically significant at the p -values shown (based on univariate t -tests of the differences between sample proportions). These empirical results support hypothesis 3a that women business owners are less likely to apply for external capital than men.

These findings beg the question of why women are less likely than men to seek external capital. Conceivably, the results may be a consequence of systemic differences in the distribution of gender of ownership, across size and sectoral dimensions. In order to investigate this possibility, a multivariate logistic regression was employed. Four separate logistic regression models were estimated according to each of the four types of credit. For example, in the first of the four logistic regression models, the dependent variable was whether (=1) or not (=0) a respondent had applied for a loan. In the second logistic model, the dependent variable was whether (=1) or not (=0) a respondent had applied for a lease, and so on, for supplier financing and equity capital. In each case, a two-step methodology was employed. In the first stage, the model was estimated on the basis of a set of dependent variables comprising the sector of the firm, the size category of the firm, and the possible interactions between size and sector. In the second stage, a single binary variable corresponding to the primary gender of the ownership team (male = 0; women = 1) was added to the model. The impact of gender on the incidence of financing application is then conveyed by the extent to which adding the gender-defined variable in the second stage adds to the explanatory power of the logistic regression model. To the extent that addition of the gender variable adds explanatory power, gender-related factors beyond stage and sector would be implied. To the extent that the gender variable adds no substantive explanatory power, sector and size then account for observed differences in the dependent variable, namely, the application rates. The results for each of the four full models are presented in Table 4.

Table 4 shows that, after controlling for size and sector, women owners were no less likely to seek debt, lease, or supplier financing than were male owners. These results imply that what previous research identified as a lower likelihood of debt applications from women owners is attributable to systemic factors (size and sector) associated with women-owned enterprises. However, Table 4 also shows that after controlling for size and sector, women owners were significantly less likely than men to seek equity financing. According to the model, after controlling for systemic factors, women owners were still

Table 4

Logistic Regression Estimates, Applications for Financing

	Loans			Leases			Supplier Financing			External Equity		
	Coefficient estimates	Exp (B)*	p-values									
N = 2,844												
Size												
No. of employees												
1-4	-2.23	0.11	0.000	-2.26	0.10	0.000	-1.72	0.18	0.000	-2.25	0.11	0.000
5-9	-1.40	0.25	0.000	-1.68	0.19	0.000	-1.41	0.24	0.000	-2.66	0.07	0.000
Sector	0.58	1.79	0.081	-0.14	0.87	0.716	-0.16	0.85	0.651	0.30	0.506	1.34
Other services												
Goods producing	-0.45	0.64	0.059	0.07	1.07	0.852	0.02	1.02	0.049	0.04	0.004	0.004
Wholesale and retail	-0.07	0.93	0.751	-0.11	0.90	0.652	0.47	1.60	0.030	-1.32	0.003	0.27
Size X sector interactions	-0.36	0.69	0.140	0.01	1.01	0.968	0.25	1.29	0.301	-0.82	0.014	0.44
Sector 1 by size 1	1.22	3.39	0.001	0.33	1.39	0.762	0.04	1.04	0.072	-1.29	0.005	0.27
Sector 1 by size 2	0.77	2.16	0.024	0.29	1.34	0.667	0.32	1.38	0.936	1.06	0.119	2.90
Sector 1 by size 3	-0.55	0.58	0.015	-0.66	0.52	0.465	-0.42	0.65	0.323	1.35	0.113	3.88
Sector 2 by size 1	0.17	1.18	0.231	-0.51	0.60	0.241	0.66	1.93	0.376	0.39	0.601	1.47
Sector 2 by size 2	0.65	1.91	0.767	0.35	1.43	0.573	0.63	1.88	0.139	-16.32	0.997	0.00
Sector 2 by size 3	-1.09	0.34	0.020	-0.46	0.63	0.335	0.12	1.13	0.024	1.60	0.012	4.97
Sector 3 by size 1	1.18	3.24	0.009	0.04	1.04	0.363	0.89	2.43	0.765	-0.73	0.279	0.48
Sector 3 by size 2	0.81	2.25	0.090	0.33	1.39	0.970	1.05	2.87	0.129	1.36	0.106	8.53
Sector 3 by size 3	-0.47	0.63	0.016	-0.87	0.42	0.449	0.12	1.12	0.001	1.36	0.155	3.91
Gender (women = 1; men = 0)	-0.14	0.87	0.316	-0.19	0.82	0.155	-0.10	0.90	0.806	-1.19	0.307	0.30
Constant	-0.44	0.64	0.308	-1.12	0.33	0.294	-0.61	0.54	0.430	-0.86	0.047	0.42
Cox and Snell R ²	0.059		0.013	0.060		0.000	0.081		0.001	0.033		0.17
Nagelkerke R ²	0.090			0.116			0.118			0.126		
Block	0.305			0.287			0.428			0.026		

