

THE IMPACT OF LIQUIDITY MANAGEMENT ON PROFITABILITY: EMPIRICAL STUDY ON RETAIL COMPANIES IN ROMANIA

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Abstract

Companies operate in markets that are always changing. The business climate is marked by a number of changes, including rapidly growing markets, financial crisis, technical progress, competition and innovation.

This research paper measures the impact of liquidity on profitability, represented by the rate of return on capital employed (ROCE) for companies in the retail trade industry in Romania. The independent variable liquidity conversion cycle was also taken into account in the research, the result of the regression applied to the panel data referring to the analyzed period of 9 years, 2013-2021, showing that among the independent variables, the current liquidity rate, the cycle liquidity conversion, total assets and dependent variable ROCE, there are significant and negative relationships. Also, between the independent variables the immediate liquidity rate, the turnover and the dependent variable ROCE, there is a significant but positive relationship, the conclusion being that paying more attention to the cash conversion cycle but also to the current liquidity rate, can cause a increase in the profitability of companies in the Romanian retail industry.

Keywords

Liquidity, profitability, financial management, retail industry, working capital.

JEL Classification

L81, M21

Introduction

Profitability and liquidity are two key ideas in evaluating a company's financial performance. These ratios are viewed as crucial indicators of a company's success and can be used to assess how a company allocates capital and resources to meet its financial goals and maintain its financial viability.

The degree to which a business can quickly and with little loss of value convert its assets into cash is called liquidity. A company with high liquidity will have assets that can be

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sold quickly or for cash, including liquid investments or receivables. This is crucial for taking advantage of short-term investment opportunities or meeting urgent payment requirements, such as paying suppliers or tax obligations.

A company's profitability, on the other hand, describes how much money it makes and returns to its investors. There are different ways to determine profitability, but the most popular are return on equity and return on assets. Return on equity measures the company's return on investment based on the initial investment made by the owners, while return on assets measures the company's return on investment based on the value of all assets.

In addition, a business can assess liquidity using a number of specific metrics. The most popular measures of liquidity are the immediate liquidity ratio and the current liquidity ratio, which compares the company's current assets to its current liabilities and accounts for inventory and other assets that are harder to dispose of. A high value for these ratios suggests that a business has enough liquid assets to cover its short-term obligations and debt payments.

In general, a business should try to strike a balance between profitability and liquidity so that it has adequate liquidity to meet short-term cash demands while making investments in long-term profit-producing assets. For example, a corporation may have a high return if it invests all its assets in high-risk, high-return investments, but it may also be more vulnerable to financial hazards in the event of a negative market movement. Unlike a business that invests more in high-return assets, one that maintains a high level of liquidity may have a higher cost of capital and a lower return.

Objective

Determining the impact of liquidity management on the profitability of Romanian retail companies.

Research question

What is the importance and how does liquidity management influence the profitability of Romanian retail companies?

Importance and significance of research

The retail trade sector represents the main component of the GDP in Romania (INSSE, 2023b), contributing over 15% to the formation of the GDP and contributing 0.9% to the growth of the GDP in Romania according to the data published for the quarter III of 2023.

The volume of turnover in retail trade (except trade in motor vehicles and motorcycles), series adjusted according to the number of working days and seasonality, in January 2023, compared to January 2022, registered an increase, as a whole, by 5.3%, due to increases in sales of non-food products (+8.3%) and sales of food, beverages and tobacco (+4.8%), therefore this study will help us understand the impact of management liquidities on the profitability of companies from the most important sector in terms of weight within Romania's GDP (INSSE, 2023a).

1. Review of the scientific literature

Working capital management is among the most crucial facets of financial management. If a corporation does not have enough working capital, it may face serious financial issues. The difference between a company's present assets and liabilities must be adequate.

Liquidity management is a beginning point for a company's long-term success even though short-term liquidity is not thought to be the basis of profitability findings (Vukovi et al., 2018).

A company's liquidity demonstrates its ability to meet short-term obligations, which is critical to its performance (Olulu-Briggs, 2021).

