Understanding the Impact of the Average Inventory Period and Cash Conversion Cycle on Firm's Profitability

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Abstract
The success of a business is intricately linked to its performance, shaped by corporate strategy and goal attainment. One crucial aspect of this success is the management of inventory and cash conversion cycle, as it directly impacts the company's ability to meet its short-term financial obligations and operate efficiently. Previous research mostly examined the inventory and cash conversion cycle-firm performance link in developed economies, paying less attention to developing economies' dynamics. To address this, this study analysed how inventory and cash conversion cycle affect the profitability of 50 Tanzanian firms from 2011 to 2022. The study used random effect estimate in the regression analysis. Panel data analysis was used, considering variables such as average inventory period, cash conversion cycle, firm size, debt ratio and business growth. The findings showed a significant negative relationship between the Independent variable (Average Inventory Period), the control variable (debts ratio), and firm's profitability. On the other hand, the findings showed a significant positive relationship between the independent variable (Cash Conversion Cycle), control variables (size of the firm and business growth) and the firm's profitability.In terms of different sectors, the findings of the study exhibited contrasting outcomes, with certain sectors showing positive relationships, while others displayed negative relationships or insignificant correlations among the variables. Given the inconsistent and significant results observed within specific sectors, it is advisable for Financial Managers to take into account economic order points and industry-specific dynamics when making decisions regarding inventory management and net working capital in order to achieve optimal outcomes.
Keywords: Average Inventory Period, Cash Conversion Cycle, Net Working Capital Management, Firms, Performance and Profitability.
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1. Background of the study
1.1 Introduction
The economic sustainability of a country relies on the effective and efficient functioning of its businesses. While firms make substantial contributions to the country's GDP globally, research conducted in various countries indicates that many businesses have faced bankruptcy resulting from different factors. These factors include inadequate infrastructure, a weak legal framework, unfavorable tax regulations, insufficient business skills, and, often and ineffective management of inventory and net working capital (CCC) (Factsheet, 2015 and Kaka, 1965).

In the pursuit of achieving company goals, Financial Managers recognize the performance of a firm as the cornerstone of corporate strategy. Deloof, (2003) established that to achieve business goals, a firm should maintain the optimal level of inventory, this is because management of inventory and net working capital (Cash Conversion Cycle) is the primary source of success or failure of any business regardless of its size, nature, or forms of ownership (Aminu & Zainudin, 2015; Shivakumar & Thimmaiah, 2016).

The findings of research studies examining inventory and net working capital have indicated that a considerable portion of companies encounter failures due to inadequate inventory management and insufficient control over net working capital. This suggests that businesses frequently encounter challenges or difficulties due to ineffectively managing and overseeing their inventory (Smith, 2009). Inventory and net working capital are crucial components of a business's financial health as they have a direct impact on the twin objectives of profitability and liquidity. Effective management of inventory and net working capital is essential for a firm's success as they help in ensuring that the company has sufficient funds to meet its short-term obligations and maintain a healthy cash flow. Financial managers devote significant time and effort to managing these components, as it involves monitoring the inventory levels, forecasting the demand, and optimizing the working capital (Knauer & Wöhrmann, 2013 and Boopathi & Leeson, 2016). Inventory management involves striking a balance between holding too much inventory, which can result in high carrying costs, and holding too little inventory, which can result in stockouts and lost sales.

Similarly, managing net working capital involves ensuring that the company has enough cash to pay for its current liabilities, such as accounts payable and short-term debt, while also maintaining adequate cash reserves for unforeseen expenses. This area requires careful management of accounts receivable, inventory, and accounts payable to maintain an optimal level of working capital.

In conclusion, inventory and net working capital are critical components of a business's financial management, and their effective management is essential for the firm's success.

Various research studies have revealed positive effects of inventory on firm profit, as demonstrated by (Lyimo, 2015; Nzioki et al., 2013). Conversely (Afrifa, 2013; Clos, 2015; Ndonye, 2015; Ponsian, 2014) found a negative relationship between the average inventory period (AIP) and firm profitability. On the other hand, (Akanni, 2016) discovered an insignificant relationship between AIP and the profitability of the firm.

Regarding the relationship between firm's performance and Cash Conversion Cycle studies have asserted a positive relationship between the CCC and profitability of the firm. Contrastively, other studies have found a negative correlation between the CCC and profitability of the firm (Panigrahi, 2014; Puraghajan et al., 2014).

