

# THE IMPACT OF THE COVID-19 PANDEMIC ON THE CAPITAL STRUCTURE, LIQUIDITY AND PROFITABILITY OF SMEs OPERATING IN THE HUNGARIAN HOSPITALITY AND IT SERVICES SECTORS

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## Abstract

Hospitality and IT services are two sectors that have been heavily affected by the COVID-19 pandemic. The impact was negative on hospitality and positive on IT services. Our research, which examines the capital structure, liquidity, and profitability of micro, small, and medium-sized enterprises operating in these sectors, as well as their mutual relationships, is unique in that it takes into account differences in the size of enterprises, as well as statistical and regional differences. During the analysis of the relationship between capital structure and liquidity indicators, we relied on the balance sheet and income statement data of double-entry bookkeeping companies subject to corporate tax, taking into account the territorial location of the companies. The data of the SME sector report for 2019-2021 required for the capital structure analysis was provided by the Crefoport database. The database contains the data of 1967 enterprises. The sample was narrowed down exclusively to enterprises in the 56: Hospitality and the 62. We determined the correlation between capital structure and profitability indicators using correlation analysis. Based on the results obtained, we performed a comparative evaluation analysis examining the effects of the pandemic. During our research, we established that companies operating in the information technology service sector showed better liquidity than in the hospitality sector. We proved that the relationship between capital structure and profitability is closer in the case of larger companies operating in the Northern Great Plain and Central Hungary regions, as well as companies operating in the hospitality industry. We observed that the increase in equity only slightly improved profitability.

**Key words:** capital structure analysis, profitability, correlation analysis, financing decisions

**JEL:** G300, G320, M400

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## **Introduction**

Research dealing with the capital structure examines the factors affecting own capital and foreign capital, as well as the relationships between the performance and market value achieved by the established capital structure. The main questions are aimed at the optimal equity rate, the method of financing investments, and the sequence of financing options. Since the capital structure of enterprises may differ by industry, in order to avoid a distorting effect and to achieve a correct result, it is justified to examine the capital structure and liquidity indicators and their correlations by industry. Accordingly, and due to scope limitations, in the present research, the area was limited exclusively to the enterprises operating continuously between 2019-2021, conducting double bookkeeping in the Hungarian SME sector, and operating in the Hospitality and the Information technology services sector.

The economic shutdown due to epidemic restrictions created a completely different situation compared to previous crises, which could be explained by the functioning of economies in recent decades. Furthermore, one of the most decisive economic factors in connection with COVID-19 was uncertainty, which could be observed to a significant extent in the life of businesses even in the post-pandemic period. (Baker et al, 2020, Hegedűs, 2021)

## **1 Literature review**

The financing of the enterprise therefore means the creation of the financial resources necessary to ensure the value-creating process of the enterprise and its operation, thus creating the financing process of the sustainable enterprise. (Pataki, 2003) Improving access to financial services can have a positive impact on the economy and the SME sector in many areas. It can contribute to economic growth by facilitating the financial activity of businesses, enabling businesses to engage in more sustainable and environmentally friendly business practices, and increasing financial efficiency. (Khan et al, 2022)

There are different forms of financing. One of the possible aspects of the grouping is where the capital used as a resource comes to the enterprise. According to the source of financing, we distinguish between internal and external, and based on the related rights, own and foreign sources. (Bhide, 1992) Own resources typically mean internal resources that ensure the capital needs of enterprises by using the profit generated during profitable management and by making more intensive use of existing resources (Béza et al, 2013), but they can also be made available to the enterprise from outside the enterprise, for example in the form of a capital increase.

