



Credit Constraints and the Productivity of Small and Medium-sized Enterprises: Evidence from Canada

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Abstract

Small and medium-sized enterprises (SMEs) are regulators of the business environment. In Canada, SMEs represent about 50 percent of businesses and are responsible for over 60 percent of the country's employment. The role of SMEs in the development of a country can't be ignored, as they are vital indicators of economic development. The size and cash flow of a company's assets are reliable indicators of credit constraints (CC), which results in a CC agent for models that use an asset-to-liability ratio. We focus on the actual impact of a previously estimated score in cases where corporate credit is limited. Investment and employment decisions are based on productivity shocks (PS) and the possibility of CC. Using variables, our model indicates the importance of measured credit restrictions being distinguished, such as cash flows that indicate productivity levels and the probability of CC. The data samples are from 2009 to 2014, although the measurement of CC is only available from 2011. Therefore, we use the model of credit constraint estimation to anticipate the likelihood of CC in the months before and after 2011. The findings reflect that the firm's size, debt to assets ratio, and cash flow are significant factors in the evaluation of the CC, whereas long-term debt (LTD) to asset ratio wasn't found to be significant. The study also evaluates and estimates firm-level productivity.

Keywords: Credit Constraints; Productivity; Canada.

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Contribution of this paper to the literature.

This research paper makes two important and constructive contributions towards effectively understanding and forecasting financial constraints (FC), such as sales growth and LTDs, as well as their direct impacts on the performance level of the firm. First, the present study adds to existing research on CC, specifically in relation to small businesses. To our knowledge, the present research is the first to analyze FC in SMEs independently from examined outcomes and results of EF. Second, the following study significantly contributes to effectively forecasting the relationship between FC and productivity at an organizational level, which is mainly based on productivity measurements and a consideration of FC.

1. Introduction

Credit constraints (CC), which can be determined through an evaluation of the activities and outcomes of a firm and its external financing (EF) (Dubé, Brunelle, & Legros, 2016), result in a reduction in the rate of productivity of SMEs of Canada, in comparison to larger organizations. Organizations that achieve high levels of productivity and compatibility and use innovative technology are less likely to face the problem of financial constraints (FC) (Ramkissoon & Mavondo, 2017). Therefore, SMEs in Canada should overcome the issue of FC so that their productivity can increase, which will provide better results and products for customers. Several characteristics of an organization can act as an alternative to determining the CC of a firm, which helps to discover the firm's needs in terms of EF (Calic, Shevchenko, Ghasemaghaei, Bontis, & Tokcan, 2020). The general phenomenon of credit and CC has been gaining considerable attention from academic practitioners and analysts over the last few years (Chatterjee, Karray, & Sigué, 2019). However, it has been noted that, even now, a performance and overall presentation gap exists in SMEs; although a large number of SMEs perform as successful businesses, their growth is lower than other businesses in this sector. Rose (2016) has suggested that, in order to address this productivity and exclusive performance gap, the significant contextual variables affecting the intentions of SMEs need to be investigated in detail, as existing research on CC and its impacts on SMEs and their performance are limited. Therefore, studies need to be conducted on SMEs in certain countries and regions (Ortiz-de-Mandojana & Bansal, 2016); Kraja (2018) in order to evaluate the impact of certain tangibles (Buallay, Hamdan, and Zureigat, 2017), investigate the overall impact of corporate governance, and (Al-Haddad, Taleb, and Badran (2018) evaluate the impact of growth and tangibility on the productivity of SMEs. Hence, understating CC and its impact on overall levels of productivity in SMEs and other firms is important in order to address the gaps in academic studies. The current study explores the impact of CC on the performance and productivity of SMEs.

The above discussions and justification statement have guided the development of the following objectives and purposes. The main aim of this study is to investigate the exclusive impact of CC on productivity levels in SMEs in Canada, including sales growth, total assets, and long-term debt (LTD). The given study also computes the likelihood of a business being constrained by credit and other factors, as well as analyzing observed outcomes and the results of EF. Moreover, the current paper is associated with research on measuring and quantifying the significance of financial variables and how they influence factual variables, such as productivity, investment, and employment levels.