An ideal degree of liquidity is necessary to improve organizational financial performance and generate more shareholder value, argue Kimondo, Irungu and Obanda (2016). Firms can easily fulfill their commitments and establish a positive reputation due to careful planning, allocation and planning of money (Akenga, 2017; Orshi, 2016; Ehiedu, 2014; Alshatti, 2015).

Arnold (2008, p. 537) outlines a number of advantages of having enough cash, including the capacity to pay for ongoing expenses like salaries, supplies, and taxes. Having cash acts as a safety net when future cash flows are unpredictable or when inventory is more challenging to turn into cash. Finally, keeping adequate cash on hand ensures viability in the event that investments prove profitable but require immediate repayment.

Thus, it is imperative for financial management to maintain the appropriate ratio between liquidity and profit for the company.

Jiang et al. (2017) analyze how liquidity affects dividend payouts and find a direct and favorable correlation between stock liquidity and dividend payments to shareholders as a measure of profitability.

Eljelly (2004) examined current liquidity and the liquidity conversion cycle using correlation and regression analysis to examine the relationship between profitability and liquidity for a sample of enterprises in Saudi Arabia. Profitability and liquidity ratios were found to be closely associated in a negative way, with the liquidity conversion cycle having a bigger effect on profitability than the current liquidity ratio. Also, it was shown that the investigated companies' liquidity differed considerably by industry.

There is a strong association between these rates and company earnings, according to study on Nigerian pharmaceutical businesses that examined the effects of raising profitability and liquidity rates on companies' profits (Umobong, 2015).

A sample of 8,872 businesses were examined for a 2007 study on working capital management and return on assets by Garcia-Teruel and Martinez-Solano. The study's findings revealed that a shorter cash conversion cycle had a substantial impact on the profitability of the companies.

Samiloglu and Demirgunes discovered that an increase in sales has a positive effect on business profitability in their 2008 study on the relationship between liquidity and profitability for companies in Istanbul. The assumption that profitability and liquidity are closely associated is supported by the fact that a rise in sales results in an increase in liquidity.

Working capital management, according to Singh and Pandey (2008), is crucial since it directly affects profitability and liquidity. Current and fixed assets are essential for the efficient operation of any corporate organization.

The efficiency of liquidity management in the Indian steel sector was evaluated by Bhunia et al. (2011) using data from 230 enterprises collected over a nine-year period from 2002 to 2010. It was discovered that there was no correlation between liquidity indicators and the rate of return on capital employed, a metric of profitability. According to Gill et al. (2010), the cash conversion cycle and profitability have been proven to be positively correlated in American company.

Using empirical data from the Pakistani textile industry, Khan et al. (2011) investigated the possibility of the risk-return trade-off hypothesis and discovered that there is a moderate trade-off in the risk-return link between profitability and liquidity. These analyses also discovered a favorable but negligible correlation between profitability and liquidity. According to Saleem and Rehman (2011), there is no correlation between return on equity (ROE) and liquidity ratios (current liquidity ratio and immediate liquidity) in the oil and gas industry. This finding is in line with Sur and Chakraborty (2011)'s investigation into Indian companies, which also found no link between these two variables.

Ben-caleb (2009) looked at the connection between the components of working capital and profitability as measured by return on assets using a sample of 25 Nigerian enterprises. He discovered that the time needed to recover debts was the only variable that was significantly adversely connected with profitability. In their 2009 study, Falope & Ajilore also discovered a large negative association between working capital and the profitability of Nigerian businesses.

Research to date has shown that the trade-off between profitability and liquidity is mainly invalid. In other words, profitability and long liquidity are strongly positively correlated. For instance, Shin and Soenen (1998) claimed that a company can increase sales by extending the cash conversion cycle using a flexible credit policy. In this situation, the longer cash conversion cycle may result in more profitability. In his 2003 study, Deloof claims that a longer cash conversion cycle could boost profitability by leading to more sales.

