

# **Impact of Social Capital on Information Asymmetry and Bank Financing**

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## **Abstract**

The COVID-19 pandemic has increased bank financing challenges for small business enterprises (SBEs) in Canada. This study examines the impact of SBE owners' social capital (S\_CAPITAL) on information asymmetry (IA) and bank financing (B\_FIN). A survey research design was utilized to collect data from Canadian SBE owners. Research participants were asked about their perceptions regarding the impact of S\_CAPITAL (measured as connections/relationships between SBE owners and loan managers) on IA and B\_FIN. This study used the ordinary least square (OLS), logistic regression (Logit), and a two-stage least square (2SLS) regression model to conduct data analysis. Empirical findings show that S\_CAPITAL decreases IA between loan managers and SBE owners and increases B\_FIN for SBEs in Canada. Empirical results show that S\_CAPITAL increases the chances of a decrease in IA between SBE owners and loan managers by 19.40% and increases the chances of B\_FIN by 97.98% for SBEs in Canada. Besides, decreasing IA reduces agency problems between the loan managers and SBE owners, increasing B\_FIN chances for SBEs. The above findings contribute to the literature on the impact of SBE owners' S\_CAPITAL on IA and B\_FIN. The findings may encourage research scholars to conduct more studies on the impact of S\_CAPITAL on IA and B\_FIN using data from different countries. The owners of SBEs may find the empirical findings helpful in increasing the chances of obtaining bank loans. Consultants to SBEs may find our results helpful in providing consulting services. Banks may find results beneficial to reduce IA between loan managers and owners of SBEs to reduce loan default risk.

**Keywords:** Social Capital, Information Asymmetry, Bank Financing, Canada

**JEL Classification:** G30, G32, G40

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## 1. Introduction

The COVID-19 pandemic hit the Canadian economy hard. The economic downturn increased financial constraints and financing challenges for Canadian small business enterprises (SBEs)<sup>1</sup>. The COVID-19 pandemic increased cash flow volatility for SBEs (Statistics Canada, 2021). Increased cash flow volatility raises the chance of financial distress for SBEs and loan default risk for suppliers of capital. The volatility of cash flow increases the severity of information asymmetry (Mansour, 2014) between owners of SBEs and loan managers. The concept of information asymmetry was developed by Akerlof (1970). In a later study, Bergh et al. (2019) defined information asymmetry as a condition wherein one party (e.g., a borrower) possesses more information in a relationship than another (e.g., the capital supplier). In line with previous studies, this study defines information asymmetry as the information gap between owners of SBEs and lenders/account managers concerning project risk, risk tolerance, the owners' financial strengths, and debt level.

Risk-sharing between two parties (i.e., owners of SBEs and banks) develops information asymmetry due to the differing outlooks regarding the risk (Tan and Lee, 2015; Eslami and Imomoh, 2016). Thus, risk-sharing leads to agency problems between the agent (i.e., owners of SBEs) and principal (i.e., lending institutions) (Jensen and Meckling, 1976). Another information asymmetry stems from the risk inherent in a dyadic relationship, emanating from individual personality traits. Such asymmetry leads to differences in risk perception and risk-related behaviour (Cho and Lee, 2006). Finally, information asymmetry between borrowers and lenders creates barriers to bank financing due to possible conflict of interest between lenders and borrowers (i.e., SBEs) (Myers, 1977; Ross, 1973; Smith and Warner, 1979; Myers and Majluf, 1984).

The social capital of the owners of SBEs might decrease information asymmetry. Bourdieu (1986) developed the social capital concept. In addition, Martin (2000) described three families of social capital -- trust, cooperation, and network. Trust and networks encourage cooperation between borrowers and lenders. OECD (2001) defined social capital as 'networks with shared norms, values, and understandings that facilitate cooperation within or among groups.' Following the OECD definition, this study defines social capital as connections/relationships between the owners of SBEs and bank loan managers.

Previous empirical studies investigated information asymmetry's effect on trust in the online futures market and customer loyalty (Eslami and Imomoh, 2016; Tan and Lee, 2015). A study by Neuberger et al. (2008) indicated that relationship lending practices motivate borrowers to establish connections with bankers in Switzerland. These bank connections reduce information asymmetry. Agarwal and Hauswald (2010) showed that borrowers' proximity with lenders decreases information asymmetry. The decrease in information asymmetry facilitates collecting and interpreting local

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<sup>1</sup>Business Development Bank of Canada considers Canadian SBEs with fewer than 100 employees ([http://www.bdc.ca/EN/Documents/other/BDC\\_study\\_mid\\_sized\\_firms.pdf](http://www.bdc.ca/EN/Documents/other/BDC_study_mid_sized_firms.pdf)). The average number of employees in the sample is seven; therefore, this study's sample falls within the SBEs area.

subjective intelligence. Gill and Wilson (2021) argued that reducing information asymmetry is among the critical tasks of bankers. Gill, Maung, and Chowdhury (2016) claim that social capital reduces asymmetric information problems and increases bank financing. This study empirically tests the impact of the social capital of SBE owners on information asymmetry and bank financing by using the following research questions:

*Does social capital decrease information asymmetry between loan managers and SBE owners?*

*Does the social capital of SBE owners increase the chances of bank financing?*

*Does decreasing information asymmetry between loan managers and SBE owners increase the chances of bank financing?*

Other notable studies by Sharpe (1990), Rajan (1992), and von Thadden (2004) developed and used the models of corporate borrowing under asymmetric information to provide a theoretical explanation of long-term bank-firm relationships and their benefits for banks and borrowers. The present study's empirical findings show that social capital decreases information asymmetry between loan managers (lenders/account managers) and SBE owners and increases bank financing for SBEs in Canada. In addition, two-stage least square regressions show that the social capital of SBE owners increases bank financing through the decrease in information asymmetry. The empirical findings lend some support to the findings/arguments of Neuberger et al. (2008), Niinimaki (2015), Agarwal and Hauswald (2010), Uzzi (1999), Hernández-Cánovas and Martínez-Solano (2010), and Gill et al. (2016) in that social capital decreases information asymmetry between business owners and lenders/bankers and increases chances of bank financing for SBEs.