* Exp(B) is an alternative form of writing e^B (where, $e = 2.718$, the base of the system of natural logarithms). This notation conveys the estimated percentage change in the likelihood of the outcome (dependent) variable, for a one unit change in the corresponding independent variable.

Table 5

Logistic Regression Model: Applications for Equity Capital

Variable	Coefficient estimates	<i>p</i> -values	Exp (B)
Size		0.000	
No. of employees	-2.069	0.007	0.13
1-4 employees	-2.552	0.000	0.08
5-9 employees	0.278	0.546	1.32
Sector		0.016	
Other services	-1.175	0.009	0.31
Goods producing	-0.560	0.106	0.57
Wholesale and retail	-1.205	0.010	0.30
Size by sector (interactions)		0.196	
Sector 1 by size 1	0.922	0.484	2.51
Sector 1 by size 2	1.230	0.154	3.42
Sector 1 by size 3	0.324	0.667	1.38
Sector 2 by size 1	-16.486	0.996	0.00
Sector 2 by size 2	1.359	0.038	3.89
Sector 2 by size 3	-0.852	0.218	0.43
Sector 3 by size 1	2.182	0.102	8.87
Sector 3 by size 2	1.320	0.172	3.74
Sector 3 by size 3	-1.185	0.315	0.31
Sales per employee	0.000	0.007	1.00
Number of years with financial institution	-0.082	0.000	0.92
Banker is also personal banker	-0.547	0.015	0.58
Years of industry experience	-0.005	0.737	0.99
High-growth firm	0.119	0.647	1.13
Gender (Women = 1; men = 0)	-0.877	0.046	0.42
Constant	-0.956	0.015	0.38
Cox and Snell R ²	0.049		
Nagelkerke R ²	0.186		

58% less likely to seek external equity financing than men, a result that was statistically significant at a *p*-value of 0.026. Thus, hypothesis 3a is rejected for all forms of financing, *except* external equity.

To pursue the case of equity financing further, the logistic model was reestimated, incorporating additional measures of firm and potential individual-level differences. These variables included growth record, the length of the owners' relationship with their financial institution, and the number of years of the owner's industry experience. The results of this procedure are shown in Table 5, which shows that the additional variables significantly improved the goodness of fit of the logistic regression model. However, even after allowing for these additional variables, women business owners remain significantly less likely to seek equity financing than men. For the case of applications for equity financing, hypothesis 3a (that women are less likely to apply) is supported.

Turndown Rates

Hypothesis 3b, to be tested here, relates to the relative frequencies with which men and women owners are turned down for financing once they apply, again controlling for size and sector of firm. For this analysis, the number of women owners who sought external equity capital was too small to feasibly examine gender-disaggregated rates of turndowns for equity financing. Consequently, only debt, lease, and supplier financing are

Table 6

Turndown Frequencies, by Gender and Types of Financing

	Loan applicants		Lease applicants		Applicants for supplier financing	
	Men	Women	Men	Women	Men	Women
Turndown rates	18.1%	22.4%	2.8%	0.0%	12.2%	14.4%
N	542	85	285	39	663	104
<i>t</i> -values	-0.94		2.86		-0.63	
<i>p</i> -values	0.348		0.004		0.528	

investigated here. Table 6 reports the relative frequencies, on a gender-disaggregated basis, with which business owners were turned down in their requests for other sources of external financing. Inspection of these results shows that turndown rates do not differ to a statistically significant extent between men and women, according to a standard *t*-test of sample proportions.⁷ Accordingly, hypothesis 3b is partially rejected. Women owners were not more likely to be turned down for loan, lease, and supplier financing. Due to limitations of the data, it was not determined if gender differences in turndown rates exist with respect to equity (e.g., venture) capital. The results also indicated that, after controlling for firm-level differences (size, sector, growth orientation) and individual differences (human and social capital), women business owners are no less likely to obtain most forms of external capital than men once they have applied for such capital. Due to limitations of the data, it was not determined if gender differences in turndown exist with respect to equity capital. Hence, hypothesis 3c is partially rejected.