The aforementioned justifications are consistent with Lazaridis and Tryfonidis (2006) research on this subject for Greek food industry enterprises, which discovered a positive and significant relationship between profitability and the cash conversion cycle. This finding suggests that a longer cash conversion period might boost an organization's profitability.

Despite the fact that there are many studies on the relationship between liquidity and profitability in the specialized literature, there are not many studies on this topic in Romania. A complete measure of profitability like return on capital employed (ROCE), which is highlighted in the current study, has not even been considered in the few studies that have been done.

2. Research methodology

For this study, a preliminary sample of 953 retail businesses in Romania was analyzed, a number chosen randomly in the interval 1-1000, an interval considered significant from a statistical point of view. The companies that make up the sample subject to research were selected based on a top of the turnover achieved in the year 2021. The financial data were extracted from the tpsoft.ro website for a period of 9 years between the years 2013-2021. Companies that did not provide statistical data on turnover for the entire analysis period were removed from the sample. Finally, 300 companies remained in the sample after several eliminations, including companies for which there was insufficient information to conduct the study.

Variables:

<i>Rate of return on capital employed</i>	$ROCE = \frac{EBIT}{\text{Long-term debts} + \text{own capital}} * 100$
<i>Immediate liquidity</i>	$Li = \frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities}}$
<i>Current Liquidity</i>	$Lc = \frac{\text{Current assets}}{\text{Current liabilities}}$
<i>Liquidity conversion cycle</i>	$CCL = Dce - Dfdc$
<i>Duration of use of trade debts</i>	$Dfdc = \frac{\text{Average liabilities}}{\text{Turnover}} * 365$
<i>The duration of the exploitation cycle</i>	$Dce = \frac{\text{Avg. inventories} + \text{Avg. receivables}}{\text{Turnover}} * 365$
<i>Turnover</i>	$LnCA$
<i>Total assets</i>	$LnAT$

Turnover and total assets were used as control variables.

Hypotheses

Based on the specialized literature review (Ben-Caleb et al., 2013):

H1: There is a significant negative correlation between the cash conversion cycle (CCL) and the rate of return on capital employed (ROCE).

H2: There is a significant negative correlation between current liquidity (Lc) and rate of return on capital employed (ROCE).

H3: There is a significant negative correlation between immediate liquidity (Li) and rate of return on capital employed (ROCE).

Following the review of specialized literature associated with previous research, the variables that make up the econometric model were chosen. Therefore, the independent variables cash conversion cycle (CCL), immediate liquidity (Li), current liquidity (Lc) and the dependent variable rate of return on capital employed (ROCE) were used to track the variables that affected the companies' performance. Total assets expressed as natural logarithm and turnover were used as control variables.

With the help of an econometric model and balanced panel data, the effect of influencing factors on enterprise profitability was examined.

$$ROCE = \alpha_0 + \alpha_1 Li_{it} + \alpha_2 Lc_{it} + \alpha_3 CCL_{it} + \alpha_4 LnAT_{it} + \alpha_5 LnCA_{it} + \varepsilon_{it}$$

Where: α_0 = constant

$\alpha_1, \alpha_2, \alpha_3$ = parameters

ε_{it} = error

t = 2013, 2014, ..., 2021

i = 1, 2, ..., 300.

3. Results and discussions

Descriptive results

Gretl software was used for outcome estimation and data modeling. Table no. 1 presents the findings of the descriptive analysis of the variables. The skewness for the variables used in the study has both positive and negative values, which allows us to observe that the distribution of the variables is symmetric. The static parameter Kurtosis reflects the degree of concentration of the value around the measurement center and characterizes the probability distribution of a random variable. The independent variables with positive values and greater than 3, representing the kurtosis of the normal distribution, are the liquidity conversion cycle (CCL), current liquidity (Lc) and immediate liquidity (Li), as well as turnover size and total assets denoting a leptokurtic distribution (Porter, 2021).

