

Augmenting the Working Capital Management Strategies for Profit Optimization in Tobacco Industry: A Case of Tanzania Cigarette Company

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Abstract

The study assessed the strategies for effective working capital management (WCM) practices for Tanzania Cigarette Company (TCC). Both qualitative and quantitative research analysis were carried out in the context of the tobacco industry in Tanzania, by examining the current working capital management strategies, the study seeks to recognize possible accurate necessities for improvement of return on equity (ROE) to shareholders of TCC. Data were collected from TCC headquarters in Dar es Salaam and analyzed using panel data technique with the aid of STATA version 14.2 software. Descriptive statistic, correlation, linear regressions, and multicollinearity tests were carried out. ROE is revealed to be positively correlated with cash conversion cycle (CCC) and inventory turnover period (DI but negatively associated with account payable days (APD) and account receivable days (ARD). Results are positively related with (CCC, ARD and DI), though negatively correlated with APD. Relationship between CCC and ROE (Regression coefficient of 0.02) implying the rise or decline in CCC affects the profitability. The impact of ARD on the firm's profitability were positive ($t = 0.790$; 95% confidence level). APD had a regression coefficient of (-0.079) with p -value of (0.413) . The regression coefficient between inventory turnover period and ROE was positive (0.0266) which is not statistically significant but ROE is positively correlated with CCC and DI. TCC has to develop appropriate WCM strategies to attain short-term financial obligations. Further studies needed to focus on social, environmental and economic impacts from tobacco products.

Keywords

Ratio Analysis Theory, Return on Investment, Cash Conversion Cycle,

1. Introduction

The main areas of financial management take into account the working capital management (WCM) in investment decision-making and financial planning. As a financial metric, WCM is a measure of a business' ability to pay off short-term expenses or debts to maintain an optimal balance to ensure the firm has adequate cash flow to offset short-term debt obligations and operating expenses (Abimbola & Kolawole, 2017). Management of these short-term assets and liabilities play important roles in firm's profitability, risk and stockholders value. Most firms tend to identify the basic working capital drivers and the appropriate level to minimize risk, prepare for uncertainty and improve the overall business performance (Chowdhury, Alam, Sultana, & Hamid, 2018). Positive working capital is an indicator of financial strength and negative working capital indicates the current liabilities exceed the current assets. To improve the business earnings, implementation of effective WCM is essential with impacts on financial leverage position and business failure. In tobacco industry, the 2018 share prices however indicated a projected potential percentage of losses for tobacco companies and predicted to face severe losses scenario commonly characterized to as a terminal decline that might lead to companies financial distress (Gakure, Cheluget, Onyango, & Keraro, 2012; Umar & Al-Faryan, 2023). Despite the importance of effective WCM strategies on firm's financial performance, few studies paid attention on their significance on the firm's profitability (Dong & Su, 2010; Arunkumar & Ramanan, 2013).

Management of working capital demands a careful investigation as it plays a fundamental part in the overall corporate strategy and represents the current assets which are the portion of financial resources that tend to change into different forms comprising cash, prepaid expenses, short-term investments, accounts receivable and inventory. According to Arunkumar and Ramanan (2013), the purpose of WCM is controlling of current financial resources to create a balance profitability and operational risk. It is however, a risky endeavor for a firm to heavily invest in WCM (Nzioki, Stephen, Marcella, & Janiffer, 2013). As stated by Kieu (2004) and Ismail (2017) that, it is critical to understand the effects of WCM and its influence on a firm's financial wealth. Most studies relating to WCM and the firm profitability have indicated either Return on Asset (ROA) or Return on Equity (ROE) as major determinants of firm's performance. Although the working capital represents a company's operating liquidity and essential aspect in managing liquidity to realize profits, few studies however have focused on its effective strategies (Kayani, De Silva, & Gan, 2020).