This research paper makes two important and constructive contributions towards effectively understanding and forecasting financial constraints (FC), such as sales growth and LTDs, as well as their direct impacts on the performance level of the firm. First, the present study adds to existing research on CC, specifically in relation to small businesses. To our knowledge, the present research is the first to analyze FC in SMEs independently from examined outcomes and results of EF. Second, the following study significantly contributes to effectively forecasting the relationship between FC and productivity at an organizational level, which is mainly based on productivity measurements and a consideration of FC.

This research paper has deep benefits and advantages both in practice and in theory. Theoretically, the paper contributes to the current body of data on variables that affect productivity levels in firms, and practically, the findings and suggestions of this paper are beneficial for academic scholars and policymakers. The remainder of the paper will be organized as follows: In the second chapter, the analyst will review relevant literature; in the third chapter, the analyst will estimate and measure the extent to which SMEs are restricted by EF; in chapter four, the analyst will measure the extent to which investment and employment development are influenced by FC, capacity, and productivity; and in chapter five, the analyst will conclude the findings of the study.

2. Literature Review

Although several theories on FC have emerged, most of the models and frameworks focused on understanding the constraints on business firms and organizations (Wetzel & Hofmann, 2019). According to Bolton (2016), constraints have just as much of an impact and significance on the overall finances of a business, and expertly trained financial advisors play a crucial role in helping businesses and clients to understand the constraints and restrictions of their business objectives. According to this theory, FC limit certain economic actions and productivity levels in businesses, and according to Dinopoulos, Kalyvitis, and Katsimi (2020), they must be accommodated. For instance, a broker may restrict an SME from short selling, margin trading, and other options that may limit an SME's investment, which will influence the productivity of the firm. This theory also states that FC are specific and objective obstacles and restrictions, as opposed to being typical and subjective (Dasgupta, Li, & Yan, 2017). According to Bilal, Khan, and Akoorie (2016), FC refer to any factors that limit the amount and quality of investment options for investors. Every business and SME faces both internal and external constraints (Miao & Wang, 2018), such as a lack of knowledge or information and an insignificant cash flow. Furthermore, this theory states that regulations and policies exert restrictions on the profitability level of businesses. These constraints range from governmental limitations on imports and exports, conditional limitations that manage materials used, to certain policies that must be accomplished. Generally, their influence on development can be strengthened.

Financial factors and variables are common constraints for businesses and SMEs, and according to this theory, they range from insufficient budget allocations or distributions to excessive payments and overhead expenditures (Eapen, Yeo, & Sasidharan, 2019). For example, if a business does not have the capital to buy more stock, its ability

to sell is a constraint that affects its overall business performance. Similarly, if more staff are needed but the budget cannot accommodate additional payments, the entire growth of the business will be limited.

