Cash Management and Its Impact on Manufacturing Industry Profitability: a Case Study of PZ Industries Plc

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Abstract. This study examines the impact of cash management on enhancing profitability within Nigeria's manufacturing sector, utilising PZ Industries Plc as a case study. Employing a survey-based descriptive and exploratory research design, primary data were collected from finance, treasury, and accounting personnel through structured questionnaires, resulting in 40 valid responses out of 50 distributed, which yielded an 80% response rate. Statistical analysis, including frequency distributions and chi-square tests, revealed strong associations between cash management practices and profitability outcomes. Specifically, the chi-square test results showed that cash management has a significant impact on profitability ($X^2 = 32.4$, $p < 0.001$) and that liquidity also has a substantial effect ($X^2 = 10.0$, $p < 0.001$). The findings confirm that effective cash control, liquidity planning, and internal cash flow synchronisation are essential for financial stability and improved organisational performance. The study concludes that robust cash management strategies are critical to sustaining profitability and operational efficiency in the manufacturing industry.

Keywords: Cash management; profitability; liquidity; manufacturing sector; financial performance; PZ Industries Plc; analysis.

INTRODUCTION

Cash management constitutes an essential component of financial decision-making, ensuring organisational liquidity, operational continuity, and sustainable profitability. It encompasses monitoring, evaluating, and optimising cash inflows and outflows to fulfil financial obligations while maximising returns on surplus funds. Within manufacturing industries, where capital-intensive operations demand substantial working capital reserves, effective cash management proves vital for maintaining production activities, minimising financial vulnerabilities, and enhancing profitability [1].

Cash, as the most fundamental asset, forms the foundation for business operations. It facilitates

the procurement of raw materials, employee compensation, operational expenditure coverage, and the implementation of strategic investment decisions. However, suboptimal cash management can precipitate liquidity crises, production disruptions, and financial instability. Manufacturing industries frequently encounter challenges related to cash deficiencies, excessive idle funds, and inaccurate cash projections, all of which can potentially undermine profitability [2]. For instance, maintaining excessive cash reserves may constrain investment opportunities, while insufficient cash reserves can necessitate dependence on short-term borrowing, increasing financing expenses [3].

The case of PZ Industries Plc, a leading Nigerian manufacturing company, provides a practical context for examining the impact of cash management on profitability. The company's operations require efficient cash management to balance liquidity needs with investment opportunities. Despite its market leadership position, the company faces challenges, including inadequate cash control procedures, imbalanced cash flows, and overdependence on banking facilities, which have raised concerns regarding its financial sustainability. This investigation aims to determine how effective cash management protocols contribute to the organisation's profitability while identifying strategies for cash flow optimisation [4].

Research Problem. Numerous manufacturing companies, including PZ Industries Plc, confront significant cash management challenges, such as:

Cash Excesses: Unutilised funds that fail to contribute positively to profitability metrics.

Cash Deficiencies: Operational disruptions resulting from inadequate liquidity.

Cash Flow Misalignment: Inadequate coordination between cash receipts and disbursements, generating financial strain.

Ineffective Financial Policies: Absence of clearly defined strategies governing investment activities and profit retention.

Theoretical Framework

Cash management represents a critical financial management component that ensures adequate organisational liquidity while maximising profitability. Multiple theoretical perspectives support the role of effective cash management in enhancing business performance, particularly within manufacturing enterprises, where operational expenditures and investment decisions heavily depend on the availability of liquidity.

a) Keynesian Liquidity Preference Theory. Author [5] advanced the Liquidity Preference Theory, positing that organisations and individuals maintain cash reserves for three primary purposes:

Transaction Motive – Facilitating routine business operations, including raw material acquisition and salary disbursements.

Precautionary Motive – Maintaining contingency reserves for unforeseen expenses or economic downturns.

Speculative Motive – Capitalising on emerging investment opportunities during price fluctuations.