Tabel no. 1. Descriptive statistics

Summary Statistics, using the observations 1:1 - 300:9

Variable	Mean	Median	Minimum	Maximum
LnCA	16.066	15.860	13.376	22.964
LnAT	14.817	14.659	11.441	22.002
Lc	2.3079	1.5200	0.11626	30.900
Li	0.91818	0.48019	-3.5263	25.485
CCL	-2.0626	0.33275	-755.28	179.25
ROCE	0.30411	0.21784	-6.5599	25.142
Variable	Std. Dev.	C.V.	Skewness	Ex. kurtosis
LnCA	1.0682	0.066485	1.9491	8.2246
LnAT	1.1552	0.077965	1.7015	7.3405
Lc	2.4491	1.0612	4.4136	31.394
Li	1.4262	1.5533	5.3168	52.582
CCL	43.365	21.025	-4.0259	57.650
ROCE	0.69967	2.3007	22.690	736.46
Variable	5% Perc.	95% Perc.	IQ range	Missing obs.
LnCA	14.741	17.874	1.0406	0
LnAT	13.294	16.574	1.3386	0
Lc	0.57052	6.4731	1.5787	0

Li	0.039815	3.2741	0.84302	0
CCL	-63.854	60.272	34.354	0
ROCE	0.011066	0.90510	0.28285	0

Source: own processing in Gretl software

Descriptive statistics findings showed that the average ROCE indicator is 21.78%, the average liquidity conversion cycle (CCL) is 0.33 days, the average rate for current liquidity (Lc) is 1.52, and the average rate for immediate liquidity (Li) is 0.48. There are businesses paying attention to managing this component of liquidity as the Immediate Liquidity Ratio (Li) has a high of 25.48 and the Current Liquidity Ratio (Lc) has a high of 30.9.

Descriptive statistics also demonstrate that while the average cash conversion cycle (CCL) is 0.33 days, certain companies are able to collect cash in advance using supplier credit, while for other companies the average time required to convert stocks into cash is 6 months.

To highlight multicollinearity, the correlation between variables was examined using the correlation matrix presented in Table no. 2.

Table no. 2. The correlation matrix

Correlation coefficients, using the observations 1:1 - 300:9						
5% critical value (two-tailed) = 0.0377 for n = 2700						
LnCA	LnAT	Lc	Li	CCL	ROCE	
1.0000	0.8632	-0.0902	0.0119	0.0151	-0.0259	LnCA
	1.0000	-0.0652	0.0354	-0.0388	-0.1126	LnAT
		1.0000	0.7804	0.3115	-0.0509	Lc
			1.0000	0.1774	-0.0150	Li
				1.0000	-0.0079	CCL
					1.0000	ROCE

Source: own processing in Gretl software

The analysis of the correlation matrix between the variables taken into account shows that there is a weak correlation between ROCE and the independent variables, the cash

conversion cycle (CCL), current liquidity (Lc), debt level (GD) and immediate liquidity (Li) and negative. This result is in agreement with previous researches (Saleem & Rehman, 2011; Sur & Chakraborty, 2011) which have no significant relationship between liquidity ratios and the rate of return on equity.

Econometric results

In the model that was created, there is a relationship between the rate of return on capital employed (ROCE), the liquidity conversion cycle (CCL), current liquidity (Lc), debt level (GD) and immediate liquidity (Li), in addition to the variables of control LnAT and LnCA. To determine whether the estimation technique using the method of least squares (OLS) is appropriate for our panel data set, the test for different group intercepts was performed, which analyzed whether the studied group has similar intercepts. The null hypothesis was rejected as a result of the test as indicated in Table no. 4, and this was further supported by the F test ($F > 4.19256$). This suggested that the proposed dataset could not be used to estimate using the ordinary least squares (OLS) method.

Tabel no. 3. Common intercepts test

Test for differing group intercepts -
Null hypothesis: The groups have a common intercept
Test statistic: $F(299, 2395) = 4.19256$
with p-value = $P(F(299, 2395) > 4.19256) = 6.18485e-87$

Source: own processing in Gretl software

The Hausman test was also performed to identify the model that produces the most accurate results (Table no. 4). The fixed-effects model is a better fit for this data set, as evidenced by the test's rejection of the null hypothesis that the random-effects model is true based on a p value of 0.05.

