

# THE STUDY ON THE INFLUENCE OF LIQUIDITY RATIOS ON BUSINESS PERFORMANCE IN LISTED VIETNAMESE ENTERPRISES AMIDST THE COVID-19 CONTEXT

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## ABSTRACT

The ability to pay and profitability play crucial roles in assisting enterprises in achieving growth objectives, maximizing profits, and enhancing shareholder income. Proper liquidity management can ensure timely debt repayment and bolster profitability. This study aims to analyze the relationship between liquidity management and business performance of enterprises. It is conducted using data from 673 listed companies on the HNX and HOSE stock exchanges from 2015 to 2023, comprising a total of 5905 observations. The analysis is carried out to measure the impact of liquidity management on business performance (represented by the ROA index) of these enterprises. The results of the study, based on regression models using OLS, FEM, REM, and GLS methods, indicate that business performance (ROA, ROE) is positively influenced by firm size (SIZE), quick liquidity ratio (QR), and cash ratio (CAR), and negatively affected by the ratio of debt to total assets (LEV), total liquidity ratio (TL), and short-term debt liquidity ratio (CR).

**Keywords:** *Liquidity management, business performance, listed enterprises.*

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## 1. INTRODUCTION

Liquidity ratios are employed for liquidity management across organizations, including current ratio, quick ratio, and cash ratio, all of which significantly impact organizational profitability. Liquidity management entails meeting current business obligations, which comprise operating and financing costs, such as short-term debts nearing maturity, a critical concern for all organizations [21]. Therefore, assessing whether a firm possesses sufficient liquid assets (cash,

bank deposits) to meet payment schedules by comparing cash and cash equivalents against payment obligations is essential. Payment obligations encompass amounts owed to suppliers, operating and financing expenses due within the short term, and maturing installment payments from long-term debts. Insufficient asset coverage for liabilities indicates potential difficulties for a firm in meeting its immediate financial obligations [31], potentially affecting its business operations and profitability. If a business cannot meet its payment obligations using its own resources, it may face the risk of closure, liquidation, dissolution, or bankruptcy. Liquidity is a fundamental concept for lenders and creditors, who use various financial ratios and financial information to assess whether potential borrowers have sufficient assets to repay their debts. When senior management decides to finance business activities through additional debt or equity, the risk of impaired liquidity is a crucial factor they consider. Therefore, businesses need an appropriate level of working capital to ensure the payment of both short-term and long-term debts, including consumer loans.

Assessing the liquidity and business efficiency of enterprises forms the basis for partners to decide whether to continue or cease cooperation. This evaluation directly impacts the scale, nature, and operational status of the enterprise, especially during the COVID-19 pandemic when businesses experienced declining revenue and diminishing profit quality, leading to increased inefficiencies. To evaluate the impact of liquidity on company efficiency during the COVID-19 pandemic, the author conducted a study using data from 2015 to 2023, covering periods before and after COVID-19. During the pandemic, companies tended to increase borrowing due to operational difficulties, which posed challenges to their business efficiency. Especially in the

context of a pandemic, businesses need to focus on effective liquidity management to ensure timely debt payments, thus enhancing business efficiency. This article concentrates on examining the impact of liquidity management on the business efficiency of listed companies in the Vietnamese stock market, assessing whether this relationship is positive or negative. Consequently, it provides recommendations to help firms adjust liquidity management processes to improve business efficiency in the future.

## 2. LITERATURE REVIEW

Cash flow operations backed by assets will impact a company's liquidity not only due to their payment value [32]. Companies with fewer short-term assets will struggle to sustain operations, while an excess of short-term assets indicates suboptimal returns from investments [35]. Optimal cash levels are influenced by the need for reserves for emerging risks, prompting companies to plan and make informed decisions to leverage opportunities for profit enhancement in cash flow management. Managers must maintain appropriate liquidity levels within the enterprise to meet daily financial requirements and avoid financial crises [7]. The significance of maintaining liquidity in a company lies in the opportunity cost for earning additional profits [31]. Liquidity management is considered the backbone of a company because failure to maintain sufficient liquidity jeopardizes the company's ability to meet its obligations. If a company fails to generate profits, it signifies weak business performance, but without liquidity, the company faces collapse and bankruptcy. Therefore, liquidity is a prerequisite that determines the survival of the business [31]. Hence, liquidity management is becoming increasingly vital compared to other activities. Each researcher has a different approach and implementation of research models, thus yielding diverse results regarding the impact of liquidity management indicators on business efficiency. Previous research results related to the research issues discussed in this article are summarized below.

The study by Eljelly [7] examines the relationship between liquidity and profitability, where liquidity is measured by short-term liquidity and cash turnover on a sample of listed companies in Saudi Arabia. Using correlation regression analysis, this research indicates an inverse correlation between profitability and liquidity. This correlation is more pronounced in companies with high liquidity ratios and long cash turnover periods,

although there is evidence suggesting that cash turnover period has a stronger impact than short-term liquidity.

