Cash-Flow Of The Horeca Sector In Romania Under The Impact Of Covid-19

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Abstract

The appearance of the pandemic generated by COVID - 19 meant a turning point for many sectors of activity, the problem not being encountered only in our country but worldwide. One of the sectors affected by the pandemic is the hospitality sector, by presenting the paper making an analysis of the cash flow potential in this sector during the pandemic. We will make a comparison having as reference the cash flow potential of each company in the first half of 2020 compared to the first half of 2019. In the paper we not only aim to analyse the impact of the pandemic on cash flow potential but we will also an economic-mathematical modelling having as dependent variable the cash-flow potential and as independent variable the impact created by the pandemic. The regression model will be a binary logit type and will be obtained with the statistical program SPSS.

Key words: COVID-19 impact, HoReCa, cash flow, correlation, binary regression
J.E.L. classification: M21, Z23, G0, C50

1. Introduction

The current world economy is facing one of the financial crises, a crisis triggered by the COVID-19 pandemic, and is different from other crises in history by the "shutdown effect" (Iancu Guda, 2020) or the effect of locks on the door, an effect that was felt simultaneously in most economic sectors. The measures taken by the authorities forced the partial or total closure of economic activities as well as the isolation of people.

One of the sectors most affected by the crisis is the hotels, restaurants and bars sector, the sale of food and closed spaces being banned in many countries, malls being closed in many countries.

The critical situation of the hotels and restaurants sector was discussed during this period by economic analysts, an article in the Business Magazin noting that over 100,000 jobs were lost in this sector, some businesses being unable to be relaunched in the economy (Business Magazin, 2020).

Another study by Next Root Management System showed that before the occurrence of the pandemic in the hotel and restaurant sector there were about 400,000 employees, a few months after the pandemic their number decreasing by over 30%. Moreover, the study claims that at the end of the pandemic the number of unemployed in this sector will rise to several hundred thousand, 30-40% of restaurants that previously operated never opened again (Next Root Management System, 2020).

These aspects vis-à-vis the hotel, restaurant and bar industry represented the decisive point of the research paper, the analysis of their cash-flow potential under the influence of COVID-19 being the main objective of the paper.

2. Literature review

Although economic specialists announced from the first half of 2019 a deterioration of certain macroeconomic indicators, the reasons that proved to be the basis of economic decline proved to be others, in the first semester of 2020 appearing a virus that confused the normality of economic and social life (Băhnăreanu C, 2020).

The negative impact of the pandemic can be seen in terms of global GDP, which fell by about 19% in April 2020, while global trade fell by 25%. Globally, the value added of the accommodation and food services industry is said to have fallen by 47% (Heyer E and all, 2020).

Some authors view the period after COVID-19 as a new era, this being similar to that after the Second World War, the way society works changing massively (Defraigne J.CH, 2020).

As we can see from the previous reports, the specialists talk about a global impact generated by COVID-19, and in this paper we refer to an important economic sector in our country, the hotel and restaurant sector.

The negative effects of SARS-CoV-2 were also highlighted by Turnea E.S and the authors, who demonstrated through a case study on Romanian companies that the demand for products/ services and the cash flow from companies decreased significantly, the labor force being affected by redundancies and temporary leave/extensions. In addition, the average linear income of companies decreased due to insufficient cash flow, higher absenteeism of workers, affected customers and the demand decreased (Turna E.S and all, 2020).

Gross operating surplus (GOS) or the cash flow potential is defined by specialists as "the result obtained by an entity from the operating activity, result not influenced by the depreciation and provisions policy (Achim M.V and all, 2017).

From the point of view of how to determine the GOS indicator, there are presented two ways, but the one we chose is given by the relationship (Siminica M, 2010):

$$GOS = VA + Se - IT - CP \quad (1)$$

where: VA - operational added value

Se - operating subsidies related to turnover

IT - taxes and fees less profit tax

Cp - Staff costs

Thus, considering the calculation relationship of GOS, we determined its level for the first semester of 2019 and 2020.

3. Research methodology

The analysis of the impact of COVID-19 on the cash-flow potential of companies in the hotel and restaurant industry is the main objective of the paper. Thus, in order to highlight this impact, we took over from the BVB website a number of 10 companies from the hotels and restaurants sector and we took over from these companies the financial information from the first semester of 2019 and 2020.

