

Financial Management Practices and Operational Performance of Waste Management Companies in Nairobi County; A Case of Taka Taka Solutions

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Abstract

Waste management companies are instrumental in achieving environmental sustainability and economic efficiency in rapidly urbanizing cities. However, in developing contexts such as Kenya, their performance is often hampered by limited access to capital, weak financial planning systems, and stringent environmental regulations. This study examined the effect of financial management practices on the operational performance of waste management companies in Nairobi County, using Taka Taka Solutions as a case study. Specifically, the study investigated how working capital management, cost management, and capital budgeting influence operational performance, while also assessing the moderating role of environmental regulations. The research was anchored on the Liquidity Preference Theory, Pecking Order Theory, and Resource-Based View, providing a robust theoretical foundation for linking financial practices to organizational outcomes. A descriptive correlational research design was employed, targeting a population of 350 employees from Taka Taka Solutions, from which a stratified random sample of 203 respondents was selected. Primary data were collected using structured questionnaires and analyzed through descriptive statistics, correlation, multiple regression, and moderated regression models. The findings established that working capital management, cost management, and capital budgeting have a significant positive effect on operational performance. Moreover, environmental regulations were found to significantly moderate these relationships, enhancing the effectiveness of sound financial management practices under supportive policy conditions. The study concludes that efficient financial management systems strengthen liquidity, cost efficiency, and investment decision-making, thereby improving the sustainability and competitiveness of waste management companies. The study recommends that such firms institutionalize cost control mechanisms, adopt data-driven capital budgeting tools, and align financial practices with regulatory requirements to optimize operational performance.

Keywords; *Financial Management Practices; Working Capital Management; Cost Management; Capital Budgeting; Environmental Regulations; Operational Performance; Waste Management; Nairobi County*

1.0 Introduction

Effective financial management practices are critical in ensuring the sustainability and competitiveness of firms operating in resource-intensive sectors. In the context of waste management, financial efficiency not only determines profitability but also influences the capacity of firms to deliver environmentally sound services and contribute to urban sustainability. Globally, solid waste generation continues to rise, with the World Bank (2022) estimating that waste volumes reached 2.24 billion tonnes in 2020 and are projected to grow by 73% by 2050. This growth presents significant financial and operational challenges, especially for firms in developing countries where weak capital structures and inadequate regulatory support hinder performance. In developed economies such as Japan and Germany, the adoption of robust financial management systems covering liquidity control, cost accounting, and capital investment analysis has enhanced operational efficiency, enabling firms to balance environmental and financial objectives effectively.

In sub-Saharan Africa, waste management firms operate within tight budgetary environments characterized by high operational costs, weak revenue systems, and limited investment in technology. The African Development Bank (2023) reports that less than 10% of waste management budgets in Kenya, Uganda, and Rwanda are allocated to technological upgrades, while over 60% of expenditure goes to recurrent costs such as collection and labor. Kenya's capital, Nairobi, produces approximately 2,400 tonnes of solid waste daily, yet only 38% is collected and less than 10% is recycled (NEMA, 2023). The remaining waste is either dumped or burned, contributing to pollution and public health hazards. Despite this challenge, innovative firms such as Taka Taka Solutions have emerged as leaders in circular economy models, processing over 60 tonnes of waste per day and achieving a 95% material recovery rate. However, these firms still face constraints related to liquidity, high capital expenditure, and limited financial planning tools, which affect their operational performance.

The financial viability of waste management companies depends largely on how effectively they manage their working capital, control operational costs, and plan capital investments. Weak working capital management results in liquidity crises, while inefficient cost management inflates operational budgets, and poor capital budgeting leads to suboptimal investment decisions. Additionally, environmental regulations such as those enforced by the National Environment Management Authority (NEMA) influence firms' financial strategies by imposing compliance costs, licensing requirements, and reporting obligations. When well-aligned with business objectives, such regulations can encourage innovation and sustainability; however, in poorly regulated environments, they may increase operational burdens and reduce profitability. Despite the critical role of financial management in organizational success, empirical studies on how these practices shape operational performance within Kenya's waste management sector remain limited.

Most prior research has focused on manufacturing and service industries, leaving a contextual and methodological gap in understanding the financial dynamics of waste management enterprises.