The study by Garanina & Belova [8], conducted with 720 companies in Russia spanning various economic sectors, demonstrates a positive relationship between a company's current liquidity ratio and the ROA indicator, but this ratio only increases up to a certain threshold.

Research by Madushanka & Jathurika [25], focusing on listed manufacturing companies in Sri Lanka, concludes that liquidity ratios significantly influence a company's business efficiency through ROA and ROE indicators, with quick liquidity having the most significant positive impact on ROA and ROE.

Megaladevi [26] study on the relationship between liquidity and profitability of cement companies in India indicates that short-term liquidity ratios and quick liquidity ratios significantly affect the ROE indicator.

Moreover, studies by Raheman & Nasr [34], Goddard et al. [9], Chander & Aggarwal [5], Thuy et al. [39], among others, also find that liquidity positively affects profitability. However, if the liquidity ratio is too high, the company may be holding excess assets, leading to maintenance costs and missed opportunities for growth. In such cases, high liquidity can actually reduce profitability. Agiomirgianakis et al. [1] research indicates an inverse correlation between liquidity and profitability. This means that when companies maintain high short-term liquidity, it leads to low profitability on equity, indicating that liquidity has a reverse impact on profitability. This explains the inverse relationship between liquidity and profitability in the short term.

In Vietnam, studies on the impact of liquidity risk on business efficiency have been extensively addressed in research conducted by [13, 20, 29, 37, 40], all of which have identified a relationship between liquidity management and business efficiency. The study by [12] analyzes and evaluates the impact of various factors on the profitability of listed textile companies on the Vietnamese Stock Exchange (VSE) during the period 2009 - 2018. The research results indicate that firm size and liquidity have a positive impact on the profitability of companies. Consequently, the study proposes several solutions to enhance the profitability (ROA and ROE) of Vietnamese listed enterprises, thereby aiding sustainable development in the textile industry.

Thus, researchers have investigated the influence of liquidity on business efficiency across various research

scopes and have obtained diverse results, including both positive and negative impacts. These studies have been conducted across different industries, utilizing various research methods, and conducted over different timeframes and geographical locations. Building on ideas from previous research, while also selecting, supplementing, and making appropriate adjustments, the authors have chosen to study the impact of liquidity management on business efficiency in listed companies on the Vietnamese stock market.

### 3. THEORETICAL FRAMEWORK

Liquidity management involves overseeing a company's ability to meet its financial obligations, which is the financial capacity a company possesses to fulfill payment needs to individuals or organizations with whom it has borrowed or owes [30]. According to Kasmir [19], a firm's ability to pay is understood as its capability to fulfill financial commitments, including both long-term and short-term obligations, by utilizing its entire assets in case of liquidation or dissolution. Harahap [11] explains the concept of liquidity as a financial ratio used to assess a firm's ability to settle debts when they become due. Tran Manh Dzung & Nguyen Nam Tai [40] define a firm's liquidity as its financial capacity to meet the payment needs of debts owed to individuals or organizations with lending relationships. A company's liquidity reflects the relationship between two factors: the amount of cash and cash equivalents available for payment and the total short-term debt the company needs to settle. Thus, when referring to liquidity, short-term debt is typically discussed because the analysis and assessment of liquidity can be conducted periodically, such as quarterly, semi-annually, and annually. Therefore, long-term debt, which extends beyond one year, is not within the scope of liquidity analysis. However, when long-term debt matures and needs to be repaid, it becomes a component of short-term debt. Moreover, through an analysis of the composition of payable accounts, it is observed that short-term debt includes both overdue and non-overdue obligations.

Business performance is one of the most crucial indicators and objectives in financial management. The goal of financial management is to maximize wealth for owners, and profitability metrics are key determinants of performance, thus assessing the business efficiency of enterprises [24]. Profitability metrics are utilized to evaluate business efficiency as a measure to assess the level of success or failure of a business. Business efficiency

is a comprehensive economic indicator reflecting a company's utilization of financial resources to achieve maximum effectiveness [6]. To evaluate a business's efficiency, profitability ratios are commonly used because they reflect the relationship between profit and actual production costs, thereby demonstrating the business's ability to utilize its resources in operations. According to Lesakova [23], profitability ratios are crucial indicators for assessing the financial health of a business and the effectiveness of its asset management. Two popular profitability ratios are Return on Assets (ROA) and Return on Equity (ROE). According to [15], the most widely used profitability ratios are return on assets (ROA) and return on equity (ROE), while [22] focused on return on sales (ROS) as the chosen metric to assess a company's business efficiency. Several studies have employed ROA to measure the business efficiency of enterprises, such as those conducted by Goddard, Tavakoli, and Wilson [9], Malik [24], Yazdanfar [42], Odusanya, Yinusa, and Ilo [33]. ROA, which stands for Return on Assets, is a metric that evaluates the effectiveness of a business's production and operational activities. This ratio indicates how much profit is generated per unit of assets utilized. Additionally, ROE is another widely used metric to gauge business efficiency [2, 5]. ROE reflects the ability to generate profit using shareholder equity in business operations. Analyzing ROE helps determine the after-tax profit per unit of shareholder equity invested in the business. This analysis plays a crucial role in defining the business objectives of corporate leadership, whether maximizing profit or scaling operations effectively.

