

The COVID-19 Health Crisis and Corporate Debt: What Impact of the Crisis on some Tunisian SMEs

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Abstract: Small and medium-sized enterprises have a key role in economic development and job creation, but lately, and in the footprint of the COVID-19 pandemic, a violent health and economic crisis is emerging that threatens many affected countries. The objective of this study is to assess the effect of the COVID-19 health crisis on the indebtedness of Tunisian SMEs. For this purpose, a sample of 140 SMEs was selected, and for the data analysis, we resorted to the truncated regression methodology via the STATA 12 software, the results show a positive effect of indebtedness on the health crisis of the COVID-19, SMEs are struggling to repay their debts, but there is a delay in repaying them on time. Moreover, the results show precisely that the health crisis of COVID-19 has been the cause of other challenges that prevent SMEs from functioning, which implies the usefulness of the intervention of governments and partners in order to overcome the cash flow difficulties.

Keywords: SMEs; health crisis; debt; COVID-19; cash flow

Abstrak: Usaha kecil dan menengah memiliki peran penting dalam pembangunan ekonomi dan penciptaan lapangan kerja, namun akhir-akhir ini, dan di tengah pandemi COVID-19, muncul krisis kesehatan dan ekonomi yang mengancam banyak negara yang terkena dampak. Tujuan dari penelitian ini adalah untuk menilai pengaruh krisis kesehatan COVID-19 terhadap hutang UKM di Tunisia. Untuk tujuan ini, sampel 140 UKM dipilih, dan untuk analisis data, kami menggunakan metodologi regresi terpotong melalui perangkat lunak STATA 12, hasilnya menunjukkan efek positif dari hutang pada krisis kesehatan COVID-19, UKM berjuang untuk membayar hutang mereka, tetapi ada keterlambatan dalam membayar mereka tepat waktu. Selain itu, hasil justru menunjukkan bahwa krisis kesehatan COVID-19 telah menjadi penyebab tantangan lain yang menghalangi UKM untuk berfungsi, yang menyiratkan kegunaan intervensi pemerintah dan mitra untuk mengatasi kesulitan arus kas.

Kata Kunci: UKM; krisis kesehatan; hutang; COVID-19; arus kas

INTRODUCTION

Small and medium-sized enterprises play a decisive role in the economy of countries, and specifically in developing countries, where they represent between a western rate of between 80 and 95% of active enterprises (Lavigne & Josée St-Pierre, 2007 cited by Khuabi & Mayinga, 2020). To this end, since 1918 humanity has been met with a pandemic, which poses political, health and social challenges in a dramatic way (Oudda, et al., 2020), as well as economic instability (Bakour & Ouassou, 2020). A few years later, the world was once again faced with a new health crisis of COVID-19, and inevitably affected the most important sectors of the world economy, in this case industry, tourism, transport, textiles, cross-border trade, international trade, etc. For this, very small enterprises are the companies most impacted by this crisis and will find it difficult to resist with a percentage of 90% against a rate of 8% for SMEs (Oudda, et al., 2020). Small and medium-sized enterprises have not been far from this pandemic which has aggravated unemployment with the cessation of activities in certain companies precisely: restaurants, bars, terraces, party rooms.

To respond to the various concerns of economic operators, Amazon recruited more than 100,000 people in March 2020 to effectively adapt to the increase in online purchases (Terrasson, 2020). However, difficulties in accessing financing remain one of the main obstacles to the creation, survival and growth of SMEs in general, and in particular the most innovative ones. The crisis only increases the difficulties, while SMEs and entrepreneurs suffer from a double shock: (1) a dramatic fall in demand for goods and services and (2) a tightening of credit conditions, which severely affect their cash flows (OECD, 2009). While the financing structure, and more particularly, the debt ratio of a company is influenced by many factors: its size, its growth, its sector of activity or even the guarantees it has are examples of factors capable of influencing the debt ratio of a company (Laura, 2015). The more guarantees the company has to provide with the banks, the higher the probability that it will be able to resort to debt. It is therefore more difficult to borrow for small businesses which have fewer guarantees at their disposal, all the more so if the economic context is not favourable.