1.1 Objectives of the Study

The study was guided by the following objectives:

- i. To determine the effect of working capital management on the operational performance of waste management companies in Nairobi County.
- ii. To evaluate the effect of cost management on the operational performance of waste management companies in Nairobi County.
- iii. To assess the effect of capital budgeting on the operational performance of waste management companies in Nairobi County.
- iv. To establish the moderating effect of environmental regulations on the relationship between financial management practices and operational performance.

1.2 Research Hypotheses

The study tested the following hypotheses:

H₁: Working capital management has a significant effect on operational performance of waste management companies.

H₂: Cost management has a significant effect on operational performance of waste management companies.

H₃: Capital budgeting has a significant effect on operational performance of waste management companies.

H₄: Environmental regulations significantly moderate the relationship between financial management practices and operational performance.

2.0 Literature Review

This study is anchored on three foundational theories that explain how financial management practices influence organizational performance: the Liquidity Preference Theory, the Pecking Order Theory, and the Resource-Based View (RBV). Each theory provides a unique perspective on the management of liquidity, financing decisions, and resource optimization in the context of waste management firms.

Liquidity Preference Theory, advanced by John Maynard Keynes (1936), postulates that economic agents prefer liquidity to meet transaction, precautionary, and speculative motives. The theory provides a framework for understanding *working capital management*, emphasizing the need for firms to maintain adequate liquidity to meet short-term obligations and sustain operational stability. For waste management companies that experience irregular cash inflows and high operational costs, effective liquidity management through optimized receivables, payables, and cash conversion cycles is essential. However, the theory's limitation lies in its narrow focus on

short-term solvency, offering limited guidance for long-term investment or capital budgeting decisions.

Pecking Order Theory, proposed by Myers and Majluf (1984), explains firms' financing preferences in the face of information asymmetry. It posits that firms prioritize internal financing first, then debt, and finally equity. This theory underpins *capital budgeting decisions*, suggesting that firms prefer to fund projects from retained earnings to minimize transaction and signaling costs. In waste management firms, where capital-intensive investments such as recycling facilities and equipment are common, internal financing often dominates due to limited access to affordable credit. Nevertheless, this theory underestimates external factors such as regulatory constraints and environmental compliance costs, which can alter financing priorities.

Resource-Based View (RBV), articulated by Barney (1991), emphasizes that firms achieve sustainable competitive advantage through resources that are valuable, rare, inimitable, and well organized (VRIO). This theory aligns with *cost management practices*, as it highlights how internal capabilities such as efficient waste sorting technologies, digital cost-control systems, and specialized managerial expertise contribute to performance and competitiveness. However, RBV's inward orientation overlooks external influences like environmental regulations and market conditions that shape financial decision-making in the waste management sector.

Collectively, these theories provide an integrative lens for examining how financial management practices influence firm performance, while recognizing that external regulatory forces may moderate these relationships.

2.2 Empirical Review

Empirical research consistently underscores the significance of financial management practices in enhancing operational performance across industries.

Working Capital Management has been linked to profitability and liquidity in diverse sectors. Burton and Miroga (2024) found that efficient management of receivables and payables significantly improves operational efficiency among Kenyan public universities. Similarly, Ebire et al. (2024) demonstrated that receivables turnover positively influences return on assets among UK-based renewable energy firms, underscoring the role of liquidity control in sustaining financial performance. However, these studies were conducted in institutional and developed-market contexts, leaving a geographical and contextual gap regarding waste management enterprises in developing economies like Kenya.

Cost Management is widely recognized as a determinant of financial sustainability. Mwangi and Kosgei (2025) observed that direct labor and administrative overheads significantly affect profitability among milling firms in Nairobi. Likewise, Agesa, Kamau, and Kivuva (2022) revealed that effective waste reduction and composting strategies reduced operating costs in the hospitality sector. Despite these insights, few studies have examined cost management within the waste management industry, which faces unique challenges such as fluctuating waste volumes, compliance costs, and equipment depreciation.

Capital Budgeting has been shown to influence firm growth and sustainability. Nagesha et al. (2023) established that investment appraisal techniques like Net Present Value (NPV) and Internal Rate of Return (IRR) significantly enhance profitability in automobile firms. However, the reliance on secondary data and developed-sector contexts limits the applicability of these findings to waste management companies, which often operate under constrained capital structures and uncertain cash flows.

Environmental Regulations play a moderating role by shaping cost structures and influencing the efficiency of financial management practices. Liu et al. (2024) and Debrah et al. (2022) note that stringent environmental policies can either stimulate innovation or increase compliance costs, depending on regulatory design and enforcement. In Kenya, the National Environment Management Authority (NEMA) imposes licensing and waste-handling requirements that affect both cost management and liquidity planning. Nevertheless, limited empirical studies have examined how these regulatory dynamics interact with firm-level financial strategies to influence operational performance.