#### Trade off theory

According to the Trade-off theory proposed by [27], firms should maintain an optimal debt ratio and uphold an optimal capital structure to maximize firm value. One major reason why firms cannot solely rely on debt financing is that alongside the existence of the "tax shield" benefit from interest expenses, using debt financing also incurs various costs detrimental to the firm's financials, such as agency costs between shareholders and creditors. Therefore, firms still need to maintain an optimal leverage ratio to balance the costs and benefits of debt to ensure maximum risk mitigation and still leverage the advantages of debt capital. According to [4], the point at which each additional debt increment balances the marginal benefit from the tax shield with the marginal cost of financial distress defines the optimal capital structure. This theory has two

approaches: static capital structure trade-off theory and dynamic capital structure trade-off theory.

The static capital structure trade-off theory, as proposed by [17] and [16], suggests that firms can quickly achieve an optimal debt ratio to maximize value, and there is only one optimal capital structure throughout the firm's existence. Conversely, the dynamic capital structure trade-off theory, as per [3, 10, 18, 36, 37], posits that the optimal capital structure of the firm will fluctuate and change over different periods, leading to longer adjustment processes for firms to reach optimization. Thus, the firm's capital structure fluctuates around the optimal level in the short term and tends to reach optimization in the long term. According to this theory, firms maintaining high liquidity sacrifice profitability because when a firm maintains high short-term assets, profitability is low due to high operating costs, and sustaining debt incurs high financial costs from interest payments. Conversely, firms with low short-term liquidity accept high financial risks in exchange for high profitability.

**The Pecking Order Theory**

This is a model that explains how firms choose capital sources to finance their business operations, as formulated by Stewart Myers and Nicolas Majluf in 1984. According to this theory, firms tend to use internal funds first before considering external debt. This means they prioritize using available cash reserves, followed by internal funds, to ensure payment obligations. This helps firms minimize financial risk and ensure effective debt payment. Liquidity is critically important in business operations as it directly relates to a firm's ability to meet financial obligations on time. If a firm lacks sufficient liquidity, it may face issues such as bankruptcy or dissolution, which can negatively impact business efficiency and even threaten its survival. Therefore, the Pecking Order Theory plays a crucial role in efficiently managing and directing capital resources within firms, ensuring liquidity and thereby enhancing overall business efficiency.

**Hirigoyen hypothesis**

Hirigoyen's theory suggests that liquidity is a crucial factor in reducing a company's overall risk, with the potential to mitigate the risk of bankruptcy [14]. However, an excessively safe margin may limit profitability. This theory emphasizes liquidity as a measure of a company's debt-paying ability, and maintaining sufficient liquidity is a positive indicator of the company's financial stability. The hypothesis posits a

two-way causal relationship between liquidity and profitability; a company with low liquidity may achieve high profitability, while a company with low profitability may struggle to achieve high liquidity. Within this hypothesis, [14] also concludes that liquidity and profitability are necessary and sufficient conditions for a company's existence. Therefore, aligning these two factors is a fundamental goal for any business.

Building upon the foundation of theories regarding the relationship between capital structure and firm performance, as well as Hirigoyen's theory on the impact of liquidity and business efficiency through profitability metrics, numerous studies have examined the influence of liquidity on business performance, such as [5, 9, 12, 34, 39]... These studies have revealed a positive relationship between liquidity and business performance when investigating companies across different countries and operating in various industries.

**4. METHODOLOGY**

The study employs a secondary data collection method from the overview of articles, journals, specialized research, etc. Financial report data from 673 listed companies on the HNX and HOSE stock exchanges from 2015 to 2023 were obtained from Finpro. The research employs a quantitative research method using three regression models on STATA software, including Pooled Ordinary Least Squares (Pooled OLS), Fixed Effect Model (FEM), and Random Effect Model (REM). Subsequently, tests for multicollinearity, autocorrelation, heteroscedasticity, and cross-dependence on the selected model are conducted, and any model shortcomings are identified. Finally, after the study, the GLS (Generalized Least Squares) model is chosen, and any model shortcomings are addressed to ensure the reliability of the regression results.