We distinguish three cases of internal financing, which typically use assets previously produced by the company to raise the funds needed for investments. (Retention of profit, Amortization, Asset sale) External funds are funds provided from outside the company, which, based on the fact that they embody property or debt, can also be own and foreign funds, in other words equity and debt funds. (Debt resources, Capital resources)

From the point of view of a business, the most favourable option for obtaining external funds is a commercial loan, because in this case the company is not burdened with the obligation to pay interest until the payment deadline and the stronger the market position of an economic organization, the more it can use this opportunity to obtain funds. (Carter & Van Auken, 2005) Obtaining such funds is not smooth in all cases, especially for enterprises belonging to the SME sector, which generally have limited own funds due to their lack of capital. (Baranyi et. al. 2021; Gál, 2013)

The cost of capital can be approached from the side of those who provide the funds and from the side of the company that uses the capital. From the investors' side, the cost of capital is the return they expect for the investment, and from the company's side, it is the price of obtaining the necessary funds. (Pratt – Grabowski, 2010) In a business, the available funds can come from the owners or creditors. The composition of these sources is called the capital structure, which actually reflects the company's ownership structure (Tripathi, 2019) and is one of the company's capabilities that is key to meeting the needs of various stakeholders. (Yildirim et al., 2018) The capital structure, as the rate of the company's foreign and own funds, gives an answer to the combination of funds behind the financing of the investment in real assets. (Bélyácz, 2009)

## **2 Situation picture of the SME sector, Information technology and the Hospitality sector**

The SME sector is the backbone of the European Union's economy. In the European Union, 99 percent of enterprises are made up of the SME sector, they provided job opportunities for nearly two-thirds of the employed and contributed to slightly more than half of the gross added value. These rates have not changed or changed little since the beginning of the 2000s. As a result, economic growth, innovation and job creation also depend on the ability of the SME sector to develop. (Holicza, 2016) The financial resources of SMEs are usually based on the owner's wealth, which greatly limits their growth opportunities. This is also confirmed by the fact that

micro-enterprises employ roughly the same number of people as organizations not belonging to the SME sector, which shows that the corporate sector is fragmenting. (Hegedűs, 2019)

Today, with the strong spread of digitalization, the increase in the share of the info communications sector plays a special role (Hossain et al., 2022). IT is the most dynamically developing industry in the European Union, its social and economic role is important, and it is in a leading position worldwide in terms of employment and the added value produced. Information and communication is one of the least vulnerable areas of the Hungarian economy, and its performance has risen continuously in recent decades, even during economic recessions. The trend was not broken by the epidemic either, the suddenly changed social and economic conditions were accompanied by an increase in the demand for info-communication technologies. During the Covid epidemic, the use of information communication technologies increased in value compared to before, also in the field of work, education and communication in a broader sense.

The impact of the Covid-19 epidemic was felt in all sectors in 2020, of which tourism and hospitality were among the biggest losers. This economic sector also lost its foreign and domestic markets with the closure of borders and restrictions on people's movement. The coronavirus epidemic and the related restrictive measures caused a significant decline in almost all areas of the hospitality industry for much of 2020. (Litvinova-Kulikova et al., 2023)

### **3 Material and method**

During the analysis of the relationship between capital structure and liquidity indicators, we relied on the balance sheet and income statement data of double-entry bookkeeping companies subject to corporate tax, taking into account the territorial location of the companies. The data of the SME sector report for 2019-2021 required for the capital structure analysis was provided by the Crefoport database. The database contains the data of 1967 enterprises. The sample was narrowed down exclusively to enterprises in the 56: Hospitality and the 62: Information technology service sectors. The majority of the analysed sample is made up of companies that are not required to be audited, so unaudited data is examined, but regardless of this, we primarily assumed that the majority of their activities were based on their main activity and that they kept their books in accordance with national legislation and thus the published reports provide a reliable and true overview. In order to make the data comparable, it was selected from the enterprises operating between 2019-2021 and belonging to the SME sector during the entire period. During the query, state and local government enterprises, social cooperatives, and

enterprises with consolidated accounts were excluded. The companies that had zero sales or zero receivables and liabilities, as well as those that did not comply with the mandatory requirements of the Accounting Act in the data of the published report, were also deleted from the data set.

