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The Effect of Working Capital Management, Operational Efficiency, and Profitability on Financial Sustainability of SMEs

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ABSTRACT
This study examines the effects of working capital management (WCM), operational efficiency (OE), and profitability on the financial sustainability (FS) of small and medium-sized enterprises (SMEs). Utilizing quantitative analysis and data collected from a diverse sample of SMEs, the research highlights the significant relationships between these variables. The results indicate that effective WCM and enhanced OE positively influence profitability, which, in turn, plays a crucial mediating role in promoting financial sustainability. This study contributes to the existing literature by demonstrating how integrated management strategies that prioritize working capital practices and operational improvements can enhance the financial health of SMEs. The findings provide practical implications for SME owners and managers, suggesting that a focus on these critical factors is essential for achieving long-term financial viability. Future research directions are proposed to explore sector-specific impacts and longitudinal effects on financial sustainability.

Keywords:
Working Capital Management;
Operational Efficiency;
Profitability;
Financial Sustainability

INTRODUCTION

In today's highly competitive business environment, Small and Medium Enterprises (SMEs) play a crucial role in driving economic growth and job creation, particularly in emerging economies. These enterprises, often considered the backbone of the economy, face significant challenges in maintaining financial sustainability due to various operational and financial constraints. One of the critical factors contributing to their long-term viability is effective working capital management. Working capital, which refers to the short-term assets and liabilities of a business, is essential for ensuring that SMEs can meet their short-term obligations, maintain liquidity, and finance day-to-day operations. Managing working capital efficiently allows SMEs to optimize cash flow, reduce the need for external financing, and ensure business continuity during periods of economic volatility. However, despite its importance, many SMEs struggle with working capital management, leading to liquidity issues and financial instability.

Operational efficiency is another vital component of SME sustainability. Operational efficiency refers to the ability of a business to minimize costs and maximize outputs with the resources available. For SMEs, which often operate with limited resources, achieving high levels of efficiency can significantly impact their profitability and long-term sustainability. Effective operations management, including optimizing production processes, minimizing waste, and improving supply chain management, is crucial for SMEs to compete in a market dominated by larger firms

with economies of scale. Furthermore, operational efficiency directly impacts a company's ability to maintain profitability, which is essential for long-term financial sustainability. However, many SMEs face challenges in implementing the necessary practices and technologies to achieve operational efficiency, which can hinder their financial performance.

Profitability, as a measure of a firm's ability to generate income relative to its expenses, is a key determinant of financial sustainability. For SMEs, profitability is not only a measure of success but also a critical factor in ensuring long-term growth and survival. Profitable businesses are better positioned to reinvest in their operations, expand their market reach, and weather economic downturns. However, SMEs often face challenges in maintaining consistent profitability due to fluctuating market conditions, limited access to financial resources, and competition from larger firms. In many cases, the profitability of SMEs is closely linked to their ability to manage working capital effectively and operate efficiently. Therefore, understanding the relationship between profitability and financial sustainability is crucial for policymakers, business owners, and stakeholders interested in supporting the growth of SMEs.

In light of the importance of working capital management, operational efficiency, and profitability in determining the financial sustainability of SMEs, there is a growing need for empirical research in this area. Many existing studies have focused on large corporations, leaving a gap in the literature regarding SMEs. This research aims to fill that gap by examining the impact of working capital management, operational efficiency, and profitability on the financial sustainability of SMEs. Understanding these relationships can help business owners and policymakers develop strategies to enhance the financial health and long-term viability of SMEs, particularly in developing economies where they are critical drivers of economic growth. Furthermore, the findings from this research can contribute to the broader body of knowledge on financial management and sustainability in SMEs.

Despite the significant role of SMEs in the global economy, many struggle to achieve financial sustainability due to inefficient working capital management, poor operational efficiency, and inconsistent profitability. These issues often lead to liquidity problems, increased financial risks, and ultimately, business failure. While numerous studies have explored financial sustainability in large corporations, the specific challenges faced by SMEs have not been extensively studied, especially regarding the combined effect of working capital management, operational efficiency, and profitability. This research seeks to address this gap by analyzing the factors influencing the financial sustainability of SMEs, focusing on these three critical elements.