1.1. Tobacco Industry in Tanzania

Unlike other countries, Tanzania has different historical socio-political econom-

ic systems of capital markets, and financial infrastructural development with different forms WCM challenges that need to be addressed separately from other known cases. The tobacco industry contributes hugely to the country's economy. It is the second largest country in Africa in tobacco production after Malawi. Both domestic and multinational companies are involved in production and marketing. Despite its economic implication, tobacco production however, have been declined from 105 million kilograms in 2013/2014 to 50.5 million kilograms in 2017/2018 together with low demand of the product in international markets, anti-tobacco global campaigns to discourage tobacco product consumption with extensive debates concerning the social, economic and environmental impact of tobacco together with health challenges linked to smoking (TCC, 2022).

Tanzania Cigarette Company (TCC), a member of the Japan Tobacco International (JTI) Group of Companies was established as East African Tobacco in 1961. In September 2000, through its international tobacco division, JTI increased its shareholding in TCC from 51% to 75%, making JTI the majority shareholder in TCC and listed at the Dar es Salaam Stock Exchange (DSE) as a tobacco company that produce, distribute and sell an assortment brand of cigarettes. The main market for TCC tobacco products are Zambia, Mozambique and Democratic Republic of the Congo (DRC). However, disputes continue including the pressure against tobacco industry from policymaking perspectives, tax escalation to discourage consumption to trade off and strike balance economic interests and concerns in public health. This study therefore investigated the effects of WCM strategies practices on the firms profitability of TCC based on the listed data on the Dar es Salaam Stock Exchange (DSE) in eleven 11 years (2011-2021). The working capital management (WCM) and ratio analysis theories were adopted due to their ability and explanatory power to explain, predict and extend the existing knowledge.

2. Theoretical Framework

Theories envision an understanding of a difficult observable fact and broaden the existing knowledge within the boundaries of the critical constructs. As stated by Creswell (2014), the choice of a theory depends on its suitability, ease of application and explanatory power. The main theories adopted in this study are the working capital management and ratio analysis theories.

2.1. Working Capital Management (WCM) Theory

The theory emphasize on the management of a firm's short-term assets and liabilities for smooth operations and maximize profitability as an essential part of the overall corporate strategy (Javid & Zita, 2014; Sagner, 2011). The main WCM strategies include, accounts receivable days (ARD), accounts payable (APD), inventory conversion days (DI), cash conversion cycle (CCC), and profitability. Effective WCM involves a variety of strategies, together with optimizing levels of stock to be shelved, effective management of accounts receivables and payables

along with surplus cash to yield higher profitability for continuous operations by managing the working capital. As stated by [Le, Vu, Le, Du, & Tran \(2018\)](#) that there exist a strong relationship between WCM and the firm's profitability. According to [Umar and Al-Faryan \(2023\)](#), the WCM theory endeavor to improve the firm's financial performance by efficiently managing its short-term resources. Some scholars however, argue that the theory may sacrifice the best long-term solution in favor of short-term benefits and does not take into account the timing of cash inflows and outflows ([Gill, Biger, & Mathur, 2012](#)).

2.1.1. Average Accounts Receivable Days (ARD)

ARD represents the sum of cash due to a business by its clientele for products provided on credit. Effective managing of accounts receivable preserve strong cash flow by guarantee in timely collections. It measures the mean amount of days it takes for a firm to accumulate disbursement from its clientele after a sale ([Anggarini, Safitri, & Nani, 2022](#)). By effective management of ARD, the firm can recognize inefficiencies in their account receivables procedure, put into practice strategies to speed up collections and improve the cash flow. A lower ARD value points out that the firm is collecting cash from its clients that are favorable to improve cash flow and minimize bad debts risks. Equally, a higher ARD value propose that the firm that take longer to collect payments, is concerned with credit policies, collection procedures and customer credit worthiness ([Mekonnen, 2011](#)).

2.1.2. Average Payment Period (APD)

APD measures the average number of days it takes for a firm to pay its suppliers after receiving goods or services. A lower APD value specifies that the firm is paying its clients quickly for sustaining business relationships for better negotiate terms. However, excessively short payment periods may negatively affect the firm's cash flow. Consequently, a higher APD value signifies that the firm takes longer time to pay its creditors portraying inefficiencies in cash management. Ideally, a company's average time to collect receivables is shorter than its average time to settle payables. Although payment period tends to be longer for countries in smaller capital markets, the opportunity cost of keeping APD may hurt the business ([Singhanian & Mehta, 2017](#)).