2.3 Conceptual Framework

Based on the reviewed theories and empirical evidence, this study conceptualized that financial management practices comprising working capital management cost management and capital budgeting directly influence operational performance of waste management companies. The study further posits that environmental regulations moderate these relationships, either strengthening or weakening their impact. The conceptual framework for the study is as shown in Figure 1;

Independent Variable

Dependent Variable

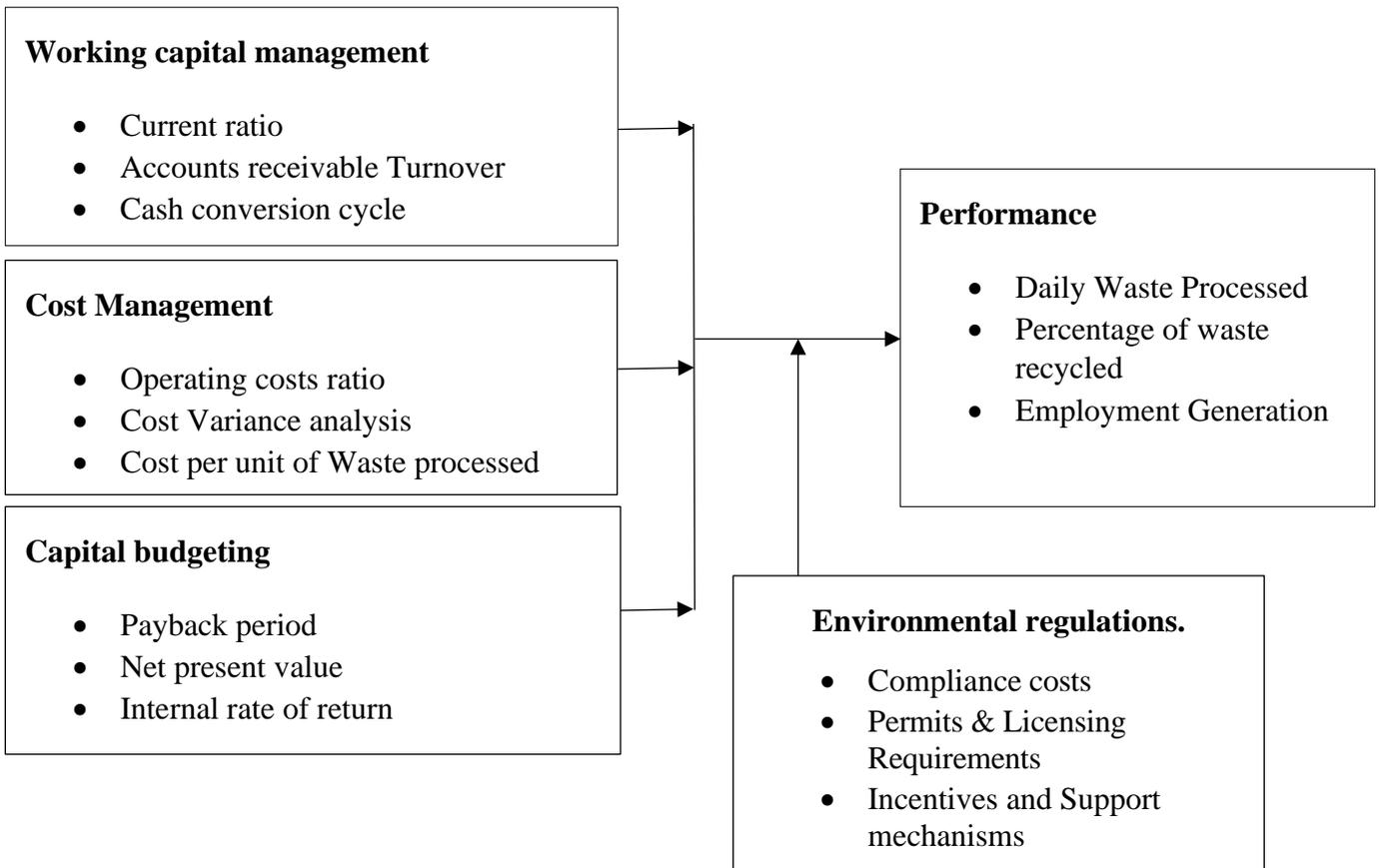


Figure 1: Conceptual Framework

3.1 Research Methodology

The study employed a descriptive correlational research design to examine the effect of financial management practices on the operational performance of waste management companies in Nairobi County, focusing on Taka Taka Solutions. This design was appropriate because it allowed both the description of existing financial management practices and the determination of statistical relationships among the study variables. The research targeted 350 employees of Taka Taka Solutions, comprising management, technical, and support staff. This population was selected because the respondents are directly involved in financial decision-making and operational functions within the organization.