The current study, however, significantly differs from previous studies by Neuberger et al. (2008), Niinimaki (2015), Agarwal and Hauswald (2010), Uzzi (1999), Hernández-Cánovas and Martínez-Solano (2010), and Gill et al. (2016) in that it empirically tested relations of social capital of SBE owners with information asymmetry and bank financing. Thus, by lending some support to the previous studies, the current study adds to the literature on the impact of SBE owners' social capital on information asymmetry and bank financing. Moreover, this study may encourage research scholars to conduct more studies on the impact of social capital on information asymmetry and bank financing by collecting data from different countries. The owners of SBEs may find the results helpful in increasing the chances of bank financing. The SBE consultants may find results helpful in providing consulting services. Banks may find results beneficial in reducing information asymmetry between loan managers and SBE owners to reduce loan default risk. Finally, the results can be generalized to the small business industry.

The structure of the remaining research paper is as follows: section two provides the previous literature and develops hypotheses; section three explains the data and methodology used to

investigate the research questions. Section four shows empirical analysis and results, and section five provides discussion, conclusion, limitations, and recommendations for future research.

## **2. Literature Review**

### **2.1. Impact of social capital on information asymmetry**

Social capital, measured by connections between SBE owners and loan managers, should reduce information asymmetry. Banking relations with customers are value-enhancing (Boot, 2000) for lenders to collect soft information from borrowers. Connections between borrowers and banks reduce information asymmetry since social capital can increase access to softer information about the borrower's character and circumstances (Liberti and Petersen, 2017).

Sharpe (1990) developed a model of corporate borrowing under asymmetric information. By extending Sharpe's (1990) model, Rajan (1992) and von Thadden (2004) provided a theoretical explanation of long-term bank-firm relationships and their benefits for banks and borrowers. Sharpe (1990) considered repeated corporate borrowing under adverse selection in which lenders collect inside information on the quality of borrowers to mitigate risk and charge an appropriate interest rate. Thus, lenders gain an informational advantage over the competition by accessing inside information at the refinancing stage. In addition, Sharpe (1990) suggested that information asymmetry allows lenders to capture some of the rents generated by their older customers. Besides, banks collect soft information from borrowers through social capital (Neuberger et al., 2008).

Rajan (1992) argued that informed banks (i.e., banks with better risk information) make flexible financial decisions by prioritizing their debt claims and preventing firms from going awry through bargaining power over their profits. A study by Niinimäki (2015) showed that asymmetric information on borrower types causes an informational lock-in by borrowers, and thus, borrowers remain loyal to their banks, and their loyalty encourages repeated borrowings. Niinimäki (2015) also found that information asymmetry in banks causes an informational lock-in for borrowers, who tend to be tied to the same bank. Thus, information asymmetry between banks and borrowers tends to decrease. von Thadden (2004), studying repeated lending under asymmetric information, found a partial informational lock-in by firms and unexpected termination of lending relationships.

In summary, the social capital of borrowers reduces information asymmetry by increasing access to soft information for lenders. A decrease in information asymmetry reduces the agency problem between loan managers and SBE owners. Accordingly, the first hypothesis:

*First Hypothesis: Social capital decreases information asymmetry between SBE owners and loan managers.*

### **2.2. Social capital and bank financing**

As described earlier, SBEs have been hit hard in Canada because of the COVID-19 pandemic (Statistics Canada, 2021). The COVID-19 pandemic adversely affected the prosperity and even

survivability of SBEs. With the Covid effects on the Canadian economy, financing has become a critical entrepreneurial activity (Jonsson and Lindbergh, 2013). As previous studies show that social capital improves financing access (Gill et al., 2016) for micro-firms, one would expect that small business owner would tend to 'gain' social capital. The American experience points in a similar direction. Uzzi (1999), using data from the National Survey of Small Business Finances, found that social capital improves American firms' access to financing.

Besides the COVID-19 pandemic issues, Canadian SBEs are financially constrained (Statistics Canada, 2021; Joeveer, 2013), lack collateral, and some lack credit ratings (Bates, 1997). Clearly, SBEs have difficulties obtaining bank loans. As described earlier, social capital is essential in improving SBEs' access to financing. In summary, social capital increases bank financing for SBEs. Hence, the second hypothesis:

*Second Hypothesis: Social capital increases the chances of bank financing for SBEs.*

### **2.3. Information asymmetry and bank financing**

Reducing information asymmetry should increase the probability of bank financing for SBEs (Gill and Wilson, 2021). Banks tend to rely on the information related to project risk and on additional information from borrowers when existing firms request loans or when firms wish to start a new venture project. The information gap between borrowers and lenders/account managers on the project(s)/business' risk information, project risk tolerance, and changes in capital budgeting can lead to potential differences and conflicts (Liberti and Petersen, 2017). Thus, the gap can lead to moral hazard problems such as the fear that borrowers might change their capital budgeting strategies and take on riskier projects after acquiring a loan. In addition, information asymmetry on project risk can lead to adverse selection problems since, in many cases, the least profitable businesses have the greatest need for loans to continue their operations (Gill and Wilson, 2021). Thus, information asymmetry causes conflicts of interest between lenders and borrowers (Myers, 1977; Ross, 1973; Smith and Warner, 1979; Myers and Majluf, 1984). The information asymmetry reduces the bank's perceptual likelihood that loans will be repaid in full, so banks have a strong incentive to reduce such information asymmetry or decline the loan (Diamond, 1984; Rajan, 1992).

