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The Effects of Working Capital Management on Firms' Efficiency: Case of Turkish and Zimbabwean Commercial Banks

İşletme Sermayesi Yönetiminin Firma Verimliliği Üzerindeki Etkileri: Türk ve Zimbabve Ticari Bankaları Örnekleri

Abstract

This study investigates the impact of working capital management on commercial bank efficiency in Turkey and Zimbabwe. Analyzing financial statements of 10 banks in each country from 2009 to 2022, the research uses return on asset (ROA) and return on equity (ROE) as efficiency indicators. Working capital is assessed through current and total cash ratios, with bank size and leverage as control variables. Employing correlation analysis, estimation equations, and regression models via SPSS (version 20.0), the data reveals a positive association between ROE and the current ratio, highlighting the beneficial impact of effective working capital management on profitability. Conversely, a negative correlation between the current ratio and ROE suggests a balance between profitability and liquidity. Turkish banks exhibit superior liquidity management, potentially due to Basel III adherence. The study recommends similar measures for Zimbabwean banks to enhance international competitiveness, emphasizing the crucial role of working capital management in maximizing bank efficiency.

Keywords: working capital management, efficiency, liquidity
Jel Codes: G1, G2, G3

Özet

Bu çalışma, Türkiye ve Zimbabve'deki ticari bankaların verimliliği üzerinde işletme sermayesi yönetiminin etkisini incelemektedir. Her iki ülkedeki 10 bankanın 2009 ile 2022 yılları arasındaki mali tabloları analiz edilerek, araştırma verimlilik göstergeleri olarak varlık getirisi (ROA) ve öz sermaye getirisi (ROE) kullanmaktadır. İşletme sermayesi, cari oran ve toplam nakit oranlarıyla değerlendirilmekte, banka büyüklüğü ve kaldıraç ise kontrol değişkenleri olarak kullanılmaktadır. SPSS (sürüm 20.0) aracılığıyla korelasyon analizi, tahmin denklemleri ve regresyon modelleri kullanılarak yapılan analizler sonucunda, ROE ile cari oran arasında olumlu bir ilişki tespit edilmiş, etkili işletme sermayesi yönetiminin karlılık üzerinde olumlu bir etkisi olduğu vurgulanmıştır. Öte yandan, cari oran ile ROE arasındaki negatif korelasyon, karlılık ve likidite arasında bir denge olduğunu işaret etmektedir. Türk bankalarının üstün likidite yönetimi sergilemesi, muhtemelen Basel III'e uyumluluklarından kaynaklanmaktadır. Bu çalışma, Zimbabve bankalarının uluslararası rekabet güçlerini artırmak için benzer önlemleri almasını önermekte, işletme sermayesi yönetiminin banka verimliliğini maksimize etmedeki kritik rolünü vurgulamaktadır.

Anahtar Kelimeler: işletme sermayesi yönetimi, verimlilik, likidite
Jel Kodları: G1, G2, G3

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Introduction

In the first quarter of the 21st century's competitive banking landscape, the efficiency of banks has played a vital role in their survival and success. Efficient operations lead to profitability, which in turn enhances the value of banks and makes them more attractive to potential investors (Gitman, 2007: 84). The effectiveness of a banking institution is a crucial factor for its continued operation in an environment teeming with other financial entities (Anyanwaokoro, 1996: 67). Effectiveness is not merely an outcome; it is an essential prerequisite for banks to thrive in such a challenging setting. Efficiency is central to the fundamental goals of bank administration (Bobáková, 2003: 18). The ability of a bank to execute its business processes effectively and generate profits significantly impacts investor interest. A bank's profitability enables continuous growth without relying heavily on shareholders, while also attracting potential investors whose objectives align with the bank's performance indicators. Profitability is frequently used to boost financial firms' financial positions. Accumulated earnings protect banks from probable losses in the future, preserving their survival (Diebold and Yilmaz, 2013: 97). Ineffective financial institutions, which fail to maximize profit on their primary capital, face the risk of insolvency. Bank efficiency guarantees the survival and adaptability of a bank even in challenging circumstances.

