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Abstract

This report uses data from the 2017 *Survey on Financing and Growth of Small and Medium Enterprises* to study firm financing outcomes of women-owned small and medium-sized enterprises (SMEs). In particular, it examines whether, adjusting for firm and primary decision maker characteristics, there are gender differences associated with access to financing, debt financing approval and interest rates charged on debt financing. Results suggest that women-owned firms are more likely than male-owned firms to be discouraged borrowers. Analysis of alternative metrics for access to financing — the likelihood of seeking external financing or of reporting that obtaining financing is an obstacle to growth — yields no evidence of gender differences. With respect to financing approval, results suggest that women-owned SMEs receive higher proportions of debt financing requested than male-owned SMEs; correspondingly, women-owned firms' requests for debt financing are more likely to be approved. Finally, there is no evidence of gender differences in interest rates charged on debt financing.

1 Introduction

Women entrepreneurs face unique challenges. Women are under-represented among business owners, with just 15.6 percent of Canadian small and medium-sized enterprises (SMEs) majority owned by women in 2017.[1] Furthermore, evidence suggests that women-owned businesses access and use financing differently than their male counterparts, and that women-owned businesses are outperformed by male-owned businesses (e.g., Fairlie and Robb, 2009; Rosa and Sylla, 2016).

Access to capital plays an important role in who becomes an entrepreneur and whether their business succeeds (Evans and Jovanovic, 1989). To the extent that gender differences exist in association with access to financing, such differences are likely to play a role in both the proportion and success of women entrepreneurs.

The focus of this study is access to financing by women-owned firms. In particular, the analysis uses data from the 2017 *Survey on Financing and Growth of Small and Medium Enterprises* to evaluate whether, adjusting for firm and primary decision maker characteristics, there are differences in financing outcomes between women-owned and male-owned firms.

Results suggest that women-owned firms are more likely than male-owned firms to be discouraged borrowers. Analysis of alternative metrics for access to financing — the likelihood of seeking external financing or of reporting that obtaining financing is an obstacle to growth — yields no evidence of gender differences. With respect to financing approval, results suggest that women-owned SMEs receive higher proportions of debt financing requested than male-owned SMEs; correspondingly, women-owned firms' requests for debt financing are more likely to be approved. Finally, there is no evidence of gender differences in interest rates charged on debt financing.

Note that the methodological framework does not support causal interpretation of the results, which represent conditional correlations. These estimated conditional correlations, however, are robust to a number of alternative specifications, and condition on a wide range of firm and primary decision maker characteristics.

The remainder of this report is structured as follows: Section 2 provides additional background; Section 3 describes the dataset; Section 4 outlines the econometric methodology used; Section 5 sets out and discusses econometric results; and Section 6 presents conclusions.

[1] *Survey on Financing and Growth of Small and Medium Enterprises*, 2017.

2 Background

A rich body of research shows that binding liquidity constraints impact both entrepreneurial propensity and success: those who are unable to access capital are less likely to become entrepreneurs, and many businesses of liquidity-constrained entrepreneurs end up operating with suboptimal levels of capital (Evans and Jovanovic, 1989; Holtz-Eakin et al., 1994; Hurst and Lusardi, 2004). Understanding whether there are gender differences associated with accessing financing, therefore, is important in understanding whether an owner's gender plays a role in firm success.

Empirical research from other countries suggests that there are, indeed, gender differences associated with access to and use of financing. For example, women-owned firms are more likely than male-owned firms to use personal or internal financing (Coleman and Robb, 2009), to have less start-up capital (Fairlie and Robb, 2009) and to face tighter credit availability (Bellucci et al., 2010; Hebert, forthcoming).

Evidence in the Canadian context, however, is more limited and less conclusive. To the best of our knowledge, only a handful of studies have looked at whether women-owned and male-owned firms have similar access to financing. Moreover, results are mixed.

Haines et al. (1999), using a random sample of bank loan files, found no significant differences in the terms of lending extended across gender. Analysis of survey data in Orser et al. (2006) suggests that women-owned businesses are less likely to seek equity financing, but finds no evidence of significant gender differences in the probability of seeking all other types of external financing. Results from Rosa and Sylla (2016), using the 2011 iteration of the *Survey on Financing and Growth of Small and Medium Enterprises*, suggest that women-owned firms receive lower amounts of the financing requested and are charged higher interest rates. Interestingly, in the same report the authors repeat the analysis using the 2014 iteration of the survey and find no evidence of significant gender differences in the terms of lending.

This report, based upon the 2017 *Survey on Financing and Growth of Small and Medium Enterprises*, undertakes an analysis similar to that of Sylla and Rosa (2016), thereby offering an updated set of data points in the Canadian context.[2]

[2] This report uses a methodological framework very similar to that of Leung et al. (2018), which studies access to financing by immigrant-owned SMEs in Canada.

3 Data

The *Survey on Financing and Growth of Small and Medium Enterprises* is a cross-sectional survey, conducted by Statistics Canada, on small and medium-sized businesses and their financing activities. The survey provides detailed information on firm and owner characteristics. SMEs are defined as firms with between 1 and 499 employees.[3] The target population excludes non-profit organizations, joint ventures, government agencies and firms operating in sectors typically dominated by government entities or large businesses.[4]

For the 2017 survey iteration, the target population of over 730,000 SMEs was stratified by geography, employment and industry, with random samples selected from these strata to generate representative estimates. The sample size was 17,323 SMEs, with a response rate of 59.7 percent.[5]

The survey asks respondents for the percentage of ownership held by women. This allows each firm to be categorized as:

- **women-owned** (i.e., women comprise more than 50 percent of ownership),
- **male-owned** (i.e., women comprise less than 50 percent of ownership), or
- **equally owned** (i.e., women comprise 50 percent of ownership).[6]

As shown in Figure 1, the 2017 survey results indicate that women are under-represented with respect to SME majority ownership: 15.6 percent of SMEs are owned by women, compared with 63.5 percent owned by men. The remaining 20.9 percent of SMEs are equally owned by women and men. These proportions have remained roughly unchanged since 2000.

In particular, according to the 2000, 2001, 2004 and 2007 iterations of the *Survey on Financing of Small and Medium Enterprises*, and the 2011, 2014 and 2017 iterations of the *Survey on Financing and Growth of Small and Medium Enterprises*, the estimated percentage of SMEs owned by women has ranged between 15.0 and 17.8 percent for those reference years. The corresponding ranges of the percentage of SMEs owned by men (between 63.5 and 66.1 percent) and equally by men and women (between 18.0 and 20.9 percent) are similarly static. While these are cross-sectional surveys and not explicitly designed for comparison across time, it is notable how little these estimates have varied.