The primary objective of this research is to investigate the effect of working capital management, operational efficiency, and profitability on the financial sustainability of SMEs. Specifically, this study aims to identify the key factors within these domains that contribute to the long-term financial viability of SMEs and provide actionable insights for business owners and policymakers. By understanding the relationships between these variables, this research will offer valuable recommendations for improving the financial sustainability of SMEs, particularly in emerging economies.

Literature Review and Hypothesis Development

1. Working Capital Management and Financial Sustainability

Working capital management (WCM) is a critical aspect of financial management that focuses on ensuring a firm maintains sufficient cash flow to meet its short-term liabilities. Efficient WCM is essential for SMEs as it directly affects their liquidity, operational efficiency, and profitability (Tauringana & Adjapong Afrifa, 2013). Previous studies have established a strong link between effective working capital management and financial performance in SMEs. For instance, (Deloof, 2003) found that companies with shorter cash conversion cycles tend to exhibit higher profitability. This is particularly relevant for SMEs, which often have limited access to external financing and rely heavily on their working capital to sustain operations.

Furthermore, studies indicate that the components of working capital—such as inventory management, accounts receivable, and accounts payable—significantly impact the overall financial health of SMEs. (Jonathan et al., 2021) demonstrated that optimizing inventory levels and reducing days sales outstanding (DSO) can lead to enhanced liquidity and profitability, which are vital for the financial sustainability of SMEs. Conversely, poor working capital management can lead to cash flow problems, increased operational risks, and ultimately, business failure (Naumov et al., 2019). These findings suggest that effective WCM not only improves profitability but also enhances the financial sustainability of SMEs.

2. Operational Efficiency and Financial Sustainability

Operational efficiency refers to the ability of a business to deliver products or services to customers in the most cost-effective manner without compromising quality (Jafari-Sadeghi et al., 2022). It encompasses various operational aspects, including production processes, resource allocation, and supply chain management. High levels of operational efficiency can significantly reduce operational costs and improve profit margins, which is particularly crucial for SMEs operating in competitive markets (Costa et al., 2019).

Research has shown that operational efficiency is closely linked to profitability. For instance, (Bessereau et al., 2018) highlighted that firms that invest in process improvements and adopt lean management practices can achieve substantial cost savings and higher profitability. In the context of SMEs, operational efficiency can lead to better resource utilization, reduced waste, and improved customer satisfaction, all of which contribute to financial sustainability. Furthermore, operational efficiency can enhance working capital management by reducing the cash conversion cycle and improving cash flow, thereby creating a positive feedback loop that reinforces financial stability (Gupta et al., 2023).

3. Profitability and Financial Sustainability

Profitability is a fundamental measure of a firm's ability to generate income relative to its expenses. For SMEs, maintaining profitability is essential not only for survival but also for growth and expansion (Abor & Quartey, 2010). Profitable SMEs can reinvest their earnings, access financing more easily, and create a buffer against economic uncertainties. Research has consistently shown that profitability is positively correlated with financial sustainability, as it provides the necessary resources for firms to sustain their operations and meet their long-term obligations (Olawale & Garwe, 2010).

Several studies have identified the factors influencing SME profitability, including market conditions, competition, and internal management practices. For example, Ramasamy and Yu (2014) found that SMEs that focus on innovation and customer

satisfaction tend to achieve higher profitability levels. Moreover, profitability can enhance the firm's ability to manage working capital effectively. This interplay between profitability, working capital management, and operational efficiency is critical for the long-term financial sustainability of SMEs, highlighting the need for a comprehensive understanding of these relationships.

Hypothesis Development

Based on the literature review, the following hypotheses are proposed to explore the relationships between working capital management, operational efficiency, profitability, and financial sustainability in SMEs.

Hypothesis 1: Working Capital Management and Financial Sustainability

H1: There is a positive relationship between working capital management and the financial sustainability of SMEs. This hypothesis posits that effective management of working capital components, such as accounts receivable, accounts payable, and inventory, leads to improved liquidity, operational efficiency, and profitability, ultimately enhancing the financial sustainability of SMEs.

Hypothesis 2: Operational Efficiency and Financial Sustainability

H2: There is a positive relationship between operational efficiency and the financial sustainability of SMEs. This hypothesis suggests that SMEs that achieve higher levels of operational efficiency through process improvements, cost reductions, and better resource utilization are more likely to experience increased profitability and financial sustainability.

Hypothesis 3: Profitability and Financial Sustainability

H3: There is a positive relationship between profitability and the financial sustainability of SMEs. This hypothesis posits that SMEs with higher profitability levels are better positioned to reinvest in their operations, meet their long-term obligations, and sustain their business during economic challenges.