**5. RESEARCH MODEL AND HYPOTHESIS**

**5.1. Research model**

Table 1. Measurement of variables in the research model

Indicator	Variable code	Measurement approach
<b>Dependent variable</b>		
Return on Assets	ROA	Net Income / Average Total Assets
Return on Equity	ROE	Net Income / Average Shareholders' Equity
Return on Sales	ROS	Net Income / Total Revenue

<b>Independent variable</b>		
Total Liquidity Ratio	TL	Total assets/ Total liabilities
Current ratio	CR	Total current assets/ Total current liabilities
Quick ratio (Acid test ratio)	QR	(Total current assets – Inventory)/ Total current liabilities
Cash ratio	CAR	(Cash + Short-term marketable securities) / Total current liabilities
<b>Control variable</b>		
Business scale	SIZE	Logarit of Net revenue
Financial leverage	LEV	LEV = Total debt/ Equity
"Pre-COVID-19 era" and "Post-COVID-19 era".	Covid19	1- Covid_19 0- Pre-covid_19

(Source: Compiled by the author)

The study employs three financial performance indicators to measure the financial efficiency of enterprises, including ROA, ROE, and ROS. Among them, liquidity management indicators are measured by four fundamental indicators: TL, CR, QR, and CAR.

Based on several experimental studies presented in the literature review section and the research hypotheses outlined above, the research equation is constructed as follows:

$$ROA_{it} = \beta_0 + \beta_1 TL_{it} + \beta_2 CR_{it} + \beta_3 QR_{it} + \beta_4 CAR_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + u_{it} \tag{1}$$

$$ROE_{it} = \beta_0 + \beta_1 TL_{it} + \beta_2 CR_{it} + \beta_3 QR_{it} + \beta_4 CAR_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + u_{it} \tag{2}$$

$$ROS_{it} = \beta_0 + \beta_1 TL_{it} + \beta_2 CR_{it} + \beta_3 QR_{it} + \beta_4 CAR_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + u_{it} \tag{3}$$

In which: -  $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$  are the estimated parameters.  
-  $u_{it}$  is the random error term.

**5.2. Hypothesis**

Based on the theoretical framework and literature review, the study proposes the following specific research hypotheses:

H1: The overall liquidity ratio has a positive impact on the business performance of enterprises (+).

H2: The short-term liquidity ratio has a positive impact on the business performance of enterprises (+).

H3: The quick ratio has a positive impact on the business performance of enterprises (+).

H4: The current ratio has a positive impact on the business performance of enterprises (+).

H5: The scale of the enterprise has a positive impact on the business performance of enterprises (+).

H6: Financial leverage has a positive impact on the business performance of enterprises (+).

**6. RESULTS AND DISCUSSION**

**6.1. Descriptive Statistics Results**

The study was conducted with data from 5905 observations of 673 listed companies from 2015 to 2023 on two stock exchanges, namely HNX and HOSE, collected from Fiinpro and processed using STATA 17 software. The annual number of companies in the research data is presented in Table 2.

Table 2. Descriptive Statistics of Observations

Year	HNX	HOSE	Total
2015	286	335	621
2016	293	344	637
2017	296	351	647
2018	301	358	659
2019	306	358	664
2020	308	360	668
2021	309	362	671
2022	306	363	669
2023	306	363	669
<b>Total</b>	<b>2,711</b>	<b>3,194</b>	<b>5,905</b>

(Source: Calculations by the author)

Moreover, descriptive statistics for the variables in the model were also conducted, with the results presented in Table 3.

Table 3. Descriptive Statistics of Variables

Variable	Obs	Mean	Std. dev.	Min	Max
ROA	5,905	0.0579493	0.077348	-0.9960172	0.7836998
ROE	5,905	0.088505	0.6957948	-4.082.061	3.300.147
ROS	5,905	0.04057	2.218.985	-1.141.053	357.731
TL	5,905	4.408.825	2.979.486	0.7722067	1.608.052
CR	5,905	2.900.434	1.364.523	0.033829	9.824.858
QR	5,905	2.224.267	9.133.801	0.0337598	6.126.878
CAR	5,905	0.1562626	0.1641264	0.0000864	0.9912593

(Source: Calculations by the author)

Among the 5,905 observations, the average values for the general liquidity ratio (TL) and the short-term liquidity ratio (CR) are 4.408 and 2.900, respectively. Meanwhile, the average quick ratio (QR) for businesses is lower at

2.264, and the average cash ratio is the lowest at 0.1562. Additionally, the statistical results also show that the businesses have an average return on assets (ROA) of 5.7%, a return on equity (ROE) of 8.85%, and a return on sales (ROS) of 4.05%.