Indeed, it is since 2019 that the COVID-19 health crisis began in Wuhan in China since December 2019 (Brüssow, 2020; Fauci et al. 2020) and has seen its spread in China with a mortality rate considered high, the World Health Organization has been alerted to this virus, which has spread in different areas of the world, constitutes a health emergency of international concern. It has effects on private consumption expenditure (retail trade, leisure, transport, etc.) and affects manufacturing activities. In Tunisia, the presence of this COVID-19 pandemic has paralyzed several economic activities and has even brought some companies to a partial or total shutdown. Following the barrier measures taken by the national authorities, the borders have been temporarily closed. For this, since March 2020, the national macro-economic indicators have been falling, the local currency has depreciated and the economic context has indeed been violently disturbed: Tunisia having an economy open to the outside world, it is very dependent of its business with the rest of the world, and the receipts are not sufficient, whereas the expenses are always important. The International Monetary Fund (2020) indicates that the economic impact of the COVID-19 pandemic in Tunisia is likely to be severe, with a -2.2% decrease in Tunisian GDP.

The work of Thiam and Ndiaye (2020) has shown that the least connected and equipped countries must strengthen their investments in technological productivity to better cope with the effects of the pandemic and reduce the digital divide. Two complementary arguments justify the importance of this study. Firstly, Tunisia's economy being extroverted, that is to say, focused on imports, with the COVID-19 health crisis, some companies were unable to obtain supplies due to the closure of borders to coping with the COVID-19 epidemic. Secondly, the majority of Small and Medium Enterprises in Tunisia resort to debt to finance their current assets by even asking for an amount greater than their equity. The work of Peltoniemi and Vieru (2013) showed that microfinance is one of the financial sources suitable for small and medium-sized enterprises (SMEs). It offers entrepreneurs the opportunity to boost their experience, increase the scale of their activities and become increasingly competitive. It thus contributes to the growth and survival of SMEs (Alhassan, et al., 2016). Therefore, access to credit increases the competitiveness and profits of companies (Oborah, 2014).

The analysis of the impact of the COVID-19 pandemic on SME indebtedness has so far received little empirical attention. Several existing studies have focused on the mechanisms of digital technology in the management of the health crisis and the challenges of reducing the digital divide in the world (Thiam & Ndiaye, 2020); on the fallout from the pandemic (Oudda et al., 2020). Others address the aspect of the health crisis on credit rationing, or on the behavior of financial intermediaries (Hervé, 2010; Aissata, 2012; Achibane & Chakir, 2019; Akilimali, et al., 2020). Hence the virtual absence of research on the impact of the COVID-19 pandemic on SME debt.

In view of this situation which weighs on the activities of the SMEs under examination, this study will be oriented towards the following question: what is the impact of the COVID-19 health crisis on the indebtedness of SMEs? In this paper, it will be a question of examining in the lines which follow initially, the review of the literature and the development of the hypotheses, in the second time, the methodology used in this research and finally, to comment and discuss the results obtained before concluding them.

LITERATURE REVIEW

COVID-19 Health Crisis

COVID-19 causes diseases that can range from a simple cold to serious pathologies such as SARS (Severe Acute Respiratory Syndrome), which is an infectious disease caused by a virus belonging to the coronavirus family. Coronaviruses are viruses of moderate size (100-150 nm), rounded in shape containing single-stranded RNA, the presence of membrane projections on the surface of the crown-shaped virus is the origin of its name. There are two known stereotypes of human coronavirus: 229-E and OC 43. COVID-19 causes respiratory illnesses in humans that are usually mild, such as the common cold. It is found with an incidence of 15 to 25/100 people (Treanor & Falsey, 1999). The coronavirus has also been implicated in more severe respiratory symptoms in a nosocomial setting in newborns and adults. Coronavirus pneumonia has been reported following a bone marrow transplant. This virus is relatively resistant to the external environment, being able to survive 6 days in suspension and nearly 3 hours on inert dry surfaces, suggesting once again another potential mode of contamination.

The data obtained in animals make it possible to complete the potential clinical spectrum of coronaviruses. Bovine coronavirus is associated with major digestive symptoms such as diarrhea (Fukutomi et al., 1999). The coronavirus associated with SARS gives for the moment, an essentially respiratory symptomatology. Predominantly digestive forms have been identified in Hong Kong. The analysis of data from the epidemic can allow, in addition to already known information on coronaviruses, to assess the mode of transmission of this pathogen. The predominant mode of transmission in the initial phase of the epidemic seems to be the respiratory route with "droplet" type transmission. This is supported by the high viral loads in respiratory secretions shown by Drosten (2003). In the case of SARS, the first analyses show that the contamination requires prolonged and repeated contact with a patient presenting with pulmonary symptoms.