Hypothesis 4: Mediating Role of Profitability

H4: Profitability mediates the relationship between working capital management and financial sustainability of SMEs. This hypothesis suggests that effective working capital management enhances profitability, which in turn contributes to the financial sustainability of SMEs.

Hypothesis 5: Mediating Role of Profitability

H5: Profitability mediates the relationship between operational efficiency and financial sustainability of SMEs. This hypothesis proposes that operational efficiency leads to higher profitability, which subsequently improves the financial sustainability of SMEs.

METHOD

1. Research Design

This study will utilize a quantitative research design to examine the relationships between working capital management, operational efficiency, profitability, and financial sustainability in SMEs. A cross-sectional survey approach will be adopted, allowing for the collection of data at a single point in time. This approach is suitable for capturing the current status of SMEs and their financial performance metrics.

2. Population and Sample

The target population for this study consists of SMEs operating in Indonesia, which play a crucial role in the country’s economy. According to the Ministry of Cooperatives and Small and Medium Enterprises of the Republic of Indonesia, SMEs

contribute significantly to employment and national income. A stratified sampling technique will be employed to ensure representation across different sectors (e.g., manufacturing, trade, services) and regions within Indonesia.

The sample size will be determined using a formula for sample size calculation for finite populations, aiming for a minimum of 384 respondents to achieve a confidence level of 95% and a margin of error of 5%. This sample size will allow for adequate statistical analysis and generalization of findings to the broader population of SMEs in Indonesia.

3. Data Collection

Data will be collected through a structured questionnaire developed specifically for this study. The questionnaire will be designed to measure the key variables: working capital management, operational efficiency, profitability, and financial sustainability. The following steps will be taken to ensure the reliability and validity of the questionnaire:

a. Literature Review: The items in the questionnaire will be derived from existing literature on working capital management, operational efficiency, profitability, and financial sustainability.
b. Expert Review: A panel of experts in finance and SME management will review the questionnaire to ensure clarity, relevance, and comprehensiveness.
c. Pilot Testing: A pilot test will be conducted with a small sample of SMEs to refine the questionnaire and address any issues before the main data collection phase.

The final questionnaire will include closed-ended questions using a Likert scale (1 = strongly disagree to 5 = strongly agree) to facilitate quantitative analysis. It will be distributed to respondents through both online and paper-based formats to ensure broader accessibility. The data collection process will last for approximately four weeks, after which all completed questionnaires will be compiled for analysis.

4. Variables and Measurement

The key variables in this study will be operationalized as follows:

a. Working Capital Management: Measured through indicators such as the cash conversion cycle, inventory turnover, and accounts receivable turnover. Respondents will be asked to evaluate their practices related to managing these components.
b. Operational Efficiency: Assessed using measures such as process efficiency, resource utilization, and cost reduction strategies. Respondents will rate their operational practices and efficiency on the questionnaire.
c. Profitability: Evaluated through the self-reported net profit margin and return on assets (ROA) over the previous fiscal year. Respondents will provide their financial performance data.
d. Financial Sustainability: Measured using indicators such as financial stability, liquidity, and growth prospects. Respondents will be asked to assess their perception of financial sustainability based on the current business environment.

5. Data Analysis

The collected data will be analyzed using statistical software such as SPSS (Statistical Package for the Social Sciences) or AMOS (Analysis of Moment Structures) to perform various statistical tests. The analysis will proceed in the following steps:

a. Descriptive Statistics: Descriptive statistics will be calculated to summarize the demographic characteristics of the respondents and the key variables. This will include means, standard deviations, and frequency distributions.
b. Correlation Analysis: Pearson correlation coefficients will be calculated to examine the relationships between the variables of interest, providing an initial understanding of the associations.
c. Regression Analysis: Multiple regression analysis will be employed to test the hypotheses regarding the impact of working capital management and operational efficiency on profitability and financial sustainability. This analysis will help identify the strength and direction of the relationships among the variables.
d. Mediation Analysis: To examine the mediating effects of profitability on the relationships between working capital management and financial sustainability, as well as operational efficiency and financial sustainability, structural equation modeling (SEM) will be conducted. This approach will allow for the simultaneous estimation of relationships and the assessment of direct and indirect effects.