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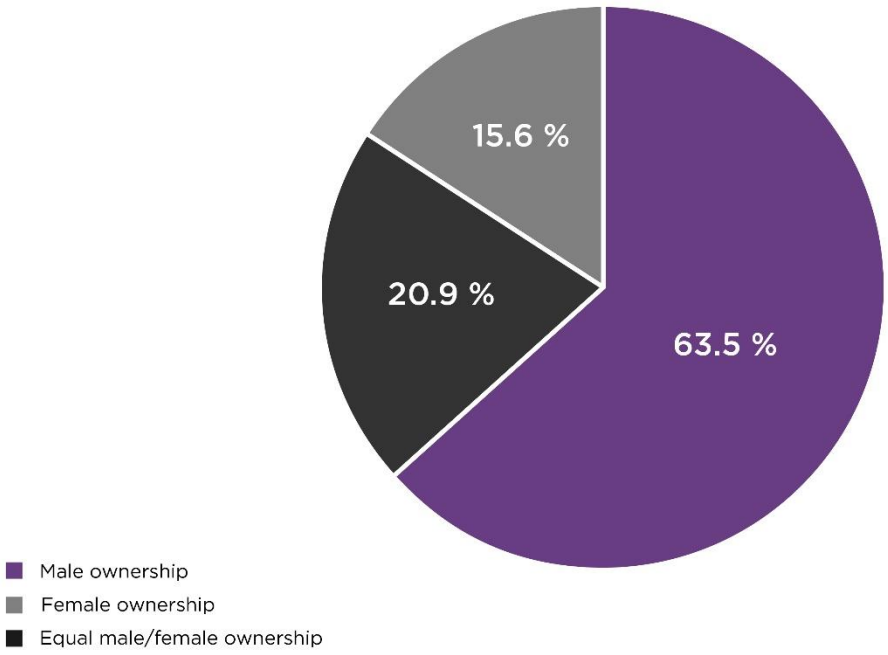
[3] The survey defines SMEs as employer businesses, which excludes self-employed individuals without employees.

[4] In particular, the following North American Industry Classification System (NAICS) industries are excluded: 22, 52, 55, 61, 91, 5321, 5324, 6214, 6215, 6219, 6221, 6222, 6223 and 6242.

[5] More details on the *Survey on Financing and Growth of Small and Medium Enterprises* are provided in the methodology report and survey questionnaire.

[6] Equally owned SMEs are treated as distinct from women-owned or male-owned SMEs as their ownership dynamics may be different. For example, the survey shows that roughly 80 percent of equally owned SMEs are owned by members of the same family, suggesting that the owners of equally owned SMEs tend to be spouses or common-law partners. See also Grekou et al. (2018).

Figure 1: Gender distribution of SME ownership



Source: Statistics Canada, *Survey on Financing and Growth of Small and Medium Enterprises*, 2017.

The survey results also point to gender differences associated with access to financing and financing request outcomes, as well as firm and primary decision maker characteristics, such as firm size or sector and primary decision maker age or education. These survey results are presented below as a preliminary to the econometric analysis discussed in the following sections.

Survey results presented in Table 1 indicate gender differences in key firm financing metrics (see Appendix Table A1 for dependent variable definitions[7]).[8] Male-owned SMEs are more likely to seek external financing (of any type), debt financing (of any type), lease financing and trade credit financing. Furthermore, women-owned SMEs are more likely to be discouraged borrowers (i.e., firms that did not request financing because of expectations that the request would be turned down).

Financing request outcomes also vary by gender. Women-owned firms, on average, receive 88.0 percent of the debt financing requested, compared with 84.3 percent received by male-owned firms. Correspondingly, debt financing requests by women-owned firms (92.3 percent) are more often approved than debt financing requests by male-owned firms (88.7 percent).[9] Note that while the differences in lease and trade credit approval rates are statistically significant, they are not economically significant. In addition, the average interest rates charged on authorized lines of credit and credit cards are higher for women-owned firms than for male-owned firms.

[7] Appendix Table A1 does not define approval of government, lease and trade credit financing requests as these are not modelled econometrically here. Government, lease and trade credit approval rates refer to overall approval rates (i.e., the requested amount was partially or fully authorized).

[8] All differences discussed in this section are statistically significant at the 10 percent level.

[9] The ratio of debt financing authorized to debt financing requested refers to a firm's largest debt financing request. Likewise, the debt financing approval rate here refers to full authorization of a firm's largest requested amount. Women-owned SMEs are also more likely than male-owned SMEs to have their debt financing requests partially or fully authorized.

Table 1: Firm financing indicators by gender

	Women-owned	Male-owned	Significant difference between women-owned and male-owned (at 10% level)	All SMEs
Access to financing	%	%		%
Sought external financing				
Any type	40.7	47.4	Yes	47.1
Debt	23.8	25.7	Yes	25.6
Lease	5.2	7.8	Yes	7.2
Trade credit	17.7	25.5	Yes	25.7
Equity	0.4	1.0	No	0.8
Government	3.5	3.8	No	3.7
Obtaining financing was a major, moderate or minor obstacle to growth	32.1	33.5	No	34.0
Obtaining financing was a major obstacle to growth	7.8	7.4	No	7.7
Discouraged borrower	1.7	0.5	Yes	1.3
Financing approval				
Ratio of debt financing authorized to debt financing requested (average)	88.0	84.3	Yes	84.8
Financing request approved				
Debt	92.3	88.7	Yes	89.2
Government	70.8	78.6	No	76.6
Lease	100.0	99.5	Yes	99.5
Trade credit	99.9	98.9	Yes	98.9
Interest rates				
Line of credit (average)	5.7	5.3	Yes	5.4
Credit card (average)	18.8	17.7	Yes	17.9
Term loan (average)	5.4	5.3	No	5.2
Non-residential mortgage (average)	4.7	4.6	No	4.5

Source: Statistics Canada, *Survey on Financing and Growth of Small and Medium Enterprises*, 2017.

At the same time, Table 2 shows that women-owned firms have different firm and primary decision maker characteristics than male-owned firms (see Appendix Table A2 for control variable definitions). For example, women-owned firms tend to operate in different industries, with just under half of women-owned firms in the retail trade (17.9 percent), health care and social assistance (16.4 percent) and professional, scientific and technical services (12.8 percent) sectors. By contrast, 40 percent of male-owned firms operate in the construction (19.5 percent), professional, scientific and technical services (11.3 percent) and retail trade (9.6 percent) sectors.

In addition, women-owned firms tend to be smaller and younger. Over 60 percent of women-owned firms have 1 to 4 employees, compared with 53.9 percent of male-owned firms, while women-owned firms (1.0 percent) are less likely to be medium-sized enterprises than male-owned firms (2.3 percent). Correspondingly, given that younger firms tend to be smaller, compared with male-owned firms, women-owned firms are more likely to be start-ups and less likely to be well established (i.e., older than 20 years).

Finally, survey results point to gender differences in ambition and firm structure. Women-owned firms are less likely to report that they intend to expand sales into new markets. Furthermore, they are less likely to be incorporated and more likely to be franchises.

Primary decision maker characteristics also vary by gender: women-owned firms tend to be operated by primary decision makers who are both younger and have higher levels of education.