1.2 Statement of the Problem

The significance of inventory and net working capital in securing a firm's survival and accomplishing its objectives is widely acknowledged. While a firm may continue to operate without generating profits, it cannot sustain itself without sufficient liquidity. Conventionally, a company without profitability is commonly referred to as a financially distressed business, whereas one facing liquidity issues is often described as a financially insolvent business (Panigrahi, 2014). Therefore, it is imperative to effectively manage inventory and net working capital by avoiding both under-investment and over-investment of funds in order for a business to prosper

Despite the recognized advantages of inventory and net working capital for overall firm performance, previous research in corporate finance has predominantly focused on long-term investments and financing, neglecting the effects of inventory and net working capital. Moreover, the limited studies conducted on inventory have produced conflicting findings, often conducted abroad and limited to specific industries and listed companies. These contradictions may arise from differences in methodologies, research locations, economic conditions, business characteristics, or sample sizes. Consequently, generalizing these results to firms in Tanzania or other countries is challenging due to the contradictory findings. Given these arguments, the scarcity of empirical studies, particularly on the impact of average inventory period (AIP) and Cash Conversion Cycle on firm profit in Tanzania, combined with the conflicting results from previous research and other factors, serves as the primary motivation for this study. Thus, this research aims to investigate the influence of Inventory and Cash Conversion Cycle on firm profitability.

1.3 General Objective

The primary purpose of this study was to determine the impact of Average Inventory Period and Cash Conversion Cycle on the firm's profit.

1.3.1 Specific Objectives

The specific objectives of the study included:

i. To determine the effect of the Average Inventory Period on the profit of companies in Tanzania.
ii. To establish the relationship between Cash Conversion Cycle and Firm's profit
iii. To establish the relationship between debts, ratio, size of the firm, business growth and firm's profit

1.4 Research Questions

The study attempted to answer the following research questions:

i. What is the effect of the Average Inventory Period on the profit of companies in Tanzania?
ii. What is the effect of Cash Conversion Cycle on the Tanzanian firm's profit?
iii. What is the effect of debts ratio, size of the firm and business growth on the Tanzanian firm's profit?

1.5. Research Hypothesis

The study formulated the hypothesis that reducing the average inventory period (AIP) and Cash Conversion Cycle lead to an improvement in the firm's profitability.

H0: Average Inventory Period has no effect on the profit of companies in Tanzania.
H1: Average Inventory Period affects the profit of companies in Tanzania.
H0: Cash Conversion Cycle has no effect on the profit of companies in Tanzania
H1: Cash Conversion Cycle affects the profit of companies in Tanzania.
H0: Debts ratio, size of the firm and business growth have no effect on the profit of companies in Tanzania
H1: Debts ratio, size of the firm and business growth affects the profit of companies in Tanzania.

2. Literature Review

2.1 Management of Inventory

Efficient inventory management is essential for any business that deals with physical goods. One of the primary concerns when it comes to inventory management is managing costs. There are two key costs to consider: carrying costs and ordering costs. Ordering costs refer to the expenses associated with placing an order and receiving the

goods, such as processing fees, shipping fees, and any other fees that may apply. Carrying costs, on the other hand, include the expenses related to storing the inventory, such as rent, utilities, and insurance (Siegel, 1998).

To ensure optimal inventory levels, the financial manager must determine the economic order quantity (EOQ). The EOQ is the ideal volume of goods to be ordered each time to minimize the total cost of the inventory compared to other levels. This optimal level of stocks is achieved when the total ordering costs and carrying costs are at their lowest. Various methods can be used to calculate the optimal inventory quantity, such as the EOQ and the Muller-Orr-Model. By using these techniques, financial managers can make informed decisions about inventory management, which can help to reduce costs, increase efficiency, and improve overall profitability.

2.2 Cash Conversion Cycle

The Cash Conversion Cycle (CCC) is the period in which the firms spent to restore their cash from the time the cash was injected into the business activities (Brealey et al., 2001). It is the comprehensive working capital management, which constitutes average inventory period plus average collection period minus average payment period. CCC is the widespread and dynamic measure of working capital management since it combines data from the comprehensive income statement and balance sheet to create time dimension measurement (Tadesse, 2016 and Deloof, 2003). It is a suitable measurement for working capital management as it directly affects the firm's performance (Gitman, as cited in (Hillergren & Björkman, 2014).