2.1. Credit Constraints and the Productivity Level of SMEs

According to [Li, Liao, and Zhao \(2018\)](#), CC is the factor that businesses must confront in order to implement its business strategy, as each business has its own particular combination of constraints and limitations that collectively impact its competitive position and image within its sector. According to [Jin, Zhao, and Kumbhakar \(2019\)](#), SMEs are essentially a way to ensure that assets work overtime, as physical assets typically depreciate with time and credit tends to decrease in value, mainly due to inflation. In comparison, investments in competitive business environments have a remarkable predisposition to increase in value over credit and time. In order to execute this remarkable feat, SMEs and different firms must maintain productive assets and continually implement new processes and practices to stay competitive. As such credit is essential, certain limitations that enable credit to be used more efficiently, such as credit management and other significant practices, are basic management considerations. Moreover, according to [Altomonte, Gamba, Mancusi, and Vezzulli \(2016\)](#), assets are an important form of CC, encompassing all intangible resources that contribute to the future cash flow and productivity of an SME. An effective example of an asset-related constraint, according to [Choi, Furceri, Huang, and Loungani \(2018\)](#), is a slow piece of equipment on a production line that directly influences the entire productivity of a business. Any current assets, including property, IP, equipment, represent constraints that significantly influence the productivity of a business. According to [Cao and Leung \(2019\)](#), liquid assets such as investments and cash are a particular constraint that directly influences the productivity of the business, as cash is critical to pay for operating costs and other payments. If a firm runs out of cash, everything related to productivity tends to collapse. Fast sales growth (SG) and development can be both an advantage and disadvantage for many firms, as it generates the potential for greater profit and productivity while demanding more cash to support significant growth ([Bokpin, Ackah, & Kunawotor, 2018](#)). As described by [Aghion, Bergeaud, Cette, Lecat, and Maghin \(2019\)](#), the influence of SG on the balance sheet and productivity is considerable, specifically in terms of business inventory checks and accounts receivable because these trading assets are necessary for the SME's financial and operating cycle. In the simplest terms, SMEs start with capital and then they purchase materials and equipment that are processed, manufactured, sold, distributed and finally converted to cash. Not only does this influence the liquidity of the SME, but, according to [Hasan and Sheldon \(2016\)](#), it also directly influences and impacts the productivity of business level conversations. SG significantly affects the productivity of SMEs in several ways; for those reliant on a significant number of smaller suppliers, it increases their liquidity, which may allow them to ensure the best contractors on constructive terms or rapidly enhance their supply base over a short period of time, in order to respond to market needs and requirements ([Yang, 2018](#)). In contrast, SMEs that predominantly need to make considerable investments in property, people and equipment to support major initiatives may have much simpler needs exclusive of essential liquidity; therefore, essential investments cannot be generated, or must be scaled back, perhaps to the degree that leads to certain missed opportunity ([Ganau, 2016](#)).

The LTD of an organization increases the need for EF, which, in turn, leads to an increase in the rate of productivity, especially in small firms in Canada because they have fewer CC. Research by [Dörr, Raissi, and Weber \(2018\)](#) has stated that the operations of a firm can be expanded as a result of LTD, and it also allows small enterprises to gain access to the financial sector. [Bannerman and Fu \(2019\)](#) explain the fact that, if an organization has access to LTD finance, it becomes possible for the organization to spend money on equipment and innovative capital, which helps it to increase its rate of productivity. It also allows organizations to invest in innovative techniques, tools, machinery, and technology so that effective products can be produced. The theory of FC proves that a lack of knowledge and insignificant cash flow can cause a decrease in an organization's productivity. [Hasan., Kobeissi, Liu, and Wang \(2018\)](#) confirmed a direct relationship between productivity levels and LTD, as an increase in one variable results in a decrease in the other, and vice versa.

3. Data Collection

Data was collected from SMEs operating in Canada. SMEs employ between 50–500 people and are responsible for more than 50 percent of the output generated by the business sector ([Rispoli, Leung, & Baldwin, 2013](#)). Data was acquired from the Survey on Financing of Small and Medium-sized Enterprises (SFSME), in addition to other experimental data. The SFSME maintains a cross-sectional database of Canadian businesses that employ less than 500 workers and have a reported profit of less than 50 million dollars. The database provides details and information on the firm's petition for financing, the reasons why loan requests are terminated, the loan utility process, the interest rate of the loan, the type of interest (compounded, simple, annual, biannual), the collaterals used for securing the loan position, and whether or not the loan amount is ensured by the government. The database also offers information with regard to the equity financing, leasing, and governmental financing properties of the SMEs. The data is formally available for 2004, 2007, 2011. The administrative sources provide information on SFSME firms using financial statements. For the purposes of this study, the data from 2011 have been used; however, the financing activities from 2007 are also reported. The data is based on SFSME survey results.

3.1. Measurement of Credit Constraints

As the measurements of CC are only available for 2011, characteristics and estimations are being calculated for that year ([Moscalu, Girardone, & Calabrese, 2019](#)). In order to assess CC probability in the years before and after 2011, the model of CC estimation was used. Foreign financing is unconditional, as it is safer than in 2011. In order to make sure that Chinese SMEs will be financially restricted, scores have been assigned according to their knowledge of activities and outcomes. This is less likely to occur in high-scoring companies. Companies report whether they have applied for SFSME data ([Bena & Jurajda, 2011](#)). The types of financial instruments include long-term loans, lease financing, government grants, equity, trade credit, and short-term loans.