Reasons for Not Seeking Capital

Finally, the survey asked all respondents who had not sought any form of financing “Why did the business not attempt to obtain new financing in 2001?” Table 7, by primary gender of ownership, breaks down the responses provided, along with the *p*-values corresponding to a *t*-test for the difference in sample proportions across gender of ownership. While women owners were apparently more likely to reply that they expected that they would be turned down, the difference is not statistically significant.

Summary of Findings

The study found that women-owned firms are smaller, less likely to grow than counterpart firms owned by men, and disproportionately represented among firms in the

7. In order to control for size and sector of borrower, a logistic regression approach like that described previously was also used. Given that women-owned firms tended to be smaller and in riskier sectors (see Table 1), the residual differences in turndown rates between men and women applicants was even smaller than that shown in Table 6, when size and sector of firm were allowed for. These results are available from authors on request.

Table 7

Reasons for Not Seeking Financing

	Primarily male ownership (%) (N = 2,357)	Primarily female ownership (%) (N = 487)	<i>p</i> -values
Financing not needed	85.23	83.79	0.491
Thought the request would be turned down	2.35	3.85	0.168
Applying for financing is too difficult	3.53	3.30	0.828
Applying for financing is too time consuming	1.96	2.75	0.349
Cost of debt financing is too high	1.90	1.92	0.972
Do not like to be in debt	4.44	5.77	0.321
Other	10.92	11.54	0.733

retail and service sectors. These observations are all systemic differences that could reasonably be expected to imply that, on average, businesses owned by women are less prone to need or to seek external capital. Furthermore, women were less likely to seek any of the forms of external financing examined here (commercial loans, leases, supplier financing, external equity). This study also found that size and sector did indeed account for gender differences in applications for commercial loans, leases, and supplier financing. Moreover, the reasons for not seeking external financing did not differ across gender to any statistically significant degree. It was also found that after controlling for a variety of systemic and potentially confounding variables, women business owners were still less liable to apply for external equity than were counterpart male business owners. Finally, no evidence of discrimination in terms of lending or approval, either perceived or actual, was uncovered. This result confirms other recent studies of gender issues in SME financing. Readers should note a caveat to this conclusion. Even with the large database employed here, insufficient data were available to test for gender discrimination with respect to equity financing. Table 8 presents an overview of the study hypotheses, theoretical propositions, and findings.

Implication for Research Findings

The point of departure for this study was recent findings that suggest gender differences in the financing of women-owned firms (Brush et al., 2002; Carter et al., 2003; Greene et al., 2001; Industry Canada, 2001; Prime Minister's Task Force on Women Entrepreneurs, Report and Recommendations, 2003; Verheul & Thurik, 2001). The results obtained here do not support gender discrimination in terms of approval rates on commercial loans, leases, or supplier financing. Women business owners were, however, still significantly less likely to apply for external equity capital than men, after controlling for other systemic differences, including firm size and sector. This result is consistent with the findings of previous studies in experimental economics to the effect that women exhibit lower levels of risk tolerance than men and receive a disproportionately lower share of venture capital financing than men. It is important therefore that financial institutions, venture capital associations, and other stakeholder groups (e.g., business owner associations, educators, consultants, policy makers) communicate with women business owners