The CCC combines all necessary components of working capital management (AIP, ACP, and APP), i.e the longer the CCC, the higher the investment in working capital, the shorter the CCC, the lower the investment in working capital (Tadesse, 2016and Deloof, 2003). Shorter CCC suggests the effectiveness of the working capital management as it indicates efficiency of company performance in restoring its cash from the time the cash was injected into business operations.

2.3 Relationship of Inventory and Cash Conversion Cycle on profitability of the Firm

Masri & Abdulla (2018) expanded a stochastic model for working capital and revealed that Inventory has negative relationship with the profitability of the firm.

Enqvist, Graham, & Nikkinen (2014) studied the impact of working capital management on firms' profitability in the different business cycles for over eighteen years using a sample of 1136 Spanish listed companies. The study result found a negative relationship between CCC and ROA in recession as well as in the normal state. Study results suggest that the firm can generate more profit when shortening their CCC.

Evci & Şak (2018) revealed a negative relationship between the profitability of the firm and accounts payable, cash conversion cycle, and short-term debts. While the average inventory period and sales growth revealed a positive relationship with the profitability of the firm.

Fahim, Kaviani, & Fashtali (2015) in the title of providing a new model for assessment of working capital using the sample size of 90 Iranian companies for five years using a semi-experimental design and post-event approach to analyze the data. The result suggests that CCC and NWC/TA have a linear relationship with the profitability of the firm.

Nobanee & Al Hajjar (2011) in their study of optimal cash conversion cycle using the sample size of 5802 US non-financial listed companies for fifteen years using the GGM analysis to analyze the relationship between selected variables. The study found that the optimal cash conversion cycle as the comprehensive working capital management measures can maximize sales, profitability as well as the market value of the firm.

Tahir & Anuar (2016) examined the determinant of working capital and performance of the firm in Pakistan using a sample size of 127 textile firms for two years. The study revealed that APP, AIP, CCC, and CATA have negative impact on the return on assets. In terms of the control variables (sales growth and firm size), the study revealed a positive association with firm profitability. However, in the case of debt ratio, inflation, and GDP, negative relationships were observed.

Deloof (2003) examined the effects of working capital management on the firm's profitability on a sample size of 1009 of the Belgian firms for a period of five years starting from 1991 to 1996. Deloof used balanced panel data with pooled ordinary least squares model, and the fixed effects model found that the CCC and AIP have a negative relationship with the firm's profitability.

Ville Virkkala (2015) carried out a study on the impact of working capital on corporate profitability and shareholder value in a sample size of 1683 public listed US computer and electrical equipment companies for the period of 24 years starting from 1990 to 2013. By using the fixed effects regression methodology, he found a concave relationship between the cash conversion cycle and the firm's return on assets.

Rizwan & Shah (2015) examined the impact of working capital management on the firm's performance, the sample size of 10 textile spinning companies listed in Karachi Stock Exchange covering the period of 7 years starting from 2008 to 2014. The study revealed that ACP, AIP, and APP have an insignificant negative relationship with ROE and ROA.

Elbadry (2018) on his study titled the determinant of working capital using a sample size of 138 Egyptian

SMEs for four years, the study employed Ordinary Least Squares (OLS) to analyze the factors influencing working capital. The study results revealed ROA, leverage, and fixed asset over total assets to have a significant positive relationship with CCC and ACP, while the size of the firm was positive and significant.

Moussa, (2018) studied the impact of working capital on firm performance and value with the case of 68 Egyptian firms by employing panel data analysis using GGM to analyze the impact of working on the performance and value of the firm. The study results revealed a positive relationship between CCC and ROA, as well as the value of the firm.

Muhammad et al. (2015) examined the impact of working capital management on corporate profitability on seven firms listed on the Nigerian stock exchange for a period of five years starting from 2008 to 2012. They used GLS regression, and they found that ACP, CR, and size of the firm have a positive relationship with the profitability of the firm while AIP and APP have a negative relationship with the profitability of the firm. The result implies that shortening the inventory period may increase the profitability of the firm.

Zainab et al. (2018) examined the impact of working capital management on financial performance using the sample size of 47 listed manufacturing companies of the Nigeria stock exchange covered the period of five years from 2011 to 2016. The study applied a simple regression analysis technique, and it has revealed that CCC has no significant relationship with the performance of the firm contrary to the previous studies. But AIP has evidenced to have a significant positive relationship with the firm's performance.