The values given in parentheses indicate the robust standard errors; (*) indicates the importance of coefficients at a degree of 10%; (**) indicates a level of 5%; and (***) indicates a level of 1% for P values. Table 1 reports the main results of the estimated measured FC as a function of the characteristics of the firm. The “Full Model” column reports Probit estimations using a sample selection, the “FC” column reports the probability of three degrees, and the “Needfin” column reports the estimations of the sample selections. In this paper, the reasons for not requesting EF are also reported, with many companies stating they do not need EF and others stating that EF is expensive. The measured CC only refers to the observed EF results; our scale does not differentiate between companies with high levels of debt and companies in financial difficulty. The debt-to-asset ratio is useful, but it cannot be obtained (Guiso, Jappelli, Padula, & Pagano, 2004). Demand may vary from one sector to another, as a result of certain sectors acquiring a great increase in productivity. Financial restrictions do not depend on the sector of each company.

3.2. Selection of Credit Constraints

The age and size of a firm are important factors to consider when identifying CC, which is why they are often used in the literature. The estimated values show that large companies have CC if they need EF support (Lucey, Zhang, & Finance, 2011). In Table 2, the “MLC” column refers to the most likely constraints and the “LC” column shows the likely constraints. According to the collateral constraint model, large companies can use more guarantees to obtain EF, so they are more likely to apply for credit; if they do, their results are less likely because they provide more collateral results. In companies, the marginal effects of the size of the assets are, most probably, both negative and statistically significant, as shown in Table 2. Negative marginal effects appear when the company is ten years old or older, but the statistics are only important when the company is twenty years old or older. To summarize the findings of the estimations of the inclusion of CC, it can be stated that proxy variables such as the size and age of the firm, cash flow, and the current debt and dividend levels are effective constraints in the evaluation of SMEs.

Table 1. Characteristics of firms

Variables	Full Model		(2)	(3)
	FC	NeedFin	FC	FC
Long-term debt/assets	0.009 (0.042)	-0.200** (0.046)	0.075 (0.049)	0.052 (0.039)
Current Debt/Assets	0.165*** (0.048)	0.253*** (0.063)	0.08 (0.057)	0.090*** (0.054)
Sales Growth	-0.006 (0.047)	0.102 (0.075)	-0.04 (0.072)	0.044 (0.033)
Current Assets/Assets	-0.629 (1.262)	0.715 (1.354)	-0.767 (1.455)	-0.1 (1.485)
Cash flow/Assets	-0.211*** (0.056)	-0.128*** (0.033)	-0.193*** (0.069)	-0.201*** (0.047)
In (Assets)	-0.201*** (0.012)	0.134** (0.060)	-0.271*** (0.057)	-0.086 (0.058)
1{Dividend>0}	-0.192*** (0.069)	-0.01 (0.048)	-0.200*** (0.072)	-0.152** (0.067)
{3<Age<=5}	0.086 (0.054)	-0.021 (0.081)	0.081 (0.062)	0.053 (0.082)
{5<Age<=10}	0.188*** (0.029)	0.002 (0.069)	0.176** (0.075)	0.136** (0.048)
{10<Age<=15}	0.009 (0.042)	-0.200** (0.046)	0.075 (0.049)	0.052 (0.039)
{15<Age<=20}	-0.201*** (0.012)	0.134** (0.060)	-0.271*** (0.057)	-0.086 (0.058)
{20<Age<=25}	-0.192*** (0.069)	-0.01 (0.048)	-0.200*** (0.072)	-0.152** (0.067)
{25<Age}	0.086 (0.054)	-0.021 (0.081)	0.081 (0.062)	0.053 (0.082)
{3<Age<=5} * In (assets)	0.188*** (0.029)	0.002 (0.069)	0.176** (0.075)	0.136** (0.048)
{5<Age<=10} * In (assets)	0.009 (0.042)	-0.200** (0.046)	0.075 (0.049)	0.052 (0.039)
{10<Age<=15} * In (assets)	0.165*** (0.048)	0.253*** (0.063)	0.08 (0.057)	0.090*** (0.054)
{15<Age<=20} * In (assets)	0.086 (0.054)	-0.021 (0.081)	0.081 (0.062)	0.053 (0.082)
{20<Age<=25} * In (assets)	0.188*** (0.029)	0.002 (0.069)	0.176** (0.075)	0.136** (0.048)

