

THE IMPACT OF THE COVID-19 PANDEMIC ON LIQUIDITY LOAN DEMAND AT THE CROATIAN BANK FOR RECONSTRUCTION AND DEVELOPMENT

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The sudden outbreak of the COVID-19 pandemic in March 2020 had negative effects on almost all aspects of life. In addition to health and social sectors, the most significant consequences were experienced in the economy, as tight restrictions to curb the spread of the pandemic were implemented worldwide. Due to a significant decrease in business activities and a lack of income, most entrepreneurs encountered serious problems in maintaining liquidity and preserving their business. To mitigate the adverse impacts of the pandemic, the Government of Croatia implemented a series of measures to assist entrepreneurs, and the support for liquidity financing through loan programs offered by the Croatian Bank for Reconstruction and Development (HBOR) was one of the most crucial initiatives. The aim of this work was to investigate the impact of the COVID-19 pandemic on liquidity loan demand at the Croatian Bank for Reconstruction and Development (HBOR). More precisely, the intention was to examine the extent to which the pandemic influenced the allocation of liquidity loans with the HBOR, which as a state bank played a key role in providing financial support to entrepreneurs during those challenging times. The research was conducted on two groups of entrepreneurs in the period from 2019 to 2020. Descriptive statistics methods and F-test were used in the analysis, and the Student's t-test was employed to test the hypothesis.

Keywords:
HBOR,
COVID-19,
liquidity,
demand,
entrepreneur

1 Introduction

With the onset of the COVID-19 pandemic in March 2020, Croatia and the rest of the world faced a problematic situation which had adverse effects on health, economy and social aspects of life. In addition to the immediate impact of the pandemic itself, almost all countries had to introduce additional restrictive measures, including the closure of entire economic sectors, which intensified the negative effects that the pandemic exerted on local economies (Vareško, Zubin 2021).

The impact of the pandemic, coupled with the introduction of restrictive measures, created economic uncertainty among entrepreneurs, and economies around the world faced very demanding economic challenges. Business closures, reduced spending and supply chain disruptions resulted in a drop in demand and a significant decrease in business activity across many sectors, and an added pressure was placed on corporate liquidity, reducing the companies' ability to meet short-term liabilities.

Companies faced a decline in income, which led to problems in loan repayment. Consequently, financial institutions became more cautious and stringent in granting new loans, fearful of the heightened risk of non-payment during the pandemic.

In this new situation, companies found it difficult to access additional capital. At the same time, there was a significant increase in demand for short-term liquidity loans and financial support, in order to overcome problems with liability payments resulting from restrictions and a decline in income.

Commercial banks almost stopped granting new loans, offering only moratoriums on the existing ones, while liquidity loans in commercial banks became almost inaccessible to entrepreneurs.

In addition, banks were forced to ensure specific strategies so that economic and financial mechanisms can continue to function, both during the pandemic and in the post-pandemic period (Marcu 2021).

In response to the emerging crisis, governments and central banks in many countries, including Croatia, took certain measures to facilitate access to finance and provide liquidity in the financial sector. The aim was to support entrepreneurs in

overcoming liquidity problems caused by restrictions and business decline. In Croatia, financial support to entrepreneurs was provided by the Government in cooperation with competent state agencies and development banks, which means that the provision of liquidity for the economy was largely carried out through the HBOR. The Croatian Bank for Reconstruction and Development (HBOR) is a development bank and export credit agency of the Republic of Croatia whose main task is to stimulate the development of the Croatian economy. It was founded in 1992 and is entirely owned by the Republic of Croatia (“HBOR”, date not specified).

Despite its primary orientation to financing investments and development of businesses, the HBOR had to modify its lending programs and procedures quickly in order to address the urgent needs of entrepreneurs affected by the COVID crisis. The implementation of more flexible lending conditions, expedited loan approval processes and the extension of repayment periods were the key instruments that enabled companies to adapt their financial obligations to the new circumstances. Therefore, the HBOR played a crucial role in providing financial support to companies during the pandemic.

For that reason, the aim of this article was to explore how the pandemic affected liquidity loan demands at the HBOR, i.e. to examine if there was any significant increase in demand and allocation of the HBOR’s liquidity loans.

2 Previous research

There is a limited number of research articles examining the impact of COVID-19 on the banking and liquidity lending segment in Croatia, particularly with regard to the HBOR, which has not been the subject of research in Croatian scientific literature thus far. Therefore, this work aims to contribute to research that explores the impact of the pandemic on the demand for loans to finance the liquidity of entrepreneurs in the Republic of Croatia, as liquidity was the most affected aspect of business operations of the Croatian entrepreneurs during the COVID-19 pandemic.