The World Health Organization, on March 11, 2020, qualified the global situation related to COVID-19 as a pandemic, the epidemic is rapidly spreading and now global, it is serious and contagious. The disease is in the form of cases of pneumonia that can lead to death, especially in frail people. The global health crisis generated by the COVID-19 pandemic has justified the implementation of containment in several countries and has led to a sharp slowdown in trade and the closure of borders.

In Morocco, the scale of the pandemic has raised major challenges that decision-makers have had to face through a series of measures and safeguards that help preserve the balance of the national economy through regulation and protection (Oudda et al., 2020). Even if it is very early to consolidate all the actions taken in the face of this pandemic, Morocco has shown vigilance through its commitment since the onset of the pandemic to study and prevent challenges. But this crisis has also enabled it to identify its shortcomings with a view to calling them into question in its next economic orientations and pushes the leaders to reflect on the idea of prioritizing certain sectors essential to the progress of the economic wheel of the country.

Debt

Debt from the markets (money and bonds) and from credit institutions, or even self-financing, are the main methods of financing non-financial corporations. Thus, the main source of debt for SMEs comes from banks (Report of the National Bank of Belgium, 2012). SMEs are highly dependent on debt despite measures to facilitate their access to financial markets. Debt can be obtained through loans or bank loans.

Debt Theories

There are two essential theories that talk about the influence of corporate debt namely: the theory of hierarchical financing and the theory of market timing. According to the theory of hierarchical financing, companies prefer internal financing to external financing. Here, it is a question of prioritizing the types of financing. According to this theory, companies finance themselves in the first place through internal sources of financing, whose issuance costs are relatively lower. If in the event of insufficient internal financing, external financing is then used, favoring debt and the issuance of bonds over the issuance of shares, the rule is to promote the issuance of fewer securities expensive and low risk (Yaakoubi & Riahi, 2007). Thus, the work of Cherif (1999) identified three reasons that explain why the activity of SMEs is riskier than that of large companies. These reasons include: (1) operational risk,

(2) information asymmetry and finally (3) the dependence of the minority shareholder on the majority shareholder and conflicting interests. interests arising therefrom.

Regarding the theory of market timing, it is the most recent theory in terms of financing structure. Its purpose is to benefit from fluctuations in the cost of shares compared to the cost of other forms of capital. Companies would thus have more recourse to debt and share buybacks when stock markets are down (Baker & Wurgler, 2002).

Several other theories seek to explain the choice a company makes between debt financing and capital increase financing. This choice designates the financial structure of the company. This enables asset financing as it can affect the value of the business. Modigliani and Miller (1958) propose the neutrality theorem of the structure of financing according to which, in a world without transaction costs, in the presence of perfect symmetry of information, efficient markets and absence of taxation, the value of a company would be independent of its financing structure. It would therefore be useless to seek an optimal debt-to-equity ratio. Modigliani and Miller (1963), however, amended this theorem by introducing the presence of taxation on corporate profits. According to this theory, a company with debt would be more valuable than a non-leveraged company thanks to the tax deductibility of its debt charges. However, excessive debt can involve significant charges with the consequence of increasing the risk of bankruptcy of the company. Thus, there is an incentive to raise debt up to a point where the capital structure is optimal. Marris (1964) mentions the existence of a point of maximum indebtedness. But, according to Myers (1977), this point of indebtedness is reached when the company maximizes its market value.

Leverage

Financial leverage refers to the impact of the company's financial structure on the return on equity. Under certain conditions, the call for debt makes it possible, thanks to a so-called "leverage" effect, to increase the return on equity. It is therefore necessary to show the part of the return on equity that comes from the economic activity of the company (ROI) and that which is attributable to the mode of financing (financial leverage effect). However, we can define the leverage effect as the positive impact that the judicious use of debt can have on the financial profitability of the company. The leverage effect will be all the more important than the debt/CP ratio (called Gearing ratio), thus amplifying the profitability differential (Economic profitability – cost of debt).

Indeed, it turns out that over time, only sufficient economic profitability is the guarantee of a satisfactory level of return on equity, because if the debts contracted to invest cost (interest rate) less than they report (economic profitability) the financial profitability is impacted upwards. If a Company can borrow capital at a cost equal to 6% and following this financing, it sees its activity increase by achieving 9% profitability, the leverage effect is then positive. Otherwise, we will speak of a knock-on effect. The interest of the leverage effect is to highlight the origin of return on equity, whether it is a favorable financial construction or a real operational/economic performance resulting from the judicious use of the production tool. That said, we must not forget that if debt can be a source of improvement in the return on equity, it can just as much be a source of weakening of the company's solvency, or even jeopardize its continuity in operating.