The sample size of 203 respondents was determined using Krejcie and Morgan’s (1970) table for sample size determination from a known population. A stratified random sampling technique was used to ensure fair representation of employees across the three strata management, technical, and

support departments. This approach minimized sampling bias and enhanced the representativeness of the findings.

Primary data were collected using a structured questionnaire containing closed-ended and Likert-scale items related to the study variables: working capital management, cost management, capital budgeting, environmental regulations, and operational performance. The instrument's validity was ensured through expert review by university supervisors, while reliability was confirmed using Cronbach's Alpha, where all coefficients exceeded 0.70, indicating high internal consistency.

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 27. Descriptive statistics such as means, frequencies, and standard deviations were used to summarize responses. Pearson correlation and multiple regression analyses were performed to test the relationships between financial management practices and operational performance, while moderated multiple regression was used to assess the influence of environmental regulations on these relationships.

Ethical considerations were observed throughout the study. Permission to collect data was obtained from Zetech University and the management of Taka Taka Solutions. Respondents participated voluntarily, and confidentiality and anonymity were strictly maintained..

4.1 Results

4.1.1 Descriptive Statistics

Descriptive results indicated that the three dimensions of financial management practices Working Capital Management (WCM), Cost Management (CM), and Capital Budgeting (CB) were moderately and consistently applied at Taka Taka Solutions. Respondents reported mean composite scores ranging between 3.68 and 3.82, suggesting that the firm generally maintained adequate liquidity, cost control, and investment planning mechanisms. The standard deviations (ranging from 0.71 to 0.89) revealed moderate variability across departments, implying that while core financial controls were in place, implementation was not uniform throughout the organization.

The dependent variable, operational performance, recorded a mean of 3.84, reflecting satisfactory operational outcomes in areas such as resource utilization, service reliability, and efficiency. These descriptive findings suggest that sound financial management systems exist, though with room for further improvement and institutional consistency.

4.1.2 Inferential Statistics

The overall multiple regression analysis examined the joint effect of WCM, CM, and CB on organizational performance. The model yielded a multiple correlation coefficient of $R = 0.874$, indicating a strong positive relationship between the predictors and performance. The coefficient of determination ($R^2 = 0.764$) shows that approximately 76.4% of the variance in performance was explained jointly by financial management practices. The adjusted $R^2 = 0.760$ confirms the robustness of the model after adjusting for the number of predictors. The F-statistic ($F = 62.317$, $p < 0.001$) indicated that the overall regression model was statistically significant.

Regression coefficients revealed that Working Capital Management ($\beta = 0.628$, $p < 0.001$) was the strongest predictor of performance, followed by Cost Management ($\beta = 0.571$, $p < 0.001$) and Capital Budgeting ($\beta = 0.189$, $p = 0.021$). This suggests that liquidity management and cost control practices exert the greatest influence on organizational performance, while investment appraisal plays a smaller but still significant role.

The moderation analysis incorporating Environmental Regulation (ER) demonstrated a small but significant moderation effect ($\Delta R^2 = 0.015$, $\beta = 0.122$, $p = 0.047$). This finding implies that environmental regulation amplifies the positive relationship between cost management and organizational performance firms operating under stricter regulatory environments derive greater performance benefits from effective cost control mechanisms.

4.2 Discussion of the Findings

The results demonstrate that financial management practices significantly enhance the operational performance of waste management companies in Kenya. The strong positive effect of Working Capital Management corroborates the Liquidity Preference Theory, which emphasizes maintaining adequate cash flow to meet short-term obligations. Firms that monitor receivables, payables, and inventory efficiently maintain steady operations and avoid liquidity crises, thereby improving overall performance. This outcome aligns with Agesa, Kamau, and Kivuva (2022), who found that efficient working capital systems substantially increase the performance of Kenyan SMEs.