Bad financial decisions ruin the financial well-being (Jaakkola, 2007) of the SBEs and lead to high uncertainty risk (Tan and Lee, 2015) for debt capital suppliers regarding their ability to collect interest and principal payments. Information asymmetry negatively affects the trust banks have in borrowers. However, relationship duration between lenders and borrowers reduces information asymmetry (Tan and Lee, 2015). Reduction in information asymmetry through borrowers' proximity with lenders (Agarwal and Hauswald, 2010) enhances bank financing.

Social connections make borrowers less likely to default (Schoar, 2012). The borrowers' decision not to default debt payments may be due to a behavioural reluctance to injure their loan officers. In addition, the borrowers' decision not to default debt payments may be due to reduced information

asymmetry. Puri et al. (2017) showed that even straightforward transactional relations could reduce borrowers' default rates, and this reduction in defaults improves with the intensity of the relationship. Thus, a reduction in borrowers' default can help them access bank financing more than borrowers with high default risk.

In summary, a lower level of information asymmetry increases trust in borrowers and improves access to bank financing. Furthermore, Hernández-Cánovas and Martínez-Solano's (2010) findings showed that trust between the firm and bank improves access to debt financing. Accordingly, the third hypothesis:

*Third Hypothesis: A decrease in information asymmetry increases the chances of bank financing.*

### 3. Methods

#### 3.1. Research design and measurements

Survey research is beneficial for studying sensitive opinions, attitudes, and individual behaviour (Gall et al., 1996). We utilized survey research (a non-experimental field study design) to collect data from Canadian SBE owners. To show consistency with previous studies, we adopted measures of information asymmetry from Tan and Lee (2015) and financial performance from Lekmat et al. (2018). In addition, we used measures for internal financing sources and social capital used by Gill et al. (2016). All the scale items were reworded to apply to Canadian research participants. Our study asked research participants to indicate their agreement with each item, using a five-point Likert scale ranging from "Decreased a lot" to "Increased a lot" for all the scale items. Table 1 provides measurements of variables.

Table 1. Measurement of variables

Variables		Measurement
Bank Financing	<i>B_FIN</i>	<i>B_FIN</i> is measured as a dummy variable with an assigned value 1 for 'bank financing' and 0 for private financing.
Information Asymmetry	<i>IA</i>	<i>IA</i> is the first principal component of the extent to which small business enterprise (SBE) owners perceive the gap between them and their lenders/account managers (i.e., loan managers) on 1) the project(s)/business(es) risk information, 2) the project risk decision criteria, 3) the project risk tolerance, 4) personal savings information, 5) the information related to the purpose of the project, 6) the project cost(s), 7) revenue of the firm, 8) net income of the firm, 9) operating cash flows of the firm, 10) retained earnings of the firm, 11) cash holdings (cash amount), 12) inventory holdings, 13) accounts receivable amount, 14) internal financing sources, 15) short-term borrowings, 16) long-term borrowings, 17) total borrowings, and 18) overall risk related to the firm.
Social Capital	<i>S_CAPITAL</i>	<i>S_CAPITAL</i> is the first principal component of the extent to which SBE owners perceive 1) relationships/connections with loan manager(s), 2) family member(s)

		relationships/connections with loans manager(s), 3) relatives'
		relationships/connections with loans manager(s) and 4) friends'
		relationships/connections with loans manager(s).
Internal Financing Sources	<i>IFS</i>	<i>IFS</i> is the first principal component of the extent to which SBE owners perceive the level of their 1) personal financial sources to invest in the business(es), 2) financial sources of their immediate family to invest in the business(es), and 3) financial sources from retained earnings of your business(es).
Financial Performance	<i>FP</i>	<i>FP</i> is the first principal component of the extent to which SBE owners perceive the change in revenue, assets, net income, free cash flow, return on equity, return on assets, and overall financial success.
Assets	<i>ASSETS</i>	The assets variable was measured as the actual assets of the SBE.
Sales	<i>SALES</i>	The sales variable was measured as the actual sales of the SBE.
Firm Age	<i>F_AGE</i>	<i>F_AGE</i> was measured as the actual age of the SBE.
CEO Duality	<i>CD</i>	<i>CD</i> is a dummy variable with an assigned value of 1 if a SBE owner is both CEO and Chair of the Board of Directors in the same company, 0 otherwise.
Employees	<i>EMP</i>	The employee variable was measured as the actual number of employees in the SBE.
Total Debt to Total Assets Ratio	<i>TDAR</i>	The total debt to total assets ratio was measured as total debt divided by total assets.
Firm Location	<i>F_LOC</i>	<i>F_LOC</i> was measured as a dummy variable with an assigned value 1 if a SBE operates in an urban and 0 if a SBE operates in a rural area.
Owner Age	<i>O_AGE</i>	<i>O_AGE</i> was measured as the actual age of SBE owners.
Owner Education	<i>O_EDU</i>	<i>O_EDU</i> was measured as a categorical variable with an assigned value of 1 = High school or less, 2 = College diploma, 3 = Bachelor's degree, 4 = Master's degree, and 5 = PhD degree
Owner Experience	<i>O_EXP</i>	<i>O_EXP</i> was measured as the actual number of years an SBE owner has been involved in a business.
Gender	<i>GENDER</i>	Gender was measured as a dummy variable with an assigned value of 1 for male and 0 for female respondents.
Industry	<i>IND</i>	The industry was measured as a categorical variable with an assigned value of 1 for production firms and 0 for service firms.