2.1.3. Inventory Turnover in Days (DI)

Inventory turnovers depict the frequency with which firms convert their cumulative stock of raw material and finished goods into product sales. While low inventory means the firm is in danger of losing out on sales, excessively high inventory levels is an indicator of wasteful use of working capital ([Ponsian, Chrispina, Tago, & Mkiibi, 2014](#)). DI are used to estimate on how the firm efficiently manages its inventory and help to identify how quickly a firm sells its inventory and how long it takes to replenish its stock. A higher DI indicates the firm is selling its inventory more quickly which is favorable since it minimizes obsolete inventory risks and improves cash flow. Nonetheless, a high turnover ratio sug-

gests the shortage in inventory leading to miss sales opportunities. Managers can improve the firms' profitability by shortening inventory collection period (Gill & Biger, 2013).

2.1.4. Cash Conversion Cycle (CCC)

CCC is used to assess the efficiency of a firm's CWM, the cash flow cycle from inventory to realized cash. It measures the time it takes for a company to convert its investment in inventory into cash flow from sales, considering the time it takes to sell inventory, collect receivables, and pay suppliers (Yazdanfar & Öhman, 2014). A lower CCC indicates the firm is converting its shelved assets into cash quickly, that is favorable and reflects the efficient WCM. Conversely, a higher CCC means the company is taking longer days to convert its assets into cash flow that may signify inefficiencies in payment policies and collection procedures. By evaluating the CCC, a firm can spot areas for improvement in their WCM. Reducing the CCC can improve cash flow, liquidity and financial performance.

2.2. Ratio Analysis Theory

Ratio analysis provides insights into basic features of a firm's operations e.g. liquidity and profitability. By evaluating ratios over time besides industrial benchmarks enable to discover tendencies to make decisions concerning investment, lending and operational practices. The theory put emphasis on a quantitative technique of gaining insight into a company's liquidity and profitability by comparing information contained in financial statements. Ratio analysis is an important method for financial examination that shows the relationship between two or more associated phenomena (Makori & Jagongo, 2013). The values of financial ratios are used to analyze the financial condition, evaluate and compare the strengths and weaknesses of different organizations.

2.3. Profitability (ROE) and WCM Strategies

The most common measure of profitability is return on assets (ROA) and return on equity (ROE). This approved ROE as it is affected by the financial leverage of the company by dividing net income over shareholder's equity that is expressed in percentage (Nazir & Afza, 2009). Two main aspects of WCM are management of individual components of working capital and ratio analysis that identify both inventory and cash management. Managers can create value by reducing their firm's days of accounts receivable and inventories to determine their optimal credit level to minimize total costs. Implementing an effective WCM system can thus improve profitability (Nimalathan, 2010; Ponsian, Chrispina, Tago, & Mkiibi, 2014).

2.4. Empirical Justification

Few studies from Bangladesh, Vietnam, India and China substantiate a significant relationship between WCM components and profitability of all industries with differing significance levels from one industry to another (Quayyum, 2012; Yakubu, Alhassan, & Fuseini, 2017). The survey from audited financial state-

ments of 45 listed companies in Vietnam stock market in three (3) years showed existence of five factors affecting profitability to include: growth rate, ARD, fixed asset investment, capital structure and business risk. In view of the listed SMEs in Karachi stock exchange, indicators of WCM had an apparent outcome on firm financial performance, though the CCC and net trading cycle had no effect on ROE (Javid & Zita, 2014). In China on listed public firms in the Ho Chi Minh Stock Exchange (HOSE) indicates that WCM positively influence the ROE (Le, Vu, Le, Du, & Tran, 2018).

