Impact of the COVID-19 Pandemic on SME Debt in a
Sub-Saharan Context: The Case of Cameroon

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Abstract
Following the confinement imposed by the Cameroonian authorities after the contamination of some people by the Coronavirus, several companies in general and SMEs in particular have experienced great difficulties due to a partial or total cessation of their activities. The objective of this study is to evaluate the impact of the Covid-19 pandemic on the indebtedness of Cameroonian SMEs. Through statistical and econometric analyses carried out on a sample of 450 Cameroonian SMEs, the results obtained highlight the significant influence of the Covid-19 health crisis on the better development of Cameroonian SMEs’ activities. This suggests that the Cameroonian government and/or financial partners should provide financial assistance to SMEs in order to alleviate the cash flow difficulties caused by the Covid-19 pandemic.

Index terms — pandemic; debt; covid-19; containment; SMEs.

1 I. Introduction
Since the first infections in Wuhan, China, Covid-19 has continued to spread around the world. According to simulations by the International Monetary Fund (IMF), global economic growth will be grossly insufficient and the world economy will be in negative territory as early as the first half of 2020. This global health crisis will lead to partial or total lockdowns, land, sea and air border closures, business closures and significant trade restrictions in some more developed to less developed countries, with serious negative consequences for their overall economic activity.

As Cameroon has not been spared by the covid-19 pandemic, many companies have been weakened. According to studies conducted by the Interpatronal Group of Cameroon (GICAM), on more than 250 companies surveyed between May 22 and June 22, 2020, i.e. 25% of large companies and 75% of SMEs, it appears that the incidence of the covid-19 pandemic has brutally affected 61.5% of companies and left about 10.8% of companies regardless of their size. A careful analysis of the consequences of this pandemic reveals that the most affected sectors are: accommodation and food services (88.9%), agri-food (80.0%), financial services and insurance (71.4%) and computer and telecommunication services (70.0%).

Difficulties in accessing finance remain one of the main obstacles to the creation, survival and growth of SMEs in general, and innovative SMEs in particular. The Covid-19 health crisis poses enormous difficulties for SMEs to be able to carry out their activities serenely. As a result, these SMEs and many entrepreneurs are facing a double shock: a dramatic fall in demand for goods and services, and a tightening of credit conditions that is severely affecting their cash flow.

While the financing structure, and more specifically the debt ratio of a company, is influenced by many factors, its size, growth, industry or collateral are examples of factors that can influence a company’s debt ratio (Laura, 2015). This makes it more difficult for smaller companies with less collateral to borrow, especially if the economic environment is not favorable. The more collateral a business has to provide to banks, the more likely it is to be able to take on debt.
1 I. INTRODUCTION

Speaking of debt, Traoré (2005) theoretically defines it as all the aid requested by a government from partners (bilateral, multilateral, financial institutions, financial markets, etc.) to finance development actions that could not be covered by the national budget.

For Honoré and Royer (2003), the indebtedness of the enterprise corresponds to all the capital brought by its financial, industrial or commercial partners and which it uses for its investments in fixed assets and its working capital requirements (WCR). The analysis of indebtedness is based on distinctions between long and short term, limited or unlimited duration, operating or financial debt (Abor, 2007; Colot et al., 2010).

The objective of this study is to assess the impact of the Covid-19 pandemic on the indebtedness of Cameroonian SMEs. Thanks to statistical and econometric analyses conducted on a sample of 450 Cameroonian SMEs, the results obtained highlight the significant influence of the Covid-19 health crisis on the better development of the activities of Cameroonian SMEs.

In this article, we will first examine the literature review and the elaboration of the hypothesis, then the methodology used in this study and finally, we will comment and discuss the results obtained and end with a conclusion. Review of the Literature and Formulation of the Hypothesis A health crisis is an epidemic that spreads over a large geographical area and affects a significant proportion of the population: among the many parameters that transform a disease into a pandemic, one must consider the incubation time before the first symptoms, the time before the contagious phase, the intensity of the contagiousness of the biological agent, the degree of immunity of the population and the mode of transmission (Nkoa, 2020).

To avoid contagion in Covid-19, several measures have been taken to this effect, namely: border closure; containment; barrier measures; wearing of masks; social distancing; working remotely through information and communication technologies; etc.

According to Ntererwa and Lukundji (2020), financial leverage refers to the impact of the financial structure of the firm on the profitability of equity. Under certain conditions, the use of debt can increase the return on equity through a so-called "leverage" effect. It is therefore necessary to show the part of the return on equity that comes from the economic activity of the company (ROI) and the part that is attributable to the method of financing (financial leverage). Leverage can be defined as the positive impact that the judicious use of debt can have on the financial profitability of the company. The leverage effect is all the more important as the debt/equity ratio (called the Gearing ratio) amplifies the profitability differential (economic profitability-cost of debt) (Modigliani and Miller, 1958).