### 6.2. Multivariate Regression Results

#### a) Multivariate regression with ROA as the dependent variable

The results of multivariate regression with ROA as the dependent variable using the OLS, FEM, and REM methods are presented in Table 4.

Table 4. Regression results on the impact of liquidity management indicators on ROA

	OLS	FEM	REM
CR	0.000518	0.000356	0.000518
	[1.36]	[0.90]	[1.36]
QR	-0.000821	-0.000552	-0.000821
	[-1.41]	[-0.90]	[-1.41]
CAR	0.0482***	0.0377***	0.0482***
	[7.79]	[5.62]	[7.79]
SIZE	0.000988	-0.00415**	0.000988
	[0.95]	[-2.34]	[0.95]
LEV	-0.110***	-0.101***	-0.110***
	[-17.23]	[-12.68]	[-17.23]
_cons	0.0755***	0.215***	0.0755***
	[2.70]	[4.46]	[2.70]
N	5905	5905	5905
R-sq		0.046	

(Source: Calculations by the author)

#### b) Multiple regression with the dependent variable ROE

The results of the multiple regression with the dependent variable ROE using OLS, FEM, REM methods are presented in Table 5.

Table 5. Regression results on the impact of liquidity management indicators on ROE

	OLS	FEM	REM
CR	0.00472	0.00220	-0.0425***
	[1.17]	[0.44]	[-3.19]
QR	-0.00786	-0.00365	0.0692***
	[-1.29]	[-0.47]	[3.42]
CAR	0.129**	0.104	-0.00410
	[2.20]	[1.22]	[-0.02]

SIZE	0.00519	0.00257	0.0524**
	[0.84]	[0.11]	[2.25]
LEV	-0.238***	-0.285***	0.0298
	[-4.91]	[-2.80]	[0.17]
_cons	0.0420	0.138	-1.450**
	[0.25]	[0.23]	[-2.32]
N	5905	5905	5905
R-sq		0.002	

(Source: Calculations by the author)

#### c) Multiple regression with the dependent variable ROS

The results of the multiple regression with the dependent variable ROS using the OLS, FEM, REM methods are presented in Table 6.

Table 6. Regression results on the impact of liquidity management indicators on ROS

	OLS	FEM	REM
CR	-0.0425***	-0.0552***	-0.0425***
	[-3.19]	[-3.55]	[-3.19]
QR	0.0692***	0.0892***	0.0692***
	[3.42]	[3.73]	[3.42]
CAR	-0.00410	-0.179	-0.00410
	[-0.02]	[-0.68]	[-0.02]
SIZE	0.0524**	0.119*	0.0524**
	[2.25]	[1.72]	[2.25]
LEV	0.0298	0.524*	0.0298
	[0.17]	[1.67]	[0.17]
_cons	-1.450**	-3.517*	-1.450**
	[-2.32]	[-1.86]	[-2.32]
N	5905	5905	5905
R-sq		0.004	

(Source: Calculations by the author)

In all three multiple regression models above, the study conducted a Hausman test, and the results consistently favored the FEM model. However, the FEM model will examine any flaws through tests such as heteroscedasticity, autocorrelation, and multicollinearity, and if flaws are present, they will be addressed using GLS method.

#### d) Testing flaws in the models

The results of tests for heteroscedasticity, autocorrelation, and multicollinearity are presented in Table 7.

Table 7. Results of testing flaws in the models

Testing	Dependent variable		Results
Heteroscedasticity test ( <i>Xttest3</i> )	ROA	Prob > chi2 = 0.0000	Heteroscedasticity present
	ROE	Prob > chi2 = 0.8053	Prob > F = 0.0000
	ROS	Prob > chi2 = 0.4455	Prob > F = 0.0000
Multicollinearity test	ROA	VIF < 2	No multicollinearity
	ROE	VIF < 2	No multicollinearity
	ROS	VIF < 2	No multicollinearity
Autocorrelation test	ROA	Prob > F = 0.0000	No multicollinearity
	ROE	Prob > F = 0.0000	No multicollinearity
	ROS	Prob > F = 0.0000	No multicollinearity

(Source: Calculations by the author)

Based on the results, all models exhibited flaws in terms of heteroscedasticity and autocorrelation. Therefore, the study will conduct regressions using the GLS method to address these shortcomings.

The results of GLS regression with dependent variables ROA, ROE, ROS are presented in Table 8.