Note: ***, **, and * represent statistically significant levels of 1%, 5%, and 10%, respectively.

Table 2. MLC and LC

	MLC		LC	
	Standard Error	dy/dx	Standard Error	dy/dx
In Assets	0.002	-0.016	0.002	-0.013
Business Age <=3	0.023	0.021	0.023	0.020
Business Age >25	0.020	-0.027	0.018	-0.021
Cashflow/Assets	0.008	0.028	0.013	0.028
Long-term debt/assets	0.006	0.000	0.007	0.000
Current Assets/Debt	0.011	-0.037	0.011	-0.036

4. Credit Constraints and Productivity

The main influence of CC lies in the fact that they can affect the growth of a firm by hindering and limiting the ability of the firm to make decisions in terms of investment and recruitment. These decisions are also dependent on the overall productivity of the firm, which will be estimated. The total-factor productivity (TFP) of the firm is estimated using a structural procedure that is fixated on the production level of firms, as discussed by Olley and Pakes (1992). An extended version of their suggested method has been followed in the present study. In much of the previous empirical literature, the estimation of the production function was abstracted from the CC, while the control factors of employment and investment were found to be functions of a firm’s ability to finance and acquire TFP. Therefore, these factors will not be omitted, and the method of inclusion has been updated. As suggested by Akerberg, Caves, and Frazer (2015), an estimation of production function was carried out, so that the CC can be taken into consideration. The TFP was then used as an independent variable so that its likelihood to be constrained could also be calculated. This process allows for the evaluation of the relationship between productivity and CC. The process of productivity is assumed to take the following form:

$$\omega_{jt} = g(\omega_{jt}, x_{jt-1}, f_{jt-1}^c) + \xi_{jt}$$

$$= \sum_{j=0}^3 \gamma_j (\omega_{jt-1})^j + \gamma_4 f_{jt-1}^c + \gamma_5 x_{jt-1} + \gamma_6 f_{jt-1}^c x_{jt-1} + \xi_{jt}$$

In the case that $\gamma_4 = \gamma_5 = \gamma_6 = 0$, the term ω_{jt} is presumed to be exogenous. The endogenous component of the productivity is determined by the investments and measures of the CC, which are considered for both lagged and level periods. Lagged investments can impact a firm’s productivity through innovation and other value additions.

4.1. Production Function Estimations

First, the correlation between productivity estimates and FC were evaluated in order to understand whether or not they were related. For the estimation process, lagged labor, capital, and the square of lagged labor were considered to be instrumental to the calculation. The estimates of the parameters are defined in the Table 3. The first row of the table summarizes and presents results calculated using the ordinary least squares (OLS) method, the second row assumes that $\gamma_4 = 0$, and the third row shows the estimations of the endogenous TFP ($\gamma_4 \neq 0$). The last two rows in Table 3 display the estimations of the TFP and CC. The exogenous productivity estimates were found to be greater than the estimates when they were evaluated after omitting the FC. This result was expected, as the correlation coefficient among the production factors and the CC was negative. In terms of production capacity, the capacity of labor and capital was more significant than estimated, excluding EF and FC. This was also to be expected, as productivity factors and CC were negatively correlated when a two-stage generalized methods of moments (GMM) was estimated to include CC. When increased, the real relationship between total input and productivity was restored, which resulted in an increased growth in labor. For example, due to borrowing restrictions, a manufacturing firm observed a low wage input compared to other firms with the same total production level.