Indeed, it appears that in the long run, only sufficient economic profitability guarantees a satisfactory level of return on equity, because if the debts contracted to invest cost less (interest rate) than they yield (economic profitability), the financial profitability is impacted upwards. If a company can borrow capital at a cost of 6% and, thanks to this financing, its activity grows and it achieves a profitability of 9%, the leverage effect is positive (Modigliani and Miller, 1958).

If this is not the case, it is called a sledgehammer effect. The interest of the leverage effect is to highlight the origin of the profitability of equity, to know if it is a favorable financial construction or a true operational/economic performance born of a judicious exploitation of the production tool (Stiglitz, 1972; Modigliani and Miller, 1958). This being the case, it should not be forgotten that while debt can be a source of improvement in the profitability of equity capital, it can also be a source of weakening the solvency of the company, or even of jeopardizing the continuity of its operations.

As a reminder, the more guarantees a company provides to banks for access to credit, the more likely it is to be able to incur debt.

Indebtedness refers to a situation marked by an accumulation of debts (Imane, 2016). In the business world, debt is often directly related to investments made, which require a certain amount of long-term debt (Modigliani and Miller, 1958; Stiglitz, 2015). Debt can be obtained through loans or bank credits (Stiglitz, 1972). SMEs rely heavily on debt despite measures to facilitate their access to capital markets.

Since the work of Modigliani and Miller (1958), there have been many theoretical debates and empirical works on the issue of debt. Arbitrage theory is one of the first lines of progress of this school, known as neoclassical. This theory puts forward the following idea: the firm substitutes equity for debt or debt for equity until the value of the firm is maximized.

A firm always seeks the level of debt that allows it to minimize its cost of capital, and thus maximize its value (Laura, 2015). This debt ratio is, according to the trade-off theory, the one that balances the fiscal benefits of any additional debt (perpetual rent from tax savings) with the costs of potential financial distress (bankruptcy costs caused by debt). We have: EV = VNE + tD - VA, where EV = Value of the indebted firm; VNE = Value of the non-indebted firm; tD = Tax savings and VA = Amount of bankruptcy costs.

The analysis of the impact of the Covid-19 health crisis on SME debt has so far received relatively little empirical attention. In this sense, many existing studies have first focused on the digital mechanisms in the management of the Covid-19 health crisis and the challenges to bridge the digital divide in the world (Thiam and Ndiaye, 2020); on the spillover effects of the health crisis (Oudda et al., 2020). The others address the health and/or financial crisis aspect either on credit rationing or on the behavior of financial intermediaries (Achibane and Chakir, 2019; Hervé, 2010; Aissata, 2012; Akilimali et al., 2020).

Hence the almost total absence of studies on the impact of the Covid-19 health crisis on the indebtedness of Cameroonian SMEs. In view of this situation, which weighs on the activities of SMEs, this study will focus on...
the following question: what is the impact of the Covid-19 health crisis on the indebtedness of Cameroonian SMEs?

The objective of this study is to assess the impact of the Covid-19 pandemic on the indebtedness of Cameroonian SMEs. In order to answer our research question formulated above, we opted for a hypothetical deductive approach, as it consists in formulating a research hypothesis in order to deduce its observable future consequences, as well as its past consequences, in order to highlight its validity. To answer our research question above, we used a research hypothesis.

2 III. Covid-19 Pandemic and SME Debt:

Empirical Validation in the Cameroonian Context

In this section, we will first describe the sampling, the data collection procedure, then define the variables selected for the study and finally specify the estimation method selected.

3 a) Sampling and Data Collection

The population of this study is composed of Cameroonian Small and Medium Enterprises (SMEs).

The official definition of the SME in the Cameroonian context comes from Law n°2015/010 of 16 July 2015 modifying and completing certain provisions of Law n°2010/001 of 13 April 2010 on the promotion of SMEs. This text sets out references that make it possible to divide enterprises into different groups: Very Small Enterprise (VSE); Small Enterprise (SE) and Medium Enterprise (ME). According to these references, the SME group includes enterprises with a permanent workforce of between 21 and 100 people and an annual turnover excluding tax of no more than three (03) billion CFA francs. For data collection, we used a research questionnaire administered to the managers of Cameroonian SMEs. We selected the regions of: Littoral; Centre; West; Adamaoua; North and East for the distribution of the research questionnaire. The survey started in May 2020 and ended in December of the same year. Out of the four hundred and ninety-eight (498) questionnaires randomly proposed to SME managers, only four hundred and seventy (470) were sent to us, i.e. a return rate of 94.37%. Of this number, twenty (20) questionnaires had to be discarded for various reasons (indecipherable, incomprehensible, etc.). It is clear that 95.74% of the questionnaires that arrived were usable. In sum, 450 SMEs belonging to the primary, secondary and tertiary sectors were validated in the framework of our study.