For a company without debt, we know that:

- Financial profitability = $E_p (1 - \text{tax})$
- $E_p = \frac{NOI}{\text{Investissement or economic assets}}$
- For a company in debt:
- Financial profitability = $[E_p + (E_p - i) \frac{Fd}{E}] (1 - \text{tax})$
- From where:
- NOI: net operating income
- E_p : economic profitability
- Fd : Financial debts
- i : interest rate
- E : Equity

Thereby:

1. When $E_p = i$, the leverage effect is zero, i.e. the financial structure is neutral with regard to the return on equity.
2. If $E_p > i$: the leverage effect is positive, the use of debt therefore allows the firm to increase its financial profitability thanks to the tax savings made following the tax deductibility and the expenses of interest.
3. If $E_p < i$: the leverage effect is negative, i.e., it turns into a knock-on effect, thus degrading the return on equity.

It follows that the more the firm is indebted, the greater will be the lever arm, but it should not be concluded that the debt is infinitely likely to be increased, because the more the firm is indebted, the more it runs risks, the higher the interest rate i will be, and therefore the lower the profitability differential $Re - i$ will be, and consequently the Gearing lever.

This does not prevent self-financing from being considered as the best financial strategy either (cost of opportunities).

Accounting demonstration:

Let the economic profitability be:

$$E_p = \frac{GOS}{\text{economic assets}}$$

• With: Economic assets = Fixed assets + NIF

• Financial profitability is written for its part:

$$\text{Financial profitability} = \frac{\text{Net profit}}{\text{equity}} = \frac{(GOS - FC)}{E}$$

With:

- NIF= need in funds
- GOS = gross operating surplus
- FC = financial costs or the product of the debts D by the interest rate i
- E = equity
- Knowing that: $E = \text{Assets} = \text{Liabilities (debt rated + equity)}$

When a company undertakes an investment project and borrows to finance this investment, it expects that the operating profit generated by the new activity will be greater than the financial charges induced by the debt.

Development of Hypotheses

Laura (2015) has shown that the impact of the 2008 economic and financial crisis on SMEs indebtedness is negative and that the proportion of assets financed by debt has thus decreased during the period following the crisis. In addition, faced with a deterioration in access to credit, SMEs are exploring other possible sources of financing, such as the mobilization of reserves, self-financing and factoring (OECD, 2009). Based on the discussion, this study's first hypothesis is:

H1: The COVID-19 health crisis would have a negative impact on the indebtedness of SMEs.

Larger SMEs would have to resort more to debt to finance themselves. This hypothesis is consistent with the trade-off theory Modigliani & Miller (1963) but contradicts with the hierarchical financing theory according to which larger companies should have greater profits and therefore have enough internal resources not to have to depend on external sources of financing (Myers & Majluf, 1984). Based on the discussion, this study's second hypothesis is:

H2: The COVID-19 health crisis would have a positive impact on the size of the company.

To finance themselves, older SMEs would have more recourse to debt. This hypothesis seems in agreement with the theory of trade-offs but contradicts the theory of hierarchical financing which indicates that older companies should have higher profits and therefore have sufficient internal resources not to have to depend on external sources of financing (Myers & Majluf, 1984). In addition, older companies could benefit from reduced agency costs due to their better experience and reputation, which encourages investors (Adair & Adaskou, 2011). Based on the discussion, this study's third hypothesis is:

H3: the COVID-19 health crisis would have a positive impact on the age of the company.

RESEARCH METHODOLOGY

Presentation of the population

The study is essentially based on primary data collected from owners and/or managers of SMEs who have applied for credit during the years 2019 to 2021 and the reimbursement should be during the period of the COVID-19 health crisis. According to the empirical literature, SME managers and/or owners are at the center of all SME decisions. The population of SMEs in southwestern Tunisia, according to the National Business Directory 2020, has 28442 companies, this population is concentrated in the city of Gafsa.