The aim of the research was analysing the efficiency of the banking sectors in Zimbabwe and Turkey from 2009 to 2022. Given these nations' unique experiences post-2008 global financial crisis, the research attempts to give insights and solutions to crucial questions: How have the banking sectors in Zimbabwe and Turkey fared since the 2008 financial crisis? What policy measures can be employed to enhance the banking sector's efficiency, particularly in Zimbabwe? To provide a unique perspective, the study focuses specifically on the period post-2008 financial crisis, setting it apart from other similar studies.

1. Literature Review

Ani et al. (2012: 970) researched on the effects working capital management (WCM) has on profitability utilising a sample of the world's top five breweries and focused on the cash conversion cycle (CCC) and how its elements impact these breweries' profitability. Their research discovered that WCM, as demonstrated by the CCC, sales growth, and the time it takes to recover short-term debt, all had an impact on the profitability of these major brewers. However, this study primarily looked at inventory turnover and past-due receivables, with little regard for the total amount of assets and liabilities. Their research also only studied the top five beer businesses in the world, which may not be indicative of all the manufacturing enterprises. Akomeah and Frimpong (2019), nonetheless, objectively explored the impact WCM has on a firm's financial performance and appraised the rising market. The study employed multivariate regression analysis on data from Ghana Stock Exchange businesses from 2008 to 2018. Their findings revealed that WCM had a positive correlation with profitability, with the CCC and all of its important components impacting firm profitability. The research looked at all companies and not just manufacturing companies, but the assumption that WCM had the same impact on profitability across all sectors is not true.

Effective management of working capital impacts a firm's profitability and liquidity substantially, with effective inventory debtors, and creditors management assisting in improving profits and profitability (Nguyen et al., 2020). However, the impact management of working capital has on profitability varies across different sectors, and a lack of working capital can result in insolvency, legal issues, asset disposal, and probable bankruptcy. A business's profitability is affected by factors such as size and inventory turnover, and striking a balance between profitability and the risk associated with working capital management is critical (Pesaran, 2015). Leverage affects office costs, which in turn affects business performance (Zawaira and Mutenheri, 2014). The literature review shows that a reduction in the debtors' collection period positively impacts profitability and the longer the creditors payement period, the more profitable it is (Aktas et al., 2015). Complementary research, particularly

among SMEs, is necessary to understand how WCM impacts on the performance of businesses (Aminu and Zainudin., 2016).

Baker et al. (2017) conducted a six-year analysis of 94 Indian companies and discovered a favourable association between company size and profitability. Additionally, they conveyed a notable negative correlation on profitability and metrics including receivables as a percentage of liquidity, inventory turnover as calculated in days, the average payment deadline, CCC, and debt ratio. Bhattacheryay (2020) investigated how WCM impacts firm value, and noted that investment in mid-level net working capital reduced business value and eliminated previous models' effects on company costs. Kalaivani and Jothi (2017) explored the long-term impact, as measured by the CCC, of working capital efficiency on business performance and valuation, highlighting the lasting impact of effective working capital management.

Nicolai et al. (2017) emphasized the significant role of an organization's inventory management strategy, accounts receivable management policy, and creditors' management approach in its profitability performance. Sandhar and Janglani (2013) explored the correlation of liquidity and firm profitability, specifically studying steel companies in the Indian private sector. They noted optimal working capital management, which balances profitability and liquidity, positively correlated with firm value. Knauer and Wöhrmann (2013) researched on how WCM impacts financial institutions' profitability. Their findings indicated a significant correlation of stock turnover, the debtors' collection, and creditors payment period. They also found a correlation between profitability and a shorter CCC.