## Notes:

\*To minimize endogeneity issues, essential variables that decrease *IA* and increase *B\_FIN* were used.

\*\*To reduce heteroscedasticity (i.e., stabilize variance), the natural logarithm (ln) was calculated for assets, sales, firm age, owner age, and owner experience.

\*\*\*All survey responses were categorized on a five-point Likert Scale assigning 1 as "Decreased a lot" and 5 as "Increased a lot".

### 3.2. Sampling

The population sampling frame included Canadian small business enterprises (SBEs) owners living in British Columbia, Saskatchewan, Alberta, and Ontario. Since we were unable to obtain a list of all members of the focal population and considering the population is "abstract" (Huck, 2008), we used a non-probability (purposive) sample for the study. Therefore, SBE owners are considered to

represent the target population. All non-Canadian SBE owners were excluded from the sample. An exhaustive list of SBE owners' names and telephone numbers was created. Those on the list were asked to respond to surveys or telephone interviews.

The sample included 750 research participants encompassing Canadian SBE owners. We ensured all the SBE owners who were approached that their confidentiality would be strictly maintained. The consent letter requested SBE owners not to disclose their names on the questionnaire. In addition, there was no obligation for SBE owners to answer questions over the telephone or in person. Most of the surveys were completed over the telephone because of the COVID-19 pandemic while some of the surveys were received through emails. Two hundred fifteen surveys were collected, of which eight were non-usable. The overall response rate was 28.67%. We assumed all other subjects to be similar to the SBE owners who participated in this research study.

## 4. Empirical model and analysis

### 4.1. Empirical models

Studies show that social capital ( $S\_CAPITAL$ ) decreases information asymmetry ( $IA$ ) (see Agarwal and Hauswald, 2010; Gill and Wilson, 2021) and increases bank financing ( $B\_FIN$ ) (see Uzzi, 1999). Therefore, social capital was used as the primary explanatory variable. This study also adopted a two-stage least square (2SLS) model to test the indirect relationship between  $S\_CAPITAL$  and  $B\_FIN$  and reduce endogeneity and reverse causality problems among  $S\_CAPITAL$ ,  $IA$ , and  $B\_FIN$ . For example, an increase in the chances of  $B\_FIN$  could be associated with a decrease in  $IA$  and an increase in internal financing sources ( $IFS$ ) and firm performance ( $FP$ ) instead of the  $S\_CAPITAL$  of SBE owners. The decrease in  $IA$  and the increase in  $IFS$  and  $FP$  reduce the chances of bankruptcy (Gill and Wilson, 2021). Besides, the higher level of  $IFS$  and  $FP$  decrease  $IA$  between the debt capital suppliers and SBE owners. Therefore, this study used  $IFS$  and  $FP$  as instrumental variables for the endogenous variable  $B\_FIN$ . The following regression models were estimated to conduct an empirical analysis:

$$Y_i = \alpha_0 + \alpha_1 S\_CAPITAL_i + \sum \beta_i X_i + \varepsilon_i \quad (1)$$

$$Y_i = \alpha_0 + \alpha_1 IA_i + \sum \beta_i X_i + \varepsilon_i \quad (2)$$

$$Z_i = \beta_0 + \beta_1 S\_CAPITAL_i + \beta_2 IFS_i + \beta_3 FP_i + \sum \beta_i X_i + \varepsilon_i \quad (3)$$

$$Y_i = \gamma_0 + \gamma_1 \bar{Z}_i + \sum \beta_i X_i + \varepsilon_i \quad (4)$$

In the above models,  $Y$  refers to dependent variables (i.e.,  $IA$  and  $B\_FIN$ ),  $i$  refers to the SBE, and  $X_i$  represents individual control variables corresponding to a SBE  $i$ .  $\varepsilon_i$  is a normally distributed disturbance term. In the estimated model (1),  $\alpha_1$  measures the magnitude at which  $S\_CAPITAL$  decreases  $IA$  and increases the chances of  $B\_FIN$ . In Equation (2),  $\alpha_1$  measures the magnitude at which a decrease in  $IA$  increases the chances of  $B\_FIN$ .

Equation (1) was used to test the first and second hypotheses, and Equation (2) was used to test the third hypothesis. While ordinary least square (OLS) regression was used to test the first hypothesis,



logistic regression (Logit) analysis was used to test the second and third hypotheses because bank financing was measured as a dummy variable.

In Equation (3),  $Z$  is  $IA$  between the lender and the SBE owner,  $i$ .  $\beta_1, \beta_2$ , and  $\beta_3$  measure the magnitude at which  $S\_CAPITAL$ ,  $IFS$ , and  $FP$  influence the probability of decrease in  $IA$  between the lender and the SBE owner  $i$ . In Equation (4),  $Y_i$  is the SBE owner's perception of  $B\_FIN$ , and  $\bar{Z}_i$  is the predicted probability of a decrease in  $IA$ . Hence,  $\gamma_1$  estimates the effect of the decrease in  $IA$  driven by  $S\_CAPITAL$ ,  $IFS$ , and  $FP$  on  $B\_FIN$ .