Presentation of the Sample

Given several constraints among other finances, time, etc., we had difficulty conducting our surveys on all SMEs in southwestern Tunisia. Unable to find a sampling frame, non-probability sampling “by route method” was used for this study. Respondents were asked if they received a loan in 2020 or 2021. The survey covered a sample of 200 SMEs. The sample is made up of SME owners and/or managers with at least two years’ experience in managing their SME. Data collection within SMEs was done intermittently from June 2020 to December 2021. We previously tried to avoid; if not, reduce interviewer bias.

The survey took place within the premises of the SMEs, by telephone and via e-mail. Before starting our surveys with a brief introduction to our respondents, explaining to them the merits of our research, we asked them for their consent on the conduct of the surveys, the questionnaire was launched once their agreement was given. Thus, the survey questionnaires were submitted to them while they carried out their activities. In the event that the leaders felt that they were not prepared to answer the questions directly, the questionnaire was left to them with explanations. A short meeting was agreed between the two parties to collect the questionnaire.

A total of 200 questionnaires were administered. Regular monitoring enabled us to collect 166 questionnaires following the loss of certain questionnaires left to the surveys. Among the 166 collected, we retained only 140 well-completed questionnaires, i.e., a response rate of 84%.

Data Processing Technology

In this work, we were inspired by the models developed by Laura (2015), Imane (2016) and Elsayed and Abdelrhim (2020), who conducted similar studies on the spread of COVID-19 as well as on SME indebtedness. respectively in Morocco, Egypt, Congo, and Belgium.

Measurement of Variables

a. The Dependent Variable

The COVID-19 health crisis (CRISA) is the dependent variable. It is a qualitative variable. It is measured through the sales speed of SMEs. In the coding grid, this variable will take the value 1 if the sales speed of SMEs is high at the time of the COVID-19 health crisis, 2 if it is very high, 3 if it is average, 4 if it is low, 5 if very low.

b. The Independent Variable

SMEs indebtedness (INDETTE) is the independent variable. It is a quantitative variable. It expresses the weight of external capital committed by creditors to the Company. It is measured by short-term debt on the balance sheet total (DCT/Total balance sheet) (Holmes & Cassar, 2003). In the coding grid, this variable will take the value 1 if the value of short-term debts on the balance sheet total is between 1 and 500 dollars, the value 2 if it is between 501 and 1000 dollars, the value 3 if it is between 1001 and 1500 dollars, the value 4 if it is between 1501 and 2000 dollars and the value 5 if it is more than 2001 dollars.

c. Control Variables

Firm size (FS) is the control variable. It is a quantitative variable. To measure this variable, the empirical literature suggests three criteria, namely: the total assets corresponding to the balance sheet total, the turnover and the average number of staff (Fathi & Gailly, 2004). For the case of our work, we

measured this variable by the average number of staff. In the coding grid, this variable will take the value 1 if the average number of staff is between 1 to 5, the value 2 if it is between 6 to 10, the value 3 if it is between 11 to 15 and the value 4 if there are more than 16 personnel. Firm age or seniority (AGE) is a control variable. It is a quantitative variable. The age of the company is measured from its year of creation.

The Truncated Regression

An econometric model used to test the impact of the COVID-19 pandemic on SME debt. We opted for the truncated model given that the dependent variable is an index in an interval of 1 to 5. A sample is applé truncated if the individuals for whom the variable y_i^* is observable and $y_i^* > c_i$ otherwise the sample is left censored. We assume that the variable y_i^* is unobservable, but it can only be observable if its value exceeds at the threshold c_i . By the maximum likelihood method, the estimation of the parameters of our model was obtained.

$y_i = y_i^*$ if $y_i^* > c_i$ c_i else

With $c_i = 1 \dots N$

Our model is presented by the expression below:

$$CRISIS = \beta_0 + \beta_1 INDEBTEDNESS + \beta_2 TAE + \beta_3 AGE + \mu_i$$

Table 1. Consequences of the COVID-19 health crisis for SMEs in southwestern Tunisia