Within manufacturing contexts, enterprises must balance these motives to ensure production continuity, prevent financial hardship, and enhance profitability [1].

b) Trade-Off Theory. The Trade-Off Theory [2] suggests that organisations must achieve an equilibrium between liquidity and profitability by ensuring cash resources remain neither excessive nor insufficient.

Excessive cash holdings reduce profitability as idle resources generate minimal returns.

Insufficient cash reserves may trigger liquidity crises, compelling organisations to secure financing at premium interest rates.

Manufacturing enterprises must implement optimal cash budgeting and forecasting methodologies to maintain appropriate cash balances supporting both liquidity requirements and growth investments.

c) Cash Conversion Cycle (CCC) Theory. The Cash Conversion Cycle (CCC) Theory focuses on organisational efficiency in working capital management by minimising the timeframe required to transform raw materials into cash generated from sales.

A shortened CCC enhances cash flow and improves profitability through: 1) Accelerating accounts receivable collection periods; 2) Optimising inventory turnover rates; 3) Extending supplier payment terms without incurring penalties.

By reducing the CCC duration, manufacturing enterprises can strengthen their cash position, decrease financing costs, and reinvest resources into growth initiatives [6].

These theoretical frameworks – Liquidity Preference Theory, Trade-Off Theory, and Cash Conversion Cycle Theory – illustrate the impact of effective cash management within manufacturing organisations. By balancing liquidity requirements, optimising working capital utilisation, and implementing structured investment strategies, companies can enhance profitability and long-term financial stability.

Relationship between Cash Management and Profitability in the Manufacturing Industry

a) Cash Management as a Determinant of Profitability. According to authors [1], the profitability of the manufacturing industry depends significantly on efficient cash management capabilities that support continuous production and investment activities. Organisations that fail to maintain appropriate cash control frequently experience liquidity shortages, delayed supplier payments, and increased borrowing costs, ultimately diminishing their profitability.

Key cash management dimensions influencing profitability include:

1) Liquidity Management. Ensuring adequate cash reserves prevents production interruptions caused by delayed payments for raw materials. Maintaining sufficient liquidity enables organisations to capture supplier discounts, reducing procurement expenses. Proper cash planning prevents excessive reliance on costly short-term financing instruments, such as overdrafts and emergency loans [2].

2) Effective Working Capital Management. Coordinating accounts receivable and payable ensures consistent operational cash availability. Minimising the cash conversion cycle (CCC) enables faster profit reinvestment, improving overall returns. Optimising inventory levels ensures organisations avoid excessive cash commitments to stock while preventing shortages.

3) Cash Budgeting and Forecasting. Accurate liquidity projections facilitate planning for anticipated expenses and revenues, reducing financial uncertainty. A comprehensive cash budget aligns cash flow with production schedules, preventing unnecessary delays and ensuring profitability.

b) Cash Management Reduces Financial Risks and Enhances profitability. Inadequate cash management exposes manufacturing organisations to financial vulnerabilities, including liquidity crises, excessive debt obligations, and insolvency risks. Authors [6] assert that organisations effectively managing cash flow can avoid financial distress, leading to more stable profitability outcomes.

Ways effective cash management mitigates financial risks:

1) Minimising idle cash: Rather than maintaining excessive cash reserves, organisations can invest in interest-bearing securities to generate supplementary revenue.

2) Avoiding excessive borrowing: Proper cash management ensures organisations finance operations internally, reducing interest expenses.

3) Enhancing financial resilience: A well-managed cash position provides organisations with greater flexibility in responding to market dynamics, preventing unnecessary losses.

c) Investment of Surplus Cash for Enhanced Profitability. Manufacturing enterprises that effectively manage their cash flow can deploy surplus resources toward lucrative opportunities. Authors [2]emphasise that inactive cash should be invested in short-term securities, marketable assets, or expansion initiatives to generate superior returns.

Potential investment avenues for efficient cash deployment include:

1) Short-term instruments: Treasury bills, term deposits, and money market funds.

2) Operational expansion: Investing in equipment upgrades, production line enhancements, or research and development initiatives.

3) Strategic partnerships: Mergers, acquisitions, and collaborative ventures to strengthen market positioning.