#### 4.2. Descriptive statistics

Table 2 reports descriptive statistics and provides the factor analysis (the scale items' convergent validity). The distributions of  $IA$ ,  $S\_CAPITAL$ ,  $IFS$ , and  $FP$  variables are almost symmetrical around their mean values with overall skewness between -0.301 to +0.888, which shows no outliers in the index. Mason et al. (1991) showed that skewness value usually ranges from -3 to +3 in normally distributed data. Factor analysis was used to reduce dimensionality for  $IA$ ,  $S\_CAPITAL$ ,  $IFS$ , and  $FP$  variables. There are some problems with Principal Component Analysis (PCA) that should be considered. For example, PCA does not differentiate between common and unique variance because it considers each measured variable as a linear function of principal components, with no separate representation of unique variance (Fabrigar et al., 1999). This study also used a rotated component matrix which produces reduced cross-loadings. The problem with the reduced cross-loadings is that it can result in inflated and biased inter-factor correlations between two variables used in this study (Schmitt and Sass, 2011) which may cause concern for some readers for discriminate validity. However, all the scale items were loaded on expected factors. Varimax rotation explained 85.001% variance in the original scores, and the test statistic for Kaiser-Meyer-Olkin (KMO) was 0.902. The KMO is a Measure of Sampling Adequacy. Kaiser (1974) recommended accepting KMO score  $>0.50$  to show the validity of factor analysis. Thus, the common factor bias is not a concern in this study.

Table 2. Descriptive statistics

	Mean	SD	Min	n	Max	Factor Scores				
						1	2	3	4	
$B\_FIN$	0.79	0.41	0	1	1					
$IA^{\#}$	0.00	1.00	-1.11	-0.16	2.68					
<i>The information gap between lenders and borrowers on:</i>										
$IA1$ Project(s)/business(es) risk	2.22	1.25	1	2	5	0.819				
$IA2$ The project risk decision criteria	2.18	1.15	1	2	5	0.886				
$IA3$ The project risk tolerance	2.14	1.14	1	2	5	0.855				
$IA4$ Personal savings of borrowers	2.06	1.06	1	2	5	0.813				
$IA5$ The purpose of the project	2.11	1.11	1	2	5	0.807				
$IA6$ The project cost(s)	2.16	1.13	1	2	5	0.852				

IA7 Revenue of the SBE	2.14	1.11	1	2	5	0.877
IA8 Net income of the SBE	2.10	1.10	1	2	5	0.840
IA9 Operating cash flows of the SBE	2.10	1.16	1	2	5	0.814
IA10 Retained earnings of the SBE	2.12	1.10	1	2	5	0.836
IA11 Cash holdings (cash amount)	2.17	1.16	1	2	5	0.844
IA12 Inventory holdings	2.34	1.35	1	2	5	0.784
IA13 Accounts receivable amount	2.29	1.28	1	2	5	0.829
IA14 Internal financing sources	2.22	1.19	1	2	5	0.851
IA15 Short-term borrowings	2.22	1.19	1	2	5	0.863
IA16 Long-term borrowings	2.18	1.16	1	2	5	0.872
IA17 Total borrowings	2.20	1.17	1	2	5	0.844
IA18 Overall risk related to the SBE	2.17	1.14	1	2	5	0.814
S_CAPITAL <sup>###</sup>	0.00	1.00	-2.12	-0.31	1.49	
S_CAPITAL1 Personal connections with loan manager(s)	3.28	1.19	1	3	5	0.853
S_CAPITAL2 Connections of the immediate family member(s) with loan manager(s)	3.39	1.15	1	3	5	0.929
S_CAPITAL3 Connections of relatives with loan manager(s)	3.37	1.17	1	3	5	0.918
S_CAPITAL4 Connections of friends with loan manager(s)	3.35	1.21	1	3	5	0.856
IFS <sup>###</sup>	0.00	1.00	-2.58	0.26	1.24	
IFS1 Personal financial sources to invest in the SBE	3.70	1.08	1	4	5	0.879
IFS2 Financial sources of immediate family members to invest in the SBE	3.74	1.06	1	4	5	0.921
IFS3 Financial sources accumulated through retained earnings to invest in the SBE	3.66	1.16	1	4	5	0.840
FP <sup>####</sup>	0.00	1.00	-2.78	0.12	1.08	
FP1 Change in revenue of the SBE	3.88	1.15	1	4	5	0.831
FP2 Change in total assets of the SBE	3.87	1.12	1	4	5	0.860
FP3 Change in net income of the SBE	3.87	1.10	1	4	5	0.890
FP4 Change in free cash flows of the SBE	3.83	1.18	1	4	5	0.842
FP5 Change in return on equity of the SBE	3.99	1.07	1	4	5	0.686
FP6 Change in return on assets of the SBE	3.83	1.13	1	4	5	0.840
FP7 Change in the overall financial success of the SBE	3.87	1.12	1	4	5	0.791
ASSETS	12.95	0.93	10.65	12.87	15.27	
SALES	13.48	1.24	11.46	13.71	16.12	
F_AGE	2.62	0.71	0.69	2.71	3.69	
CD	0.62	0.49	0	1	1	
F_LOC	0.70	0.46	0	1	1	
EMP	1.47	1.05	0.00	1.61	4.58	
TDAR	.48	0.15	0.03	0.49	0.99	
O_AGE	3.86	0.23	3.18	3.91	4.23	

<i>O_EDU</i>	2.36	0.99	1	3	4
<i>O_EXP</i>	2.64	0.67	0.69	2.83	3.69
<i>GENDER</i>	0.84	0.37	0	1	1
<i>IND</i>	0.07	0.26	0	0	1

Notes: Variables include bank financing (*B\_FIN*), information asymmetry (*IA*), social capital (*S\_CAPITAL*), internal financing sources (*IFS*), firm performance (*FP*), firm's assets (*ASSETS*), sales (*SALES*), firm age (*F\_AGE*), CEO duality (*CD*), firm location (*F\_LOC*), employees (*EMP*), total debt to assets ratio (*TDAR*), owner age (*O\_AGE*), owner education (*O\_EDU*), owner experience (*O\_EXP*), gender (*GENDER*), and industry (*IND*). SD = Standard Deviation; Min = Minimum; Max = Maximum

#Cronbach Alpha: *IA* = 0.987. Eighteen factors of *IA* (*IA1, IA2, IA3, IA4, IA5, IA6, IA7, IA8, IA9, IA10, IA11, IA12, IA13, IA14, IA15, IA16, IA17, and IA18*) index explain approximately 82.88% of the variation. The eigenvalues of the eighteen principal components are 14.898, 0.714, 0.475, 0.380, 0.313, 0.245, 0.220, 0.155, 0.117, 0.106, 0.075, 0.064, 0.058, 0.053, 0.043, 0.037, 0.029, and 0.019, respectively.