Consequences of the COVID-19 Health Crisis	Terms	Frequencies	%	Cumulative %
At the purchasing level	Significant increase	31	22.14	22.14
	Normal increase	19	13.57	35.71
	Nothing at all	13	9.28	44.99
	Normal regression	44	31.42	76.41
	Significant regression	33	23.57	100
	Total	140	100	
At the sales level	Significant increase	25	17.85	17.85
	Normal increase	24	17.14	34.99
	Nothing at all	21	15	49.99
	Normal regression	25	17.85	67.84
	Significant regression	45	32.14	100
	Total	140	100	
At the level of workforce	Significant increase	26	18.57	18.57
	Normal increase	31	22.14	40.71
	Nothing at all	33	23.57	64.28
	Normal regression	32	22.85	87.13
	Significant regression	18	12.85	100
	Total	140	100	
At the level of payment of taxes and royalties	Significant increase	48	34.28	34.28
	Normal increase	42	30.00	64.28
	Nothing at all	26	18.57	82.85
	Normal regression	8	5.71	88.56
	Significant regression	16	11.42	100
	Total	140	100	
At the level of the recovery of the debt towards the customers	Significant increase	19	13.57	13.57
	Normal increase	35	25.00	38.57
	Nothing at all	22	15.71	54.28
	Normal regression	39	27.85	82.13
	Significant regression	25	17.85	100
	Total	140	100	
At the selling price of the products	Significant increase	37	26.42	26.42
	Normal increase	38	27.14	53.56
	Nothing at all	11	7.85	61.41
	Normal regression	21	15.00	76.41
	Significant regression	33	23.57	100
	Total	140	100	

RESULTS AND DISCUSSION

Very many people in countries affected by the COVID-19 health crisis in general and Tunisia in particular are confined to their homes, following the measures put in place by the government to curb the spread of COVID-19. This new way of day-to-day living has had a direct impact on everyone's purchasing behavior, and in particular on visits to local shops.

Through the results of the survey, we have just noticed that the COVID-19 health crisis has caused a normal regression in the level of purchases in SMEs following the closure of borders, the scarcity of foreign currency in commercial banks. The same applies to the level of sales following the closure of certain companies (bars, restaurants, party rooms, etc.) on the one hand and the placing of certain workers on technical leave and the massive layoff on the other hand, that could no longer allow the circulation of money. Also, the system of working agents in fortnights had also reduced remuneration in half, the depreciation of the Tunisian currency did not leave the slump indifferent.

As for the number of staff, the results of the survey show that there has been a normal regression following the COVID-19 pandemic. The remaining agents were on duty and should require some versatility to cover the work that should be done by others. On the other hand, in relation to receivables, companies have not been able to recover debts from creditors due to the lack of liquidity. This situation has plunged companies into difficult conditions to also be able to meet all the related commitments.

Today large companies can have the means to deal with the crisis, it is not the same for SMEs due to a lack of cash flow. Faced with this health crisis, SMEs are the most exposed, the danger lies above all within companies which have gone into debt due to the resumption of economic activities and which, today, have to face significant expenses not covered by immediate recipes. For an SME waiting for payment from a customer, the risk is to see the payment period for its customer lengthen due to a lack of cash. In turn, SMEs will find it difficult to pay their suppliers and may find themselves in a delicate situation. This situation can cause cascading bankruptcies.

With regard to the consequence of the COVID-19 health crisis at the level of product selling prices, the results show that there was a significant price increase. This is justified by several reasons, among others: the closure of borders, the depreciation of the Tunisian currency, the unwillingness of economic operators despite the abolition of value added tax.

Companies that had maintained themselves despite all the consequences of the COVID-19 health crisis were forced to pay taxes and royalties when they should benefit from the moratorium granted to them by the state government.

Table 2. Operating Revenue in Relation to Staff Remuneration and Rent to be Paid

During COVID-19, Operating Revenue	Terms	Frequencies	%	Cumulative %
At the staff level, do they cover their remuneration.	Yes	18	12.85	12.85
	No	122	87.14	100
	Total	140	100	
At the level of building rental, do they cover the rent.	Yes	26	18.57	18.57
	No	114	81.42	100
	Total	140	100	

By using Table 2, we realize that in terms of staff compensation, operating revenues do not cover staff compensation. This is why companies could have no other palliative solution than to put staff on technical leave and others on early retirement.

With regard to operating income at the level of payment of rent, the observation is also the same for the case of staff remuneration. Despite operating revenues, companies have struggled to cover their expenses related to the payment of rent. Although, the government still in its message to the nation, the landlords did not agree to comply with this decision, because for the landlords, the rent is a source of income for their survival. Thus, to deal with this difficulty, the companies have on the one hand used a few strategies including: promises, the sale of some of their goods and on the other hand the companies negotiated with their landlords for the reduction of the rent rate in accordance with to this COVID-19 pandemic.