Table 8

Summary of Findings

Hypothesis	Theoretical basis	Empirical finding
Hypothesis 1a: Women and men bring different human capital (education, years of management experience) to the firm	Role investment theory	Supported (see Tables 1 & 3). Male and female business owners differ as to education, years of management experience
Hypothesis 1b: Women and men bring different social capital (length of banking relationship, whether or not the business banker is the personal banker) to the firm	Role investment theory	Supported (see Tables 1 & 3). Statistically significant findings that women and men differ as to length of banking relationship, whether or not the business banker is the personal banker
Hypothesis 1c: Women business owners are less likely than male business owners to pursue growth of their firms. Accordingly, women-owned firms are less likely to need risk capital	Role investment theory Occupational crowding Socialization theory	Partially supported (see Tables 1, 3, & 7). Women-owned firms are less likely than firms owned by men to have exhibited rapid sales growth. Women-owned firms are less likely to apply for all forms of financing. The reasons business owners cite for not seeking external capital do not differ across gender
Hypothesis 2a: Women-owned firms are relatively more likely than men-owned firms to operate in the services and retail sectors	Occupational crowding	Supported (see Table 2). Size and sector are not independent of gender of ownership. Women-owned firms are smaller than those owned by men and are more likely to be concentrated in services and retail
Hypothesis 2b: Women-owned firms are relatively smaller than firms owned by men	Occupational crowding	Supported (see Table 2). Size and sector are not independent of gender of ownership. Women-owned firms are smaller than those owned by men and are more likely to be concentrated in services and retail
Hypothesis 3a: After controlling for firm-level differences (size, sector, growth orientation) and individual differences (human and social capital), women business owners are less likely to apply for all forms of external capital than men	Socialization theory	Partially supported with the exceptions of equity capital (see Tables 4 & 5). After controlling for size and sector, women owners are no less likely to seek debt, lease, or supplier financing than are male owners; however, after controlling for size and sector, women owners are significantly less likely than men to seek equity financing. According to the model, after controlling for systemic factors, women owners are still 58% less likely to seek external equity financing than men, a result that is statistically significant at a <i>p</i> -value of 0.026
Hypothesis 3b: The primary reason for not seeking external capital is a fear that they will be turned down	Discouraged borrowers	Not supported. Reasons cited for not seeking financing do not vary across gender of owners to a statistically significant extent
Hypothesis 3c: After controlling for firm-level and individual differences, women business owners are less likely to obtain all forms of external capital than men	Discrimination	Not supported. After controlling for systemic differences between male- and female-owned firms, no statistically significant differences in the rates of turnaround were observed for applications for commercial loans, leases, or supplier financing. There were too few observations to test for gender differences in turnaround rates for equity financing

about factors that influence terms of lending and approval rates. This will help ensure that women entrepreneurs make informed decisions about the capitalization of their firms. Communication might also focus on the potential advantages of firm growth (e.g., preferred terms of lending, increased profitability), best practices in managing firm growth, and strategies to balance multiple roles. Finally, this study lends support to organizations,

such as Springboard, that educate women business owners about the value of equity investment.⁸

Study Limitations and Future Research

Several important limitations are noted. This work relied on cross-sectional survey data and may, for subjective variables (e.g., reasons for not seeking financing), reflect retrospective biases. The work also focused on the application and approval rates for external capital and did not examine the decision process before or after the application was initiated. This did not allow the research team to consider how, if at all, financing decisions associated with the evolution of the firm differ by gender and time. Due to data limitations, the work was not able to examine potential gender differences in approval rates for equity financing.

Given the limitations of the data, there remains the need to investigate further potential gender differences among business owners seeking venture capital, the association between gender and risk tolerance, gender differences in owners' growth intention, and the influence of gender on the capitalization of the firm. Research is also required to examine women's experiences in seeking, acquiring, and managing equity. Cross-national comparisons of this study is warranted to determine if Canadian findings mirror those of other countries. Finally, the work was limited in the number of hypothesis employed to examine each of the theoretical concepts advanced. This is left to future studies. It is suggested that research might continue to integrate and test empirically theoretical concepts from various disciplines such as those cited in this report. Research might also examine potential gender differences in owners' expectations about the need for alternatives types of capital (e.g., rationales for why funding was not needed).

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8. "Springboard is a national non-profit organization accelerating women's access to the equity markets. Our programs educate, showcase, and support women entrepreneurs as they seek equity capital and grow their companies." See <http://www.springboardenterprises.org/>.

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