The influence of working capital components and policies on the profitability of South African clothing retailers

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ABSTRACT

The management of working capital is a key critical consideration that all entities need to make given its strong influence on firm profitability. The working capital decision finds further importance given that it ultimately contributes to firm value and shareholder wealth maximisation. Using both a descriptive and inferential approach the study investigates the interaction between profitability of the working capital components, and the policy structures of the five JSE listed South African clothing retailers, over a seventeen-year period (i.e. 2003 – 2019). When looking at the working capital management (WCM) components, the study finds a significantly negative relationship between firm profitability with inventory turnover, payables repayment and the cash conversion cycle. However, a significantly positive association is found between outstanding receivables collection and profitability. Thus, in an attempt to increase profitability, the clothing entities in the South African market should target an increase in inventory turnover and an extended payables management-based strategy, while in tandem, effectively managing the investment in accounts receivable to allow for increased sales and profits. The study finds, in respect to WCM policies, a negative and strong association between aggressive working capital policy and profitability. An aggressive working capital financing policy will have a negative impact on profits, eroding firm value. Conversely a positive and strong association is found between a conservative WCM policy and profitability growth. South African clothing entities are incentivised to increase their investment in current assets in aiming to achieve more profitability..

Keywords: South African clothing retailers, working capital management, cash conversion cycle, efficient inventory management, working capital policy, liquidity, profitability-liquidity trade off.

1. INTRODUCTION

Working capital represents the difference between an entity's current assets and current liabilities. Thus, at its core, working capital management can simply be defined as the manner in which an entity manages its current assets in relation to its current liabilities (Raheman & Nasr, 2007). Ross, Westerfield and Jordan (2008) relate working capital management as an integral part of the operational financing considerations that an entity or corporation needs to determine, outside the realms of capital structure and capital budgeting. This study investigated the working capital management practices of South African clothing retailers and the onward impact this has had on their profitability. The assessment of this relationship is particularly important as it brings together three important aspects in corporate finance – the interaction between profitability, liquidity as well as working capital.

Non-current assets are useful for the increase of production within an entity whereas the day-to-day operationalisation and working of those fixed assets into tangible goods for sale for a business depend on the current assets (Gill, Biger & Mathur, 2010). Thus, the efficient management of said short term assets, and the financing of those assets, usually through short term liquidity, is a key determinant for profitability. This liquidity management is of paramount importance as the mismanagement and disorganisation of an entity's current assets in relation to its current liabilities may render the entity as being unable to meet its short-term debt obligations (Uyar, 2009). The interdependency between these underlying working capital components is captured in the varying working capital management policies which companies usually employ. As working capital management primarily deals with a balancing act between an entity's short-term assets and liabilities, this is then translated into policies dealing with working capital management, broadly divided into either an investment policy or a financing policy.

Consequently, the study probed two key objectives relating to working capital management. The first objective assessed the management of the underlying working capital component structuring by South African clothing retailers and the effect this has had on their profitability. The second objective was to then understand how WCM policies, which are resultant from underlying WCM component structuring, influence profitably of South African clothing retailers.

The main aim of any entity is to maximise shareholder wealth through profitability. In an industry such as retail trade where working capital management forms a crucial part of the entity's operational capacity and ultimately profitability, this management of working capital, how the underlying components are structured into varying policies and their interaction with profitability needs to be assessed (Louw, 2015).

This study and its findings are particularly significant when the magnitude and importance of the South African retail trade sectors is considered. Retail trade plays a significant part in the overall GDP of a developing economy (Boshoff, 2020). Clothing retail entities contribute over 7% to the entire economy of South Africa and are thus pivotal to the economy's success (StatsSA, 2019). As the economy of South Africa continues to decline, it is important that key players in the economy remain strong in order to sustain economic growth. These retail clothing entities are thus crucial in that, should they become insolvent, they could potentially destabilise developing economies. Given this contention, understanding the key underpinnings for an industry such as the clothing retail sector is crucial. It is thus surprising that there currently exist no studies which empirically investigate how profitable clothing retailers structure their working capital in South Africa. This study attempts to address this knowledge gap and weakness by focusing on this important sub-sector.

2. LITERATURE REVIEW

Working capital management and its role is associated with the planning and controlling of current assets and current liabilities in the short-term such that the entity may be able to satisfy its short-term obligations whilst also avoiding excessive investment in short term assets (Ejelly, 2004). Working capital management seeks to address this and ensure value creation for shareholders (Afza & Nazir, 2007). The interdependency between current assets and current liabilities is particularly crucial as it determines funding available to support the daily operational activity of an entity which in turn has an impact on profitability and shareholder value. Secondly, working capital management also plays a significant function in helping to understand the trade-off which exists between liquidity as well as profitability. Decisions which are likely to increase profitability are likely to have an impact and involve increased risk; whereas risk reducing measures usually result in the erosion of profits. Lastly, working capital is critical in providing flexible funding and financing options for a company (Deloof, 2003). Efficient liquidity management enables an entity to access cheaper internal funding than having to venture out into external markets.