The regulations for accounting reports may contain special regulations for enterprises in the SME sector, therefore, in the case of micro businesses, comparability is only ensured for the main lines of the report. (Gáspár et al., 2023) It is not in the interest of businesses to give external stakeholders a fully analyzable picture of their activities, therefore the accounting reports do not contain detailed data for an analysis, they only strive to comply with the mandatory regulations by keeping accounting records containing consolidated data. The accounting data refer to a specific time in the past, so the general indicators or information formed from the reporting data are also historical and static. Monthly or quarterly data are needed to generate dynamic indicators, but such regular data provision is not particularly typical for enterprises in the SME sector. (Gyurcsik – Tóth 2019; Krenusz, 2007)

**Tab. 1: Distribution of the examined enterprises by year and by sector**

		2019	2020	2021	Total
Activities	IT services	857	968	198	2023
	Hospitality	469	443	541	1453
Total		1326	1411	739	3476

Source: own compilation based on Crefoport database.

According to the sector grouping, we distinguished the enterprises operating in Hospitality and Information technology sectors, which we took into account in all background calculations of the analysis. The analysis, were also broken down according to levels 2 and 4 of the NACE grouping.

**Tab. 2: Range of the indicators included in the analysis**

	N	Range	Minimum	Maximum	Mean	Std. Deviation
EQR	3476	1.69	-0.71	0.99	0.5385	0.28123
ROA	3476	1.40	-0.64	0.75	0.1245	0.23838
ROS	3476	0.95	-0.46	0.49	0.0463	0.13408
LIQ	3476	11.68	0.00	11.68	2.8455	2.37261
Valid N (listwise)	3476					

Source: own compilation based on Crefoport database.

We determined the correlation between capital structure and profitability indicators using correlation analysis. Correlation analysis demonstrates the existence and strength of a linear relationship, and it answers the question of whether there is a relationship between two or more quantitative variables, and if so, how strong it is. The combined change of the indicators is characterized by the Pearson's correlation coefficient, the sign of which is:  $r$ . The characteristics of the Pearson correlation are that it is independent of standard deviation, the correlation coefficient can take values between -1 and 1, and it is also symmetrical.

**Tab. 3: Evaluation of correlation coefficient**

Correlation coefficient ( $r$ ) value	Level of connection
0.00	there is no linear connection
0.00 - 0.20	weak, negligible connection
0.20 - 0.40	sure but weak connection
0.40 - 0.70	medium correlation, significant connection
0.70 - 0.90	high correlation, strong connection
0.90 - 1.00	an extremely strong, dependent connection

Source: Guilford, 1953.

## 4 Results

The objective of this research is to determine, using statistical methods, whether there is a significant difference between the capital structure, profitability, and liquidity of SMEs operating in the Hungarian hospitality and IT sectors. The correlation calculations were performed taking into account the countries and summarized the results in the following tables. When analysing the computed correlation matrix, we focused particularly on those items that are not direct consequences of their mode of formation.

**Tab. 4: Indicators included in the analysis and their calculation methods**

Code	Indicator	Calculation method
EQR	Equity ratio	Equity / Equity and liabilities
ROA	ROA – Return on assets	Profit before tax / Equity and liabilities
ROS	ROS – Return on sales	Profit before tax / Net sales
LIQ	Liquidity ratio	Current assets / Short-term liabilities

Source: own compilation.

Based on Table 5, it can be seen that in the case of the examined companies, the ratio of equity capital and both profitability indicators showed a positive correlation every year, which means

that it is statistically proven that profitability increases together with the growth of equity. In the case of Hospitality and IT services companies, the correlation coefficients of the equity ratio and the profitability indicators indicated a significant, sure, but weak connection almost every year. The stronger correlation in the case of IT services companies suggests that the change in equity is more likely to be associated with an increase in profitability. When examining the correlation between liabilities and profitability, data with opposite directions but similar strength emerged in the correlation coefficients of both countries, compared to equity.

**Tab. 5: Correlation coefficients of equity ratio and profitability indicators**

			ROA			ROS		
			2019	2020	2021	2019	2020	2021
IT services	EQR	Pearson correlation	0.325	0.294	0.205	0.267	0.269	0.264
		Sig. (2-tailed)	< 0.001	< 0.001	0.004	< 0.001	< 0.001	< 0.001
		N	857	968	198	857	968	198
Hospitality	EQR	Pearson correlation	0.258	0.239	0.315	0.204	0.239	0.330
		Sig. (2-tailed)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
		N	469	443	541	469	443	541

Source: own compilation based on Crefoport database.