A larger number of the Croatian authors concentrated on examining the impact of the pandemic on the Croatian economy and economic segments such as tourism, trade and transport, while only a small proportion of authors explored the urgent needs of entrepreneurs for liquidity financing to sustain their business.

Čavrak (2020) was one of the first authors who analyzed the influence of the pandemic on the Croatian economy, investigating the macroeconomics of the crisis caused by the COVID-19 and proposing potential solutions. His paper describes and clarifies the modalities of the impact of the health shock on the economy, as well as the macroeconomic mechanisms for recovering from the crisis. Rogić Dumančić, Bogdan and Raguž Krištić (2020) provided a valuable insight into the main macroeconomic effects of the COVID-19 shock in Croatia, but also in other EU member states. Their paper analyzed the impact of the pandemic on the GDP, delving into its most important components. In addition, it examined the effects of the pandemic on the Croatian banking and public sector.

Roška, Buneta and Papić (2021) analyzed the effect of COVID-19 on the Croatian economy on a sample of 358 entrepreneurs from private and public sectors, focusing on the decline in employment, the number years required for recovery, and the decline in GDP. They also examined the differences and similarities with the global economic crisis of 2008.

Some authors researched how the COVID-19 pandemic in Croatia affected various economic aspects. For instance, they analyzed the impact on consumption in retail trade (Končar et al., 2020), and the impact on the tourism sector including the resilience of tourism to pandemic events (Payne et al., 2020).

Vareško and Zubin (2021) examined the impact of the COVID-19 pandemic on hospitality sector in the County of Istria. The research was conducted on a sample of 60 micro and small hospitality entrepreneurs in the period from 2018 to 2020. The findings pointed to significant deterioration in businesses in 2020, which was attributed to the impact of the pandemic.

Kunji and Stojanović (2021) gave an overview of the impact of the pandemic on particular economic indicators at the international and national level, including gross domestic product, international trade, tourism, etc.

Žunić Kovačević (2021) explored the impact of the pandemic on the fiscal system and taxation in Croatia, examining also the consequences of the anti-pandemic measures.

Arčabić (2021) conducted research simulating the foreign shock and assessing the recession's impact on the national GDP across various industry sectors. The research demonstrated that the foreign shock on the GDP was most pronounced in sectors such as construction, trade, transport and warehousing, tourism and hospitality, and the manufacturing industry. It had a weaker impact on the agriculture and forestry sectors, and the lowest impact on public sector, real estate business, finance and insurance.

The COVID-19 period also exerted damaging effects on the business continuity of banks, which was examined in some of the research.

Muparadzi and Rodze (2021) showed that interruptions in the business continuity within the banking sector had varying effects, which were more serious than in other sectors. The reason is that interruptions in banking operations during the periods of crisis can shake up the entire financial system of a country and, consequently, the global financial system.

Manovelo (2020) analyzed the recommendations issued by the Government of Croatia at the onset of the pandemic, which had been accepted by the majority of banks on the Croatian market, such as: moratorium on loan repayment, introduction of additional liquidity loans, refinancing of existing loans, etc.

3 Sampling method

In this research, we analyzed two samples, i.e., two groups of business entities that used the HBOR loans during 2019 and 2020. The purpose of this research was to determine the impact of the COVID-19 pandemic on liquidity loan demand at the Croatian Bank for Reconstruction and Development (HBOR). More precisely, it aimed to examine whether the demand increased in 2020 as compared to the pre-pandemic year of 2019. The first sample consisted of 227 business entities that used the HBOR loans in 2019, and the second sample consisted of 196 business entities that used the HBOR loans in 2020. The research was thus carried out on two

independent samples of different sizes; the first included 227 out of 1,740 (13%) of loans granted in 2019, and the other included 196 out of 1,209 (16%) of loans granted in 2020. Data on the number, type and amount of loans granted, which had been provided by the Croatian Bank for Reconstruction and Development, were used for the analysis and calculation (HBOR, 2023).

4 Research methods and hypothesis

The empirical research relied on the data on the HBOR loans used during 2019 and 2020. Analysis and comparison of the results was carried out using descriptive statistics methods, while hypothesis testing was performed using the Student's t-test. After calculating the arithmetic mean, standard deviation and variance for both samples, the resulting measures were analyzed and tested to determine whether there was a deviation of the mean values, and if so, whether the deviation was statistically significant. The available literature, as well as some secondary sources, suggested that the COVID 19 pandemic had negative effects on the liquidity of business entities in Croatia. Given these findings, the analysis was carried out to determine whether the COVID-19 pandemic resulted in an increase in liquidity loan demand at the Croatian Bank for Reconstruction and Development (HBOR), as it was a bank that played a key role in supporting entrepreneurs in Croatia during the pandemic. A two-way t-test for two independent samples was used to test the hypotheses.