Working capital management has been discussed in the light of several lenses within literature with the main focus on research being on the following aspects: liquidity ratios, operating and cash conversion cycles as well as theories and policies of working capital management.

Typically, liquidity ratios conduct a comparison of an entity's current assets, which include cash and other short-term relatively liquid assets, against their current liabilities such as payments due to suppliers and operating and financial expenses due immediately (Saleem & Rehman, 2011). Such measures allow entities to be able to determine

their ability (or inability) at a specific point in time to meet short term debt obligations. The shortfall, however, of liquidity ratios is that they are static in nature and may thus, at times, provide misleading conclusions when it comes to the evaluation of an entity's liquidity position (Richards & Laughlin, 1980). Finnerty (1993) and Deloof (2003) particularly criticise the static viewpoint of liquidity management due to its inability to be used on matters or opinions of a 'going-concern' nature and cash flow projections. The flaws contained within the static nature of assessing liquidity has thus given rise to more appropriate and dynamic viewpoints of working capital measures such as the cash conversion cycle which gives a more realistic nature of the varying and changing nature of working capital (Ejelly, 2004).

Charitou, Elfani and Lois (2010) describe the cash gap or cash conversion cycle as the period between the purchase of raw materials or delivery of services with the collection of the cash from the sale of those goods or services offered. The cash conversion cycle thus considers the three main elements of the net working capital cycle: namely, trade receivables, trade payables as well as inventory (Louw, 2015). The management of these three interrelated components determines the efficiency of a company's working capital. Thus, the efficient management of a company's working capital or cash conversion cycle resides in the thorough understanding and overseeing of the three underlying components of inventory, accounts receivable as well as accounts payable. Ultimately, the balancing and management of the aforementioned three components of working capital management; inventory, debtors' receivables and trade payables translate into a policy or strategy of working capital that a company elects to impose. These policies will inform how current assets and liabilities are used and what they consist of. Moreover, how their composition relative to each other affects the risk versus return characteristics of the company is also illuminated.

In working capital literature there are three main and distinctly highlighted policies relating to the management of working capital: namely, the working capital management investment policy (WCIP) approach, the working capital management financing policy (WCFP) approach as well as the self-liquidating approach (Nazir & Afza, 2009). As is consistent with most topics in finance, the policy choice between the working capital investment policy, working capital financing policy or the self-liquidating approach decision presents trade-off decisions which are centred on the overarching elements of risk versus return. The trade-off presented is in deciding among three policies: aggressive working capital policies, which emphasise achieving a higher risk-associated return; moderate working capital policies, which try to maintain an apt balance between the two; and conservative policies which primarily focus on the minimisation of risk rather than the pure maximisation of profit (Brigham & Ehrhardt, 2004:12; Erasmus, 2010).

A working capital policy which a company elects to implement is based on several and varying factors which include the growth rate of said company, risk appetite of the company's management, the industry outlook as well overall economic forecasts (Anand & Gupta, 2002). Working capital management policies have an important impact on shareholder wealth through their influence on companies' expected future returns as well the risk associated with said returns. Thus, these policies and their effective implementation are imperative to the survival and growth of every entity.

The essence of working capital management relies on an entity finding an optimal balance between its dual and salient goals of liquidity and profitability (Smith, 1980). Duru, Ekwe and Eje (2014) further purport that the competing nature of these salient goals is as a result of the trade-off between risk and return for an entity as profit maximization is a severe threat to liquidity whereas a myopic focus on liquidity adversely impacts profitable returns.

The issue of liquidity births itself from the fact that there exists no such thing such as perfect capital markets where funds are always readily and freely accessible (Nasruddin, 2006). The marketplace for capital in reality is one which is complex and renders the need for entities to hold sufficient levels of liquidity. Profitability on the other hand is focused on the maximisation of shareholder wealth. It requires that an entity's funds are rather utilised for productive means to yield higher returns, instead of being idly reserved for liquidity purposes (Akoto, Awunyo-Vitor & Angmor, 2013).

These salient goals of profitability and liquidity are competing in most of the decisions an entity makes. Entities, in reality, do not reside on either ends of this spectrum but rather opt for a balance between profitability and liquidity which will satisfy their risk return appetite. That is, companies strive to employ an optimal balance which suffices their liquidity needs whilst also helping them to achieve desired levels of profitability (Arnold 2008:548). Essentially, the

interaction between working capital management practices, in particular, efficient liquidity management, is in ensuring that a firm establishes an optimal balance between excessive liquidity whilst, on the other hand, managing against insufficient liquid reserves being held.