In terms of liquidity indicators, IT services companies have a higher average liquidity rate in the period under review, a difference that is also reflected in the cash rate indicator. At the same time, based on the fact that the return on current assets is generally lower than the return on fixed assets, an excessively high liquidity rate reduces the average return on assets. (Freedman et al., 2005) As a result, the benefit of keeping too large a stock of cash is high due to lost interest income, while too little stock of cash entails the risk of insolvency. (Orr, 1974) As a result, high liquidity is generally associated with a decrease in profitability, which is characterized by a negative correlation relationship in the literature. However, in certain service industries where the ratio of fixed assets is low, it may occur that the return-generating capacity of current assets is higher than that of invested assets. In the analysis of liquidity and profitability of such sectors, a positive correlation coefficient appears.

Based on Table 6, it can be seen that in the case of the examined companies, the liquidity ratio and both profitability indicators showed a positive correlation every year, which means that profitability increases as the liquidity ratio increases. In the IT service sector, the correlation coefficients of liquidity and profitability indicators indicated a significant, sure, but weak

relationship almost every year, while only a significant but weak negligible relationship appeared in the hospitality sector. The stronger correlation in the case of IT service companies suggests that the change in liquidity is more likely to be associated with an increase in profitability.

**Tab. 6: Correlation coefficients of liquidity ratio and profitability indicators**

			ROA			ROS		
			2019	2020	2021	2019	2020	2021
IT services	LIQ	Pearson correlation	0.214	0.283	0.289	0.183	0.233	0.421
		Sig. (2 tailed)	< 0.001	< 0.001	0.004	< 0.001	< 0.001	< 0.001
		N	857	968	198	857	968	198
Hospitality	LIQ	Pearson correlation	0.111	0.155	0.219	0.129	0.146	0.286
		Sig. (2 tailed)	0.016	0.001	< 0.001	0.005	0.002	< 0.001
		N	469	443	541	469	443	541

Source: own compilation based on Crefoport database.

## Conclusion

The primary motivation for preparing our analyses was to continue the capital structure studies in Hungary and compare them with other sectors. In the course of the research, we examined the capital structure and liquidity of the enterprises operating in the information technology service sector and in the hospitality sector and their territorial connections based on indicators compiled from the reporting data of Hungarian enterprises belonging to the SME sector. The main goal of the research is to use statistical methods to determine whether there is a significant difference between the capital structure, profitability and liquidity of enterprises belonging to the Information Technology and Hospitality SME sector.

The research was started by studying and processing the literature related to the topic, then the characteristics and main statistical data of the SME sector and the Hospitality sector in the European Union were briefly presented, as well as the limitations of the results of the analysis. After narrowing down the database, the indicators included in the study were defined from the set of data, which were further narrowed down using the truncation method in order to ensure that the data were not distorted. The final data set was processed by descriptive statistical data analysis and correlation analysis. Based on the descriptive statistical data, it was observed that compared to Hospitality enterprises, IT services enterprises have higher equity



capital, lower liabilities and better liquidity, but at the same time, the share of their long-term liabilities was minimal.

In the case of IT services and Hospitality companies, the correlation coefficients of the equity ratio and the profitability indicators indicated a significant, sure, but weak connection every year. The stronger correlation in the case of IT service companies suggests that the change in equity is more likely to be associated with an increase in profitability. The correlation coefficients of liquidity and profitability indicators indicated a significant, sure, but weak relationship almost every year, while only a significant but weak negligible relationship appeared in the hospitality sector. The stronger correlation in the case of IT service companies suggests that the change in liquidity is more likely to be associated with an increase in profitability. A weak correlation indicates that other micro and macroeconomic factors greatly influence the relationship between the growth of equity, liquidity and profitability.

In the background calculations, there were no outstanding differences in the results even in the lower-level grouping of the Hospitality or the IT service sector, however, these are not represented due to scope limitations. Based on the results of the correlation analysis, it can be stated that it can also be verified statistically that significant differences can be observed in the capital structure and liquidity of the examined IT services and Hospitality companies.

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