Yahaya (2016) examined the effect of working capital management on the financial performances using the sample size of 6 pharmaceutical firms listed in the Nigeria Stock Exchange for a period of 8 years starting from 2006 to 2013. The study results revealed that AIP and ACP both have a statistically significant positive relationship with the firm's financial performance, while APP has shown a negative relationship with the ROA, but CCC found to be an insignificant statistical relationship with the dependent variable.

Lastly, Mathuva, (2015) examined the influence of working capital management on the profitability of the firm using the sample size of 30 firms listed on the Nairobi Stock Exchange covering the period of 16 years starting from 1993 to 2008.

The study results revealed the significant positive relationship between the AIP, APP and the profitability of the firm. Therefore, the reviewed studies shed light on the connection between inventory, cash conversion cycle and firm profit. They indicate that management of inventory and net working capital may influence firm's profit.

3. Research Methodology and Data
3.1 Data Used in the Study
To examine the influence of inventory management and net working capital on firm's profitability, the study employed financial data (audited financial statement) obtained from Tanzanian companies. Audited financial statements are renowned for their reliability, stability, and comprehensive data, are widely utilized by stakeholders to inform decision-making processes (Tadesse, 2016).

The research covered the period from 2011 to 2022, with a primary consideration for data availability. A total of 50 companies spanning the agriculture, industry, and services sectors were included in the study, representing a diverse range of sectors. Among these companies, 14 were listed on the Dares Salaam Stock Exchange, while the remaining 36 were not.

3.2 Sampling Method
The study used a non-probability sampling method using purposive sampling as used by the following authors when investigating the impact of working capital management on firm's profit (Dinku, 2013, Puraghajan, Ramzani, & Bin, 2014, Bulin, Bassit, 2017, Ponsian, 2014, Konak & Güner, 2016, Gowri, 2014). Non-probability sampling was employed due to limited information available about business firms operating in Tanzania. When there is insufficient knowledge or inadequate information about the entire population, it is recommended to utilize non-probability sampling methods (Djamba &Neuman, 2002).

3.3 Measurement of Variables
The main objective of the study was to investigate the correlation between Average Inventory Period, Cash Conversion Cycle, and firm profit. The variables were categorized into Average Inventory Period, Cash Conversion Cycle, ROTA, and control variables.

3.4 Average Inventory Period
The concept of inventory management has been operationalized through the employment of the Average Inventory Period (AIP) measure, drawing from definitions provided by different authors. AIP is a measure that quantifies the efficiency of a firm in managing and selling its inventories. The computation of AIP involves dividing the inventory by the cost of goods sold and then multiplying the result by 365. Numerous studies have utilized AIP measurement to investigate its impact on firm performance. Notable examples include Mathuva's work in 2015

and 2014, as well as Tadesse's study in 2016.

3.5 Cash Conversion Cycle

The concept of net working capital has been defined by various authors in the past. In this context, net working capital is measured by the Cash Conversion Cycle (CCC), which provides a comprehensive analysis of net working capital management. The CCC measure has been used in several studies to assess the impact of working capital management on a firm's profitability (G. A. Afrifa, 2013; Boopathi & Leeson, 2016; Dinku, 2013; Mathuva, 2015; Padachi, 2006; Ponsian, 2014; Tadesse, 2016).

CCC= AIP+ACP- APP   (1)

3.6. Return on Total Assets

In this study, Return on Total Assets (ROTA) was used as given in equation (2), as the measurement of the firm's performance, whereby it is expressing the ability of the company to generate earning using the resources entrusted. The following authors had defined the profitability measures in terms of EBIT (Rizwan & Shah, 2015; Javid, 2014 and Afeef, 2011). The higher the ratio indicates the excellent performance of the firm, while the lower the rate suggests the poor performance of the firm.

Return on Total Assets (ROTA) = Earnings before tax and interest (EBIT)/Total Assets   (2)

3.7 Control Variables

Also, for drawing a reliable conclusion from the model, the study used the size of the firm, the growth of the firm, and debts ratio as control variables. The presence or exclusions of control variables affect the reliability and validity of the study being studied (Deloof, 2003; Javid, 2014; Kasozi, 2017; Mathuva, 2015; Padachi, 2006; Tadesse, 2016). In this study I used debts ratio, growth of the firm, and size of the firm as the control variables.

3.8 Empirical Models

The study used the following models to examine the effect of inventory and cash conversion cycle on firm's profit.