2.1 PREVIOUS STUDIES ON DEVELOPED ECONOMIES

In literature on working capital for developing economies, Deloof's 2003 study on 1 009 Belgian-listed firms seeks to understand the relationship between corporate profitability and working capital management. The research has proven to be particularly important. Interestingly, the study elects to use gross operating income rather than other commonly used measures such as return on assets, and thereto, argues that it gives a more accurate indication of profitability irrespective of the make-up of an entity's assets. Deloof (2003) finds that there exists a significant and negative association between the cash conversion cycle of Belgian entities and their profitability. Deloof (2003) explains that a reduced cycle leads to increased profits for these entities. Specifically, Deloof (2003) finds significant negative relationships between gross operating profit and inventory days on hand, accounts receivable days and account payable days. Thus, by maintaining a minimum number of days for these components, shareholder value can be maximized.

Expounding on the Deloof (2003) study, as well as Lazaridis and Tryfonidis' (2006) work, Gill et al., (2010) investigate the relationship between working capital management components of 88 American firms listed on the New York Stock Exchange (NYSE) over a three-year period so as to ascertain similar conclusions for the United States context. Using correlation analysis and non-experimental research design the study finds positive associations between profitability and the cash conversion cycle. With respect to the underlying working capital components, Gill et al., (2010) only finds a significant relationship between profitably and accounts receivable days, one which is positive. The paper elucidates that efficient working capital practice entails keeping accounts receivables at an optimal level which will in turn positively influence profits and maximise shareholder value.

Given the global financial crisis and economic downturns of 2007/8, Enqvist, Graham and Nikkinen (2014) focused their study on trying to assess the impact of working capital on the profitability of an entity in different business cycles. Over an eighteen-year period, the study looked at a sample of Finnish-listed entities to draw conclusions on how different cycles impact this cyclical interrelation among working capital and profitability. Enqvist et al., (2014) concludes that during economic downturns, and in receding economic conditions, the relationship between working capital and profitability becomes more significant, implying that efficient management of working capital is especially important in periods of recession rather than economic boom.

To give a cross-country perspective, Banos-Caballero, García-Teruel and Martínez-Solano (2019) assessed a sample of firms from 30 varying countries, over an 18-year period, to establish an association between net operating working capital and firm value across different countries. The researchers include countries which are vastly different from one another but also include control variables such as economic and financial development, GDP, as well as investment and law enforcement measures. Using the valuation model proposed by Fama and French (1998), Banos-Caballero et al., (2019) institutes cross-sectional regressions of firm value on earnings, investment, and financing variables of the varying entities as their methodological approach. The paper concludes that operational net working capital value differs across countries and its influence on firm value also differs depending on the country.

2.2 PREVIOUS STUDIES ON DEVELOPING ECONOMIES

In 2007, researchers Afza and Nazir studied this topic and relationship with a particular focus on working capital management policies and their influence on profitability within a developing economy context. Using data analysis and cross-sectional regression techniques to study this relationship, the paper investigates 204 entities listed on the Karachi Stock Exchange over a seven-year time frame. Their study found that strong and significant evidence exists of a negative correlation between aggressive working capital policies and the profitability. Companies in developing economies are incentivised to implement conservative or investment policies in trying to improve profitability (Nazir & Afza, 2009).

Jakpar, Tinggi, Siang, Johari, Myint and Sadique (2017) looked at the relationship between profitability and working capital management elements as indexed by the cash conversion cycle by studying a sample of 164 manufacturing firms listed on the Bursa Main Board. Through the adoption of Pearson correlation and discriminatory panel regression techniques the researchers find a positive and statistically significant relationship between inventory days on hand, accounts receivable collection days, firm size and profitability. Jakpar et al., (2017) however note that, contrary to previous studies, they concluded on a statistically insignificant inverse relationship between the cash conversion cycle of an entity with its profitability implying that for Malaysian manufacturing firms, the cash conversion cycle does not influence profitability.

2.3 STUDIES ON AFRICAN ECONOMIES

Focusing on a sample of 319 listed and delisted industrial South African firms, Erasmus (2010) assesses this association between profitability and working capital management through both the orthodox and unorthodox lenses of liquidity and debt ratios as well as the net trade cycle. Over a 19-year cycle, the research concludes that there exists a negative and statistically significant relationship between return on assets as a measure for profitability and the measures of working capital management, elected as the net trade cycle, debt and the liquidity ratio. The study, as evidenced by South African industrial firms, advocates for low liquidity and reduced investment in net trade assets (i.e. an aggressive working capital policy stance) in order to improve profitability.