Table 3. Loan Repayment

Variable	Terms	Frequencies	%	Cumulative %
Credit Repayment	Yes	32	22.85	22.85
	No	108	77.14	100
	Total	140	100	

Credit in general could well help businesses to make a profit. However, on the one hand the interest rate is excessive and on the other hand the COVID-19 crisis has destabilized economic operators. The majority of these operators had difficulty repaying the credit they took out before the COVID-19 health crisis (see Table 3). This difficulty is not necessarily limited to partial loan repayment but leads certain financial institutions to sell certain mortgage properties at auction prices.

Truncated Regression Results

The objective of this point is to analyze the impact of the COVID-19 health crisis on the indebtedness of SMEs. The full model includes 3 variables. The econometric analysis focused mainly on the truncated model.

Table 4. Truncated Results

Truncated regression					
Limit: lower =			-	Number of obs = 140	
upper =			+	Wald chi2(3) = 14.39	
Log likelihood = -214.54174				Prob > chi2 = 0.0026	
CRISA	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]
ENDETTE	.2532810	.0672726	3.72	0.000	.1204709 .3870910
AGE	.0106989	.0185937	-0.56	0.564	-.0471426 .026743
TAE	-.1218066	.1093936	-1.11	0.263	-.3362145 .0926009
cons	2.897859	.2718804	10.65	0.000	2.364992 3.430744
sigma	1.132610	.0680297	16.68	0.000	.9994734 1.265754

The results presented in Table 4 show that indebtedness is statistically significant at the 1% level ($p = 0.000$) and has a positive influence on the COVID-19 health crisis. These results prove that, despite the COVID-19 health crisis, small and medium-sized enterprises had difficulty repaying their debts contracted with financial institutions, which unfortunately were done in a not contractual. Thus, for the financial institutions, when they note the delay in credit repayment, they used certain strategies to bring the creditors to be able to pay the credit requested in particular: by approaching the creditors once or twice by telephone call, then they continued this approach by visiting companies to better understand the difficulties that did not allow them to honor their payment commitment, if despite all this nothing is paid, they proceeded by social pressure by sending the betting notes in default, or by using an external collection service and, if finally, there is still no manifestation of good faith, they proceed by legal means.

Following this situation of the COVID-19 health crisis, SMEs which were obliged to respect the barrier measures by closing their activities, in particular: restaurants, party rooms, etc. and having the

credit in progress showed us that they had been forced to liquidate some of their assets to repay the credit in order to avoid the voices of force.

Analysis of SME Indebtedness Based on Balance Sheets

The objective of this point is to analyze the impact of the indebtedness of SMEs in southwestern Tunisia on their profitability via their tax balance sheet. Thus, we took into account four companies with a different financial structure and an equally different economic profitability.

Table 5. Calculation of returns in dollars

	Entreprise 1	Entreprise 2	Entreprise 3	Entreprise 4
Equity	28740	48755	97058	606621
Borrowed capital	120669	93308	0	0
Economic asset	696958	7410615	460865	600953
NOI	1129	-25238	86138	109725
Economic profitability	0.16%	-0.3%	18.69%	18.56%
Financial expenses	43081	3434	0	0
income tax	813	0	5799	2210
net profit	-42765	-28674	80640	107519
Financial profitability	-5.94%	-9.87%	17.52%	18.18%

Table 5 provides information on the situation of four companies, including two indebted companies (company 1 and 2) and two others without debt (company 3 and 4). With regard to indebted companies, the results of the analysis show that for the first company (E1), the economic profitability is positive and is 0.16%; this is explained by the fact that, when an entrepreneur invests with 1 dollar, the latter produces 0.16 dollars of profit. This benefit motivated him to take out a loan from a financial institution in the hope that this loan could have an impact on his profitability. Nevertheless, in view of the very high interest rate and the amount of credit, which is greater than its equity, the financial profitability was negative. Financial expenses and income tax had a negative impact on the profitability of the company (with a variation of -5.94%). This means that in E1, indebtedness had a negative impact on the financial profitability of the company. These results come into contraction with the theory of Modgiliani and Miller (1963) which states that a company with debt would be more valuable than a non-leveraged company.

For the second company (E2), the economic profitability is negative following the multiple expenses which are higher than the products of the company. To do this, the company felt able to use a loan which unfortunately, according to the results, the bank interest rate being very high, had led to a negative variation in the financial rate of return (-31.98%).

However, compared to the other two companies (E3 and E4), the results show us that their economic profitability is positive, this is explained by the fact that the operating income covered the operating expenses. However, the tax payment had reduced their profitability (for E3, the variation was 0.066% while for E4, it was 0.03%).