Table 2: Owner and firm characteristics by gender

	Women-owned	Male-owned	Significant difference between women-owned and male-owned (at 10% level)	All SMEs
Firm characteristics	%	%		%
Sector				
Information and communication technology	1.3	4.7	Yes	4.2
Primary	2.2	6.2	Yes	6.2
Construction	4.2	19.5	Yes	16.4
Manufacturing	4.4	6.1	Yes	5.6
Wholesale trade	2.8	5.6	Yes	4.9
Retail trade	17.9	9.6	Yes	11.5
Transportation and warehousing	2.6	6.8	Yes	5.7
Professional, scientific and technical services	12.8	11.3	Yes	11.0
Health care and social assistance	16.4	5.6	Yes	7.3
Accommodation and food services	10.6	6.5	Yes	8.2
Personal and laundry services	9.1	1.0	Yes	2.6
Other industries	15.6	17.0	No	16.4
Size (number of employees)				
1 to 4	60.7	53.9	Yes	54.8
5 to 19	30.1	32.0	Yes	32.6
20 to 99	8.2	11.7	Yes	10.7
100 to 499	1.0	2.3	Yes	1.8

Firm age				
Start-up (2 years or younger)	**12.0**	**10.4**	**Yes**	**10.6**
3 to 10 years	**36.3**	**32.2**	**Yes**	**33.1**
11 to 20 years	**27.6**	**25.9**	**No**	**26.0**
Older than 20 years	**24.2**	**31.5**	**Yes**	**30.4**
Intended use of debt financing				
Physical capital	**7.6**	**11.5**	**Yes**	**11.6**
Computer hardware or software	**3.4**	**3.8**	**No**	**3.7**
Working capital / operating capital	**14.7**	**15.7**	**No**	**15.9**
Research and development	**14.8**	**17.0**	**No**	**17.0**
Debt consolidation	**3.8**	**2.0**	**Yes**	**2.2**
Purchase a business	**0.2**	**0.8**	**Yes**	**0.7**
Enter a new market	**1.7**	**1.9**	**No**	**2.0**
Other	**3.4**	**3.5**	**No**	**3.5**
Other firm characteristics				
Expansion intentions	**42.8**	**47.4**	**Yes**	**46.1**
Franchise	**7.7**	**5.7**	**Yes**	**6.2**
Incorporated	**70.3**	**82.3**	**Yes**	**80.1**
Business intends to close within the next 5 years	**28.1**	**28.7**	**No**	**28.0**
Primary decision maker characteristics				
Age				
Younger than 30 years	**1.7**	**1.8**	**No**	**1.7**
30 to 39 years	**18.4**	**13.2**	**Yes**	**14.1**
40 to 49 years	**23.4**	**25.1**	**Yes**	**25.1**
50 to 64 years	**47.0**	**46.5**	**No**	**46.8**
Older than 65 years	**9.5**	**13.3**	**Yes**	**12.3**
Education				
Less than high school diploma	**2.5**	**7.5**	**Yes**	**6.6**
High school diploma	**19.2**	**24.1**	**Yes**	**23.6**
College / cégep / trade school diploma	**32.3**	**28.3**	**Yes**	**29.3**
Bachelor's degree or higher	**45.9**	**40.0**	**Yes**	**40.6**

Source: Statistics Canada, *Survey on Financing and Growth of Small and Medium Enterprises,* 2017.

Many of the above differences in firm and primary decision maker characteristics likely relate to observed gender differences in firm financing outcomes. For example, larger firms are more likely to seek financing and to have their financing requests authorized, while firms operating in certain sectors may be more likely to rely upon personal financing or to be viewed by lenders as more risky. Likewise, age may relate to firm financing as wealth often increases with age, and personal wealth is often used as collateral for loans extended to SMEs, particularly smaller firms.[10]

For a deeper understanding of these relationships, the remainder of this report models firm financing outcomes econometrically, adjusting for observable firm and primary decision maker characteristics.

4 Methodology

For each firm financing outcome, a simple model of the outcome as a function of women ownership and other observable firm and primary decision maker characteristics can be written as

$$financing\_outcome_i = \boldsymbol{\delta} women_i + x_i'\boldsymbol{\beta} + \varepsilon_i,$$

where the subscript i indicates firm i. The dependent variable, $financing\_outcome_i$, represents the following financing outcomes: whether the firm seeks financing; whether the firm considers obtaining financing to be an obstacle to growth; whether the firm is a discouraged borrower; the ratio of the amount of debt financing authorized to the amount of debt financing requested; debt financing approval; and the interest rate charged on authorized debt financing.[11]

The binary variable $women_i$ is equal to 1 if an SME is women-owned and otherwise equal to 0. With male ownership as the base category,[12] $\boldsymbol{\delta}$ is the coefficient of interest: it provides a measure of how a given financing outcome varies with women ownership relative to male ownership, conditional on control variables captured by the vector x_i'.

In all models, the vector x_i' includes a dummy variable indicating equal ownership, as well as controls for the following firm characteristics — firm size, firm age, industry sector, expansion intentions and firm type — as well as primary decision maker characteristics — age and level of education.

Some models include other controls. In models of the probability of seeking financing, a dummy variable indicating if the firm expects to close within the next five years is included. In models of the ratio of debt financing authorized to debt financing requested and of the probability of debt financing approval, controls for the intended use of the requested financing are included. In models of whether obtaining financing is considered to be an obstacle to growth, estimated for all SMEs, a dummy

[10] According to the survey, 41 percent of SMEs that received debt financing provided personal assets as collateral on their loans; the corresponding figures for firms with 1 to 4 employees, 5 to 19 employees, 20 to 99 employees and 100 to 499 employees were 45, 44, 31 and 12 percent respectively.

[11] See Appendix Table A1 for dependent variable definitions.

[12] As noted in the following paragraph, the model also includes a dummy variable indicator for equal ownership. Inclusion of this indicator makes male ownership the base category.

variable indicating whether the firm sought external financing is included. Appendix Table A2 details the definitions of all control variables.[13]

The probabilities of financing outcomes — seeking financing, considering obtaining financing as an obstacle to growth, being a discouraged borrower and debt financing approval — are estimated, by maximum likelihood, as probit models. The ratio of debt financing authorized to debt financing requested is estimated, by maximum likelihood, as a fractional probit model, taking values between 0 and 1 inclusively. Estimation of a dependent fractional variable (i.e., a variable bounded by 0 and 1 inclusively) by ordinary least squares (OLS) may yield predicted values that are not bounded between 0 and 1. Fractional models circumvent this issue by using quasi-likelihood estimation methods (Papke and Wooldridge, 1996). Finally, interest rates on authorized debt financing are estimated as OLS models.

This framework allows for estimates of gender differences in firm financing outcomes, adjusting for observable differences in firm and primary decision maker characteristics. As the results below show, many of these observable characteristics play an important role in the estimated models.

However, other differences important to firm financing outcomes, such as firms' credit scores, security (e.g., collateral) and serviceability (i.e., income to debt ratio), are unobserved and, therefore, not adjusted for in the estimates.[14] Due to this unobserved heterogeneity, the results represent conditional correlations rather than causal estimates.

Note that this report focuses in large part on debt financing. In terms of value, debt financing is, by far, the most important source of financing for SMEs: survey results estimate that SMEs, in 2017, requested $60.9 billion, $5.7 billion, $11.4 billion, $8.4 billion and $0.5 billion worth of debt financing, lease financing, trade credit, equity financing and government financing respectively.[15] Correspondingly, the survey questionnaire asks detailed questions on debt financing request outcomes, such as the amounts requested and authorized, as well as interest rates charged on authorized debt financing, which allow for the econometric analysis of these outcomes presented below.