Falope and Ajilore (2009) is the most cited and potentially most pivotal study in terms of working capital management within an African context. Employing panel data techniques and pooled regression methods to investigate fifty listed Nigerian firms over a 10-year period, the study concludes on a negative and statistically significant relationship between net operating profit and the individual components of the cash conversion cycle. Furthermore, the authors conclude that shareholder value can be created through efficient methods of managing working capital, including reducing the time taken to collect receivables and limiting investment in inventory to a minimum.

Louw (2015) is the piece of literature which affords this study its foundations and driving principles. Her research primarily focused on assessing the overall management of working capital by listed retail firms in South Africa. The research focuses on the 18 retailing firms listed on the Johannesburg Securities Exchange over a nine-year period of 2004 – 2012, concluding that for South African retailers, reducing the average days of inventory on hand produces the most statistical significance in reducing the cash conversion cycle and subsequently increasing profitability. The study further substantiates this by arguing that for retail firms this makes sense given the importance of inventory management in that industry. Furthermore, Louw (2015) finds that a decrease in the account's receivables collection days as well as increasing the number of account payable days does not have a statistically significant relationship with growth in profitability for South African retailers, contrary to findings in other industries and sectors within developing economies.

3. METHODOLOGY

For the purposes of this study, the research method elected is a quantitative research design which is based on an inferential approach. The inferential approach is appropriate for this study given that it focuses on establishing associations and relationships amongst variables being studied. Moreover, the research's methodology follows a deductive reasoning approach. That is, it purports to develop inferences based on existing theory. Given that this study purports to understand and to assess the assumed relationship between profitability with working capital and its underlying components and policies in a South African retail clothing industry context, this research design and methodology is logically appropriate.

South African retailing firms are heavily influenced by, and dependent on, working capital elements, both from a customer demand as well as an entity supply perspective. The LSM structure of the South African retail customer base details large debt levels which would increase the expected receivables for retail entities in the country (Mhlaba & Phiri, 2019). On the other hand, limited cash flow available to these retailers induces a need for them to support their activities through the financing of their short term liabilities. This is all in tandem with the need for clothing retailers

to maintain appropriate inventory levels as insufficient investment in inventory would lead to stock shortages, while excessive investment renders an entity's stock obsolete in addition to the extensive holding costs. This interrelation among working capital elements has been examined extensively in varying contexts but never within the focus of South African retailers, thus providing novel areas of knowledge.

The appropriateness of the deductive reasoning methodology elected for this study is appropriate based on this theoretical interplay. The researchers seek to understand how the listed South African clothing retailers manage their working capital and the ultimate influence of this said management relative to the assertions relating to WCM theory concluded in other industries and economies

With respect to its research methods, the study uses purposive sampling to draw interpretations on the overall clothing sub-sector in South Africa. The five Johannesburg Securities Exchange (JSE)-listed clothing retailers chosen as subjects for the study represent over 40% of the total value of the sector and are accordingly appropriate to be used as a purposive sample. Furthermore, the study's sample of entities has been selected using consistent criteria and characteristics giving further legitimacy to the judgemental sampling research techniques employed.

These five firms are studied and analysed over a seventeen-year period spanning 2003-2019. This time frame represents a period of varying economic conditions and business cycles both from both global and South African perspectives and will helped the study lay claim to robust conclusions.

The focus of the study is a primary assessment of past working capital management components and practices and their influences on entity historic performance to make inferences and generalisations on future performance for similar entities. The data thus used in this study are of a secondary nature. The data are contained within the audited and IFRS regulated financial statements of the entities used as the subjects of the study. These statements ensure that the information is standardised, consistently accurate and complete.

The variables used in this study are influenced by previous research undertaken about the relationship between working capital management and profitability. The described dependent, independent and control variables have been used to investigate this association within the context of clothing retail entities in South Africa and are summarised in Table 1.

TABLE 1:
SUMMARY OF VARIABLES USED IN STUDY

Variable	Calculation	Role in Regression
Operating Profit Margin (OPM)	OPM = Operating Profit / Revenue	Dependent Variable
Return on Operational Assets (ROA)	ROA = Operating Profit / (Total Assets – Financial Assets)	Dependent Variable
Inventory Days on Hand (IDH)	IDH = (Inventory / Cost of Goods Sold) x 365 days	Independent Variable
Accounts Receivable Days (ARD)	ARD = (Accounts Receivable / Revenue) x 365 days	Independent Variable
Accounts Payable Days (APD)	APD = (Accounts Payable / Cost of Goods Sold) x 365 days	Independent Variable
Cash Conversion Cycle (CCC)	CCC = IDH + ARD – APD	Independent Variable
Working Capital Financing Policy (WCFP)	WCFP = (Current Liabilities / Total Assets – Financial Assets)	Independent Variable
Working Capital Investment Policy (WCIP)	WCIP = (Current Assets / Total Assets – Financial Assets)	Independent Variable
Firm Size (FS)	FS = Log (Sales)	Control Variables
Financial Leverage (FL)	FL = Total Liabilities / Total Assets	Control Variable