Financial profitability depends negatively on the tax rate. When the tax rate increases, investments see their profitability decrease and leave the sector (country). On the other hand, if the tax rate decreases, there is a good chance of attracting investors. It is an element of the business climate.

Discussion of Results

This study shows that the COVID-19 health crisis has led to the regression of several activities in SMEs, especially sales, purchases, handling, invoicing, debt collection from customers, and even a reduction in the number workers, etc. These results go hand in hand first with those found by Lagadec (1993), who show that, in a context of crisis, the survival of SMEs goes through major challenges, because in general, they are less protected compared to large companies. Indeed, large companies have the ability to distribute the losses of certain activities in a profitable way, while SMEs are fragile and cannot support a deficit that lasts for the long term. Secondly, compared to those of Bole et al. (2019); they showed a remarkable drop in economic activities caused by the COVID-19 health crisis, especially commercial ones, even an economic recession in some countries.

In view of the decrease in the number of workers during the COVID-19 pandemic; the results found were consistent with the World Bank (2020) report. The latter showed that at least 1.76 million jobs are threatened by the COVID-19 pandemic in its three most important sectors: tourism, clothing, and construction.

The results of the truncated regression showed that the COVID-19 pandemic has a favorable impact on SME indebtedness, this means that Small and Medium Enterprises repaid their credit before the COVID-19 health crisis but, the le repayment was not made at maturity given the lack of liquidity of SMEs caused by the COVID-19 health crisis.

To this end, our results do not go hand in hand with those of Convergences (2019). He showed that the COVID-19 crisis has hit at a time when microfinance is at its historic peak with around 140 million microfinance clients worldwide. In addition, those of Brickell et al. (2020), showed that the credit offered by households during the COVID-19 crisis enabled them to cope with the challenges related to COVID-19. However, microfinance risks aggravating the problems of SMEs, rather than alleviating them. In short, over-indebtedness, microfinance and the COVID-19 pandemic therefore aggravate the reproduction crises which will have a negative impact on the progress of SMEs.

CONCLUSION

Here we are at the end of our research which focused on “Impact of the COVID-19 health crisis on the indebtedness of Small and Medium Enterprises in Tunisia. This work aimed to assess the impact of the health crisis on the indebtedness of SMEs in southwestern Tunisia. To achieve this, we made the assumptions that: the COVID-19 health crisis would have a negative impact on the indebtedness of SMEs, the COVID-19 health crisis would have a positive impact on the size of the company and finally the COVID-19 health crisis would have a positive impact on the age of the company.

To verify these hypotheses and thus achieve the objective we have set ourselves, we have used a methodology based on the quantitative approach. The data was collected respectively using the questionnaire survey. To process these data, this work used a truncated regression. The results reveal that the health crisis has been the source of several problems preventing businesses from operating as they should, namely: the closure of borders, confinement, the depreciation of the Congolese currency, the lack of foreign currencies in the occurrence of dollars.

The results of the truncated regression show that indebtedness is statistically significant at the 1% level ($p = 0.000$) and has a positive influence. These results show that despite the COVID-19 health crisis, Small and Medium Enterprises had difficulty repaying their debts contracted with financial institutions, but unfortunately the repayment was not made in accordance with the contractual terms.

In terms of managerial implications, they relate to subsidizing SMEs during this COVID-19 health crisis. To this end, the State must consider a policy of supervision of SMEs by exempting the scales of taxes and duties, taking into account this COVID-19 health crisis, by stabilizing the exchange rate through local productions to facilitate business for economic operators with the aim of creating a good business climate, by opening borders to allow the movement of people and their goods while respecting the barrier measures decreed by the national authorities. To do this, the Tunisian government must generally respond to three types of measures aimed at: (1) supporting sales and combating the depletion of working capital in SMEs, (2) improving SMEs' access to liquidity, (3) and help SMEs to maintain their level of investment.

In terms of limits, they are of two kinds. On the one hand, we conducted our analyzes through the fiscal balance sheets of SMEs in southwestern Tunisia, these SMEs were chosen at random, perhaps the results related to the drawer balance sheets could possibly give different results. And on the other hand, the Tunisian southwest has hundreds of SMEs, we only conducted our primary surveys in one hundred and forty SMEs and our secondary surveys in only 4 SMEs, which could bias the results. Including a representative size may lead to more relevant conclusions. All of these limitations provide avenues for future research.

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