Bagh et al. (2016) researched on how WCM impacts corporate profitability where they sampled 1063 Pakistan-listed companies. They noted that, between firm profitability and its WCM, a significant positive relationship existed, with turnover and profits being strongly influenced by efficient management of working capital. A firm's ability to timely meet its obligations was noted to be negatively impacted due to inefficient WCM. Furthermore, a negative correlation was observed between stock turnover ratio, the debtors' collection period, CCC, and profitability. Kwenda (2013) studied how WCM influenced profitability of publicly traded companies in Zimbabwe. He noted that, between various WCM related factors and profitability, a significant negative correlation exists, including the CCC and its components. However, he also noted that profitability and the debtors' payment period are positively correlated. Agbi and Yusuf (2017), studied how WCM impacts 15 manufacturing firms that are traded on the Nigerian Stock Exchange. Based on data collected from secondary sources from 70 companies over a five-year period, the analysis indicated that liquidity and company performance were negatively correlated. The study also identified negative relationships between coefficients such as creditors payment period, stock holding period, and debtors' collection period with profitability, while CCC indicated a positive correlation that exists with profitability.

2.Methodology

2.1. Research Design

A multiple case study research approach was used in this study, including a sample of 20 observations from ten Turkish commercial banks and ten Zimbabwean commercial banks. The selected banks provided the necessary financial information required for the study covering the period from 2009 to 2022. A quantitative research approach was employed to draw conclusions from the data. The researcher analysed the relationship that existed between the variables using the correlation analysis method, while using regression analysis specifically to establish the relationship and measure the WCM variables' impact on the efficiency of the banks.

2.2. Data Analysis Procedures

Descriptive investigation was utilized to break down the information and to portray the focal inclination of progress and inside factors. Pearson's correlation investigation was utilized to decide the connection between factors.

Correlation investigation was a measurable device utilized right now decide the level of connection of one variable to another. Utilizing correlation investigation, the examination had the option to decide the level of connection between factors. The standard deviation of the net theory is to decide the factual importance at a likelihood level P <0.05. The researcher used a multiple regression analysis to explore the linear correlation among independent and dependent factors.

2.3 Research Hypotheses

To investigate the impact of different working capital components on ROE and ROA, the following research hypotheses were formulated:

$_{H1}$**: Current ratio (CUR) and the ROE of banks have a significant correlation.**
$_{H2}$**: Liquidity ration (LR) and the ROE of banks are significantly correlated.**
$_{H3}$**: The total cash ratio (TCR) and the ROE of banks have a significant correlation**
$_{H4}$**: CUR and the ROA of banks are significantly correlated.**
$_{H5}$**: LR and the ROA of banks have a significant correlation.**
$_{H6}$**: TCR and the ROA of banks are significantly correlated.**

3.Findings

3.1. Correlation Analysis

Pearson relationship was utilized to investigate the quality of the connection between reliant factors (ROE and ROA) and free factors (CUR, TCR, LR) and LEV, SIZE as control factors utilizing the SPSS. Furthermore, Pearson connection was additionally used to distinguish the multi-co linearity between the autonomous and control factors of the examination.

3.2 Correlation between efficiency and the working capital

The findings in Table 1 indicate that the independent variables, specifically CUR, LR, and the TCR, have a significant impact on the dependent variables, ROE and ROA. The correlation coefficients reveal a negative relationship between CUR, LR, and TCR with ROE. This suggests that reducing CUR, LR, and TCR leads to an increase in ROE, signifying that these variables are important in determining the banks' ROE efficiency from 2009 to 2022. Regarding ROA, there is a low positive correlation with CUR, indicating that CUR partially influences the efficiency of banks as measured by ROA. However, the correlation coefficients between ROA and LR, TCR show a weak negative relationship, suggesting that changes in LR and TCR do not significantly affect ROA. Additionally, the control variable SIZE exhibits a positive correlation with both ROE and ROA, indicating that larger banks tend to have higher profitability and value returns, aligning with preceding research studies. conducted by Shin and Soenen (1998), and Abuzayed (2012).