Table 8. GLS Regression Model Results

	ROA	ROE	ROS
TL	-0.0000604	0.0000918	-0.00317*
	[-1.11]	[0.17]	[-1.89]
CR	0.000921**	0.00512	-0.0431***
	[2.18]	[1.25]	[-3.29]
QR	-0.00135**	-0.00876	0.0781***
	[-1.97]	[-1.31]	[3.66]
CAR	0.0718***	0.131**	0.0441
	[12.27]	[2.31]	[0.24]
SIZE	0.00318***	0.00514	0.0510***
	[5.29]	[0.88]	[2.73]
LEV	-0.119***	-0.239***	-0.0216
	[-24.77]	[-5.12]	[-0.15]
_cons	0.0160	0.0437	-1.399***
	[1.00]	[0.28]	[-2.80]
N	5905	5905	5905
R-sq			

(Source: Calculations by the author)

Based on the GLS results for the variables ROA, ROE, and ROS as shown in Table 7 above with 5905 observations, the following outcomes were observed:

There are 5 variables that are statistically significant and impact ROA: CR, QR, CAR, SIZE, and LEV. The variables QR and LEV have an inverse effect on the return on assets (ROA), indicating that as the quick ratio (QR) and financial leverage (LEV) increase, the ROA decreases, and vice versa. Similarly, there are 4 variables that are statistically significant with ROE: CAR and LEV, where LEV also has an inverse effect on ROE. In all models, only the general liquidity ratio (TL) is significant and affects ROS. Additionally, the variables QR and SIZE have a positive effect, while CR has an inverse effect on ROS.

The scale variable has a positive effect on the company's operational efficiency, indicating that as the company's scale increases, its operational efficiency improves. Therefore, companies need to implement measures to appropriately expand their production and business scale.

### 6.3. Testing the differences in the influence of indicators on ROA, ROE, ROS before and after COVID-19

Table 9. Descriptive statistics of the Covid19 variable

Covid19	Freq.	Percent	Cum.
0	3,228	54.67	54.67
1	2,677	45.33	100.00
Total	5,905	100.00	

(Source: Calculations by the author)

The results of the non-parametric test show that the P-value < 0.05, which allows us to reject the null hypothesis (H0) and accept the alternative hypothesis (H1). This means there is a significant difference in ROA, ROE, and ROS between the pre-COVID period and the COVID period, as well as between manufacturing and non-manufacturing enterprises. The results also indicate that, in the pre-COVID period, companies had higher operational efficiency compared to the COVID-19 period. COVID-19 had a negative impact on the entire economy across various industries and sectors, reducing the operational efficiency of listed companies specifically and all businesses within the economy generally.

The results are presented in the following Table 10.

Table 10. Non-parametric test results for the variable ROA

Two-sample Wilcoxon rank-sum (Mann-Whitney) test			
Covid19	Obs	Rank sum	Expected
0	3228	10135439	9532284
1	2677	7302026	7905181
Combined	5905	17437465	17437465

Unadjusted variance	<b>4.253e+09</b>	
Adjustment for ties	<b>-4.768e-07</b>	
Adjusted variance	<b>4.253e+09</b>	
H0: ROA(covid19==0) = ROA(covid19==1)		
z	<b>= 9.249</b>	
Prob > z	<b>= 0.0000</b>	

(Source: Calculations by the author)

Table 11. Non-parametric test results for the variable ROE

Two-sample Wilcoxon rank-sum (Mann–Whitney) test			
Covid19	Obs	Rank sum	Expected
0	3228	10135439	9532284
1	2677	7302026	7905181
Combined	5905	17437465	17437465
Unadjusted variance	<b>4.253e+09</b>		
Adjustment for ties	<b>-4.768e-07</b>		
Adjusted variance	<b>4.253e+09</b>		
H0: ROA(covid19==0) = ROA(covid19==1)			
z	<b>= 11.891</b>		
Prob > z	<b>= 0.0000</b>		

(Source: Calculations by the author)

Table 12. Non-parametric test results for the variable ROS

Two-sample Wilcoxon rank-sum (Mann–Whitney) test			
Covid19	Obs	Rank sum	Expected
0	3228	10135439	9532284
1	2677	7302026	7905181
Combined	5905	17437465	17437465
Unadjusted variance	<b>4.253e+09</b>		
Adjustment for ties	<b>-4.768e-07</b>		
Adjusted variance	<b>4.253e+09</b>		
H0: ROA(covid19==0) = ROA(covid19==1)			
z	<b>= 4.832</b>		
Prob > z	<b>= 0.0000</b>		

(Source: Calculations by the author)

## 7. CONCLUSION AND DISCUSSION

The study was conducted using a dataset of 673 listed companies on the HNX and HOSE stock exchanges from 2016 to 2023, with 5,905 observations, to analyze the impact of asset management activities on business performance (represented by ROA) of companies. To select the appropriate model, the study performed regression analysis with three models: OLS, FEM, REM,

and GLS. After testing, the GLS model was chosen to address the shortcomings of the other models. The research results indicate that business performance (ROA, ROS) is positively influenced by company size (SIZE), while the debt ratio to total assets (LEV) negatively affects ROA and ROE. The general liquidity ratio (TL) appears to have no impact on business performance. The short-term liquidity ratio (CR) positively affects ROA and negatively impacts ROS. These findings align with previous studies, which suggest that liquidity ratios influence business performance. Companies need to pay more attention to liquidity management as it significantly affects their profitability, particularly focusing on the quick ratio and the cash ratio, which have a positive and significant impact on company profits. Furthermore, managers need to develop new strategies for effective liquidity management, as the current liquidity ratios indicate a lack of asset management. Specifically, companies could implement strategies related to inventory management and adopt new inventory management techniques, such as Just-in-Time (JIT) and modern technologies, to enhance operational efficiency and improve business performance.