4.1 Hypotheses

In the research process, the following hypotheses were established:

H0: The liquidity loan demand at the HBOR did not change due to the impact of the COVID 19 pandemic.

H1: The liquidity loan demand at the HBOR changed or increased as a result of the COVID-19 pandemic.

5 Results and discussion

First, a summary was made of the total approved loans during the observed period, categorizing business entities based on the purpose, amount, and number of loans used. The categorizing was carried out to gain a deeper insight and determine the number of loan users as well as the volume of liquidity loans in comparison to other types of loans. The summary is given in the following tables.

Table 1: Overview of approved loans in 2019 and 2020

Investments / working capital	Year 2019			Year 2020		
	Number of loans	millions of EUR	(%)	Number of loans	millions of EUR	(%)
Investments	1526	588	80%	702	358	51%
Liquidity	214	147	20%	507	346	49%
Total:	1,740	735	100%	1,209	704	100%

Source: author's work

These data suggest that the total number of loans decreased in 2020 when compared to 2019, with only a minimal difference in the amounts allocated in the observed years. There was also a smaller number of approved investment loans in 2020, with a simultaneous increase in liquidity loans, while in 2019 the amount of investment loans was significantly higher.

These data unequivocally show that the structure of realized loans at the HBOR underwent a change due to the impact of the COVID-19 pandemic. Specifically, there was a decrease in the number and amount of investment loans, accompanied by an increase in both the number and amount of liquidity loans.

Therefore, in just a few months, the HBOR was forced to change its long-standing business orientation, and turn from an investment bank into a bank that primarily supports liquidity. These efforts required additional engagement of employees at all levels.

For the purpose of further research, Tables 2 and 3 present an overview of the loans used. To ensure data transparency, loans were categorized by type and amounts per each year. Table 2 presents investment loans for 2019 and 2020, while Table 3 shows liquidity loans in the same period.

Table 2: Overview of investment loans from 2019 and 2020 samples

Investment loans			
2019		2020	
loan amount in thousands of EUR	number of loans	loan amount in thousands of EUR	number of loans
4,562	5	7,961	3
6,651	6	10,614	3
8,652	5	19,902	4
11,617	5	26,536	3
13,436	5	79,608	3
15,000	11	92,876	4
16,123	9	159,217	4
20,446	5	199,021	4
23,093	9	265,361	5
30,000	5	398,042	4
40,309	6	2,653,612	3
67,181	5	4,776,501	3
82,010	5		
94,053	10		
134,362	7		
201,543	5		
268,724	8		
335,905	5		
671,810	5		
1,074,896	5		
TOTAL	126		43

Source: author's work

This research and analysis focused only on liquidity loans, while investment loans were not examined. For this reason, samples of liquidity loans are presented separately in Table 3.

Table 3: Overview of liquidity loans in the 2019 and 2020 samples

Liquidity loans			
2019		2020	
loan amount in thousands of EUR	number of loans	loan amount in thousands of EUR	number of loans
13,436	10	6,634	7
20,154	11	13,268	12
26,872	18	19,902	11
30,231	4	26,536	13
33,591	5	33,170	10
40,309	13	39,804	11
47,027	7	49,092	10
49,714	4	53,072	11
53,745	9	100,000	41
67,181	10	106,144	7
107,490	4	132,681	6
134,362	6	200,000	8
		1,250,000	6
TOTAL	101		153

Source: author's work

After the grouping of data from the samples, the calculation of the arithmetic mean, standard deviation and variance was carried out, the values of which are shown in Table 4.

Table 4: Descriptive statistics indicators

Year/ Indicator	Arithmetic mean	Standard deviation	Variance
2019	40,651.0129	28.180	794132420
2020	85.832,9190	160.609	25795351642

Source: author's work

The arithmetic mean values reveal that, alongside the rise in the number of executed loans due to the onset of the COVID-19 pandemic in 2020, the average amount of realized liquidity loans doubled compared to the previous year. In addition, Table 4 suggests that the variance of the samples is noticeably different, which is confirmed by the standard deviation values.