4 b) Definitions and Measures of Variables

We used some variables to analyze the link between the Covid-19 pandemic and the indebtedness of Cameroonian SMEs. Control variables were also introduced to test the relationship between the Covid-19 pandemic and these control variables.

5 i. The Endogenous Variable

The covid-19 pandemic is the dependent variable. The measure of this variable is evaluated through the speed of sales of SMEs. This variable is binary and takes the value 1 if the speed of sales of SMEs is increasing at the time of the covid-19 pandemic and 0 otherwise.

6 ii. The Exogenous Variable

The indebtedness (X 1 ) of SMEs is the independent variable. A quantitative variable, it expresses the weight of external capital committed by the firm’s creditors. For this study, and according to Cassar and Holmes (2003), the indebtedness of SMEs is measured by the short-term debts (STD) on the total of the balance sheet (STD/Total of the balance sheet).

7 iii. Control Variables

We retained three (03) control variables, namely: the age of the SME; the sector of activity; and the manager-shareholder/owner network. ? The age of the SME (X 2 ), is a quantitative variable and is measured by the Neperian Logarithm of the age of the SME expressed in number of years (M’hamid et al., 2011). ? The sector of activity (X 3 ), is a dichotomous variable that takes the value of 1 if the SME operates in a high-tech sector and 0 otherwise (Amal and Faten, 2010). ? The manager-shareholder/owner network (X 4 ), is a dichotomous variable that takes the value of 1 if the manager belongs to the same religious, cultural and professional networks as the owner or shareholders and 0 otherwise (Moungou and Niyonsaba, 2015).

8 Source: From the Author based on the Literature c) Econometric Model

For our study, we used the logistic regression model. The choice of this model is justified by the fact that the variable Y to be predicted is dichotomous (1 or 0) and not continuous. The most distinctive point of this regression is the fact that the relationship between the predictor variables, X 1 , X 2 , X 3 ,?,X n and the variable Y to be predicted is non-linear. Logistic regression analysis allows the prediction of group membership probability.
IV. CONCLUSION

using the maximum likelihood method, as it provides better estimators when the distribution of disturbances is known. The use of SPSS version 20 and Stata/SE version 15.1 will be useful for the analysis of the collected data. Thus, the following research model is selected.

Model: Test of the relationship between the covid-19 pandemic; SME debt and control variables.

As our logistic regression model has several predictors, it is therefore formulated as follows: The coefficients $\beta_0$, $\beta_1$, $\beta_2$, $\beta_3$, $\beta_4$ represent the constant and the linear combination of the predictors. $P(Y) = e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4}$ or $P(Y) = 1 + e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4}$

9 d) Presentation and Interpretation of Results

The objective here is to present, on one hand, the correlation matrix between the dependent variable and the exogenous variables, and on the other hand, the results of the logistic regression between the dependent variable and the exogenous variables.

10 Source: From the Author based on the Survey

The table above shows that there is a positive and significant correlation at 1% level between the Covid-19 health crisis and the indebtedness of Cameroonian SMEs. Similarly, there is a positive and significant correlation at 1% level between the sector of activity and the Covid-19 health crisis, and a positive and significant correlation at 1% level with the managershareholder/owner network.

11 Table 4: Logistic Regression Results

12 Source: From the Author based on the Survey

According to the results obtained above, the LAMBDA likelihood ratio statistic is equal to 224.09. The associated critical probability is 0. The associated critical probability is 0. The model is therefore globally significant, as there is indeed a relationship between one or more explanatory variables and the explained variable.

As the data are individual and not aggregated, the pseudo-R 2 does not need to be close to 1 (or 100%) to be excellent. Its value of 37.89% is already satisfactory. Our regression model as discussed above is as follows: $P(Y) = 1 + e^{-3.013282 + 3.22012 X_1 + 0.0345872 X_2 + 0.6373508 X_3}$ or $P(Y) = 1 + e^{-3.013282 + 3.22012 X_1 + 0.0345872 X_2 + 0.6373508 X_3}$

13 IV. Conclusion

The objective of this study was to assess the impact of the Covid-19 pandemic on the indebtedness of Cameroonian SMEs. Through statistical and econometric analyses carried out on a sample of 450 Cameroonian SMEs, the results obtained show a positive and significant influence of the Covid-19 health crisis on the better development of Cameroonian SMEs’ activities. Hence the acceptance of our research hypothesis.

The results of this study reveal that the Covid-19 health crisis was the cause of several problems that prevented businesses from operating as they should, namely: border closure; containment; barrier measures; wearing of masks; social distancing; etc.

Through this study we can suggest to financial institutions, after having noted the delay in the repayment of credits granted to SMEs, to use certain strategies to make them more solvent.