Cash management within manufacturing organisations faces several challenges potentially impacting profitability: 1) Delayed customer payments resulting in cash shortfalls; 2) Uncontrolled operational expenditures reduce available liquidity; 3) Excessive dependence on short-term borrowing, resulting in increased financing costs; 4) Inadequate financial planning, resulting in unanticipated cash constraints.

METHOD

This study employed a survey-based research design to investigate the impact of cash management on the profitability of PZ Industries Plc, utilising both descriptive and exploratory approaches to collect primary data from staff involved in finance, treasury, and corporate operations – the research aimed to evaluate the effects of cash inflows, outflows, and financial policies on profitability. The target population consisted of personnel from the finance, accounting, and treasury departments, with purposive sampling used to select respondents who possessed relevant expertise in these areas. Fifty questionnaires were distributed, and forty valid responses were returned, reflecting an 80% response rate; random sampling was also applied to ensure fair representation and minimise selection bias.

Data collection involved combining primary sources – structured questionnaires addressing cash management, resource planning, and profitability – with secondary materials, such as financial statements, academic articles, and industry reports. The questionnaire was divided into two parts: one capturing respondent demographics and the other focusing on variables such as liquidity management, cash planning strategies, and profitability impacts. A pilot study was conducted to assess the instrument's reliability and validity, leading to necessary revisions for improved clarity.

Data analysis involved descriptive statistics, frequency distributions, percentages, and chi-square tests to explore the relationship between cash management practices and profitability. The results were presented in tables and visual aids to facilitate improved comprehension and understanding. Ethical standards were strictly observed, including the confidentiality of respondents and voluntary participation through informed consent, to ensure a rigorous and ethically sound investigation into the role of cash management in enhancing manufacturing profitability [7].

RESULTS AND DISCUSSION

This section presents PZ Industries Plc's survey findings and examines their implications for the relationships between cash management and profitability. The analysis encompasses demographic information, critical financial insights, and statistical evaluations supporting theoretical propositions [8].

Demographic Characteristics of Respondents

Table 1 indicates that 70% of male respondents and 30% of female respondents participated in the study. Over 50% of respondents reported married status.

Table 1

Gender	Number	%
Male	28	70
Female	12	30
Total	40	100

Table 2 shows that 25% of respondents are aged 20-29 years, 35% are aged 30-39 years, 25% are aged 40-49 years, and 15% are aged 50 years and above.

Table 2

Age group	Number	%
20-29	10	25
30-39	14	35
40-49	10	25
50 years and above	6	15
Total	40	100

Table 3 reveals that 20% of respondents occupy top management positions with professional qualifications and/or master's degrees, 50% represent middle management with bachelor's degrees or HND qualifications, 25% hold lower management positions with diploma-level credentials, and 5% are junior staff with secondary education qualifications.

Table 3

Position	Qualification	N	%
Top management cadre	Professional qualification & masters degree	8	20
Middle management cadre	B.SC./HND	20	50
Lower management	OND/NCE/Diploma	10	25
Junior staff	WAEC/GCE equivalent	2	5
Total		40	100

Table 4 indicates that 20% of respondents belong to top management, 50% to middle management, 25% to lower management, and 5% are junior staff members.

Table 4

Position	Number	%
Top management cadre	8	20
Middle management cadre	20	50
Lower management	10	25
Junior staff	2	5
Total	40	100

Table 5 shows that 15% of respondents have worked with the company for less than 5 years, 60% between 5 and 10 years, and 25% between 11 and 20 years, suggesting response reliability based on substantial organisational experience.

Table 5

Experience duration	Number	%
Below 5 years	6	15
5-10 years	24	60
11-20 years	10	25
Total	40	100

Table 6 reveals that all respondents (100%) acknowledged organisational cash management policies.

Table 6 – Question: Does your organisation maintain cash management policies?

Response	Number	%
Yes	40	100
No	-	-
Total	40	100

Table 7 indicates that all respondents (100%) confirm the implementation of company cash budgeting.