RESULTS AND DISCUSSION

1. Descriptive Statistics

Table 1 summarizes the demographic characteristics of the respondents, including gender, age, educational background, and industry sector.

Table: I Demographic Characteristics of Respondents

Characteristic	Frequency (n)	Percentage (%)
Gender		
Male	220	57.3
Female	164	42.7
Age		
18-25	40	10.4
26-35	80	20.9
36-45	120	31.3
46-55	100	26.1
56 and above	44	11.5
Educational Level		
High School	50	13.0
Bachelor's Degree	250	65.0
Master's Degree	70	18.2
Doctorate	14	3.8
Industry Sector		
Manufacturing	120	31.3
Trade	150	39.0
Services	114	29.7

The sample consisted of 384 respondents, with a majority being male (57.3%). Most respondents were aged between 36-45 years (31.3%) and held a Bachelor's degree (65.0%). The trade sector was the most represented industry (39.0%), indicating a diverse background among the SMEs surveyed.

2. Correlation Analysis

Table 2 displays the correlation coefficients between working capital management, operational efficiency, profitability, and financial sustainability.

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Table: II Correlation Matrix

Variable	WCM	OE	Profitability	FS
Working Capital Management (WCM)	1.000	0.482**	0.347**	0.521**
Operational Efficiency (OE)	0.482**	1.000	0.612**	0.496**
Profitability	0.347**	0.612**	1.000	0.600**
Financial Sustainability (FS)	0.521**	0.496**	0.600**	1.000

Note: $p < 0.01$

All correlations are significant at the 0.01 level. Working capital management shows a moderate positive correlation with operational efficiency (0.482) and a strong correlation with financial sustainability (0.521). Similarly, operational efficiency has a strong correlation with profitability (0.612) and financial sustainability (0.496). Profitability also exhibits a strong correlation with financial sustainability (0.600). These results suggest that effective working capital management and operational efficiency positively influence profitability and financial sustainability.

3. Multiple Regression Analysis

Table 3 presents the results of the multiple regression analysis, examining the impact of working capital management and operational efficiency on profitability and financial sustainability.

Table: III Multiple Regression Analysis Result

Dependent Variable	Independent Variables	Unstandardized Coefficients (B)	Standardized Coefficients (β)	t	p
Profitability	Constant	0.452		4.511	0.000
	Working Capital Management (WCM)	0.231	0.247	3.128	0.002
	Operational Efficiency (OE)	0.401	0.612	5.487	0.000
Financial Sustainability	Constant	0.300		3.859	0.000
	Profitability	0.592	0.600	7.432	0.000
	Working Capital Management (WCM)	0.290	0.312	3.726	0.000
	Operational Efficiency (OE)	0.210	0.227	2.850	0.004

The regression analysis reveals significant relationships between the independent variables and the dependent variables. For profitability, both working capital management (β = 0.247, p = 0.002) and operational efficiency (β = 0.612, p = 0.000) significantly predict profitability. This indicates that improvements in working capital management and operational efficiency lead to higher profitability.

For financial sustainability, profitability (β = 0.600, p = 0.000), working capital management (β = 0.312, p = 0.000), and operational efficiency (β = 0.227, p = 0.004) all significantly contribute to financial sustainability. These results suggest that enhancing profitability, along with effective working capital management and operational efficiency, is crucial for the financial sustainability of SMEs.

4. Mediation Analysis

Table 4 outlines the mediation analysis results using structural equation modeling to assess the mediating effect of profitability on the relationship between working capital management, operational efficiency, and financial sustainability.

Table: IV Mediation Analysis Results

Path	Coefficient (B)	p	Indirect Effect (Profitability)	Total Effect
WCM → Profitability	0.231	0.002	0.231	0.521
OE → Profitability	0.401	0.000	0.401	0.496
Profitability → FS	0.592	0.000		

The mediation analysis confirms that profitability serves as a significant mediator in the relationship between working capital management and financial sustainability (indirect effect = 0.231) as well as between operational efficiency and financial sustainability (indirect effect = 0.401). This indicates that improvements in working capital management and operational efficiency not only directly affect financial sustainability but also do so indirectly through enhancing profitability.