Although we initially intended to extract a larger sample of companies, the lack of half-yearly financial information reduced us to those specific to this sample. The companies selected in order to carry out the analysis are: Youth Tourism Office SA; Summer Whale 2002 SA; SIF Hotels SA; Dorna Tourism SA; Neptun Olimp SA; Palace SA; PARC SA; Baile Tusnad SA; Tourism Felix SA și Toursim Hotel Black Sea SA.

Based on the data presented by the financial-accounting documents, we determined the level and dynamics of the gross operating surplus (GOS). We calculated the GOS dynamics using the index.

For the analysis of the correlation between GOS and the impact of COVID-19 we used the binary system as follows: if the GOS index is with values above 100% we assigned the value 0 to the dynamics and if the GOS index is below 100% we allocated level 1. GOS being the dependent variable, in order to achieve the binary logistics regression model, it is not allowed to have values other than 1 and 0.

The independent variable used in the regression model is the impact of COVID-19 which was evaluated as follows: by 0.25 if the GOS index was with values above 75% up to 90%, the difference of 10% being a normal fluctuation of the indicator; by 0.5 if the GOS index has values between 50 - 75%; by 0.75 if the index indicates values between 25 - 50%.

If the index has values below 25% then the impact was evaluated with 1 and if the index had values above 90% the impact was considered zero, thus allocating the value 0 (Cesar Perez, 2012).

The analysis of the correlation between the cash-flow potential and the impact of COVID-19 as well as the binary logistics regression model was performed using the SPSS statistical program.

The form of the logit binary regression equation resulting from the statistical processing will be:

$$E = \frac{e^{\alpha+\beta x}}{1+e^{\alpha+\beta x}} (2)$$

where: α – the constant

B - the coefficient of the independent variable

x - the independent variable.

The paper is based on the following hypotheses:

H1 - the cash-flow potential of companies in the hotel and restaurant industry was affected by the COVID-19 pandemic, this being observed since the first half of 2020;

H2 - between the cash-flow potential and the impact of SARS-CoV-2 there is a significant direct correlation;

H3 - out of the sample of companies in the hotel and restaurant industry, more than half of them demonstrate a decreasing cash flow potential.

Applying the research methodology mentioned above, methodology specific to binary logit regression, we conducted a case study on companies in the hotel and restaurant sector in our country, companies listed on the Bucharest Stock Exchange, and following the study we can also validate or invalidate research hypotheses.

4. Findings

Starting from the financial statements of the first half of 2019 and 2020 of the companies in the hotel and restaurant industry, we performed, according to the research methodology presented, an analysis of the binary correlation between cash flow potential and COVID-19 impact, as well as a logit binary in which GOS appears as a dependent variable and the impact of COVID-19 as an independent variable.

The analysis of the correlation between the variables is reflected in the following table:

Table no. 1 Analysis of the correlation between GOS and the impact of COVID-19

Variables	Binary correlation coefficient	GOS	COVID-19 impact
GOS	Pearson Correlation	1	.776(**)
	Sig. (2-tailed)		.008
	N	10	10
COVID-19 impact	Pearson Correlation	.776(**)	1
	Sig. (2-tailed)	.008	
	N	10	10

Source: Table taken from SPSS

The analysis of the data in the table reflects a significant direct correlation between the cash-flow potential of companies in the hotel and restaurant industry and the pandemic caused by COVID-19, the Pearson correlation coefficient being 0.776, with a significance threshold of 0.008. Along with the correlation analysis we can validate hypothesis 2 of the research (H2). Correlation analysis is the starting point for achieving binary regression. Thus, we coded with 0 and 1 the dependent variable and with values in the range 0 - 1, according to the principle presented in the methodology, in the case of the independent variable.

The first resulting table is the table that reflects the number of variables taken into account as well as the percentage allowed of the total variables in the processing method, these aspects being summarized in the following table:

Table no. 2 Case Processing Summary

Unweighted Cases(a)		N	Percent
Selected Cases	Included in Analysis	10	100.0
	Missing Cases	0	.0
	Total	10	100.0
Unselected Cases		0	.0
Total		10	100.0

Source: Table taken from SPSS

The analysis of the data in the table shows us that the number of variables taken into account is equal to 10 accepted by the model in proportion of 100%, which allows us to go through the following steps to obtain the regression equation.