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[13] Although the focus here is on debt financing approval, models of the probability of government, lease, trade credit and equity financing approval were also explored. These models yield no evidence of gender differences. The results are not presented here due to relatively small sample sizes (government and equity financing approval) and confidentiality restrictions (lease and trade credit financing approval).

[14] Linking the survey data with administrative data on corporate tax filings, which include variables such as assets, revenue and liabilities, allows for proxies of security and serviceability. However, these variables are only available for the 87 percent of SMEs that are incorporated. Notably, results from models including such proxies, estimated for incorporated firms, are qualitatively similar to those presented below.

[15] These estimates are fairly noisy, with coefficients of variation of 6.6 (debt financing), 9.0 (lease financing), 5.8 (trade credit), 27.4 (equity financing) and 11.4 (government financing), respectively, but they should offer reliable indicators of the relative magnitude of requests. However, while the point estimates may not be especially robust, estimates of $60.9 billion of debt financing requested in total and $26 billion of all other types of financing requested in total reliably speak to the importance of debt financing relative to all other types of financing for SMEs. Note that the estimate for total equity financing from the survey results is particularly noisy, while the low proportion of SMEs (0.8 percent) requesting equity financing precludes more detailed econometric analysis.

5 Results

The estimates presented below are robust to a range of alternative specifications of the error term distribution, of control variables and of the variance–covariance matrix. In particular, estimates from linear probability and logit models of the probabilities of financing outcomes are consistent with the probit model estimates presented below, while estimates from fractional logit models are consistent with the fractional probit estimates presented below. Likewise, the results are qualitatively unchanged under a range of alternative specifications of control variables.[16] In addition, statistical inference is consistent whether the standard errors use heteroscedasticity-robust estimators of the variance–covariance matrix, as is presented below, or, alternatively, use (one-way) cluster-robust estimators of the variance–covariance matrix clustered on geographical region or on NAICS two-digit sector codes.

Note that estimates of the coefficients and marginal effects for industry controls are not shown here due to Statistics Canada confidentiality restrictions.[17] However, while the point estimates themselves are sensitive, qualitative information about them is not. In particular, the signs (i.e., positive or negative), relative magnitudes (i.e., ordinal rankings of negative and positive estimates respectively), and statistical significance of the coefficients and marginal effects estimated for industry controls are not considered sensitive. This information is used to qualitatively discuss how firm financing metrics vary by industry.

5.1 Access to financing

Three metrics for access to financing are considered: the probability of requesting financing, the probability of considering obtaining financing to be an obstacle to growth, and the probability of being a discouraged borrower. Results yield no evidence of gender differences in the probability of requesting financing or in the probability of considering obtaining financing to be an obstacle to growth. By contrast, the results offer some evidence that women-owned SMEs are significantly more likely than male-owned SMEs to be discouraged borrowers.

5.1.1 Requesting financing

Table 3 presents the average marginal effects of the estimated coefficients from probit models of the probability of seeking any type of external financing, and of the probability of seeking debt financing. Adjusting for firm and primary decision maker characteristics, there is no evidence of significant differences, between women-owned and male-owned SMEs, in the likelihood of seeking financing. This suggests that the 6.7 percentage point difference in the propensity of women-owned and male-owned SMEs seeking financing (Table 1) may be attributable to observable differences in characteristics such as firm sector or size.

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[16] For example, the results are nearly identical when control variables include firm sales growth controls, use firm size categories 1 to 4, 5 to 19, 20 to 99 and 100 to 499 employees (in place of NAICS-size quintiles) or use primary decision maker experience (in place of primary decision maker age).

[17] This explains why an analysis of financing women-owned businesses by industry sector was not possible for this study. An insufficient number of observations also made it difficult to include interaction terms between gender ownership and industry sector in the model.

Table 3: Probit estimates of the probability of seeking external financing

	Debt financing (all SMEs)		Any type of financing (all SMEs)	
	Average marginal effect	Standard error	Average marginal effect	Standard error
Ownership gender (omitted: majority-male)				
Majority-women	0.017	0.022	-0.010	0.024
Equally owned	0.021	0.017	0.026	0.020
Firm size (omitted: 1st quintile)				
Quintile 2	0.040**	0.021	0.080***	0.021
Quintile 3	0.103***	0.022	0.178***	0.022
Quintile 4	0.163***	0.025	0.250***	0.022
Quintile 5	0.188***	0.033	0.269***	0.029
Firm age (omitted: 0 to 2 years)				
3 to 10 years	-0.075***	0.022	-0.049*	0.027
11 to 20 years	-0.085***	0.022	-0.046*	0.028
Older than 20 years	-0.098***	0.022	0.002	0.029
Primary decision maker education (omitted: less than high school diploma)				
High school diploma	-0.033	0.029	-0.025	0.035
College / cégep / trade school diploma	-0.017	0.029	0.003	0.034
Bachelor's degree or higher	-0.006	0.030	-0.010	0.035
Intends to expand sales into new markets	0.090***	0.015	0.090***	0.017
Franchise	-0.314	0.034	-0.088**	0.038
Incorporated	0.001	0.220	-0.028	0.024
Intends to close business within the next 5 years	-0.099***	0.022	-0.105***	0.029
Primary decision maker age	-0.002***	0.001	-0.002**	0.001
Industry controls	Included		Included	
Provincial/regional controls	Included		Included	
Number of observations	9,115		9,115	
Pseudo R-squared	0.070		0.090	

Notes: * indicates 10 percent level of significance.
** indicates 5 percent level of significance.
*** indicates 1 percent level of significance.

Sources: Statistics Canada, *Survey on Financing and Growth of Small and Medium Enterprises*, 2017; and authors' calculations.

Firm characteristics, rather than gender of ownership, appear to be important factors in the decision to seek financing. In particular, seeking financing varies significantly with firm sector, size, age and intentions.

Compared with SMEs in the accommodation and food services sector, SMEs in the primary, construction, manufacturing, wholesale trade and retail trade sectors are significantly more likely to seek financing, while SMEs operating in professional, scientific and technical services, and health care and social assistance industries are less likely to seek financing.

Larger firms are more likely to seek financing. Compared with firms in their industry's first size quintile, firms in their industry's second, third, fourth and fifth size quintiles are 4.0, 10.3, 16.3 and 18.8 percentage points more likely to seek debt financing. Results from the model of seeking any type of external financing are qualitatively similar, though they point to increases in likelihood of greater magnitude for larger firms.

Start-up firms are more likely to seek external financing. Firms that have operated for 3 to 10 years, 11 to 20 years and more than 20 years are 7.5, 8.5 and 9.8 percentage points, respectively, less likely than start-ups to seek debt financing; firms that have operated for 3 to 10 years and 11 to 20 years are 4.9 and 4.6 percentage points, respectively, less likely than start-ups to seek any type of financing.[18]

Firm intentions send a strong signal of the probability of seeking financing. Firms that report intensions to expand sales into new markets over the coming three years are 9.0 percentage points more likely to seek debt financing and 9.0 percentage points more likely to seek any type of external financing. By contrast, firms that intend to close their business within the next five years are 9.9 and 10.5 percentage points less likely to request debt financing and to request any type of financing respectively.