In Ghana, with exception of ARD, the measures of working capital have positive influence on ROE through incentives to reduce their ARD to 30 days (Ako-to, Awunyo-Vitor, & Angmor, 2013). In Kenya, all variables were shown to have positive association with ROE, though CCC and ARD had negative relationship with ROE (Gakure, Cheluget, Onyango, & Keraro, 2012). The study of manufacturing companies on the Nairobi Securities Exchange in Kenya by Omesa, Maniagi, Musiega, & Mokori (2013), found that WCM is positively related to ROE. A study of three (3) listed manufacturing companies at the Dar es Salaam Stock Exchange (DSE) in ten (10) years in Tanzania, found a positive relationships between CCC and ROE (Ntui, Kiemi, Gwatako, & Halim, 2014). It is evident therefore that WCM influences the firms ROE, yet the WCM strategies is under-studied.

3. Research Methodology

The study adopted a case study research design as an investigative tactic on observable facts within the real situation. It is an in-depth study of a single firm to look into the causes of fundamental values using a company panel to generate new ideas that might be tested by other theories to illustrate how different features are related to each other (Moore, McCabe, Alwan, & Craig, 2016). The design is basically a single company panel study research of the observations of Tanzania Cigarette Company (TCC) working capital management strategies in relation to its financial profitability in a period of 11 years from 2011 to 2021. Although findings from case studies are cannot be generalized as they are based on a single firm and may not be replicated in some research contents, the design provide detailed insights that contribute to a deeper understanding of a specific phenomena under study (Kothari, 2012; Lune & Berg, 2017).

The study was carried out at Tanzania Cigarette Company (TCC) headquarters in Dar es Salaam and its branches in the country in order to obtain a rich mix of processes related to the research objectives. The study population constituted eleven years panel data of TCC from DSE. Convenience sampling technique was used to select key participants from the population as it relies on the convenience of access to potential participants, often quicker and more cost-effective compared to other sampling methods. On the other hand, convenience technique may not provide an optimal representative sample, it is a functional in definite research framework. However, it's associated biases and interpretation of the findings should be carefully considered (Komba, 2017).

In order to acquire reliable data and rigorousness, sources of data were gener-

ated from TCC, a listed company in Dar es Salaam Stock Exchange (DSE) by use of its detailed annual financial statements that can be accessed by the general public listed between the year 2011 and 2021. The data were in the form of time series, listed or graphed in time order points index that are publicly found in DSE, therefore the study assumed to be a reliable source of data. Theoretically, a time series data is a series taken at consecutive uniformly spaced points in time. It is a statistics panel data or involved measurements comprised observations of multiple phenomena over several time periods for the same firms. Given the time series nature of the data, panel data methodology was used since it assumes that companies are heterogeneous in nature, considers the variability in the data, provides more instructive data, and efficiency (Dubey & Kothari, 2022).

In data analysis, STATA version 14.2 was used since it is a powerful statistical software that is easy to use, accurate and capable of providing solutions for data requirements. While ROE was selected as a measure of profitability and a dependent variable, independent variables include APD, ARD, and DI. Control Variables were Current Ratio (CR) and Debt Ratio (DR). Panel data is basically a data set where both time series and cross-sectional data have been pooled. While correlation analysis described a linear relationship among variables, the strength of a monotonic relationship between paired data and analyzed the relationship between WCM and the single firm's profitability at 95% level of significance, regression analysis examined the influence of independent variables on a dependent variable. To study the impact of WCM on ROE, panel data regression and ordinary least squares (OLS) analyses were carried out (Pallant, 2010; Bell, Bryman, & Harley, 2022).

3.1. Conceptual Model

The model explains the effects of WCM strategies on the firm's profitability (ROE).

The conceptual model (Figure 1), comprised the firms working capital management strategies (independent variables), control variable include current ratio and debit ratio and the dependent variable was profitability (ROE). Unlike previous studies, the model illustrates the relationships between the problem in question and variables relationship.

4. Study Findings

The research outcome basically focused on descriptive statistics, correlation analysis, Multicollinearity check, and the effects of WCM strategies on firm's profitability (ROE).

4.1. Descriptive Statistics

Descriptive statistics offer a brief summary of the core distinctiveness in a dataset and aid analysts to in recognize the essential model, become aware of outliers, and make well-versed decisions across different felids of study (Eramus, 2010). A summary of descriptive statistics is presented in Table 1.