Table 1: Correlation Analysis (Turkish Commercial Banks)

	ROE	ROA	CUR	LR	TCR	LEV	SIZE
ROE	1						
ROA	.434**	1					
CUR	-0.08	0.14	1				
LR	-.407**	-0.1	0.1	1			
TCR	-.296**	-0.09	0.14	0.07	1		
LEV	-0.09	-0.15	-0.02	0.16	0.12	1	
SIZE	.311**	0.2834	0.21	-0.18	-0.03	-0.01	1

3.3 Correlation between efficiency and the working capital and of Zimbabwean Commercial Banks

The findings in Table 2 reveal a positive correlation between ROE and the CUR index, indicating that increasing the current assets is associated with higher returns on equity for banks in Zimbabwe. Additionally, a positive connection is observed between ROE, return on assets (ROA), and bank size (SIZE), with coefficients of 0.7, 0.247, and p-values of .036 and .046, respectively. This suggests that larger banks tend to have higher profitability. The current ratio maintains a significant positive correlation with both capital and profitability, with coefficients of 0.12 and 0.08, while the leverage ratio (LEV) shows a negative coefficient with ROE and ROA, indicating a negative impact on profitability. These findings align with previous studies and highlight the importance of liquidity and size in determining the efficiency and profitability of banks.

Table 2: Correlation Analysis (Zimbabwean Commercial Banks)

	ROE	ROA	CUR	LR	TCR	LEV	SIZE
ROE	1						
ROA	.297**	1					
CUR	0.12	0.08	1				
LR	-0.02	0.01	0.05	1			
TCR	-0.01	0.05	0.14	-0.02	1		
LEV	-0.08	-0.03	0.14	-0.03	0.13	1	
SIZE	0.07	.247*	0.15	0.06	0.12	-0.11	1

3.4 Multiple Regression Analysis: Linear Relationship

Model 1 incorporates CUR as an independent and two constant variables, showing that CUR and ROE are not significantly correlated. The estimation of the F test at 82.34 demonstrates this is significant and we can't subsequently overlook the H1 balance. It tends to be inferred that the CUR is a significant factor in anticipating terrible banks. The revision capacity of this model shows that a 62% contrast in ROE is clarified by contrasts in CUR. Also, this model decides the causal correlation among CUR and banking (ROE).

Model results 2- There is a huge connection among LR and ROE. Like Model 1, the factors utilized are indistinguishable, aside from CUR, which is supplanted by LR. The outcomes determined for the R2 amendment at 0.120 and the F update at 7.422 demonstrate that Model 2 is critical and in this manner the H2 signal is adequate. The review results show that LR and ROE have a negative correlation that is significant.

Model 3 tested the effect of TCR on bank performance. The researcher hypothesized that a significant correlation between TCR and ROE. Model estimates indicated that the TCR had a negative effect of 0.414, but this was not statistically significant. Thus, the analysis rejected hypothesis 3, and it can be inferred that TCR does not significantly impact the ROE of banks.

Table 3: Results of Model Testing on ROE as the Dependent Variable

Parameter	Model 1	Model 2	Model 3	Model 4
R2	0.638	0.142	0.055	0.06
Adjusted R2	0.62	0.13	0.038	0.037
Regression F	82.34	7.422	2.786	2.761
Significance	0.000**	0.000**	0.048**	0.039*
Constant	21.954**	3.318**	7.059**	7.02**
CUR	4.298**			-14.793**
LR		-9.109**		2.719 **
TCR			-0.414	2.199*
LEV	2.465*	0.621	-0.088	0.109
SIZE	-4.776**	-1.316	-2.547	-2.702**

Table 4: Results of Model Testing on ROA as the Dependent Variable

Parameter	Model 5	Model 6	Model 7	Model 8
R2	0.539	0.128	0.058	0.19
Adjusted R2	0.033	0.11	0.035	0.08
Regression F	59.21	7.298	2.687	3.785
Significance	0.049**	0.207**	0.648**	0.039*
Constant	18.625			
CUR	**	6.412**	9.893 **	8.31
LR	**	14.295 **	-3.347856	
TCR	-15.213		-10.573**	
LEV	**	0.578)	-0.089	-14.879 **
SIZE		14.314**	-3.421698	2.898