The role of primary decision maker characteristics appears to be modest. Education controls are not significant, whereas the estimated coefficient for primary decision maker age suggests that older primary decision makers may be modestly less likely to seek financing.

5.1.2 Obtaining financing as an obstacle to growth

Tables 4 and 5 present the estimated average marginal effects from probit models reporting that obtaining financing is a major obstacle to growth and reporting that obtaining financing is a major, moderate or minor obstacle to growth. Each of these models is estimated for three subsamples: all SMEs, SMEs that did not seek financing (non-seekers) and SMEs that sought financing (seekers).

Results offer no evidence that observably similar women-owned and male-owned SMEs, among all SMEs, non-seekers or seekers, face different probabilities of reporting that obtaining financing is an obstacle to growth. Taken together with the survey results presented in Table 1, wherein gender differences are not significant, this implies that women-owned and male-owned firms are similarly likely to view obtaining financing as an impediment to growth regardless of whether firm and primary decision maker characteristics are adjusted for.

[18] There is no significant difference between firms older than 20 years and start-ups with respect to seeking any type of financing.

Table 4: Probit estimates of the probability of reporting that obtaining financing is a major obstacle to growth

	Major obstacle to growth (all SMEs)		Major obstacle to growth (SMEs that sought financing)		Major obstacle to growth (SMEs that did not seek financing)	
	Average marginal effect	Standard error	Average marginal effect	Standard error	Average marginal effect	Standard error
Ownership gender (omitted: majority-male)						
Majority-women	0.015	0.013	0.009	0.021	0.015	0.014
Equally owned	0.009	0.011	0.022	0.018	-0.001	0.012
Firm size (omitted: 1st quintile)						
Quintile 2	-0.001	0.012	0.036	0.024	-0.018*	0.011
Quintile 3	0.006	0.012	0.025	0.020	-0.006	0.012
Quintile 4	-0.009	0.012	0.008	0.023	-0.018	0.011
Quintile 5	-0.010	0.016	-0.024	0.023	0.015	0.024
Firm age (omitted: 0 to 2 years)						
3 to 10 years	-0.001	0.013	0.026	0.024	-0.013	0.012
11 to 20 years	-0.012	0.013	-0.012	0.023	-0.005	0.013
Older than 20 years	-0.026**	0.013	-0.035	0.022	-0.011	0.014
Primary decision maker education (omitted: less than high school diploma)						
High school diploma	-0.021	0.014	-0.124	0.141	-0.022	0.016
College / cégep / trade school diploma	-0.026*	0.014	-0.115	0.136	-0.032**	0.014
Bachelor's degree or higher	-0.030**	0.015	-0.273*	0.140	-0.016	0.018
Sought financing in 2017	0.052***	0.009	-	-	-	-
Intends to expand sales into new markets	0.040***	0.009	0.059***	0.015	0.025**	0.010
Franchise	0.009	0.020	0.049	0.040	-0.006	0.017
Incorporated	0.016	0.010	0.038**	0.016	0.003	0.012
Primary decision maker age	0.000	0.000	0.000	0.001	-0.001*	0.000
Industry controls	Included		Included		Included	
Provincial/regional controls	Included		Included		Included	
Number of observations	9,115		5,125		3,990	
Pseudo R-squared	0.057		0.046		0.071	

Notes: * indicates 10 percent level of significance.
** indicates 5 percent level of significance.
*** indicates 1 percent level of significance.

Sources: Statistics Canada, *Survey on Financing and Growth of Small and Medium Enterprises*, 2017; and authors' calculations.

Table 5: Probit estimates of the probability of reporting that obtaining financing is a minor, moderate or major obstacle to growth

	Obstacle to growth (all SMEs)		Obstacle to growth (SMEs that sought financing)		Obstacle to growth (SMEs that did not seek financing)	
	Average marginal effect	Standard error	Average marginal effect	Standard error	Average marginal effect	Standard error
Ownership gender (omitted: majority-male)						
Majority-women	0.006	0.023	-0.018	0.038	0.029	0.028
Equally owned	0.024	0.019	0.028	0.027	0.027	0.026
Firm size (omitted: 1st quintile)						
Quintile 2	0.027	0.022	0.063*	0.035	0.004	0.027
Quintile 3	0.063***	0.023	0.077**	0.033	0.053*	0.031
Quintile 4	0.067***	0.024	0.079**	0.035	0.066	0.034
Quintile 5	0.055*	0.031	0.040	0.039	0.099*	0.055
Firm age (omitted: 0 to 2 years)						
3 to 10 years	-0.017	0.026	0.023	0.039	-0.039	0.034
11 to 20 years	-0.035	0.027	-0.035	0.041	-0.028	0.036
Older than 20 years	-0.076***	0.028	-0.090**	0.040	-0.048	0.038
Primary decision maker education (omitted: less than high school diploma)						
High school diploma	-0.034	0.033	-0.031	0.046	-0.034	0.042
College / cégep / trade school diploma	-0.020	0.032	0.030	0.044	-0.061	0.041
Bachelor's degree or higher	-0.044	0.032	0.005	0.044	-0.083*	0.042
Sought financing in 2017	0.157***	0.016	-	-	-	-
Intends to expand sales into new markets	0.104***	0.016	0.136***	0.024	0.074***	0.022
Franchise	-0.036	0.035	-0.123**	0.054	0.040	0.047
Incorporated	0.007	0.023	-0.019	0.036	0.031	0.028
Primary decision maker age	-0.003***	0.001	-0.003***	0.001	-0.003***	0.001
Industry controls	Included		Included		Included	
Provincial/regional controls	Included		Included		Included	
Number of observations	9,115		5,125		3,990	
Pseudo R-squared	0.069		0.053		0.046	

Notes: * indicates 10 percent level of significance.
** indicates 5 percent level of significance.
*** indicates 1 percent level of significance.

Sources: Statistics Canada, *Survey on Financing and Growth of Small and Medium Enterprises*, 2017; and authors' calculations.

The estimates point to three significant predictors of whether a firm's growth is inhibited by its ability to obtain financing: expansion intentions, whether the firm sought financing and the industry.

Firms intending to expand sales into new markets are between 2.5 (non-seekers) and 5.9 (seekers) percentage points more likely than firms that did not intend to expand to consider obtaining financing to be a major obstacle to growth, and between 7.4 (non-seekers) and 13.6 (seekers) percentage points more likely to consider obtaining financing to be a major, moderate or minor obstacle to growth.

SMEs that seek financing are more likely to view obtaining financing to be an obstacle to their growth. In the models estimated for all SMEs, firms that sought financing are 5.2 percentage points more likely than non-seekers to report that obtaining financing is a major obstacle to growth, and 15.7 percentage points more likely to report that obtaining financing is a major, moderate or minor obstacle to growth.[19]

The third strong predictor is industry. In models reporting that obtaining financing is a major obstacle to growth, these effects are heterogeneous across subsamples. For example, in the model estimated for all SMEs, firms in primary industries are significantly less likely than firms in accommodation and food services industries to view obtaining financing as an obstacle to growth. By contrast, the corresponding marginal effects in the models estimated for seekers and non-seekers are insignificant (both statistically and economically).