3.1 RESEARCH QUESTIONS

The study has six research questions based on the two main outcomes it aims to understand. The first study objective is to understand the impact of working capital management components of South African clothing retailers on their profitability. From this first objective, the study has then developed four critical questions to help unpack these potential relationships between profitability and WCM components:

1. What is the impact of Inventory Days on Hand on the profitability for South African clothing retailers?
2. What is the impact of Accounts Receivable Days on the profitability for South African clothing retailers?
3. What is the impact of Accounts Payable Days on the profitability for South African clothing retailers?
4. What is the impact of the Cash Conversion Cycle on the profitability for South African clothing retailers?

The second study objective is to understand how the interaction of these underlying components, which form into policies of working capital management, have impacted the profitability of South African clothing retailers. To investigate this, the following questions are probed:

5. What is the effect of an aggressive WCM policy implementation on profitability within a South African clothing retail context?
6. What is the effect of a conservative WCM policy implementation on profitability within a South African clothing retail context?

3.2 RESEARCH METHODS

From the raw data set of both the study's independent and dependent variables, descriptive statistics will be calculated to provide an understanding of the basic features of the data set. To establish any correlation between the variables, a Pearson correlation coefficient calculation will be conducted. This will identify the strength and direction of any dependencies amongst the selected variables.

Given that the data employed in the study are longitudinal in nature, containing cross-sectional observations of varying entities observed chronologically over time, panel data regression and analysis techniques were deemed as the most appropriate inferential statistical technique to infer the relationship between WCM management practices of South African clothing retailers and their profitability. Specifically, balanced panel models, similar to those developed by Sharma and Kumar (2011) and Louw (2015) in their respective studies, and adopted for the purposes of this research, are employed.

In evaluating the impact of WCM components and policies of firm i at time t of South African clothing retailers' profitability between 2003 and 2019, the following balanced panel regression model structure is employed:

$$(\text{Profitability Dependent Variable})_{it} = \beta_0 + \beta_1(\text{WCM Component / Policy Independent Variable})(_{it}) + \beta_2(FS_{it)} + \beta_3(F_{Lit)} + \gamma_i + \lambda_t + \varepsilon_{it}$$

Where:

γ_i	:	Firm specific effects assumed constant for firm i over t
λ_t	:	Time specific effects assumed constant over time for given t over i
ε_{it}	:	Random error term for firm i at time t

The above regression structure produces twelve balanced panel regression models used in the study to probe the research questions to enable assertions and conclusions for the clothing retail industry in South Africa. The details of these regression equations are explicitly stated in the appendix at the end of the study. The following section elaborates on the results of the employment of these techniques on the data set.

4. RESEARCH RESULTS AND ANALYSIS

The descriptive statistics as detailed in Table 2 drew attention to the basic elements in the underlying or raw data sets of the variables employed in the study. The profitability metrics used in the study show a significant amount of variability as both the ROA and OPM measures have shown large coefficient of variations coupled with excess kurtosis and skewness. This demonstrates that various entities, although in the same industry, have operated differently and it had a varying impact on the profits which they realised. In managing working capital, the WCM components reveal similarities amongst the entities in terms of repayment towards creditors. However, how the asset lever of WCM is managed shows significant differences. The accounts receivables days and inventory days-measures reveal a wide-ranging distribution and show that given core differing elements such as market offering, segmentation and targeting outcomes of each clothing entity, these elements are managed in a varying manner. Lastly, the descriptive statistics reflect consistency in the manner in which policies, relating to working capital, have been employed across the clothing retailing entities in South Africa.