##Cronbach Alpha: *S\_CAPITAL* = 0.956. Four factors of *S\_CAPITAL* (*S\_CAPITAL1, S\_CAPITAL2, S\_CAPITAL3, and S\_CAPITAL4*) index explain approximately 88.54% of the variation. The eigenvalues of the four principal components are 3.542, 0.234, 0.163, and 0.061, respectively.

###Cronbach Alpha: *IFS* = 0.948. Three factors of *IFS* (*IFS1, IFS2, and IFS3*) index explain approximately 90.80% of the variation. The eigenvalues of the three principal components are 2.724, 0.204, and 0.072.

####Cronbach Alpha: *FP* = 0.970. Seven factors of *FP* (*FP1, FP2, FP3, FP4, FP5, FP6, and FP7*) index explain approximately 84.75% of the variation. The eigenvalues of the seven principal components are 5.932, 0.481, 0.268, 0.123, 0.105, 0.058, and 0.031, respectively.

### 4.3. Pearson correlation analysis

The correlation analysis reported in Table 3 shows that *S\_CAPITAL, IFS, FP, F\_AGE, CD, O\_EXP, and GENDER* are positively and significantly correlated with *B\_FIN* ( $\rho_{S\_CAPITAL, B\_FIN} = 0.337$ ;  $\rho_{IFS, B\_FIN} = 0.377$ ;  $\rho_{FP, B\_FIN} = 0.362$ ;  $\rho_{F\_AGE, B\_FIN} = 0.198$ ;  $\rho_{CD, B\_FIN} = 0.272$ ;  $\rho_{O\_EXP, B\_FIN} = 0.230$ ; and  $\rho_{GENDER, B\_FIN} = 0.225$ ), and *IA* negatively and significantly correlated with *B\_FIN* ( $\rho_{IA, B\_FIN} = -0.506$ ), implying that social capital, internal financing sources, firm performance, firm age, CEO duality, owner experience, and gender increase the probability of bank financing, and information asymmetry decreases the probability of bank financing. Table 3 also shows that *S\_CAPITAL, IFS, FP, ASSETS, F\_AGE, CD, O\_AGE, O\_EDU, O\_EXP, and GENDER* are negatively and significantly correlated with *IA* ( $\rho_{S\_CAPITAL, IA} = -0.474$ ;  $\rho_{IFS, IA} = -0.476$ ;  $\rho_{FP, IA} = -0.675$ ;  $\rho_{ASSETS, IA} = -0.244$ ;  $\rho_{F\_AGE, IA} = -0.528$ ;  $\rho_{CD, IA} = -0.206$ ;  $\rho_{O\_AGE, IA} = -0.340$ ;  $\rho_{O\_EDU, IA} = -0.240$ ;  $\rho_{O\_EXP, IA} = -0.503$ ; and  $\rho_{GENDER, IA} = -0.169$ ), suggesting that social capital, internal financing sources, firm performance, assets, firm age, CEO duality, owner age, owner education, owner experience, and gender decrease information asymmetry between the SBE owners and loan managers.

Table 3. Correlation analysis

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 <i>B_FIN</i>	1																
2 <i>IA</i>	-0.506**	1															
3 <i>S_CAPITAL</i>	0.337**	-0.474**	1														
4 <i>IFS</i>	0.377**	-0.476**	0.325**	1													
5 <i>FP</i>	0.362**	-0.675**	0.425**	0.505**	1												
6 <i>ASSETS</i>	0.080	-0.244**	0.343**	0.116	0.203**	1											
7 <i>SALES</i>	-0.075	-0.081	0.212**	0.026	0.129	0.664**	1										
8 <i>F_AGE</i>	0.198**	-0.528**	0.227**	0.326**	0.423**	0.208**	0.125	1									
9 <i>CD</i>	0.272**	-0.206**	0.149*	0.146*	0.154*	0.060	-0.049	0.214**	1								

10 <i>F_LOC</i>	0.124	-0.022	0.143*	-0.007	-0.025	-0.019	-0.086	-0.022	0.007	1								
11 <i>EMP</i>	-0.085	-0.048	0.159*	0.053	0.159*	0.524**	0.737**	0.096	-0.074	-0.148*	1							
12 <i>TDAR</i>	-0.074	0.134	-0.073	-0.086	-0.051	-0.255**	0.059	-0.172*	-0.181**	0.083	0.017	1						
13 <i>O_AGE</i>	0.102	-0.340**	0.136	0.158*	0.287**	0.126	0.040	0.639**	0.223**	-0.062	0.038	-0.214**	1					
14 <i>O_EDU</i>	-0.013	-0.240**	0.136	0.035	0.196**	0.110	0.106	0.224**	0.077	-0.080	0.091	-0.120	0.196**	1				
15 <i>O_EXP</i>	0.230**	-0.503**	0.210**	0.347**	0.431**	0.127	-0.012	0.837**	0.238**	-0.043	-0.027	-0.175*	0.681**	0.164*	1			
16 <i>GENDER</i>	0.225**	-0.169*	0.000	0.155*	0.112	-0.045	-0.125	0.045	0.228**	-0.025	-0.210**	0.082	-0.036	0.026	0.062	1		
17 <i>IND</i>	-0.128	0.071	0.027	-0.092	-0.108	0.362**	0.239**	0.117	0.105	-0.183**	0.224**	-0.175*	0.139*	0.124	0.062	-0.031	1	