Based on the research results, to improve business performance, companies need to implement measures to leverage financial leverage, maintain an appropriate level of financial leverage to ensure that business operations are not overly dependent on borrowed capital, and minimize the financial risk of the company. According to the statistical results, the average LEV is over 48%, which means that many listed companies rely heavily on borrowed capital, leading to a lack of flexibility in capital use for operations. Additionally, companies should further capitalize on their scale advantages. Initially, they must maintain their current scale, and depending on the operational situation, they can continue to expand their scale in a stable and sustainable manner through short-term and long-term liquidity management policies.

Business performance (ROA, ROS) is positively influenced by firm size (SIZE). Therefore, businesses need to ensure they have a sufficiently large scale and stable financial condition to enhance business efficiency. Maintaining a sustainable firm size builds trust with customers and suppliers, thereby increasing revenue and ensuring stable payment capabilities. Businesses also need to expand their market reach, enhance reputation and improve product quality. Improving production efficiency, understanding customer needs, strengthening



product advertising, and implementing effective debt management plans are crucial to ensuring payment capabilities and consequently enhancing business efficiency. This article focuses on studying the relationship between liquidity management and business efficiency among listed companies, without delving into specific industry sectors. This limitation suggests the need for future research to explore deeper insights into various sectors.

## REFERENCES

- [1]. Agiomirgianakis G., Voulgaris F., Papadogonas T., "Financial factors affecting profitability and employment growth: the case of Greek manufacturing," *International Journal of Financial Services Management*, 1(2-3), 232-242, 2006.
- [2]. Alarussi A. S., Alhaderi S. M., "Factors affecting profitability in Malaysia," *Journal of Economic Studies*, 45(3), 442-458, 2018.
- [3]. Brennan M. J., Schwartz E. S., "Optimal financial policy and firm valuation," *The journal of finance*, 39(3), 593-607, 1984.
- [4]. Castanias R., "Bankruptcy risk and optimal capital structure," *The journal of finance*, 38(5), 1617-1635, 1983.
- [5]. Chander S., Aggarwal P., "Determinants of corporate profitability: an empirical study of Indian drugs and pharmaceutical industry," *Paradigm*, 12(2), 51-61, 2008.
- [6]. Hung, *Textbook on Financial Statement Analysis for Enterprises*. Publisher: Statistics, 2006.
- [7]. Eljelly A. M., "Liquidity-profitability tradeoff: An empirical investigation in an emerging market," *International journal of commerce and management*, 14(2), 48-61, 2004.
- [8]. Garanina T. A., Belova O. A., "Liquidity, cash conversion cycle and financial performance: case of Russian companies," *Investment Management and Financial Innovations*, 12(1), 90-100, 2015.
- [9]. Goddard J., Tavakoli M., Wilson J. O., "Determinants of profitability in European manufacturing and services: evidence from a dynamic panel model," *Applied financial economics*, 15(18), 1269-1282, 2005.
- [10]. Goldstein R., Ju N., Leland H., "An EBIT-based model of dynamic capital structure," *The Journal of Business*, 74(4), 483-512, 2001.
- [11]. Harahap S. S., *Analisis Kritis atas Laporan Keuangan*. PT RajaGrafindo Persada, 2015.
- [12]. Hien P. T., Ha N. N., "The factors affecting the profitability of textile and garment enterprises in the Vietnamese stock market," *Journal of Economics and Business Management*, 16(3), 180-195, 2021.
- [13]. Hieu N. T., *The impact of liquidity risk on the business efficiency of commercial joint-stock banks in Vietnam*. Master Thesis, University of Economics Ho Chi Minh City, 2015.
- [14]. Hirigoyen G., "Rentabilité et solvabilité," *Direction et Gestion*, 3(1), 13-26, 1985.
- [15]. Hu Y., Izumida S., "The relationship between ownership and performance: A review of theory and evidence," *International Business Research*, 1(4), 72-81, 2008.
- [16]. Jensen M. C., "Agency costs of free cash flow, corporate finance, and takeovers," *The American economic review*, 76(2), 323-329, 1986.
- [17]. Jensen M. C., Meckling W. H., *Theory of the firm: Managerial behavior, agency costs and ownership structure*. In *Corporate governance* (pp. 77-132), 1976.
- [18]. Kane A., Marcus A. J., McDonald R. L., "Debt policy and the rate of return premium to leverage," *Journal of Financial and Quantitative Analysis*, 20(4), 479-499, 1985.
- [19]. Kasmir, *Bank dan Lembaga Keuangan Lainnya*. PT RajaGrafindo Persada. KUHD Pasal 246, 2009.
- [20]. Lac L. T., *The impact of capital structure and liquidity on the efficiency of operations of logistics enterprises in Vietnam*. Master Thesis, University of Economics Ho Chi Minh City, 2023.
- [21]. Lamberg S., Vålming S., *Impact of Liquidity Management on Profitability: A study of the adaption of liquidity strategies in a financial crisis*. Master thesis, Umeå School of Business, Umeå University, 2009.
- [22]. Le T. V., Buck T., "State ownership and listed firm performance: a universally negative governance relationship?," *Journal of Management & Governance*, 15, 227-248, 2011.
- [23]. Lesakova L., "Uses and limitations of profitability ratio analysis in managerial practice," In *5th International conference on management, enterprise and benchmarking*, pp. 259-264, Budapest, Hungary, 2007.
- [24]. Malik H., "Determinants of insurance companies profitability: An analysis of insurance sector of Pakistan," *Academic Research International*, 1(3), 315-321, 2011.
- [25]. Madushanka K. H., Jathurika M., "The impact of liquidity ratios on profitability," *International Research Journal of Advanced Engineering and Science*, 3(4), 157-161, 2018.
- [26]. Megaladevi P., "A study on the impact of liquidity ratios on profitability of selected cement companies in India," *ICTACT Journal of Management Studies*, 4(4), 860-864, 2018.
- [27]. Miller M. H., "Debt and taxes," *The Journal of Finance*, 32(2), 261-275., 1977.
- [28]. Myers SC, Majluf NS., "Corporate financing and investment decisions when firms have information that investors do not have," *Journal of Financial Economics*, 13(2), 187-221, 1984.
- [29]. Nga P. V. H., *The influence of liquidity risk on the operational efficiency of commercial banks in Vietnam*. Master Thesis, University of Economics Ho Chi Minh City, 2020.
- [30]. Cong N.V., *Textbook: Financial Statement Analysis*. National Economics University Publishing House, Hanoi, 2019.