Table 3. Estimates of the parameters

$\hat{\alpha}$	Std. Err.	$\hat{\alpha}$	Std. Err.	RHS vars. in TFP shock process
(i) No financing decisions OLS 0.714	0.007	0.048	0.003	–
(ii) No financing decisions 2-stage, exog 0.651	0.165	0.053	0.012	–
2-stage, endo 0.632	0.092	0.051	0.008	X_{jt-1}
(iii) With, but without financial constrain 2-stage, exog 0.664				
	0.194	0.056	0.012	–
2-stage, endo 0.637	0.205	0.055	0.012	f_{cjt-1}
2-stage, endo 0.622	0.202	0.055	0.012	$f_{cjt-1}, X_{jt-1}, f_{cjt-1} \cdot X_{jt-1}$
(iv) With financial 2-stage, exog 0.663	0.102	0.058	0.012	–
2-stage, endo 0.682	0.360	0.062	0.021	f_{cjt-1}
2-stage, endo 0.671	0.270	0.062	0.012	f_{cjt-1}, X_{jt-1}
2-stage, endo 0.671	0.258	0.062	0.011	$f_{cjt-1}, X_{jt-1}, f_{cjt-1} \cdot X_{jt-1}$
2-stage, endo 0.642	0.234	0.056	0.012	$f_{cjt-1}, X_{jt-1}, f_{cjt-1} \cdot X_{jt-1}, f_{cjt-1} \cdot \omega_{jt-1}$

Table 4. Estimations of the impact of TFP on credit

	(1) FC	Need Fin	(2) FC	Need Fin
Current debt/Assets	0.185***	0.273***	0.182**	0.288***
	(0.056)	(0.043)	(0.072)	(0.053)
Long-term debt/Assets	0.002	0.149***	0.054	0.157**
	(0.046)	(0.041)	(0.059)	(0.072)
Current assets/Assets	0.0656	-0.167**	0.007	-0.237**
	(0.118)	(0.073)	(0.111)	(0.091)
ln(assets)	-0.076***	0.219***	-0.078***	0.205***
	(0.011)	(0.084)	(0.013)	(0.085)
Sales growth	-0.037	0.248***	-0.012	0.212**
	(0.117)	(0.045)	(0.091)	(0.074)
Cash flow/Assets	-0.136***	-0.101*	-0.188***	-0.081
	(0.054)	(0.062)	(0.035)	(0.075)
¹ {Dividend>0}	-0.178***	-0.028	-0.114**	-0.011
	(0.067)	(0.043)	(0.057)	(0.041)
TFP	-0.268***	-0.070		
	(0.092)	(0.098)		
Lagged TFP			-0.307***	-0.121
			(0.092)	(0.091)

Note: ***, **, and * represent statistically significant levels of 1%, 5%, and 10%, respectively.

If the assessment removes CC when estimating productivity at the firm level, determining the capacity of the production function could be biased, especially if both employment and investment are measured; the data shows that both investment and employment are measurable (Beck, Demirgüç-Kunt, & Maksimovic, 2005) that are negatively associated with FC. In this study, the results show that, if these EF and loans are excluded from all production functions and structural estimates, there is reduction in negative projections of capital and wages (Guiso et al., 2004). Tables 4 and 5 estimate the impact of TFP on CC alternatives available for firms. The key difference between the two estimations is that, in Table 4, the TFP was estimated independently from FC, whereas the estimations in Table 5 also present the influence of FC on TFP inputs.

In both of the tables it can be seen that the CC is found to be significant. Moreover, the TFP and lagged TFP measures are also significant. These results indicate that the productivity of firms is affected if CC are applied. These limits influence the decision making, loan receiving, and investment planning of businesses. As SMEs are responsible for half the business output in Canada, CC and FC applied to these businesses need to be reduced so that productivity can be improved.