Through this study we can suggest that financial institutions, after having noticed the delay in the repayment of credits granted to SMEs, should use certain strategies to make them more creditworthy.

If, despite this, nothing is paid, they should take more effective collection measures, such as sending reminders or using external collection services. If there is still no proof of good faith, these financial institutions must take more binding legal measures.

In terms of managerial implications, it would be interesting for the government to provide more subsidies to SMEs during the Covid-19 health crisis. For example, the state should consider a policy of supporting SMEs
by exempting them from taxes due to the Covid-19 health crisis. The Cameroonian government should also
respond to certain measures aimed at supporting sales and combating the depletion of SMEs’ working capital,
then improve SMEs’ access to liquidity, and finally help SMEs to maintain their level of activity.

The results of this study remind us that the Covid-19 health crisis caused a number of problems that prevented
businesses from operating effectively. These problems include: border closures; containment; barrier measures;
wearing masks; social distancing; working remotely through information and communication technologies; etc.

Figure 1: S

<table>
<thead>
<tr>
<th>Regions</th>
<th>Littoral</th>
<th>Centre</th>
<th>West</th>
<th>Adama’oua</th>
<th>North East</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionnaires Administered</td>
<td>207</td>
<td>130</td>
<td>45</td>
<td>40</td>
<td>39</td>
<td>37</td>
</tr>
<tr>
<td>Questionnaires Received</td>
<td>203</td>
<td>117</td>
<td>42</td>
<td>36</td>
<td>37</td>
<td>35</td>
</tr>
<tr>
<td>Usable Questionnaires</td>
<td>201</td>
<td>110</td>
<td>40</td>
<td>34</td>
<td>33</td>
<td>32</td>
</tr>
</tbody>
</table>

Source: From the Author based on the Survey

Figure 2: Table 1:

\[
\begin{align*}
\text{Logistic regression} & \quad \text{Number of obs} = 450 \\
\text{LR chi2(4)} & \quad 224.09 \\
\text{Prob > chi2} & \quad 0.0000 \\
\text{Pseudo R2} & \quad 0.3789 \\
\end{align*}
\]

\[
\begin{align*}
\begin{array}{cccccc}
  y & \text{Coef.} & \text{Std. Err.} & z & P>|z| & [95\% \text{ Conf. Interval}] \\
\hline
  x1 & 3.22012 & 0.5617775 & 5.73 & 0.000 & 2.119057 & 4.321184 \\
x2 & 0.0345872 & 0.0405794 & 0.85 & 0.394 & -0.049468 & 0.1141213 \\
x3 & 0.6373508 & 0.4693088 & 1.36 & 0.174 & -0.2824777 & 1.557179 \\
x4 & -3.013282 & 0.4645408 & -6.49 & 0.000 & -3.923785 & -2.102799 \\
\text{-cons} & -3.013282 & 0.4645408 & -6.49 & 0.000 & -3.923785 & -2.102799 \\
\end{array}
\end{align*}
\]

\[
. mfx
\]

Marginal effects after logit

\[
y = \Pr(y) \ (\text{predict}) = 0.62535163
\]

\[
\begin{align*}
\begin{array}{cccccc}
\text{variable} & \text{dy/dx} & \text{Std. Err.} & z & P>|z| & [95\% \text{ C.I.}] & X \\
\hline
x1 & 0.7544322 & 0.13998 & 5.39 & 0.000 & 0.480078 & 1.02879 & 0.753333 \\
x2 & 0.0081033 & 0.0095 & 0.85 & 0.394 & -0.010517 & 0.026723 & 0.636222 \\
x3 & 0.1532052 & 0.11427 & 1.34 & 0.180 & -0.070757 & 0.377167 & 0.744444 \\
x4 & 0.1383376 & 0.08877 & 1.56 & 0.119 & -0.035643 & 0.312318 & 0.7 \\
\end{array}
\end{align*}
\]

(*) dy/dx is for discrete change of dummy variable from 0 to 1

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IV. CONCLUSION

Variables

Abbreviations of Variables

Variable is binary taking the value 1 if
The Covid-19 Pandemic

the speed of sale of SMEs is increasing at the time of the covid-19 pandemic and 0 otherwise.

The indebtedness of SMEs is measured by short-term debt (STD) to
total assets (STD/Total assets).

Quantitative variable measured by the

The Age of the SME

Neperian Logarithm of the age of the SME expressed in number of years.

Quantitative variable measured by the

The Sector of Activity

Neperian Logarithm of the age of the SME expressed in number of years.

Quantitative variable measured by the Neperian Logarithm of the age of the SME expressed in number of years.

X 4 = The Manager-shareholder/owner network

Figure 3: Table 2:

Figure 4: Table 3:


[Imane ()] *Explaining the use of financial debt: the case of Moroccan SMEs*, R Imane. 2016. ISCAE Group (PhD thesis) 