Tabel no. 4. The Hausman test

Hausman test -
Null hypothesis: GLS estimates are consistent
Asymptotic test statistic: $\text{Chi-square}(5) = 19.2153$
with p-value = 0.00175244

Source: own processing in Gretl software

The table below shows the results of applying the proposed model, which included the rate of return on capital employed (ROCE) as a variable, the liquidity conversion cycle

(CCL), current liquidity (Lc) and immediate liquidity as independent variables, as well as the control variables LnAT and LnCA (Table no. 5). The theoretical F-test result of 1.148283 calculated F 4.19256 from the function FINV(0.05;299;2395) shows the validity of the model when paired with a p-value of 0.05.

Our coefficient of determination, which is 36.84%, indicates the influence of the independent variables on the dependent variable, rate of return on capital employed (ROCE).

Tabel no. 5. The regression analysis with the variable dependent ROCE

Model 1: Fixed-effects, using 2700 observations					
Included 300 cross-sectional units					
Time-series length = 9					
Dependent variable: ROCE					

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	-1.82648	0.612526	-2.982	0.0029	***
CCL	-0.00100854	0.000507671	-1.987	0.0471	**
Lc	-0.0235987	0.0106644	-2.213	0.0270	**
Li	0.0356626	0.0188164	1.895	0.0582	*
LnCA	0.398892	0.0566169	7.045	<0.0001	***
LnAT	-0.287391	0.0554314	-5.185	<0.0001	***

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Mean dependent var	0.304111	S.D. dependent var	0.699671
Sum squared resid	834.4789	S.E. of regression	0.590276
LSDV R-squared	0.368426	Within R-squared	0.023436
LSDV F(304, 2395)	4.595764	P-value(F)	3.3e-101

Log-likelihood	-2245.965	Akaike criterion	5101.929
Schwarz criterion	6901.736	Hannan-Quinn	5752.793
rho	0.106645	Durbin-Watson	1.259115

Joint test on named regressors -
Test statistic: $F(5, 2395) = 11.4953$
with p-value = $P(F(5, 2395) > 11.4953) = 5.47406e-11$
Test for differing group intercepts -
Null hypothesis: The groups have a common intercept
Test statistic: $F(299, 2395) = 4.19256$
with p-value = $P(F(299, 2395) > 4.19256) = 6.18485e-87$
Test for normality of residual -
Null hypothesis: error is normally distributed
Test statistic: $\text{Chi-square}(2) = 52283.3$
with p-value = 0

Source: own processing in Gretl software

The rate of return on capital employed (ROCE) and the cash conversion cycle (CCL) are negatively correlated, thus a reduction in CCL leads to an improvement in the financial performance of companies highlighted by ROCE in this case while an increase in the conversion cycle of cash flow (CCL) will lead to a corresponding decrease in performance.

Also, with a negative coefficient (-0.001), but statistically significant (p-value = 0.0471), we can affirm the fact that CCL negatively affects the profitability expressed by ROCE, the result being in disagreement with the research carried out by (Opoku, 2015), but partially in agreement with the similar research of Lyrouti & Lazaridis (2005) who concluded that there is a significant but positive correlation between the liquidity conversion cycle and profitability, expressed using the rate of return on total assets.

Considering the impact of the current liquidity (Lc) of the company, we observe that this variable has a strong negative correlation with the dependent variable ROCE, corroborating the hypothesis advanced by Ben-Caleb et al. in their 2013 study.

The positive and significant 10% correlation between the dependent variable ROCE and immediate liquidity (Li) indicates that this research hypothesis is only partially supported (p-value = 0.0582). This result is consistent with the findings of the study by Pandey and Jaiswal (2011) and the research of Bhunia et al. (2011).