The significant relationship between Cost Management and performance supports the Resource-Based View (RBV), which argues that effective resource utilization is a key driver of competitive advantage. Cost control reduces wastage and improves internal efficiency, allowing firms to reallocate savings to innovation and service quality. These findings mirror Otoo (2024) and Hayes (2025), who noted that integrating cost management with liquidity practices enhances profitability in operationally intensive sectors.

The positive yet modest influence of Capital Budgeting aligns with Pecking Order Theory, which advocates reliance on internal funds for long-term investments. In capital-intensive sectors such as waste management, returns from investment projects accrue gradually, explaining the weaker but still significant coefficient ($\beta = 0.189$). This is consistent with Brealey, Myers, and Allen (2019), who found that strategic investments strengthen long-term performance more than short-term profitability.

The moderating role of Environmental Regulation supports the Institutional Theory, which posits that external institutional pressures shape organizational behavior. The significant moderation ($\beta = 0.122$, $p = 0.047$) suggests that regulatory enforcement encourages firms to refine internal cost structures and enhance compliance-driven efficiency. However, the limited ΔR^2 (1.5%) indicates that regulation's effect remains conditional, primarily influencing cost management rather than liquidity or investment decisions.

Overall, the findings provide empirical evidence that integrated financial management practices anchored on liquidity control, cost efficiency, and strategic investment collectively drive

operational excellence in the waste management sector. When supported by well-structured environmental regulation, these practices contribute to both financial sustainability and environmental compliance.

The optimal regression model derived from the analysis was expressed as:

$$Y=0.483 + 0.628X1 + 0.571X2 + 0.189X3$$

Where Y represents operational performance, X1 working capital management, X2 cost management, and X3 capital budgeting. When environmental regulations were included as a moderating variable, the extended model became:

$$Y=0.483 + 0.628X1 + 0.571X2 + 0.189X3 + 0.122Z$$

5.0 Conclusion

The study set out to examine the effect of financial management practices on the operational performance of waste management companies in Nairobi County, focusing on Taka Taka Solutions. Guided by the Liquidity Preference Theory, the Resource-Based View, and the Pecking Order Theory, the study concluded that financial management practices significantly enhance operational performance. The overall regression results ($R = 0.874$; $R^2 = 0.764$; $p < 0.001$) confirmed that working capital management, cost management, and capital budgeting jointly explain a substantial proportion of performance variation among waste management firms.

The findings revealed that working capital management exerts the greatest influence on operational performance, underscoring the critical importance of liquidity control, efficient cash flow management, and timely settlement of payables. Cost management also emerged as a strong determinant, indicating that disciplined budgeting, expenditure tracking, and resource optimization drive operational efficiency. Capital budgeting, though less dominant, plays an important role in sustaining long-term growth through prudent investment appraisal and prioritization of value-enhancing projects.

Furthermore, the study established that environmental regulations significantly moderate the relationship between financial management practices and performance. Regulatory compliance fosters transparency and discipline in resource utilization, but excessive compliance costs can constrain operational flexibility. Overall, the study concludes that sound and integrated financial management systems, complemented by supportive environmental policies, are essential for achieving sustainable performance in Kenya's waste management sector.

6.0 Recommendations

Based on the findings, the study recommends several practical and policy actions. First, waste management firms should institutionalize robust working capital management frameworks, including automated receivables tracking and inventory control systems, to enhance liquidity and operational reliability. Managers should ensure regular cash flow forecasting and align financial planning with operational cycles to minimize disruptions.

Second, firms should strengthen cost management systems by embedding real-time cost monitoring and variance analysis into their operations. This will help identify inefficiencies early, reduce wastage, and improve profitability margins. Integrating cost control into performance evaluation systems will also promote accountability across departments.

Third, capital budgeting practices should be standardized and data-driven. Firms need to adopt investment appraisal tools such as Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period to evaluate long-term projects objectively. Aligning capital investments with strategic objectives will ensure optimal resource allocation and sustainable growth.

Fourth, regulatory authorities, particularly the National Environment Management Authority (NEMA), should balance environmental compliance with business sustainability by streamlining reporting procedures, offering incentives for eco-efficient investments, and reducing bureaucratic delays. Such policy support would enable firms to channel resources toward innovation and efficiency rather than administrative overheads.

Finally, the study recommends that future research expand beyond a single case study to include comparative analyses across multiple waste management firms and counties. Incorporating additional variables such as firm age, technology adoption, and external financing constraints could provide deeper insights into the broader determinants of operational performance in Kenya's environmental services sector.

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