3.9 Model 1: Relationship between Average Inventory Period and Firm Profit

This model was used to test the first hypothesis that there is no relationship between inventory and firm profit. Dependent variables are profitability denoted by Returns on Total Assets (ROTA). Three control variables were included in the model and these include debts ratio (DR), size of the firm (SF) and growth of the firm (GF). The model with profitability as the dependent variable is specified as:

$$lnROTA_{jt} = \beta_0 + \beta_1 lnAIP_{jt} + \beta_2 lnDR_{jt} + \beta_3 lnSF_{jt} + \beta_4 lnGF_{jt} + U_{jt}$$ (3)

Where ROTAjt = return on total assets in firmj in year t

AIPjt= average collection period in firm j in year t

DRjt = debts ratio in firmj in year t

SFjt = size of the firm of firmj in year t

GFjt = growth of the firm in firmj in year t

Ujt = disturbance term for profitability in firmj in year t

β0 – β4 are parameters of estimation

Equation (3) was further used to establish the interaction between working capital management with firm profitability separately for both the 14 listed and 36 non-listed firms in Tanzania. The model was also used to establish the interaction between working capital management with firm profitability on the basis of the three sectors so as to compare the performance sector-wise, that is, 20 service firms, 15 agricultural firms and 15 industrial sector firms.

3.10 Model 2: Relationship between Cash Conversion Cycle and Firm Profit

This model was used to test the hypothesis that there is no relationship between Cash Conversion Cycle and firm profit. The three control variables used in model 1 were also included in the model and these include debts ratio (DR), size of the firm (SF) and growth of the firm (GF). The model with profitability as the dependent variable is specified as:

$$lnROTA_{jt} = \beta_0 + \beta_1 lnCCC_{jt} + \beta_2 lnDR_{jt} + \beta_3 lnSF_{jt} + \beta_4 lnGF_{jt} + U_{jt}$$ (4)

Where ROTAjt = return on total assets in firmj in year t

CCCjt = average currents assets to total assets in firmj in year t

DRrjt = debts ratio in firmj in year t

SFjt = size of the firm of firmj in year t

GFrjt = growth of the firm in firmj in year t

Ujt = disturbance term for profitability in firmj in year t

β0–β4 are parameters of estimation

Equation (4) was further used to establish the interaction between working capital investment policy with firm profitability separately for both the 14 listed and 36 non-listed firms in Tanzania. The model was also used to establish the interaction between working capital investment policy with firm profitability on the basis of the three sectors so as to compare the performance sector-wise, that is, 20 service firms, 15 agricultural firms and 15 industrial sector firms.

3.11 Estimation Methods
Panel data were used in the investigation of the relationship between inventory, networking capital and firm's profit in Tanzania. The regression models were estimated by using panel data methodology. Panel data allow for the control of unobservable and individual heterogeneity (Hsiao, 2003).

This study employed STATA software in its analysis. The coefficients as presented in the three models were readied unit form for all the variables in respective models. The signs and significance of the coefficients in all the models indicated the direction of the impact by the independent variables on the dependent variable.

3.12 Hausman Test
To determine the appropriate model between fixed effect and random effect, it needed some diagnostic tests. Hausman test is the proper technique for identifying the appropriate estimators (C. Hsiao & Yanan, 2006; K. H. Hsiao et al., 2014; Javid, 2014; Kasozi, 2017). The results of Hausman test yield a null hypothesis suggesting the use of random effect (RE).

3.13 Robustness Test
Prior to conducting the regression analysis, certain assumptions were considered, including the selection of the appropriate estimation model (fixed effects or random effects), addressing heteroskedasticity, examining cross-sectional dependence, and checking for autocorrelation. The Hausman test was utilized to determine the choice between fixed effects and random effects, as discussed earlier.

4. Results and Discussion
4.1 Descriptive Statistics of the Key Variables Involved in the Study
According to the descriptive summary in Table 1, the average (mean) value of the Average Inventory Period (AIP) is 124.4608 ranging from .0051 to 3999.783 with a standard deviation of 288.9727. The mean AIP value of 124.4608 days tells us that most of the Tanzanian firms take a long period to sell their inventory compared to the firms of other countries such as India, US, Europe, China and Brazil where their AIP are 51, 37, 40, 56, and 46 respectively (Ernst & Young, 2018). Conventionally, lower AIP is better since it indicates the efficiency of the firm in converting its inventory into the sales.