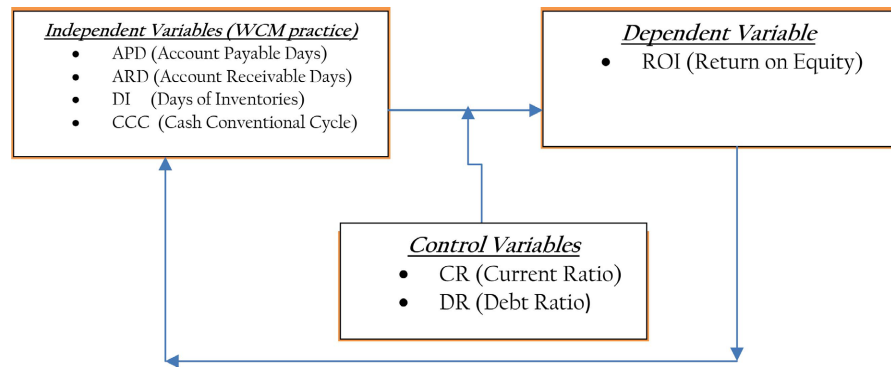


Figure 1. Conceptual model on effects of WCM on firm's profitability. Source: Adapted and Modified from WCM and Ratio Analysis Theories.

Table 1. Descriptive statistics.

VARIABLE	OBSERVATION	MEAN	STD. DEV.	MIN	MAX
ROE	11	41.11111	11.28544	25	57
APD	11	143.5611	23.88992	103.98	177.18
ARD	11	14.96889	6.877731	6.32	27.07
DI	11	314.1622	69.05174	229.55	480.26
CCC	11	185.5756	83.99539	90.33	391.8
DR	11	0.2677778	0.0243812	0.22	0.3
CR	11	2.916667	0.4181806	2.54	3.78

Source: Compiled data from STATA 14.2.

Maximum and minimum values of ROE are (57) and (25), a mean of (41.11%) and a standard deviation of (11.28). The highest variation was (DI-480.26 maximum) and (DI-229.55 minimum) and the mean score (314.16), that the effective management of inventory is essential to know the level shelved items to stabilize the production process. The mean of CCC are (185) days and the standard deviation is (83) days at maximum and minimum values of (90) and (39). TCC receives payment after sales in an average of (14) days and the standard deviation is (6.8) days. The minimum time to collect ARD is (6) days with the maximum time of (27) days and it takes an average of (314) days to convert raw materials into selling of the finished goods DI with a standard deviation of (69) days. The maximum time to sell inventory is six (6) days to convert inventory into sales. TCC takes an average of (143) days to pay their account payable days (APD) with a standard deviation of (23) days. The minimum time taken is 103 and the maximum is (177) days. The mean value of debt ratio (DR) is (2.67) and standard deviation is (0.02) and maximum DR is (0.3) and the minimum is (0.26).

Although descriptive statistics is capable in summarizing and describing the data set, they do not allow inferential conclusions. Conversely, they are effective in gaining a comprehensive understanding of a phenomenon for valid conclusions when used in combination with traditional statistical techniques where

most the financial managers' effort are allocated in bringing non-optimal levels of current assets and liabilities (Plonsky, 2017; Hill, Kelly, & Highfield, 2010; Hazarika, 2010).

4.2. Correlation Analysis

Correlation analysis evaluate the strength and direction of the relationship among variables, however, correlation does not imply causation because other factors may influence the observed relationships (Bell, Bryman, & Harley, 2022). An attempt was made to undertake the correlation analysis between WCM components of TCC and ROE as seen in **Table 2**.

The ROE is negatively correlated with WCM strategies (APD = -0.6633), (ARD = -0.0506). Similarly, ROE is positively related to DI (0.2084) and CCC (0.3559). However, DR (-0.5805) is negatively correlated while CR (0.2636) but positively correlated to ROE signifying that if TCC collects their collectable quickly, it can generate short run profits that can lead to bad debts in the long run (Ntui, Kiemi, Gwatako, & Halim, 2014). Similarly, ROE is positively related to DI (0.2084) and CCC (0.3559) signifying that as ROE goes up CCC and DI also increases. In regard to control variables, while debt ratio (DR = -0.5805) is negatively correlated, credit ratio (CR = 0.2636) is positively correlated to ROE implying by quick collection of collectable, ROE increases and vice versa. Theoretically, if the variance inflation factor (VIF > 10), it will lead to multicollinearity problem. To identify the cause-effect relationship between WCM strategies (ARD, APD, DI and CCC), the panel regression model, control variables and ROE, the multicollinearity test was carried out.