Table 7 – Question: Does your company have cash budgeting procedures in place?

Response	Number	%
Yes	40	100
No	-	-
Total	40	100

Table 8 demonstrates that 80% of respondents believe the company maintains optimal cash balances, while 20% disagree.

Table 8 – Question: Does your company consistently maintain optimal cash balances?

Response	Number	%
Yes	32	80
No	8	20
Total	40	100

Table 9 shows that 15% of respondents consider the company's cash management system to be perfect, 65% rate it as good, and 20% classify it as average.

Table 9 – Question: How would you evaluate the company's cash management system?

Assessment	Number	%
Very good	6	15
Good	26	65
Average	8	20
Below average	0	0
Total	40	100

Table 10 indicates that 95% of respondents support the establishment of a cash management committee, while 5% disagree.

Table 10 – Question: Is a cash management committee necessary?

Response	Number	%
Yes	38	95
No	2	5
Total	40	100

All respondents (100%) agree the committee should include the Managing Director, General Manager, Finance Manager, and Department Heads.

Table 11 – Question: Who should comprise the committee membership?

Response	Number	%
Managing director		
General manager		
Finance manager		
Department heads		
All of the above	40	100
Total	40	100

Table 12 shows that 35% of respondents consider cash management to be very effective, 60% rate it as effective, while 5% deem it ineffective.

Table 12 – Question: How would you rate the effectiveness of cash management in your organisation?

Assessment	Number	%
Very effective	14	35
Effective	24	60
Not effective	2	5
Total	40	100

Regarding cash management improvement strategies, 50% of respondents recommend enhancing financial manager skills, 15% suggest optimising investments across inventory and activities, 15% advocate for improved planning and activity control, and 20% support implementing all options.

Table 13 – Question: How can cash management be improved in your organisation?

Options	Number	%
Financial manager skills enhancement	20	50
Investment optimisation across inventory and other activities	6	15
Enhanced planning and activity control	6	15
All approaches combined	8	20
Total	40	100

All respondents (100%) believe effective cash management supports organisational profitability.

Table 14 – Question: Can effective cash management sustain organisational profitability?

Response	Number	%
Yes	40	100
No	0	-
Total	40	100

Table 15 indicates that 70% of respondents consider cash management fundamental to organisational success, while 30% disagree.

Table 15 – Question: Has cash management been fundamental to your organisation's success?

Response	Number	%
Yes	28	70
No	12	30
Total	40	100

Table 16 shows that 75% of respondents believe cash management ensures continuous production and minimises losses, while 25% disagree.

Table 16 – Question: Does cash management facilitate continuous production and minimise losses?

Response	Number	%
Yes	30	75
No	10	25
Total	40	100

Table 17 indicates that 95% of respondents believe cash management affects organisational profitability, while 5% disagree.

Table 17 – Question: Does cash management influence organisational profitability?

Response	Number	%
Yes	38	95
No	2	5
Total	40	100

Table 18 shows that 75% of respondents agree liquidity significantly influences organisational profitability, while 25% disagree.

Table 18 – Question: Does liquidity significantly impact organisational profitability?

Response	Number	%
Yes	30	75
No	10	25
Total	40	100

Table 19 indicates that 80% of respondents believe financial resource utilisation significantly impacts overall operations, while 20% disagree.

Table 19 – Question: Can financial resource utilisation significantly affect overall organisational operations?

Response	Number	%
Yes	32	80
No	8	20
Total	40	100

All respondents (100%) support adopting enhanced cash management strategies.

Table 20 – Question: Should your organisation adopt enhanced cash management strategies?

Response	Number	%
Yes	40	100
No	0	0
Total	40	100

Hypothesis Formulation. Hypotheses represent assertions or conjectural statements regarding one or more respondents, subject to confirmation or rejection. The formulated hypotheses undergo statistical testing using tabular analysis, applying null hypothesis (H_0) and alternative hypothesis (H_1) frameworks. Chi-square (X^2) analysis measures differences between expected and observed frequencies. The following hypotheses are developed under null and alternative concepts, whereby rejection of the null hypothesis automatically confirms the alternative hypothesis.