In models reporting that obtaining financing is a major, moderate or minor obstacle to growth, the marginal effects of industry controls show greater homogeneity across subsamples. For example, for each subsample, compared with SMEs in accommodation and food services, SMEs in health care and social assistance; professional, scientific and technical services; and information and communication technology sectors are significantly less likely to consider obtaining financing to be an obstacle to growth.

Other firm and primary decision maker characteristics appear to play a more modest role in reporting obtaining financing to be a major obstacle to growth. Aside from mixed evidence that higher education is associated with a lower probability of viewing obtaining financing as a major obstacle to growth, the estimated marginal effects of other controls are not significantly different from zero.[20]

By contrast, in the models reporting obtaining financing to be a major, moderate or minor obstacle to growth, controls for firm size, firm age and primary decision maker age are significant. These results point to larger firms (relative to firms in the industry's first size quintile) as being more likely to view obtaining financing as an obstacle to growth, whereas older firms (relative to start-ups) and firms with older primary decision makers as less likely to do so.

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[19] Furthermore, the estimated marginal effects of expansion intentions are larger for seekers than for non-seekers.

[20] While the marginal effects of at least one post-secondary education control are significant in all three subsamples, the corresponding confidence intervals contain zero, or near-zero, values. Likewise, in the model estimated for seekers, the marginal effect of incorporation is significant, but the confidence interval contains near-zero values, while in the model estimated for non-seekers the marginal effect of primary decision maker age is significant but contains the value zero.

5.1.3 Discouraged borrowers

Table 6 presents results from the model of discouraged borrowers. In contrast to the results on seeking financing and whether obtaining financing is considered to be an obstacle to growth, the results on discouraged borrowers yield evidence that women-owned firms are significantly more likely to be discouraged borrowers than male-owned firms. In particular, the estimated marginal effect suggests that women-owned firms are 1.4 percentage points more likely than male-owned firms to not seek financing because they expect their financing request to be turned down.[21]

Interestingly, the estimated econometric difference between women-owned and male-owned firms is very similar in magnitude to the difference observed in the *Survey on Financing and Growth of Small and Medium Enterprises,* 2017 results (Table 1), suggesting that the gender difference in discouraged borrowers estimated in the survey results is likely not attributable to observable firm or primary decision maker characteristics.

Caution should be taken in interpreting this result for two reasons. First, the estimated marginal effect is somewhat imprecise — although the estimate is significant at the 10 percent level, at the 5 percent level the confidence interval includes zero. A second reason for caution is that the economic significance of the estimate depends upon the perspective taken — with discouraged borrowers comprising only 1.3 percent of SMEs (Table 1), a gender difference of 1.4 percentage points is substantive. An alternative view, however, is that women-owned SMEs are very unlikely to be discouraged borrowers, even if they are more likely to be so than their male-owned SME counterparts.

The estimated marginal effects of other control variables point to two predictors of being a discouraged borrower: industry and firm size. Compared with SMEs in the accommodation and food services sector, SMEs in primary; professional, scientific and technical services; and construction industries are less likely to be discouraged borrowers.

Likewise, large SMEs are less likely to be discouraged from borrowing. In contrast to firms in a sector's smallest size quintile, firms in a sector's largest size quintile are significantly less likely to be discouraged borrowers.[22]

[21] Morsy et al. (2019) examine the demand side of financing and show that women entrepreneurs in Africa are more likely to self-select themselves out of the credit market.

[22] The point estimate is not disclosed due to Statistics Canada confidentiality restrictions.

Table 6: Probit estimates of the probability of being a discouraged borrower

	Discouraged borrower (SMEs that did not seek financing in 2017)	
	Average marginal effect	Standard error
Ownership gender (omitted: majority-male)		
Majority-women	**0.014***	**0.007**
Equally owned	**-0.001**	**0.005**
Firm size (omitted: 1st quintile)		
Quintile 2	**0.002**	**0.005**
Quintile 3	-	-
Quintile 4	-	-
Quintile 5	-	-
Firm age (omitted: 0 to 2 years)		
3 to 10 years	**-0.004**	**0.005**
11 to 20 years	**-0.001**	**0.006**
Older than 20 years	**-0.009***	**0.005**
Primary decision maker education (omitted: less than high school diploma)		
High school diploma	**-0.007**	**0.007**
College / cégep / trade school diploma	**-0.010**	**0.007**
Bachelor's degree or higher	**-0.014***	**0.008**
Intends to expand sales into new markets	**0.002**	**0.004**
Franchise	-	-
Incorporated	**-0.010**	**0.007**
Primary decision maker age	**0.000**	**0.000**
Industry controls	**Included**	
Provincial/regional controls	**Included**	
Number of observations	**3,990**	
Pseudo R-squared	**0.137**	

Notes: * indicates 10 percent level of significance.
** indicates 5 percent level of significance.
*** indicates 1 percent level of significance.

"-" indicates point estimates not disclosed due to Statistics Canada confidentiality restrictions.

Sources: Statistics Canada, *Survey on Financing and Growth of Small and Medium Enterprises*, 2017; and authors' calculations.

5.2 Debt financing approval

Table 7 presents estimates from models of the ratio of debt financing approved to debt financing requested and of the probability of debt financing approval.[23] Results indicate that, adjusting for observable characteristics, women-owned firms receive ratios 5.2 percentage points higher than male-owned firms. Correspondingly, the debt financing requests of women-owned firms are 6.1 percentage points more likely to be fully approved.[24]

The estimates are similar in magnitude to those observed in the *Survey on Financing and Growth of Small and Medium Enterprises,* 2017 results (Table 1), suggesting that the gender differences in debt financing request outcomes are likely not attributable to firm or primary decision maker characteristics. These results are difficult to interpret, particularly to the extent that it is unlikely that prospective borrowers' gender plays a significant role in the credit scoring models underlying debt financing lending decisions.

One explanation for this may relate to the amounts of debt financing requested. Descriptive statistics indicate that women-owned firms tend to request smaller amounts of debt financing than male-owned firms, and that smaller requests are more likely to be approved. However, to the extent that firm size correlates with the size of debt financing requests, controls for firm size should adjust for request size. Notably, when request size is explicitly included as a covariate, the result does not change qualitatively. Further analysis is likely required to better understand this result.

Of the firm and primary decision maker characteristics adjusted for, firm sector, size, age and incorporation, as well as a firm's intended use of the financing, vary significantly with debt financing approval.

Relative to SMEs in the accommodation and food services sector, businesses in primary; health care and social assistance; and wholesale trade industries receive higher proportions of their debt financing requests, which are also more likely to be fully approved.

Requests for debt financing by the largest SMEs are more likely to be approved than those by the smallest SMEs. Compared with firms in a sector's smallest size quintile, firms in a sector's largest size quintile receive 11.5 percentage points more of their requested amounts and their debt financing requests are 13.3 percentage points more likely to be fully approved. The relationship appears to be non-linear, however, with no significant differences between firms in a sector's second, third and fourth size quintiles and firms in a sector's first size quintile.