Though the mean AIP across the firm is equivalent to four months, the standard deviation of 288.97 days indicates the huge spread of the observed value from the mean; however, this standard deviation indicates the high discrepancies of AIP to the Tanzanian firms since some sectors hold a low AIP mean value and others hold a high AIP. Manufacture sector is the one hold high AIP, the study results are in line with the earlier conventional wisdom that manufacturing sector took long AIP than other sectors since the AIP in the manufacturing sector has long process as it starts from raw material then working in progress and finally into finished goods.

Given Cash conversion cycle (CCC), Table 1 of the descriptive statistics shows the CCC mean value of 62.72 days across the firm with the standard deviation of 291.31 days ranging from -1740.8 to 2678.824 days. The CCC mean of 62.72 days shows us that most of the Tanzanian firms spend two months and two days to collect their cash from the time it was injected into operations. The mean values of 62 days are seemed to be longer as it suggested that company should borrow/ tied up its capital for 62 days while waiting for cash from credit/ cash customers (Magwiro, 2014). The CCC mean value of 62 days seemed to be higher compared to other country's firms such as India, US, Europe, and Brazil their CCC are 44, 31, 41 and 42 respectively (Ernst & Young, 2018).

Across the Tanzanian firms, the mean value of the Cash Conversion Cycle (CCC) is 62.72 days. However, different sectors exhibit varying CCC mean values, ranging from lower to negative values and longer values. This suggests that Tanzanian firms employ different working capital policies, including aggressive, moderate, and conservative approaches. The services sector has the lowest CCC mean value, followed by the agriculture and manufacturing sectors.

Generally, a lower CCC is expected to have a positive impact on firm profitability. This is because a lower CCC implies that a smaller amount of funds is tied up in working capital, allowing for more funds to be invested in profitable ventures or research and development. For example, the negative CCC mean value in the services sector indicates that day-to-day operations are financed by external sources. However, while a shorter cash restoration period is beneficial for profitability and indicates efficient working capital management, it may also suggest poor financial liquidity.

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In terms of firm performance, the Return on Total Assets (ROTA) has a mean value of 0.10816 across Tanzanian firms, ranging from -1.49601 to 0.78635, with a standard deviation of 0.203526. The positive mean value indicates that the majority of firms in Tanzania operate profitably. However, there are some exceptional cases within each sector, where a few firms experience losses. The agricultural sector exhibits the highest ROTA, followed by the manufacturing and services sectors.

Table 1: Descriptive summary of the key variables

S/N	Sector	Obs	Mean	Std Dev.	Min	Max
AIP	All firms	408	124.4608	282.9727	0.005191	3999.783
	Agriculture	120	107.1409	171.9538	0.005191	1408.113
	Listed	144	92.50974	86.5315	0.5	472.2947
	Manufacturing	144	185.3221	425.2636	16.55348	3999.783
	Non listed	264	141.8887	344.9362	0.005191	3999.783
	Services	144	78.03283	127.6498	0.5	1272.659
CCC	All firms	408	62.72833	291.3159	-1740.8	2678.824
	Agriculture	120	108.4647	242.4425	-535.911	1620.933
	Listed	144	-11.9606	149.152	-595.835	363.1547
	Manufacturing	144	109.8199	344.7314	-132.269	2678.824
	Non listed	264	103.4677	338.4001	-1740.8	2678.824
	Services	144	-22.4769	249.9725	-1740.8	1502.911
ROTA	All firms	408	0.10816	0.203526	-1.49601	0.78635
	Agriculture	120	0.074599	0.151571	-0.39976	0.78635
	Listed	144	0.171429	0.237415	-0.49744	0.694987
	Manufacturing	144	0.157898	0.196313	-0.41066	0.554879
	Non listed	264	0.073649	0.173402	-1.49601	0.78635
	Services	144	0.086389	0.237329	-1.49601	0.694987

4.2 Relationship between the AIP on Firm's Profit

In Table 2, Model 1, the study reveals a significant and strong negative correlation between Average Inventory Period (AIP) and firm profitability in Tanzanian firms. The results suggest that a higher AIP is associated with a decrease in firm profitability by 0.022 for each percentage increase in AIP. The findings suggest that Tanzanian managers can enhance firm profitability by reducing AIP, which helps minimize carrying costs and funds tied up in working capital. These results align with economic principles, indicating that firms with shorter inventory selling periods tend to generate more profit. Additionally, these findings are consistent with previous studies such as (Afeef, 2011; G. A. Afrifa, 2013 and Deloof, 2003), but contradicts with the following (Padachi, 2006; Tadesse, 2016 and Tahir & Anuar, 2016).