- [31]. Niresh J. A., "Trade-off between liquidity & profitability: A study of selected manufacturing firms in Sri Lanka," *Researchers world*, 3(4), 34, 2012.
- [32]. Oseifuah E. K., *Cash Conversion Cycle theory and corporate profitability*. In Cash Conversion Cycle theory and corporate profitability: Oseifuah, Emmanuel Kojo, 2016.
- [33]. Odusanya I. A., Yinusa O. G., Ilo B. M., "Determinants of firm profitability in Nigeria: Evidence from dynamic panel models," *SPOUDAI - Journal of Economics and Business*, 68(1), 43-58, 2018.
- [34]. Raheman A., Nasr M., "Working capital management and profitability - case of Pakistani firms," *International review of business research papers*, 3(1), 279-300, 2007.
- [35]. Saleem Q., Rehman R. U., "Impacts of liquidity ratios on profitability," *Interdisciplinary journal of research in business*, 1(7), 95-98, 2011.
- [36]. Stiglitz J. E., "A re-examination of the Modigliani-Miller theorem," *The American economic review*, 59(5), 784-793, 1969.
- [37]. Strebulaev I. A., "Do tests of capital structure theory mean what they say?," *The journal of finance*, 62(4), 1747-1787, 2007.
- [38]. Thang D. N. Q., *The relationship between liquidity risk and business efficiency of Commercial Banks in Vietnam*. Master Thesis, University of Economics Ho Chi Minh City, 2022.
- [39]. Thuy C. T. T., Huyen N. T., Quyen N. T., "Analysis of factors influencing financial performance: A typical study at non-financial joint stock companies listed on the Ho Chi Minh City Stock Exchange," *Journal of Economics & Development*, 215, 59-66, 2015.
- [40]. Tran Manh Dzung, Nguyen Nam Tai, "Determinants Influencing Liquidity of Listed Food Processing Firms on Vietnam Stock Exchange," *Journal of Economic & Banking studies*, 196, 46-56, 2018.
- [41]. Van T. T., Khanh N. T., "The relationship between liquidity, asset utilization efficiency, financial leverage, and business performance of listed real estate enterprises in Vietnam," *Journal of Science and Technology*, 1(12), 2023.
- [42]. Yazdanfar D., "Profitability determinants among micro firms: Evidence from Swedish data," *International Journal of Managerial Finance*, 9(2), 151-160, 2013.