Similarly, debt financing requests by well-established firms have a higher likelihood of approval than requests by start-ups. Compared with firms in operation for two years or less, firms in operation for 11 to 20 years and more than 20 years receive 7.3 and 6.0 percentage points more of their debt financing requests. The results for the probability of debt financing approval are qualitatively similar.

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[23] Note that these estimates are of the probability of approval for the subpopulation of SMEs that sought financing. The estimates may not be representative of the full population of SMEs if firms that may be less likely to be approved for financing (e.g., less creditworthy firms) tend not to apply for financing in the first place. However, with such a small proportion (1.3 percent) of SMEs reporting that they did not seek financing because they expected their request to be turned down, this is unlikely to be a significant issue (i.e, change the results qualitatively) in this context.

[24] Probit models, not presented here, of the probability of debt financing overall approval (i.e., partial or full authorization of the amount requested) yield similar results.

Table 7: Fractional probit estimates of the ratio of debt financing authorized to debt financing requested and probit estimates of the probability of debt financing (full) approval

	Debt financing authorized to debt financing requested (SMEs that sought debt financing)		Debt financing (full) approval (SMEs that sought debt financing)	
	Average marginal effect	Standard error	Average marginal effect	Standard error
Ownership gender (omitted: majority-male)				
Majority-women	0.052**	0.025	0.0612**	0.028
Equally owned	0.021	0.023	0.022	0.025
Firm size (omitted: 1st quintile)				
Quintile 2	-0.031	0.032	-0.030	0.035
Quintile 3	0.010	0.026	0.008	0.029
Quintile 4	0.025	0.027	0.041	0.029
Quintile 5	0.115***	0.022	0.133***	0.024
Firm age (omitted: 0 to 2 years)				
3 to 10 years	0.021	0.029	0.022	0.032
11 to 20 years	0.073***	0.028	0.075**	0.031
Older than 20 years	0.060**	0.030	0.066**	0.033
Intended use of debt financing				
Physical capital	-0.015	0.023	-0.019	0.025
Computer hardware or software	0.105***	0.020	0.125***	0.022
Working capital	-0.062***	0.021	-0.068***	0.023
Research and development	-0.052	0.045	-0.064	0.053
Debt consolidation	-0.114***	0.044	-0.105**	0.046
Purchase a business	0.042	0.048	0.047	0.056
Enter a new market	-0.079*	0.041	-0.106**	0.048
Other	0.000	0.030	0.000	0.033
Primary decision maker education (omitted: less than high school diploma)				
High school diploma	-0.024	0.041	-0.053	0.047
College / cégep / trade school diploma	0.024	0.036	0.005	0.041
Bachelor's degree or higher	-0.001	0.039	-0.030	0.044
Primary decision maker age	0.000	0.001	0.000	0.001
Intends to expand sales into new markets	-0.028	0.021	-0.023	0.023
Franchise	-0.081	0.068	-0.069	0.069
Incorporated	-0.096***	0.021	-0.105***	0.025
Industry controls	Included		Included	
Provincial/regional controls	Included		Included	
Number of observations	2,789		2,789	
Pseudo R-squared	0.115		0.118	

Notes: * indicates 10 percent level of significance.
** indicates 5 percent level of significance.
*** indicates 1 percent level of significance.

Sources: Statistics Canada, *Survey on Financing and Growth of Small and Medium Enterprises*, 2017; and authors' calculations.

Incorporation is negatively associated with debt financing approval. Incorporated firms receive 9.6 percentage points less of the debt financing they request, and their requests are 10.5 percentage points less likely to be fully approved. This likely reflects creditors factoring limited liability protection into their lending decisions.

Finally, firms' intended use of the debt financing they request is significantly related to the outcomes of those requests. Firms intending to use debt financing to purchase computer hardware or software receive higher ratios, and their requests are more likely to be approved. By contrast, firms requesting debt financing for working capital, to enter new markets or to consolidate debt receive lower ratios, and their requests are less likely to be approved.

5.3 Interest rates

Table 8 presents estimates from models of the interest rates charged on authorized lines of credit, credit cards, term loans and non-residential mortgages.[25] These estimates do not yield evidence, for any type of debt financing, of gender differences in the interest rates charged on authorized debt financing.

This suggests that the higher interest rates charged to women-owned firms on lines of credit and credit cards, observed in the *Survey on Financing and Growth of Small and Medium Enterprises,* 2017 results (Table 1), may be attributable to firm or primary decision maker characteristics. These estimates may be noisy, however, given the relatively small sample sizes.

Comparing estimates across models, the results suggest that the relationships between firm and primary decision maker characteristics and interest rates are heterogeneous across different types of debt financing.

For example, in models of interest rates on lines of credit and credit cards, only industry controls are statistically significant. Variation in interest rates for these two types of debt financing, therefore, does not appear to be related to observed firm and primary decision maker characteristics.

By contrast, in the model of interest rates on term loans, firm sector, size and expansion intentions, as well as primary decision maker age, significantly predict interest rates. Term loans extended to SMEs in accommodation and food services have higher interest rates than term loans extended to SMEs in most other sectors, including primary, construction and retail trade industries.

[25] Note that these estimates are of the interest rates charged on loans extended to the subpopulation of SMEs that sought financing and had their financing requests approved. The estimates may not be representative of the full population of SMEs if firms that may be less likely to be approved for financing or more likely to receive higher interest rates (e.g., less creditworthy firms) tend not to apply for financing in the first place. This would make the subpopulation that applies for financing more creditworthy and, therefore, more likely to have their loan requests approved and receive lower interest rates. However, with such a small proportion (1.3 percent) of SMEs reporting that they did not seek financing because they expected their request to be turned down, this is unlikely to be a significant issue (i.e., change the results qualitatively) in this context.

Table 8: Ordinary least squares estimates of the interest rate charged on authorized debt financing

	Line of credit (SMEs authorized for line of credit)		Credit card (SMEs authorized for credit card)		Term loan (SMEs authorized for term loan)		Non-residential mortgage (SMEs authorized for non-residential mortgage)	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Ownership gender (omitted: majority-male)								
Majority-women	0.567	0.441	0.676	0.585	-0.458	0.658	0.018	0.448
Equally owned	0.207	0.303	0.151	0.540	-0.686	0.409	0.146	0.248
Firm size (omitted: 1st quintile)								
Quintile 2	0.312	0.491	0.009	0.664	-0.424	0.703	0.636*	0.338
Quintile 3	-0.030	0.386	-1.038	0.640	-1.504**	0.601	0.080	0.265
Quintile 4	-0.150	0.393	-0.165	0.665	-0.964*	0.536	-0.198	0.322
Quintile 5	-0.582	0.405	-0.830	0.813	-1.216*	0.656	1.003*	0.519
Firm age (omitted: 0 to 2 years)								
3 to 10 years	-0.313	0.533	0.272	0.543	0.310	0.517	-1.230*	0.694
11 to 20 years	-0.306	0.601	0.543	0.702	-0.198	0.539	-1.722**	0.696
Older than 20 years	-0.224	0.589	-0.574	0.659	0.057	0.637	-1.603**	0.699
Primary decision maker education (omitted: less than high school diploma)								
High school diploma	-0.017	0.559	-0.806	1.071	-0.812	0.807	0.249	0.326
College / cégep / trade school diploma	-0.379	0.493	1.255	0.880	-0.895	0.788	0.307	0.301
Bachelor's degree or higher	-0.804	0.516	1.052	0.855	-0.897	0.792	-0.026	0.295
Intends to expand sales into new markets	-0.039	0.266	-0.301	0.481	0.700**	0.330	0.145	0.219
Franchise	1.030	0.903	-0.377	1.196	-0.364	0.706	1.399	0.867
Incorporated	0.276	0.341	0.205	0.829	0.359	0.475	0.285	0.287
Primary decision maker age	0.000	0.012	-0.003	0.018	-0.032**	0.015	0.003	0.012
Loan / non-residential mortgage term (months)	-	-	-	-	-0.052	0.046	-0.007	0.011
Industry controls	Included		Included		Included		Included	
Provincial/regional controls	Included		Included		Included		Included	
Number of observations	1,014		1,067		751		385	
R-squared	0.161		0.093		0.201		0.338	