Table 5. Estimate the impact of TFP on credit

	(1) FC	Need Fin	(2)	Need Fin
			FC	
Current debt/Assets	0.191***	0.262***	0.193***	0.264***
	(0.073)	(0.052)	(0.055)	(0.041)
Long-term debt/Assets	0.025	0.158***	0.015	0.174***
	(0.037)	(0.054)	(0.055)	(0.051)
Current assets/Assets	0.046	-0.184**	0.038	-0.187**
	(0.123)	(0.087)	(0.116)	(0.081)
ln(assets)	-0.149***	0.181**	-0.107***	0.232***
	(0.012)	(0.071)	(0.012)	(0.072)
Sales growth	0.017	0.224***	-0.054	0.204***
	(0.091)	(0.053)	(0.099)	(0.062)
Cash flow/Assets	-0.185***	-0.084*	-0.149***	-0.079
	(0.052)	(0.047)	(0.042)	(0.061)
¹ {Dividend>0}	-0.191***	-0.017	-0.171**	-0.021
	(0.065)	(0.027)	(0.089)	(0.041)
TFP	-0.032	-0.135**		
	(0.087)	(0.072)		
Lagged TFP			-0.071	-0.181***
			(0.090)	(0.063)

Note: ***, **, and * represent statistically significant levels of 1%, 5%, and 10%, respectively.

5. Discussion and Conclusion

By incorporating exclusive data on investment procedures and results from SMEs in Canada, we have concluded that companies will be forced towards EF, which reflects the financial struggles of borrowing businesses. The benefit of our measurement is that it separates the need for EF from the possibility of having to borrow, which was missing from previous studies (De Nicolò & Juvenal, 2014). Businesses with a high cash-flow to assets ratio are less likely to need financial support, although they would be forced to do so if necessary. Following previous studies, the results of this study have managed to resolve two arguments: first, the fact that the use of cash flow sensitivity of investment can be used as indirect evidence of friction in the credit market, and second, that the result

of such sensitivity can be a model without financial problems. Our assessment suggests that these two arguments only partially capture the role of cash flow (Bena & Jurajda, 2011). Higher levels of investment and cash flow can be generated through higher productivity levels. SMEs do not need EF, such as high productivity. The main cash flow shows that the company's financial position is stable and can provide a high level of investment support to firms. The results of the present study are supported by recent and past literature. Cao & Leung (2019) used a similar approach to the one applied in this study in order to evaluate the impact of CC on firm productivity in Canada. The findings have shown that, if constraints are put on the credit ability of SMEs, they risk limiting their growth. Chen and Guariglia (2013) and Yang (2018) studied the influence of FC on the productivity of the firm. The findings also suggest that productivity is affected in private firms and other firms with lower liquidity, due to the limited availability of internal and EF. The availability of finance is extremely important for the long-term productivity of organizations, and limiting the credit availability of SMEs hinders their opportunity to grow (Amos & Zanhoun, 2019; Bremus & Fratzscher, 2014; Coad, Pellegrino, Savona, & Technology, 2016).

In the SFSME data, companies report whether or not they applied for EF, and if they have, what the results were. The types of financing include long- and short-term loans, lease financing, government grants, equity, and trade credit. Our results also found that, if the estimated coefficient of labor and capital are omitted, estimates of capital regulations and wages in production funds can increase productivity constraints and decrease the CC. There is a negative relationship between input and productivity estimates, and this downward bias leads to an upward bias. The estimates were negatively correlated with negative credit barriers, without correcting for bias.

6. Research Implications and Limitations

The results of this study have certain policy applications. Our research has found that governments want to keep its strategy in situations where small businesses are subsidized on productivity. In terms of EF, if small companies have a large production capacity but cannot grow, this contributes to the overall production loss. However, government assistance can help to increase the overall productivity of a firm by overcoming financial difficulties. Such a policy could have a long-term effect on the growth of the economy. A strategy that only depends on the size of the company is less effective, as some small companies are less productive, and these strategies may not necessarily help them overcome financial difficulties and grow. SMEs improve their performance in terms of the firm's potential. Liquidity reduction policies are effective in helping SMEs avoid financial pressures. The demand for foreign aid is determined by the need for investment and employment, which is, in turn, a major blow to productivity. In order to assess the possibilities of economic coercion and production processes in the economic system, it is necessary to evaluate a fully defined dynamic model of investment and financing, which includes the FC theory.

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