Based on the findings of the aforementioned analysis, the following indicators are the regression coefficients for the liquidity conversion cycle (CCL), current liquidity (Lc) and immediate liquidity (Li) against company performance, which is expressed here using the rate of return on capital employed (ROCE):

Tabel no. 6. The regression equation

$\hat{ROCE} = -1.83 - 0.00101 * CCL - 0.0236 * Lc + 0.0357 * Li + 0.399 * LnCA - 0.287 * LnAT$				
(0.613)	(0.000508)	(0.0107)	(0.0188)	(0.0566) (0.0554)
$n = 2700, R\text{-squared} = 0.368$				
(standard errors in parentheses)				

Source: own processing in Gretl software

Regarding the impact of Lc (current liquidity) on the company's rate of return on capital employed (ROCE), we note that this variable has a negative impact, thus, a 1% increase in Lc will automatically lead to a decrease in ROCE by 0.0236%.

The impact of the cash conversion cycle is also negative, so a one percent increase in the number of days a company manages to convert inventory into cash will cause a 0.001% reduction in the rate of return on capital employed (ROCE).

However, the immediate liquidity rate has a positive impact on ROCE, a 1% increase in it causing a 0.0357% increase in the rate of return on capital employed.

Conclusions

For retail businesses, especially those whose business strategy focuses on selling goods with modest profit margins, liquidity is crucial.

Liquidity is the company's ability to meet its immediate financial obligations, such as paying suppliers, purchasing goods and paying staff. Managing liquidity is an ongoing challenge as these obligations could be significant for companies in the retail industry.

A company may have difficulty paying its suppliers or employees if it does not have enough liquidity, forcing it to reduce or even stop all of its operations. A corporation that does not have sufficient liquidity may lose the chance to develop or grow properly.

Retail businesses must carefully plan purchases and investments, pay attention to tracking the cash conversion cycle, and always maintain an emergency reserve fund to effectively manage liquidity.

In addition, loans can be a choice to increase liquidity. It is undeniable that the level of liquidity has a fundamental impact on financial decisions.

The purpose of this research was to examine the supposedly conflicting trade-off between profitability and liquidity.

The current study demonstrates that profitability, as measured by return on capital employed (ROCE), has a significant and inverse relationship with the liquidity conversion cycle as well as the current ratio of liquidity for the companies under analysis over a 9-year period from 2013 to 2021.

The research found that the immediate liquidity ratio (Li) and the rate of return on capital employed (ROCE) had a positive but significant direct relationship, which somewhat contradicts the original theory. There is a significant and positive correlation between turnover and profitability as measured by the rate of return on capital employed (ROCE), while there is a significant and negative relationship between the size of total assets and ROCE.

The result demonstrates and indicates that, in addition to the liquidity conversion cycle, liquidity rates have a substantial impact on the profitability of Romanian businesses in the retail trade sector, being of maximum interest for the managers of companies operating in this field.

At the same time, the research results bring to the fore the need for people in the management of retail companies to establish rules that are more favorable to suppliers' credit extensions, because this can shorten the cash conversion cycle and, implicitly, increase profitability of retail businesses, profitability so necessary for sustainable development in a market that in the last two decades has been invaded by large international store chains.

In addition, the obvious conclusion is that, given the direct correlation of liquidity ratios with the profitability of companies, the analysis of these indicators acquires a major importance in the effort to ensure sufficient resources for the continuation of the activity in the future.

Limitations and perspectives

The limits of the research consist in the fact that a number of 300 companies from the retail industry in Romania were analyzed, while the total number of companies whose activity is trade is 174,973 companies at the national level in 2020, the research emphasizing the companies that have CAEN code 4711 - Retail sale in non-specialized stores with predominant sale of food, beverages and tobacco.

It is also recommended to test several models in order to evaluate the impact of liquidity management on profitability with the inclusion of other dependent variables regarding the

evaluation of companies' profitability, given the importance of the analyzed sector. In future research, other macroeconomic indicators can be taken into account in order to identify the impact of liquidity management on companies' profitability.

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