While the overall study results indicate a significant negative relationship between Average Inventory Period (AIP) and firm profitability across firms, the findings within individual sectors are inconsistent. Specifically, the services sector and listed companies exhibit an insignificant negative relationship, while the manufacturing sector shows a significant positive relationship. Conversely, the agricultural sector and non-listed companies demonstrate a significant negative relationship between AIP and firm profitability. These divergent results among sectors reaffirm the existing literature's assertion that each sector is influenced by its unique factors when it comes to the impact of AIP on firm profit. These sector-specific factors may include firm nature, cultural traits, and firm characteristics (Mkhululi Ncube, 2011).

Table 2: Model 1: Summary of the relationship between AIP and firm's profit

Variables	Firms	RE
		ROTA
lnAIP	All Firms	-0.0220**
		(0.00881)
	Agricultural	-0.0260***
		(0.00855)
	Listed	-0.0128
		(0.0179)
	Manufacturing	0.0457**
		(0.0212)
	Non-Listed	-0.0212**
		(0.00867)
	Services	-0.0314
		(0.0236)

Note: Standard errors in parentheses;***, ** and * represent p<0.01, p<0.05 and p<0.1,
Respectively

4.3 Relationship between Cash Conversion Cycle and Firm's Profit

In relation to the Cash Conversion Cycle (CCC), the findings from Model 2, presented in Table 3 of the summary, reveal positive coefficients indicating a direct relationship between CCC and firm profitability across all firms. This relationship is statistically significant at a level of 1%. The results suggest that, all else being equal, a percentage increase in CCC is associated with a 0.000110 percentage increase in Return on Total Assets (ROTA). The study results confirm the study of (Padachi, 2006; Ponsian, 2014; Tahir & Anuar, 2016) though is surprised the researcher since contradicted with the theory of the cash conversion cycle.

In terms of individual sectors, the study findings indicate both significant and insignificant positive relationships between the Cash Conversion Cycle (CCC) and firm profitability, except for the manufacturing sector, where an insignificant negative relationship was observed. These inconsistent results highlight that the nature of the firm, business cultural traits, and firm characteristics are sensitive factors that influence the relationship between CCC and Return on Total Assets (ROTA). These factors play a significant role in determining how the CCC affects a firm's profitability within specific sectors (Ashikin & Abdul, 2012 and Mkhululi Ncube, 2011).

Table 3: Model 2: Summary of the relationship between CCC and firm's profitability.

Variables	Firms	(1)
		RE
		ROTA
CCC	All firms	0.000110***
		(3.26e-05)
	Agricultural	0.000298***
		(6.64e-05)
	Listed	0.000245
		(0.000187)
	Manufacturing	-2.98e-07
		(4.84e-05)
	Non-Listed	5.99e-05*
		(3.64e-05)
	Services	7.32e-05
		(9.49e-05)

Note: Standard errors in parentheses; ***, ** and * represent p<0.01, p<0.05 and p<0.1, respectively

4.4 Relationship between the Control Variables on Firm's Performance

According to the findings presented in Table 4, there is a significant negative relationship between the debts ratio (DR) and firm profitability. The coefficient value of -0.112 indicates that a higher debts ratio is linked to lower profitability. This relationship holds true for both individual sectors and all firms in Tanzania. The results suggest that Tanzanian firms, irrespective of their characteristics and approaches to the DR-profitability relationship, can improve profitability by reducing their debt levels. These findings are consistent with previous research studies. (

Evci & Şak, 2018; Gama & Pais, 2015; Javid, 2014; Magwiro, 2014; Raheman & Nasr, 2007; Tahir & Anuar, 2016) but contrasts with the results of the following studies (Huynh Phuong Dong & Su, 2010; Iqbal & Zhuquan, 2014; Mahato et al., 2016; Tahir, 2016).

Based on the findings presented in Table 4, there is a significant positive relationship between firm size (SF) and firm profitability across most sectors, except for the services sector where the relationship is positive but not statistically significant. This suggests that in the services sector, there is no statistical evidence of a connection between firm size and profitability.

However, the overall significant positive relationship between SF and Return on Total Assets (ROTA) indicates that Tanzanian firms can increase their profits by expanding their size. The study suggests that regardless of their nature, Tanzanian firms can enhance profitability by growing in size. This positive relationship can be attributed to factors such as the firms' ability to seize investment opportunities, utilize advanced equipment, employ experienced staff, and benefit from economies of scale.