TABLE 2:
DESCRIPTIVE STATISTICS

	PROFITABILITY		WCM COMPONENTS				WCM POLICY		CONTROL VARIABLES	
	OPM	ROA	IDH	ARD	APD	CCC	WCIP	WCFP	FS	FL
Mean	0,139	0,235	83,288	68,615	76,413	75,489	0,669	0,254	4,400	0,392
Median	0,107	0,229	69,942	40,952	76,549	65,317	0,716	0,242	4,222	0,402
Maximum	0,299	0,458	185,784	185,947	118,073	206,513	0,843	0,602	5,832	0,737
Minimum	-0,043	-0,067	28,951	6,789	24,501	-17,021	0,199	0,099	3,363	0,135
Std. Dev.	0,081	0,118	35,334	54,138	20,390	58,854	0,153	0,100	0,711	0,171
Skewness	0,121	-0,254	0,911	0,315	-0,212	0,270	-1,409	0,731	0,849	0,190
Kurtosis	2,083	2,442	3,546	1,485	2,536	2,162	4,649	3,320	2,463	1,845
Observations (n)	85	85	85	85	85	85	85	85	85	85

Sources: Sharedata; Eviews10 output

As shown in the correlation matrix, detailed in Table 3, the ROA profitability measure reflects positive correlations with all the other independent variables besides the IDH measure with which it has a moderate negatively significant correlation with. The negative but significant correlation with IDH can be reduced to the fact the shorter inventory cycles usually implies lower inventory investment and holding costs with higher sales and profitability which ultimately results in a greater ROA measure. For the South African retailing entities contained in our study, there exists a strongly significant and negative relationship between ROA and firm size reflected by a correlation coefficient of -0.73. The larger a firm is in the South African context, the likelier it is that its return on assets will be lower.

The analysis further reveals a very strong, statistically significant and positive association between OPM and the ARD measure of 0.8. The strong correlation could be attributed to the effect which relaxed credit policies can have on increasing sales and profitability. The relationship between OPM and the WCFP measure is highly insignificant owing to the fact that OPM is a purely income measure, reflected on the income statement. Thus, balance sheet elements as measured by the WCFP would likely not have a direct and linear impact with OPM, particularly because financing costs induced by more debt would not affect operating expenditure.

Inventory turnover reveals a strong positive and significant correlation with the cash conversion cycle, showing a Pearson correlation value of 0.65. A lengthening of the inventory turnover will lead to the cash cycle being lengthened as well. The ARD measure also shows a statistically significant strong correlation with the cash conversion cycle of 0.82. A strong dependency between the length of debtor collections and the cash cycles is present within the South African clothing industry. Furthermore, ARD also reflects a strong positive correlation with APD, so a delay in the collection of receipts will lead to in the delay in the ability of these entities to repay their creditors. Interestingly, ARD shows a strongly significant negative relationship with firm size of -0.61. The larger the clothing retail entity in the South African context, the shorter it will take them to collect outstanding receipts. Smaller entities do not have the capacity to enforce strict credit collection policies that the larger firms have. There also exists a strong and negative

correlation between accounts payable days and firm size equalling -0.58. Smaller firms will tend to take longer to repay their creditors as opposed to their larger counterparts. Smaller firms are likelier not to have the cash flow capability of their larger counterparts so as to be able to settle outstanding invoices as soon as is possible.

The WCM investment policy is moderately and negatively correlated with firm leverage showing a Pearson correlation coefficient of -0.47. More conservative policy measures indicate lower debt levels for entities. WCFP is strongly and positively correlated with firm leverage, revealing a correlation coefficient of 0.70. Aggressive WCM policy involves taking larger debt positions in order to finance operational activity, justifying the directionality and strength of this relationship. The significant correlation coefficient of -0.46 between WCFP and firm size elucidates that the larger a firm is in the South African retailing context, the smaller the financing position it will likely take when financing their operations. Larger entities tend to have cash reserves, which is the cheapest financing option and will opt to utilise those sources before opting for leverage.

The descriptive and correlation analysis of the study provided a vital starting point for the remainder of the study as it has enabled an insight into the basic features and relationships present among the variables. The next step was to employ inferential panel regression techniques to help answer the causality aspect of these relationships.

TABLE 3:
PEARSON CORRELATION ANALYSIS

		PROFITABILITY		WCM COMPONENTS				WCM POLICY		CONTROL VARIABLES	
		OPM	ROA	IDH	ARD	APD	CCC	WCIP	WCFP	FS	FL
PROFITABILITY	OPM	1.000									
	ROA	0.769***	1.000								
WCM COMPONENTS	IDH	-0.010***	-0.379***	1.000							
	ARD	0.807***	0.403***	0.183*	1.000						
	APD	0.561***	0.281***	0.365***	0.592***	1.000					
	CCC	0.542***	0.0453***	0.642***	0.825***	0.417***	1.000				
WCM POLICY	WCIP	0.416***	0.389***	-0.084	0.440***	0.021	0.347***	1.000			
	WCFP	-0.041	0.268***	-0.310***	-0.133	0.143	-0.358***	-0.001	1.000		
CONTROL VARIABLES	FS	-0.713***	-0.729***	0.232**	-0.621***	-0.578***	-0.232**	-0.336***	-0.456***	1.000	
	FL	-0.075	0.030	-0.084	-0.104	0.267**	-0.238**	-0.475***	0.704***	-0.333***	1.000
	GDP	0.097	0.121	-0.275**	0.140	-0.022	-0.028	0.333***	0.164	-0.235**	0.010

***significance at 10%, 5% & 1% levels; **significance at 10%, 5%; *significance at 10% level
Sources: Sharedata; EViews10 output

4.1 PANEL REGRESSION ANALYSIS

Research Question 1: What is the relationship between profitability and inventory days on hand for South African clothing retailers?