4.3. Multicollinearity Check

To examine if independent variables are highly correlated, multicollinearity test was used since it considers the variance inflation factors (VIF) in order to examine whether the data meet the ordinary least squares (OLS) assumptions (Deng, Craiu, & Sun, 2022). Multicollinearity test was presented in **Table 3**.

The VIF for DR (63.63) and CR (53.02) are upsetting, DR and CR were removed by running another regression for ROE, APD and DI. **Table 3** indicates that control variables of CR and DR are linear entities to cause the overall coefficient regressive to be irrelevant. Result for collinearity is Ok if the level of VIF is below 10. It is revealed that the VIF was (2.60, 1.68 1.76) for APD, ARD and DI. Regression analysis allows examination of the causal effect relationship between two or more variables. To examine the relationship between WCM practices on financial performance of TCC, regression analysis was carried out.

4.4. The Effect of CCC on ROE

Cash conversion cycle (CCC) is used to measure efficiency of WCM. To describe the relationship between one or more independent variables and a dependent variable (Grosse-Ruyken, Wagner, & Jonke, 2011). OLS regression results

Table 2. Correlate analysis between WCM strategies and ROE.

	ROE	APD	ARD	DI	CCC	DR	CR
ROE	1.0000						
APD	-0.6633	1.0000					
ARD	-0.0506	0.5843	1.0000				
DI	0.2084	-0.6079	-0.1550	1.0000			
CCC	0.3559	-0.7365	-0.2117	0.9825	1.0000		
DR	-0.5805	0.4404	0.1764	0.1476	0.0105	1.0000	
CR	0.2636	-0.2530	-0.1285	-0.2096	-0.1109	-0.9264	1.0000

Source: Compiled data, run on STATA 14.2.

Table 3. A multicollinearity test.

VARIABLE	VIF	1/VIF	Regression for ROE, APD and DI after removing DR and CR		
CCC	1.29e+09	0.000000			
DI	8.75e+08	0.000000	VARIABLE	VIF	1/VIF
APD	1.05e+08	0.000000	APD	2.60	0.384385
ARD	8.69e+06	0.000000	DI	1.76	0.569590
DR	63.63	0.015715	ARD	1.68	0.595074
CR	53.02	0.018862	Mean VIF	2.01	
Mean VIF	3.80e+08				

Source: Compiled data, run on STATA 14.2.

involve searching for coefficients, significance (p -values), and R^2 to specify a percentage of variance to ensure statistical significance for making strong conclusions as seen in **Table 4**.

The overall regression model explain 89% of variation in ROE caused (CCC) and their relationship is (+0.024). Both DR (-1044.393) and CR (-48.76) are negative. Results indicate a positive (0.024) relationship between CCC and operating profitability. Similarly, collinearity becomes a concern in regression analysis when there is a high correlation or an association between two potential predictor variables with a remarkable increase in p -value of one predictor variable when a high VIF is determined. VIF provides a measure of the degree of collinearity. The result for collinearity is below 10 ranging between 1.08 to 7.61 as required for OLS regression that there is a positive relationship between CCC and TCC, it attempts to maintain inventories due to high production costs, to carter for seasonality effects and avoid the costs of stock-outs and price fluctuations. These findings support the results of the studies by [Nzioki, Stephen, Marcella, & Janiffer \(2013\)](#) who showed a positive relationship between CCC and ROE, that when CCC increases, ROE also increases. It can be inferred that TCC attempts to maintain inventories to carter for seasonality effects and avoid stock-outs risks and price fluctuations.

Table 4. The effect of CCC on ROE and Collinearity check.