Null hypothesis (H_0)

1) Cash management has no significant impact on the profitability of manufacturing companies.

2) Liquidity does not significantly impact the profitability of manufacturing companies.

Alternative hypothesis (H_1)

1) Effective cash management has a significant impact on the profitability of manufacturing companies.

2) Liquidity has a significant impact on the profitability of manufacturing companies.

Hypothesis testing. Hypotheses represent claims, ideas, or propositions that researchers advance to guide them toward reasonable conclusions. Hypothesis testing examines statement reasonableness.

χ^2 testing evaluates the validity of a hypothesis. This approach determines the extent to which the alternative hypothesis (H_1) is justified, providing 95% confidence in conclusions with a 5% significance allowance.

The X^2 test represents a one-way test where the alternative hypothesis (H_1) addresses specific aspects of the distribution, such as the presence or absence of a response. Expected frequencies are calculated based on null hypothesis (H_0) assumptions. When the computed chi-square exceeds or equals the corresponding table values at the specified significance level, we reject the null hypothesis and accept the alternative. Conversely, when the calculated chi-square value falls below the corresponding table values, we take the null hypothesis.

Hypothesis testing implementation

Hypothesis 1: Does cash management affect organisational profitability?

H_0: Cash management has no significant impact on the profitability of manufacturing companies.

H_1: Cash management significantly impacts manufacturing company profitability.

Table 21

Response	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
Yes	38	20	18	324	16.2
No	2	20	-18	324	16.2
Total	40	40		648	32.4

Notes: Calculated X^2 value = 32.4; where v = 2-1 = 1; at 0.05 significance, table X^2 value = 3.841.

Conclusion: Since the calculated X^2 value exceeds the table X^2 value, we accept H_1 (alternative hypothesis).

Hypothesis 2: Does liquidity significantly influence organisational profitability?
H_0: Liquidity does not significantly impact the profitability of manufacturing companies.

H_1: Liquidity significantly influences manufacturing company profitability.

Table 22

Response	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
Yes	30	20	10	100	5.0
No	10	20	-10	100	5.0
Total	40	40		200	10.0

Notes: Calculated X^2 value = 10.0; where v = 2-1 = 1; at 0.05 significance, table X^2 value = 3.841.

Conclusion: Since the calculated X^2 value exceeds the table X^2 value, we accept H_1 (alternative hypothesis).

Table 23

Hypothesis	X^2 Value	Critical X^2 (α = 0.05)	Decision	Conclusion
H_1: Cash Management and Profitability	32.4	3.84	Reject H_0	Cash management significantly impacts profitability.
H_2: Liquidity and Profitability	10.0	3.84	Reject H_0	Liquidity significantly influences profitability.

These findings emphasise the importance of robust financial policies, effective cash flow forecasting, and enhanced investment strategies to improve profitability and sustainable growth at PZ Industries Plc.

CONCLUSIONS

This research examined the impact of cash management on the profitability of PZ Industries Plc, a leading Nigerian manufacturing enterprise. The findings demonstrate that efficient cash management represents a critical factor in maintaining financial stability and enhancing profitability metrics. Through effective liquidity management, cash budgeting implementation, and strategic deployment of surplus funds, manufacturing organisations can maintain operational continuity while minimising financial vulnerabilities.

The chi-square analysis confirmed significant relationships between cash management practices and profitability outcomes, underscoring the importance of maintaining optimal cash balances supporting business activities. However, challenges, including overdependence on credit facilities, liquidity shortfalls, and inadequate synchronisation between cash inflows and outflows, remain persistent concerns that require resolution.

Based on these findings, this investigation concludes that effective cash management protocols are essential for ensuring long-term financial sustainability within manufacturing contexts. A comprehensive approach toward cash flow forecasting, investment planning, and internal cash controls will enable organisations like PZ Industries Plc to optimise financial resource utilisation while enhancing overall performance.

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