In conclusion, larger firms tend to have higher profits due to their ability to achieve economies of scale in production. This positive relationship between firm size and firm profitability aligns with the pecking order theory and is supported by prior studies. (Chaterjee, 2012; Elbadry, 2018; Evci & Şak, 2018; Javid, 2014; TAHIR, 2016; Tahir & Anuar, 2016; Tufail & Sidra, 2013; Ukaegbu, 2014; Wanguu et al., 2015; Wasiuzzaman, 2015) but inconsistent with the study results of (Gama & Pais, 2015).

According to the findings presented in Table 4, there is a significant positive relationship between business growth (SG) and firm profitability across most sectors, except for the manufacturing sector and non-listed companies where the relationship is positive but not statistically significant. This implies that there is no statistical evidence of a connection between business growth and profitability in the manufacturing sector and non-listed companies.

However, the overall significant positive relationship between SG and Return on Total Assets (ROTA) confirms that Tanzanian firms can increase their profits by expanding their business. The study suggests that regardless of their nature, firms in Tanzania can enhance profitability through business expansion (Siraj et al., 2019). The study results are harmony with findings of (Elbadry, 2018; Gama & Pais, 2015; Javid, 2014; Magwiro, 2014; Siraj et al., 2019; Tahir & Anuar, 2016; Uchenna et al., n.d.; Zariyawati et al., 2009).

Table 4: Summary of the relationship between control variables and firm's profit

Variables	Firms	RE
		ROTA
lnDR	All firms	-0.112***
		(0.0199)
	Agricultural	-0.0555**
		(0.0232)
	Listed	-0.157***
		(0.0360)
	Manufacturing	-0.102***
		(0.0291)
	Non-Listed	-0.0915***
		(0.0220)
	Services	-0.160***
		(0.0410)
lnSF	All firms	0.0759***
		(0.0129)
	Agricultural	0.0449***
		(0.0171)
	Listed	0.133***
		(0.0317)
	Manufacturing	0.151***
		(0.0191)
	Non-Listed	0.0443***
		(0.0132)
	Services	0.0155
		(0.0341)
SG	All firms	0.0135**

Variables	Firms	
		RE
		ROTA
		(0.00675)
	Agricultural	0.118***
		(0.0373)
	Listed	0.219***
		(0.0368)
	Manufacturing	0.00718
		(0.00873)
	Non-Listed	0.0157
		(0.0129)
	Services	0.214***
		(0.0475)

Note: Standard errors in parentheses;***, ** and * represent $p<0.01$, $p<0.05$ and $p<0.1$, respectively

5. Conclusions and Recommendations

Referring to research question 1, the study results reveal a significant negative relationship between Average Inventory Period (AIP) and Tanzanian firm profitability across all firms. Therefore, it is recommended for Tanzanian firms to improve profitability by reducing AIP to a certain level. Financial managers can achieve this through sales promotion, adopting modern inventory management systems like Just-in-Time (JIT) or Vendor Managed Inventory (VMI) to minimize inventory holding.

Regarding the Cash Conversion Cycle (CCC), which is a comprehensive measure of net working capital management, the study shows a significant positive correlation between CCC and firm profitability. To enhance profitability, Tanzanian firms should strive to increase CCC to an optimal level. Modern strategies like earlier payments of accounts payable instead of prolonging APP can be employed, as this positively impacts profitability by reducing interest costs, obtaining discounts, and maintaining supplier relationships. Shortening the Average Payment Period (APP) may also improve profitability by avoiding price discrimination.

In terms of the relationship between debt ratio and firm performance, the study finds a significant negative correlation across all firms and sectors. To enhance profits and liquidity, Tanzanian firms should reduce their long-term debt levels to a certain extent, as long –term debts is associated with high-interest rates that tend to decrease profitability. Long- term debts can be eliminated by exploring alternative financing sources, such as ordinary shares, should be considered.

Regarding firm size, the study demonstrates a significant positive relationship between firm size and firm profitability. Therefore, Tanzanian firms are advised to aim for growth and increase their size to a certain level, as larger firms tend to achieve higher profitability. Actions like opening branches or scaling up production can contribute to this goal.

Lastly, in terms of the relationship between firm growth and firm performance, the study identifies a significant positive correlation. To improve profitability, managers of Tanzanian firms should prioritize increasing sales and promoting business growth.

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