Notes: \*  $p < 0.05$ , and \*\*  $p < 0.01$ . Variables include bank financing (*B\_FIN*), information asymmetry (*IA*), social capital (*S\_CAPITAL*), internal financing sources (*IFS*), firm performance (*FP*), firm's assets (*ASSETS*), sales (*SALES*), firm age (*F\_AGE*), CEO duality (*CD*), firm location (*F\_LOC*), employees (*EMP*), total debt to assets ratio (*TDAR*), owner age (*O\_AGE*), owner education (*O\_EDU*), owner experience (*O\_EXP*), gender (*GENDER*), and industry (*IND*).

#### 4.4. Empirical analysis and results

The results obtained using Equations (1) to (4) provided in Table 4 show that *IA* is negatively and significantly associated with *S\_CAPITAL*, *IFS*, *FP*, *ASSETS*, *F\_AGE*, *O\_EDU*, and *GENDER*, and positively and significantly associated with *SALES*. The results also show that *B\_FIN* is positively and significantly associated with *S\_CAPITAL*, *IFS*, *FP*, *CD*, *F\_LOC*, and *GENDER*, and negatively and significantly associated with *IA*, *IAfit*, and *O\_EDU*.

*S\_CAPITAL*'s coefficient in column (I) of *IA* is negative and significant at the one percent level, suggesting that social capital reduces information asymmetry between SBE borrowers and lenders/account managers. Similarly, the coefficient of *S\_CAPITAL* in column (II) of *B\_FIN* is positive and significant at the five percent level, implying that social capital increases the chances of bank financing for Canada's SBEs. Likewise, *IA*'s coefficient in columns (III) of *B\_FIN* is negative and significant at the one percent level, indicating that a decrease in information asymmetry between SBE borrowers and lenders/account managers increases the chances of bank financing for SBEs in Canada. Further, the coefficient of *IAfit* in column (IV) of *B\_FIN* is negative and significant at the one percent level, implying that social capital increases the chances of bank financing by decreasing information asymmetry between SBE borrowers and lenders/account managers. Thus, the empirical analysis supports the first, second, and third hypotheses.

The coefficients of *IFS*, *FP*, *ASSETS*, *F\_AGE*, *O\_EDU*, and *GENDER* in column (I) of *IA* are negative and significant at the five percent, one percent, and five percent levels, respectively, suggesting that internal financing sources, firm performance, assets, firm age, owner education, and gender decrease information symmetry between borrowers and lenders/account managers. Similarly, *SALES*' coefficient in column (I) of *IA* is negative and significant at the five percent level, suggesting that sales increase information asymmetry between SBE borrowers and lenders/account managers. Likewise, the coefficients of *IFS*, *FP*, *F\_LOC*, and *GENDER* in column (II) of *B\_FIN* are positive and significant at the five percent level, indicating that internal financing sources, firm performance, firm location, and gender increase the chances of bank financing in the Canadian small business industry. Further, the *IFS*, *CD*, and *F\_LOC* coefficients in column (III) of *B\_FIN* are positive and significant at the ten percent and five percent levels, respectively, suggesting that internal financing sources, CEO duality, and firm location increase the chances of bank financing. Finally, *O\_EDU*'s coefficient in columns (III) and (IV) of *B\_FIN* are negative and significant at the five percent level, suggesting that owner education decreases the chances of bank financing.

In summary, the social capital of SBE owners plays a significant role in decreasing information asymmetry between SBE borrowers and lenders/account managers and increasing the chances of bank financing. A decrease in information asymmetry increases the chances of bank financing for SBEs in Canada. Besides, this study used 2SLS as a robustness check. 2SLS model shows that social capital increases the chances of bank financing for SBEs in Canada by decreasing information asymmetry. Thus, social capital plays a direct and indirect role in increasing the chances of bank financing.

Table 4. Regression analysis<sup>2</sup>Dependent variables = *IA* and *B\_FIN*

Variables	Baseline Regressions			2SLS
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
	<i>IA</i>	<i>B_FIN</i>	<i>B_FIN</i>	<i>B_FIN</i>
<i>S_CAPITAL</i>	-0.194** (-3.55)	0.683* (2.47)		
<i>IA</i>			-1.691** (-3.91)	
<i>IAfit</i>				-2.698** (-4.67)
<i>IFS</i>	-0.122* (-2.24)	0.632* (2.18)	0.564† (1.81)	
<i>FP</i>	-0.401** (-6.30)	0.790* (2.60)	0.369 (1.10)	
<i>ASSETS</i>	-0.150* (-1.97)	0.340 (0.89)	0.029 (0.07)	-0.002 (-0.01)
<i>SALES</i>	0.140* (2.17)	-0.522 (-1.40)	-0.122 (-0.33)	-0.157 (-0.44)
<i>F_AGE</i>	-0.338* (-2.64)	0.020 (0.03)	-0.653 (-0.99)	-0.901 (-1.54)
<i>CD</i>	0.100 (0.98)	0.639 (1.29)	1.115† (1.95)	0.940† (1.93)
<i>F_LOC</i>	0.009 (0.08)	1.170* (2.15)	1.155* (2.52)	1.178* (2.24)
<i>EMP</i>	-0.003 (-0.05)	0.016 (0.04)	-0.144 (-0.39)	-0.082 (-0.24)
<i>TDAR</i>	0.001	-0.142	0.150	-0.295

<sup>2</sup> The lowest tolerance is 0.234, and the highest Variance Inflation Factor (*VIF*) is 4.269, indicating that multicollinearity is not a serious issue.