**:p<0.01, *:p<0.05

In Model 5, which examined the correlation between the CUR and ROA, a negative correlation was observed. This implies that increasing the current ratio reduces ROA. As it is less than the 0.05 significance level, the statistical significance of 0.049, suggests that this association is statistically significant. Therefore, Hypothesis H4, which posits a significant CUR-ROA correlation in banks, was supported by the evidence. Model 6 examined the relationship between the loan ratio (LR) and ROA. This showed a positive correlation between LR and ROA, indicating that increasing LR leads to an increased ROA. However, the statistical significance level of 0.207 was higher than the 0.05 significance level, indicating that this correlation was not significant, statistically. Thus, Hypothesis H5, which suggests that changes in LR impact ROA in commercial banks, was rejected based on the weight of the evidence. In Model 7, the impact of total capital ratio (TCR) changes on ROA was tested. The coefficient for non-performing loans (NMR) was -10,573, indicating a negative correlation between TCR and ROA. This implies that increasing TCR leads to a decreased ROA. However, with the 0.05 significance level being lower than the statistical significance level of 0.648, this indicates that this relationship was not significant, statistically.

Therefore, Hypothesis H6, which proposes a significant correlation between TCR and ROA, was rejected based on the weight of the evidence. Independent variables in the model explained 5.8% of the variation in the dependent variable (ROA), as denoted by the 0.058 R2 value. This implies that the independent variables chosen are not the primary factors impacting commercial banks' ROA.

4. Conclusion

The research findings back up and expand on earlier studies on the WCM and efficiency of the banks relationship. The results demonstrate that certain hypotheses were supported, while others were rejected. Specifically, the study confirmed the significant correlation between the current ratio (CUR) and the ROE of banks, as well as the relationships between the loan ratio (LR) and ROE, and the total capital ratio (TCR) and ROE, providing evidence for Hypotheses H1, H2, and H3, respectively. Furthermore, a significant correlation between CUR and ROA of banks was found to exist, supporting Hypothesis H4.

However, Hypotheses H5 and H6, which proposed significant relationships between LR and ROA, and between TCR and ROA, were rejected. The results point the important role of effective management of working capital in influencing bank performance. The positive associations observed between ROE and CUR, as well as between ROE and LR and TCR, suggest that reducing the loan ratio and total capital ratio can enhance the return on equity. Conversely, the study identified a negative association between flooding (likely referring to excessive working capital) and both ROE and ROA, underscoring the importance of avoiding excessive working capital levels.

These findings align with prior research conducted by Aminu and Zainudin (2016) and Kalaivani and Jothi (2017), lending further support to the significance of effective investment management for achieving improved performance in the commercial banking sector. Bhattacheryay (2021) examined the case of India and noted a significant correlation existing between WCM and the performance of firms. Further, Aktas et al. (2015) explored this relationship and emphasized the importance of effective management in achieving better financial outcomes. Similar findings in the study by Bahg et al. (2016), Nicolai et al. (2018), and Pesaran (2015) in their studies on emerging markets were also noted. Moreover, the results align with studies conducted in different countries. Knauer and Wöhrmann (2013) investigated Belgian firms and highlighted how WCM impacts profitability. Additionally, Baker et al. (2017), Akomeah and Frimpong (2019), Agbi and Yusuf (2017), Nguyen et al. (2020), and Sandhar and Janglani (2013) have also explored various WCM aspects and their correlation with profitability.

Furthermore, the current research findings support the conclusions reached Kwenda (2013) regarding the CCC and firms' performance of the Zimbabwean companies. The study also corroborates the results of Zawaira and Mutenheri (2014) regarding the analysis WCM across different industries. While the findings are in line with past research, it is important to note that each research paper had its own unique context, sample size, and methodology, which could contribute to variations in findings. These elements should be included in future study to acquire a more complete knowledge of the correlation between WCM and corporate profitability. In conclusion, this research's findings deliver additional evidence supporting how significant WCM is for firm profitability. The results align with and build upon the conclusions of numerous previous studies conducted in diverse countries and industries. Policymakers and managers can benefit from these findings by promoting effective working capital management practices to enhance firm performance and financial outcomes.

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