TABLE 4:
REGRESSION EQUATIONS 1 AND 2 RESULTS

VARIABLE		OPM			ROA	
		1			2	
		β	VIF		β	VIF
IDH		-0.306 ***	1.411		-0.673 ***	1.398
FS		0.021	1.010		0.038 *	1.071
FL		-0.148 ***	1.111		-0.272 *	1.096
C		0.187 ***			0.327	

***significance at 10%, 5% & 1% levels; **significance at 10%, 5%; *significance at 10% level
Source: EViews10 output

Based on the regression results of the first model in Table 4 above, there exists a negative relationship between inventory days on hand and profitably, significant at both the 5% and 1% level. This elucidates an inverse relationship between profitability and inventory turnover in the South African clothing retail market. The longer it takes a South African clothing entity to sell inventory, the more its profitability declines. The coefficient underpinning this relationship equals -0.31 and indicates that over a 365-day period, a lengthening in the time taken to turnover inventory can decrease operating profit margins by up to 31% in competing entities. Using the return on operational assets as a dependent variable proxy for profitability to investigate its association with inventory days on hand yields the same conclusion of a negative relationship between profitability and inventory turnover for South African clothing retailers. Moreover, this negative relationship between ROA and IDH shows a strong association between the two variables given a coefficient of -0.673 over a year. This indicates that a 1-day increase in the turnover of inventory would adversely impact the return on operational assets by around 0.2%. A clothing retailer would be able to improve profitability by close to 2% if they quickened inventory turnover by ten or so days.

Research Question 2: What is the relationship between profitability and accounts receivable days for South African clothing retailers?

TABLE 5:
REGRESSION EQUATIONS 3 AND 4 RESULTS

VARIABLE		OPM			ROA	
		3			4	
		β	VIF		β	VIF
ARD		0.151 **	1.032		-0.032	0.908
FS		-0.010	0.962		0.0180	2.479
FL		-0.233 ***	1.004		-0.499 ***	1.089
C		0.247 ***				
F-Statistic		45.708 ***			10.190 **	
Adjusted R-Squared		0.806			0.716	

***significance at 10%, 5% & 1% levels; **significance at 10%, 5%; *significance at 10% level
Source EViews10 output

The third regression model as denoted in Table 5 details that there is a significant and positive relationship between accounts receivable days and operating profit margin. This positive relationship elucidates the fact that having relaxed credit policies induces customers to purchase more, driving sales and ultimately profitability. This association also speaks to the LSM demographic in the South African market. South African consumers are limited in terms of their disposable income and thus items such as clothing would not feature in their top buying priority items. Thus, to boost sales, clothing retailers are required to offer credit as this would be a more affordable mechanism for the customers to afford clothes. Furthermore, this also speaks to the fact that these retailers should allow for more relaxed credit collection policies to cater for their customer base to be able to repay their debts. Although leading to longer ARD periods, this incentivises higher sales and ultimately greater profitability. However, as evidenced by the fourth regression model, it may be concluded that within the South African retail clothing context the relationship between ARD and ROA is highly insignificant. Consequently, within a South African clothing retailer perspective, ARD should be managed by entities with a short-term income perspective rather than a longer-term balance sheet management outlook.

Research Question 3: What is the relationship between profitability and accounts payable days for South African clothing retailers?

TABLE 6:
REGRESSION EQUATIONS 5 AND 6 RESULTS

VARIABLE		OPM			ROA	
		5			6	
		β	VIF		β	VIF
APD		0.057 *	0.941		-0.085	1.013
FS		-0.025	0.883		0.011	2.593
FL		-0.266 ***	1.066		-0.478 **	1.139
C		0.341 ***			0.392	
F-Statistic		43.386 ***			10.206 ***	
Adjusted R-Squared		0.798			0.794	

***significance at 10%, 5% & 1% levels; **significance at 10%, 5%; *significance at 10% level
Source EViews10 output

The results as indicated by regression model five reveal a positive association between the APD and the OPM measure which is significant at the 10% significance level for the South African clothing retail context. The relationship elucidates that a lengthening of the time taken to repay creditors will have a slight but positive impact on profitability. The regression model shows a coefficient value of 0.057 delineating that over a year, a deferment of repayment of outstanding invoices, all else being equal, can positively influence profits by over 5%. A lengthened cycle also lowers expenditure due to the repayment of invoices being deferred, factors all which ultimately increase profitability. However, although the relationship is significant, the association is relatively weak which speaks to the notion that, in an African context, supplier relationships are valued. Eroding these for liquidity gains is not incentivised as the profitability upside is small but the downside risks an entity opens themselves up to, with these actions, is significant. A balance sheet profitability return with accounts payables days' perspective is provided by the sixth regression model delineated above. Although there is an association between the two factors in the South African clothing retail market, it is insignificant and consequently accounts payable days are not a critical factor for consideration when these entities are looking to improve their longer-term operational asset return.