Notes: * indicates 10 percent level of significance.
** indicates 5 percent level of significance.
*** indicates 1 percent level of significance.

Sources: Statistics Canada, *Survey on Financing and Growth of Small and Medium Enterprises*, 2017; and authors' calculations.

Results offer evidence that larger firms receive lower interest rates on term loans, with firms in an industry's third, fourth and largest size quintiles receiving lower interest rates than firms in an industry's first size quintile respectively.[26]

Finally, firms intending to expand sales into new markets are charged higher interest rates on term loans, while firms with older primary decision makers receive lower interest rates on their term loans.[27]

In the model of interest rates on non-residential mortgages, firm sector and age vary significantly with interest rates. Firms in professional, scientific and technical services, and personal and laundry services, relative to firms in accommodation and food services, are charged higher interest rates on non-residential mortgages, while older firms are charged significantly lower interest rates.

6 Conclusions

This report uses data from the 2017 *Survey on Financing and Growth of Small and Medium Enterprises* to study how women ownership relates to firm financing. In particular, a simple econometric framework is used to assess whether a range of firm financing outcomes varies by ownership gender, while adjusting for firm and primary decision maker characteristics.

Results suggest that women-owned firms are more likely than male-owned firms to be discouraged borrowers. Analysis of alternative metrics for access to financing — the likelihood of seeking external financing or of reporting that obtaining financing is an obstacle to growth — yields no evidence of gender differences. With respect to financing approval, results suggest that women-owned SMEs receive higher proportions of debt financing requested than male-owned SMEs; correspondingly, women-owned firms' requests for debt financing are more likely to be approved. Finally, there is no evidence of gender differences in interest rates charged on debt financing.

Overall, with only a handful of studies on access to financing for women-owned firms in Canada, these findings offer an updated set of data points in the Canadian context. The analysis also illustrates the usefulness of adjusting for observable characteristics when comparing firm financing outcomes of women-owned and male-owned businesses.

[26] In particular, while these coefficient estimates are significant at the 5, 10 and 10 percent levels, respectively, their corresponding 95 percent confidence intervals contain near-zero or zero values.

[27] Again, with the corresponding 95 percent confidence intervals containing near-zero values, these estimates should be interpreted with caution.

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Appendix

Table A1: Dependent variable definitions

Dependent variable	Definition
Sought external financing	
Any type	Equal to 1 if firm sought debt, lease, trade credit, government or equity financing in 2017; otherwise, equal to 0.
Debt, any type	Equal to 1 if firm sought debt financing (i.e., line of credit, credit card, term loan or non-residential mortgage) in 2017; otherwise, equal to 0.
Obtaining financing is an obstacle to growth	
Major obstacle	Equal to 1 if firm reported that obtaining financing is a major obstacle to growth; otherwise, equal to 0.
Minor, moderate or major obstacle	Equal to 1 if firm reported that obtaining financing is a minor, moderate or major obstacle to growth; otherwise, equal to 0.
Discouraged borrower	Equal to 1 if firm did not request external financing in 2017 because of expectations that the request would be turned down; otherwise, equal to 0.
Ratio of debt financing authorized to debt financing requested	For the firm's largest debt financing request in 2017, the ratio of the amount of debt financing authorized to the amount of debt financing requested.
Loan approval	
Debt financing	Equal to 1 if firm's 2017 largest debt financing request was fully approved; otherwise, equal to zero.
Interest rate	
Line of credit	Interest rate charged on line of credit financing authorized in 2017.
Credit card	Interest rate charged on credit card financing authorized in 2017.
Term loan	Interest rate charged on term loan financing authorized in 2017.
Non-residential mortgage	Interest rate charged on non-residential mortgage financing authorized in 2017.

Table A2: Control variable definitions

Control variable	Definition
Majority ownership gender (base category: male-owned)	Dummy variables indicating women-owned and equally owned (i.e., women comprise 50 percent of ownership).
Firm characteristics	
Sector (base category: accommodation and food services)	Dummy variables indicating the firm operated in the following sectors: information and communication technology; primary (agriculture, forestry, fishing and hunting; or mining, quarrying, and oil and gas extraction); construction; manufacturing; wholesale trade; retail trade; transportation and warehousing; professional, scientific and technical services; health care and social assistance; personal and laundry services; and other services.
Region (base category: Ontario)	Dummy variables indicating the firm operated in the following regions: British Columbia or Territories (Yukon, Northwest Territories and Nunavut), Atlantic region (Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick), Prairies (Manitoba and Saskatchewan), Quebec and Alberta.
Size (base category: 1st quintile)	Dummy variables indicating the second, third, fourth and fifth size (i.e., number of employees) quintiles with their sector (where sectors are defined as above).
Age (base category: 3 to 10 years)	Dummy variables indicating the firm has been selling goods and/or services for two years or less (i.e., start-up), 11 to 20 years and more than 20 years.
Expansion intentions	Dummy variable indicating the firm intends to expand sales into new markets within the next three years (2018, 2019 and 2020).
Franchise	Dummy variable indicating the firm is a franchise.
Incorporated	Dummy variable indicating the firm is incorporated.
* Business intends to close	Dummy variable indicating the firm intends to close within the next five years (2018 to 2022).
** Intended use of debt financing	Dummy variables indicating, when debt financing was requested, the firm's intended use(s) of the financing: land and buildings, vehicles / rolling stock or other machinery or equipment; computer hardware or software; working capital / operating capital; research and development; debt consolidation; purchase a business; enter a new market; and other purposes.
*** Sought financing	Dummy variable indicating that the firm sought external financing (of any type) in 2017.
Primary decision maker characteristics	
Age	Primary decision maker's age.
Education (base category: less than high school diploma)	Dummy variables indicating the highest level of education attained by the primary decision maker: high school diploma, college / cégep / trade school diploma and bachelor's degree or higher.

Notes: * *Business intends to close* is included only in models of the probability of seeking financing. ** *Intended use of debt financing* variables are included only in the model of the ratio of debt financing authorized to debt financing requested, and of the probability of debt financing approval; note also that these variables are not mutually exclusive. *** *Sought financing* is included only in models, estimated for all SMEs, of the probability that a firm considers obtaining financing to be an obstacle to growth.