For the purpose of applying the appropriate t-test, it was necessary to determine if the variances were equal or different. Although the previous calculation indicated that the arithmetic mean and variance of the samples were different, to ensure the reliability of the further research procedures, the F test was conducted to assess their equality. The F test is the most appropriate tool for examining the equality of variances between two groups. The hypothesis of equal variances is accepted if the obtained F value is lower than the F critical value, otherwise it is rejected (i.e. the difference between them is considered significant).

Table 5: F-test for the two samples

Indicator	2019	2020
Mean	40651.0129	85832.91901
Variance	794132420	25795351642
Observations	100	152
df	99	151
F	0.030785873	
F Critical one-tail	0.735242216	

Source: author's work

The F test was performed at a significance level of 5% (0.05). By analyzing the F test indicators, it can be concluded that the obtained F value of 0.0307 is lower than the critical value of 0.735. This suggests that the variances are not significantly different

or that they are equal. Since the F test indicated that variances did not differ significantly, a two-way t-test for two independent samples of equal variances was used to test the hypotheses. The T-test served to determine whether there was a change or increase in liquidity loan demand at the HBOR due to the outbreak of the pandemic in 2020, and whether this change was statistically significant. The testing was carried out with a degree of certainty of 95% or a significance level of 5% ($\alpha=0.05$).

Table 6: T-test for two independent samples of equal variances

	2019	2020
Mean	40651.0129	85832.91901
Variance	794132420	25795351642
Observations	100	152
Degrees of Freedom	250	
t Critical one-tail	-2.783284482	
P(T<=t) two-tail	0.005792105	
t Critical two-tail	1.969498393	

Source: author's work

The results of the t-test shown in Table 6 point to a statistically significant difference in the use of liquidity loans before and after the onset of the pandemic, as the resulting value p (0.0057) was lower than the significance level of 0.05. Since p value was 0.0057, i.e. higher than 0.05, the H0 hypothesis, proposing that liquidity loan demand at the HBOR in 2020 did not change significantly as compared to the year before, was rejected. The second hypothesis, H1, suggesting that there was a statistically significant change in liquidity loan demand at the HBOR in 2020, was confirmed. Likewise, the resulting t value was -2.78, which was greater than the (critical) t value, i.e., it falls outside the -1.969 to 1.969 interval. This also suggests rejecting the null hypothesis (H0) in favor of the alternative hypothesis (H1).

The analysis results ultimately confirm that the outbreak of the COVID-19 pandemic in 2020 led to a significant increase in the demand and allocation of liquidity loans at HBOR.

Following this research, it may be assumed that in a broader sense, the liquidity financing through the HBOR enabled a large number of entrepreneurs to maintain their business in the times of crisis, and indirectly contributing to the gradual recovery and sustainable growth of the Croatian economy.

6 Conclusion

The COVID-19 pandemic posed numerous challenges to businesses in Croatia, severely impacting their liquidity and operational capacities. The demand for liquidity loans increased significantly in response to the economic obstacles and weakened paying capacity of entrepreneurs. At the same time, the financial sector was expected to react quickly and adapt its services to the new situation. However, not all banks reacted in the same way. Private capital-owned commercial banks only partially met entrepreneurs' needs, through measures of granting moratoriums or refinancing of the existing loans, and they were hesitant to provide new loans due to repayment risks.

Owing to this fact, the entire burden of supporting entrepreneurs in liquidity financing fell on the Croatian Government. In such situation, the HBOR, as the state-owned bank, played a key role in supporting entrepreneurs through tailored lending programs with the objective of making capital more accessible during this challenging period. This research was therefore focused on examining the impact of the COVID-19 pandemic on liquidity loan demand at the HBOR. The analysis of the bank's loan portfolio through two independent samples of entrepreneurs who used the HBOR loans during 2019 and 2020 demonstrated a significant increase in demand and allocation of liquidity loans in 2020. The hypotheses were tested using a t-test for two independent samples, the result of which confirmed the conclusion of the research that the COVID-19 pandemic led to a significant increase in the demand and allocation of liquidity loans at the HBOR.

These efforts not only helped enterprises in weathering the crisis, but also demonstrated how important it is that a state and its financial institutions be flexible in dealing with emergencies.

Since the liquidity financing was carried out exclusively through state-owned banks, primarily the HBOR, the results and conclusions derived in this research can to some extent be applied to the entire Croatia. In addition, they can be used as a foundation for future research of similar topics. In the coming years, further research and analyses are expected to offer a deeper insight into the specific effects of the pandemic on lending to small and medium-sized enterprises, both in Croatia and other countries.

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