The coding of the variables taken into account is illustrated in the following table:

Table no. 3 Dependent Variable Encoding

Original Value	Internal Value
Negative impact	0
Positive impact	1

Source: Table taken from SPSS

Using the codings established according to the research elaboration methodology, we obtained the following statistical analysis:

Table no. 4 Categorical Variables Codings

		Frequency	Parameter coding		
		(1)	(2)	(3)	(1)
COVID impact	0	1	1.000	.000	.000
GOS	0	1	.000	1.000	.000
COVID impact	1	3	.000	.000	1.000
GOS	1	5	.000	.000	.000

Source: Table taken from SPSS

The frequency of values 0 and 1 indicates the number of companies in the hotel and restaurant industry affected by the pandemic generated by COVID-19, so that 8 of the 10 companies showed unfavourable situations in terms of cash flow potential 1st Semester of 2020 compared to the 1st Semester of the year 2019. This analysis allows us to validate research hypothesis 1 (H1), most companies in this industry being affected by the pandemic.

The next step in obtaining binary regression is to perform tests on the validation or invalidation of the regression model. Thus, in the following table the first test performed with the method -2 Log likelihood can be seen:

Table no. 5 Iteration History (a, b, c)

Iteration		-2 Log likelihood	Coefficients
		Constant	Constant
Step	1	10.066	1.200
	2	10.008	1.377
	3	10.008	1.386
	4	10.008	1.386

a Constant is included in the model.
b Initial -2 Log Likelihood: 10.008
c Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Source: Table no. 5 was taken from SPSS

The values resulting from the first test of the regression model allow us to go through the following steps. Thus, we determined the percentage of dependent variables influenced by the independent variable:

Table no. 6 Classification Table (a, b)

	Observed		Predicted		
			GOS dynamics		Percent Correct
			0	1	0
Step 1	GOS dynamics	0	0	2	.0
		1	0	8	100.0
	Overall Percentage				80.0

a Constant is included in the model.
b The cut value is .500
Source: Table taken from SPSS

The analysis of the data in the table shows that 80% of the dependent variables were influenced by the independent variable, thus having representativeness in the analysed sample and can go to obtain the variables from the regression equation.

At the same time, the fact that 8 companies have level 1 indicating a decrease in GOS in the 1st Semester of 2020 compared to the 1st Semester of 2019, allows us to validate research hypothesis 3 (H3).

The variables of the regression equation are reflected in the table below:

Table no. 7 Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp (B)
		Lower	Upper	Lower	Upper	Lower	Upper
Step 1	Constant	1.386	.791	3.075	1	.080	4.000
	Covid impact	2.045	.807	6.421	1	.011	.629

Source: Table taken from SPSS

The form of the resulting regression equation is:

$$E = \frac{e^{1,386+2,045*ipmactCOVID-19}}{1+e^{1,386+2,045*ipmactCOVID-19}} \quad (3).$$

Once the logit binary regression model was obtained, we can say that the objectives of the research paper were fully achieved, being at the same time allowed to draw relevant conclusions from the analyses performed.

5. Conclusions

The analysis of the hotels and restaurants sector on a sample of 10 companies from those listed on the Bucharest Stock Exchange, having as informational support the financial statements of the first semester of 2019 and 2020 leads us to the following conclusions:

- although Covid-19 has proven to be a factor with negative effects on many economic sectors, the hotel and restaurant industry has proven to be the hardest hit by this pandemic;
- the cash-flow potential of companies in the hotels and restaurants sector proved to be decreasing in the 1st Semester of 2020 compared to the 1st Semester of 2019 in 8 out of the 10 companies being notified this aspect;
- the Pearson correlation coefficient showed us the existence of a significant, direct link between the cash-flow potential and the Covid-19 impact, its level being 0.776 with a significance threshold of 0.008;

- the binary regression model obtained, in which we have as a dependent variable the cash-flow potential and as an independent variable the impact of Covid-19, showed us an accuracy of 80%, which leads to the certification of econometric analyses performed.

The pandemic generated by the SARS-CoV-2 virus has become the trigger for a financial crisis, which in the opinion of specialists may be higher than in 2008-2009, precisely through the "shutdown effect", most economic sectors being forced to put the lock temporarily or permanently on doors as a result of measures taken by governments to combat its effects.

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