ROE	The Effect of CCC on ROE					Collinearity check for CCC		
	Coef.	Std. Err.	T	P > t	[95% Conf. Inter.]	Variable	VIF	1/VIF
CCC	0.0240966	0.0199962	1.21	0.282	-0.0273052	CR	7.61	0.131467
DR	-1044.393	181.8788	-5.74	0.002	-1511.928	DR	7.51	0.133089
CR	-48.76135	10.66931	-4.57	0.006	-76.18769	CCC	1.08	0.133089
Cons.	458.5253	79.56028	5.76	0.00	254.0091	Mean VIF	5.40	

Source: Compiled data, run on STATA 14.2.

4.5. Effect of APD on ROE

While APD plays an important role in managing working capital, an average payment period is the average length of time between the purchase of materials or labor and the payment of cash for them (Lamberson, 2015). The effect of APD on ROE together with collinearity check is presented in Table 5.

APD has a negative coefficient of (-0.079) with $p = 0.413$, implying that the increase or decrease in the average payment period, significantly affects performance of TCC. The influence of WCM has a positive relationship with ROE. While studies by Dong & Su (2010) show positive relationship between APD and ROE, the study suggests a negative relationship between APD and ROE. Collinearity check was carried out and presented in Table 5. The findings show a negative relationship between APD and ROE implying TCC withholds its payment to suppliers to take advantage of the cash available for their working capital needs. The results are similar to those of (Ray, 2012; Vural, Sökmen, & Çetenaç, 2012) that less profitable firms wait longer to pay their bills. To measure the length of time it takes to convert the average sales into cash, regression analysis on ARD on ROE was carried out.

4.6. Effect of ARD on ROE

The analysis aimed to define the relationship between ARD and cash flow and assess in on the average length of time required to convert the firm's receivables into cash from a sale.

The results in Table 6 indicate that the coefficient of ARD is positive (0.203) and p -value of 0.464 implying the increase or decrease in ARD has no significant effect on ROE. The regression model explains 88% of the variation in return on equity (ROE) caused by ARD. The relationship between ARD and ROE is positive (0.203) though it is insignificant. Moreover, the relationship between debt DR (-1121.62), CR (-53.03) and ROE are negative but insignificant. As stated by Dong & Su (2010) in relation to WCM, more profitable firms collect their receivables more quickly, resulting in higher cash flows which could be invested more profitably and hence increases performance. These findings are in line with those of Le, Vu, Le, Du, & Tran (2018), that there is a negative relationship between profitability and average collection period, that companies can improve

Table 5. Effect of APD on ROE and collinearity check.

ROE	Effect of APD on ROE					Collinearity check for APD		
	Coef.	Std. Err.	T	P > t	[95% Conf. Interval]	VARIABLE	VIF	1/VIF
APD	-0.0798694	0.0895758	-0.89	0.413	-0.3101312, 0.1503924	CR	8.94	0.111859
DR	-984.5894	225.5857	-4.36	0.007	-1564.476, -404.7028	DR	10.38	0.096324
CR	-47.22201	12.20492	-3.87	0.012	-78.59576, -15.84825	APD	1.57	0.636294
Cons.	453.9593	88.43313	5.13	0.004	226.6347, 681.2839	Mean VIF	6.96	

Source: Compiled data, run on STATA 14.2.

Table 6. Effect of ARD on ROE.

ROE	Collinearity check for ARD					Collinearity check for ARD		
	Coef.	Std. Err.	T	P > t	[95% Conf. Interval]	Variable	VIF	1/VIF
DR	-1121.625	191.0016	-5.87	0.002	-1612.61, -630.6396	CR	7.12	0.140442
CR	-53.03928	11.05314	-4.80	0.005	-81.45228, 24.62628	DR	7.23	0.138360
ARD	0.2036134	0.2570055	0.79	0.464	-0.4570403, 0.8642672	ARD	1.04	0.960329
Cons.	493.1074	81.49958	6.05	0.464	283.606, 702.6087	Mean VIF	6.96	

Source: Compiled data, run on STATA 14.2.

profitability by reducing the number of days on accounts receivables. The collinearity check for ARD in indicated in **Table 7**.