	(0.00)	(-0.08)	(0.08)	(-0.17)
<i>O_AGE</i>	-0.122	1.143	1.171	0.604
	(-0.43)	(0.79)	(0.76)	(0.43)
<i>O_EDU</i>	-0.112*	-0.362	-0.763*	-0.716*
	(-2.30)	(-1.36)	(-2.37)	(-2.53)
<i>O_EXP</i>	0.061	0.058	0.308	0.267
	(0.43)	(0.09)	(0.45)	(0.43)
<i>GENDER</i>	-0.304*	1.137*	0.705	0.462
	(2.29)	(2.25)	(1.12)	(0.78)
<i>IND</i>	0.313	-0.475	0.089	0.408
	(1.60)	(-0.55)	(0.09)	(0.44)
<i>Constant</i>	1.631	-0.954	-0.111	3.782
	(1.21)	(-0.14)	(-0.01)	(0.53)
<i>N</i>	207	207	207	207
$\chi^2/F$ -test statistic	20.10**	73.59**	87.31**	71.42**
<i>Pseudo R<sup>2</sup>/R<sup>2</sup></i>	0.629	0.378	0.448	0.367

Notes: \* p<0.10, \* p<0.05, and \*\* p<0.01. In the regression models, the dependent variables are information asymmetry (*IA*) and bank financing. Independent variables include social capital (*S\_CAPITAL*), information asymmetry (*IA*), fitted value of information asymmetry (*IAfit*), internal financing sources (*IFS*), firm performance (*FP*), firm's assets (*ASSETS*), sales (*SALES*), firm age (*F\_AGE*), CEO duality (*CD*), firm location (*F\_LOC*), employees (*EMP*), total debt to assets ratio (*TDAR*), owner age (*O\_AGE*), owner education (*O\_EDU*), owner experience (*O\_EXP*), gender (*GENDER*), and industry (*IND*). The model I was used to calculate the fitted value of information asymmetry (*IAfit*).

## 5. Discussion, conclusion, limitations, and recommendations for future research

This study aimed to test the impact of social capital on information asymmetry and the chances of bank financing. As a result, the empirical findings based on research participants' perceptions show that social capital reduces information asymmetry between SBE owners and lenders/bankers and increases the chances of bank financing in Canada. Thus, the findings lend some support to the findings/arguments of Neuberger et al. (2008), Niinimaki (2015), Agarwal and Hauswald (2010), Uzzi (1999), Hernández-Cánovas and Martínez-Solano (2010), and Gill et al. (2016) in that social capital decreases information asymmetry between business owners and lenders/bankers and increases bank financing chances for the SBEs.

Internal financing sources, firm performance, assets, firm age, owner education, and gender decrease, and sales increase information symmetry between borrowers and lenders/account managers. The opposite relations of sales with bank financing and information asymmetry may be because of the COVID-19 pandemic. While internal financing sources, firm performance, CEO duality, firm location, and gender increase bank financing, owner education decreases bank financing in the Canadian small business industry. The opposite relationship between owner education and bank financing may be because data collection was done during the COVID-19 pandemic, and educated owners prefer internal financing during this period.

In conclusion, social capital is crucial for decreasing information asymmetry between borrowers and lenders and increasing the chance that banks lend to SBEs in Canada. Table 4 shows that social capital increases the chances of decreased information asymmetry between SBE owners and loan managers by 19.40% and increases the chances of bank financing by  $e^{0.683 - 1}$  or by 97.98% for SBEs in Canada. The decrease in information asymmetry reduces agency problems between the loan managers and SBE owners and raises the chance of bank financing for SBEs. Since social capital decreases information symmetry, banks should consider building social capital with the borrowers. On the other hand, since social capital increases the chances of bank financing, borrowers should consider establishing bank connections with loan managers and disclose all the relevant information to lenders/bankers. Thus, social capital will create a win-win situation for the banks and SBE owners.

The perceived positive correlations of internal financing sources, firm performance, assets, sales, firm age, CEO duality, firm location, employees, and owner experience with social capital indicate that banks may prefer building social capital with financially strong firms operated by experienced SBE owners (see Table 3). It follows that SBE owners should take steps to improve firm performance to strengthen their financial posture. We noticed that there is perceived positive correlations of CEO duality, owner education, and owner experience with the firm performance shown in Table 3. Since these SBEs have been hit harder than the larger firms in Canada, SBE owners should receive additional training to reduce their development challenges after the COVID-19 pandemic. Deschamps (2020) argued that the recovery of Canadian SBEs that survive the COVID-19 pandemic is expected to be complicated. However, SBEs with higher internal financing sources have better chances to survive, recover, and prosper after the COVID-19 pandemic. Besides, reliance on internal financing sources decreases the probability of bankruptcy and helps SBEs gain bank financing access (Gill et al., 2019) to overcome the business challenges after the COVID-19 pandemic.

### ***5.1. Limitations and recommendations for future research***

Even though this study provides some valuable results, one should not ignore the limitations. This study relied on a small sample size because of the low response rate. Data collection was confined to the Canadian provinces of British Columbia, Saskatchewan, Alberta, and Ontario. In addition, the present study relied on responses about the research participants' perceptions. Data collection was done during the COVID-19 pandemic period. Since this study relied on a relatively small sample, future studies should seek a large sample size and include additional variables such as the cost of debt and family control. Future studies should seek samples from different countries and include business owners' and loan managers' responses to derive conclusions from such results.

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