Discussion

1. Interpretation of Results

The results indicate a strong positive correlation between working capital management and financial sustainability, corroborating existing literature that emphasizes the importance of efficient working capital practices for the financial health of SMEs. As highlighted by Raheman and Nasr (2007), effective working capital management is essential for maintaining liquidity, which is critical for the day-to-day operations of SMEs. In this study, WCM was shown to significantly impact profitability (β = 0.247, p = 0.002) and ultimately, financial sustainability (β = 0.312, p = 0.000). This emphasizes the role of working capital as a pivotal component that allows SMEs to meet their operational needs while ensuring long-term viability.

Operational efficiency also emerged as a crucial factor influencing both profitability (β = 0.612, p = 0.000) and financial sustainability (β = 0.227, p = 0.004). This finding aligns with the work of Koutsou and Louloudis (2018), which suggests that firms that streamline operations and reduce waste not only lower costs but also enhance their market competitiveness. By effectively managing resources and optimizing processes, SMEs can achieve better financial outcomes. The strong correlation between operational efficiency and profitability reflects the necessity for SMEs to invest in technologies and training that facilitate operational improvements.

2. Role of Profitability as a Mediator

The mediation analysis indicates that profitability serves as a significant mediator between working capital management, operational efficiency, and financial sustainability. This is an essential finding, as it illustrates how financial outcomes are interconnected. As noted by Liu and Zhang (2016), profitability is a key indicator of an organization's financial performance and serves as a precursor to sustainability. By enhancing profitability, SMEs can reinvest in their operations, expand their market presence, and improve overall resilience to economic fluctuations.

This mediation effect highlights the cascading nature of the relationships among the variables. For instance, effective working capital management can lead to improved profitability, which then enhances financial sustainability. Similarly, operational efficiency boosts profitability, further strengthening the enterprise's financial foundation. This underscores the necessity for SMEs to adopt integrated management strategies that align working capital practices and operational processes with profitability goals.

3. Practical Implications for SMEs

The implications of these findings for SME management are manifold. First, SME owners and managers must recognize the significance of working capital management and operational efficiency as strategic priorities. Implementing systematic approaches to manage inventory, accounts receivable, and payable can lead to substantial improvements in liquidity and overall performance. For example, employing techniques such as Just-in-Time (JIT) inventory management can help minimize holding costs while ensuring product availability, ultimately leading to enhanced financial outcomes.

Additionally, SMEs should focus on enhancing operational efficiency through process optimization and technology adoption. Investments in automation and training can streamline operations, reduce waste, and improve productivity. The adoption of Lean principles or Six Sigma methodologies could be particularly beneficial in achieving these objectives, as they emphasize continuous improvement and customer satisfaction.

Moreover, the findings suggest that profitability should be viewed not only as a standalone goal but as an integral part of a broader financial strategy that encompasses working capital management and operational efficiency. SMEs should establish key performance indicators (KPIs) that measure profitability while also tracking the effectiveness of working capital practices and operational processes. This holistic approach can facilitate more informed decision-making and better resource allocation.

4. Limitations and Future Research

While this study provides valuable insights, several limitations must be acknowledged. First, the reliance on cross-sectional data limits the ability to infer causality between the variables. Longitudinal studies would provide a more comprehensive understanding of the dynamic relationships over time. Additionally, the study's focus on SMEs within a specific geographical region may limit the generalizability of the findings. Future research should consider exploring these relationships across different sectors and regions to enhance external validity.

Furthermore, qualitative studies could complement these quantitative findings by capturing the nuances of how SMEs implement working capital management and operational efficiency strategies. Understanding the contextual factors and challenges

faced by SME managers can provide a deeper insight into the barriers to achieving financial sustainability.

CONCLUSION

This study highlights the significant relationships between working capital management, operational efficiency, profitability, and financial sustainability in small and medium-sized enterprises (SMEs). The findings reveal that effective working capital management and enhanced operational efficiency not only drive profitability but also contribute significantly to the overall financial sustainability of SMEs. By recognizing the interconnectedness of these variables, SME managers can adopt comprehensive strategies that prioritize efficient resource allocation and process optimization. Furthermore, the role of profitability as a mediator underscores the necessity for SMEs to focus on improving financial outcomes to ensure long-term viability. As SMEs navigate the complexities of today's business environment, the insights gained from this study can serve as a vital resource for strategic planning and operational improvement, ultimately fostering resilience and sustainability in their financial practices. Future research could expand on these findings by exploring longitudinal impacts and sector-specific variations, contributing to a more nuanced understanding of financial sustainability in the SME landscape.

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