Results indicate an existence of positive relationship between ARD and TCC's financial performance (VIF = 1.04). The findings contradicts against those of [Naimulbari \(2012\)](#) and [Hasanudin, Awaloedin, & Arviany \(2022\)](#) meaning an increase in the number of days a firm receives payment from sales affects the firm ROE. To assess the average time required to convert materials into finished goods, the effects of DI on ROI was analyzed.

4.7. Effect of DI on ROE

Results from regression analysis on the effect of inventory turnover period (DI) on ROE were presented in **Table 8**.

The relationship between DI and ROE is positive (0.0266) but not significant. The collinearity check was carried out and the results are presented in **Table 8**. Overall results were below 10 ranged between (1.06 and 7.34) as required for OLS regression. A positive DI (0.0266) relationship with ROE indicates that if the DI increases, ROE also increases. The relationship between DI and ROE is positive. Despite these findings, however, an attempt to stock too many inventories could block the funds in working capital that could be invested in revenue-generating activities. As argued by ([Virkkala, 2015](#); [Penman, 2009](#)), management of inventory is vital for determining a company's profitability.

These results are similar to those of [Naimulbari \(2012\)](#) and [Mathuva \(2010\)](#) who showed an existing positive relationship between DI and ROE, that by decreasing the average time from converting raw materials to the sale of finished

Table 7. Collinearity Check for ARD.

ROE	EFFECT OF ARD ON ROE					Collinearity check for ARD		
	Coef.	Std. Err.	T	P > t	[95% Conf. Interval]	Variable	VIF	1/VIF
DR	-1121.625	191.0016	-5.87	0.002	-1612.61, -630.6396	CR	7.12	0.140442
CR	-53.03928	11.05314	-4.80	0.005	-81.45228, 24.62628	DR	7.23	0.138360
ARD	0.2036134	0.2570055	0.79	0.464	-0.4570403, 0.8642672	ARD	1.04	0.960329
Cons.	493.1074	81.49958	6.05	0.464	283.606, 702.6087	Mean VIF	6.96	

Source: Compiled data, run on STATA 14.2.

Table 8. Effect of DI on ROE.

ROE	Effect of DI on ROE					Collinearity check for DI		
	Coef.	Std. Err.	T	P > t	[95% Conf. Interval]	Variable	VIF	1/VIF
DR	-1073.656	181.8605	5.09	0.002	-1541.143, 606.1683	CR	7.34	0.136279
CR	-49.95746	10.72499	-4.66	0.006	-77.52692, -22.388	DR	7.17	0.139432
DI	0.0266229	0.02472	1.08	0.331	-0.0369218, 0.0901676	DI	1.06	0.940818
Cons.	465.9576	80.15336	5.81	0.002	259.9168, 671.9984	Mean VIF	5.19	

Source: Compiled data, run on STATA 14.2.

goods decrease, leads to an increase in ROE. Since manufacturing companies have large inventories composed of raw materials and finished goods, quick selling of finished goods produce profits signifying that longer days in the sale of inventory will negatively affect ROE. As argued by [Nobanee & Al Hajjar \(2009\)](#), management of inventory is essential to know how long each item of stock remains shelved, as it tends to tie up cash. It is therefore imperative to trade off and strike the balance between the two.

5. Conclusion and Recommendations

The WCM concern the management of cash, inventories, accounts receivable and accounts payable. TCC has to keep acquainted on its working capital correctly and maintain its balance at an optimal level. WCM links the determinants of WCM and firms' profitability measures of ROA or ROE, ARD, APD, DI and CCC. The study indicated that in TCC, ROE is negatively correlated with APD and ARD but positively correlated with CCC and DI meaning that as ROE increases CCC and DI also increase. As for regression, the results of TCC, showed that there is a negative insignificant correlation between APD against ROE with a positive correlation between CCC, ARD and DI against ROE. TCC has to control its cash management to attain its performance into a positive and significant level. TCC has to develop proper working capital strategies to achieve a desirable ROE to meet its short term financial objectives and further researches on how to mitigate social and environmental impacts from tobacco products.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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