Research Question 4: What is the relationship between profitability and cash conversion cycle for South African clothing retailers?

TABLE 7:
REGRESSION EQUATIONS 7 AND 8 RESULTS

VARIABLE		OPM			ROA	
		7			8	
		β	VIF		β	VIF
CCC		-0.0378 **	0.88		-0.119 *	0.880
FS		-0.024	0.889		0.0234	0.504
FL		-0.258 ***	0.996		-0.498 ***	0.572
C		-0.353 ***			0.352	
F-Statistic		43.473 ***			10.416 ***	
Adjusted R-Squared		0.798			0.797	

***significance at 10%, 5% & 1% levels; **significance at 10%, 5%; *significance at 10% level
Source EViews10 output

The results detailed in Table 7 indicate a statistically significant negative relationship between profitability as proxied by the OPM with the cash conversion cycle. Simply, a lengthening of the cash conversion cycle has significantly been shown to negatively affect profitability of South African clothing retailers. The coefficient of -0.038 is significant at 90% and 95% levels of confidence. This negative association between the CCC and the OPM can further be unpacked with respect to the significant relationships found between the underlying WCM components and OPM. The study has found that there exists significant and negative relationship between OPM and inventory turnover, as well as a significant and positive association between OPM and the invoice payment period. Thus, in purporting to reduce the cash cycle and improve profitability, the clothing entities in the South African market should target an increase in inventory and delayed payables repayment management based strategy, while in tandem, effectively managing the investment in accounts receivable to allow for increased sales and profits. From a balance sheet return perspective, at the 10% statistical level of confidence, it can be concluded that there exists a negative relationship between the ROA profitability measure and the CCC, with the coefficient delineating this relationship equalling -0.119. A clothing retailer in South Africa which reduces its cash cycle, as an example, by 10 days can realise profitability gains of over 0.5%. For the purports of improving ROA, the study found that only inventory days on hand yield a statistically significant relationship as a regressor within the return on operational assets profitability metric. Thus, in shortening the cash cycle, South African clothing retailers would be advised to have quicker inventory periods which would ultimately increase profitability.

Research Question 5: What is the relationship between profitability and WCIP for South African clothing retailers?

TABLE 8:
REGRESSION EQUATIONS 9 AND 10 RESULTS

VARIABLE		OPM			ROA	
		9			10	
		β	VIF		β	VIF
WCIP		0.065 *	1,16		0,074	1.138
FS		-0.001	1,025		-0,032	1.018
FL		-0.222 ***	1,073		-0.433 ***	1.079
C		0.225 **			0.489 **	
F-Statistic		44.873 ***			27.543 ***	
Adjusted R-Squared		0.803			0.715	

***significance at 10%, 5% & 1% levels; **significance at 10%, 5%; *significance at 10% level
Source EViews10 output

The results shown in Table 8 reflect a significant and strong positive association between the WCIP and profitability as measured through operating profit margin. With over 90% confidence it can be concluded that an increase in the amount invested in working capital by South African clothing retailers will lead to an increase in profitability. The coefficient of 0.065 elucidates a strong relationship between these two variables, indicating that all else being equal, a 1% increase in the amount invested in current assets by South African clothing retailers will induce 6.5% uplift on profitability. Given the relationships elucidated in the WCM components section, this investment in current assets would be advised for accounts receivable. Inventory has shown a significantly negative relationship with profitability, therefore added investment in inventory would adversely impact profits. However, ARD was found to have a significant and positive impact on profitability. Thus, in increasing investment to realise profitability uplift, entities should increase investment in their receivables. An increase in receivables would be mandated both from a relaxed credit granting and credit collection approach which incentivises customers to purchase more goods, increasing sales and ultimately profitability. Longer credit terms also afford the entity the opportunity of earning additional income, given the interest lodged on these types of transactions.

Research Question 6: What is the relationship between profitability and WCFP for South African clothing retailers?

TABLE 9:
REGRESSION EQUATIONS 11 AND 12 RESULTS

VARIABLE		OPM			ROA		
		11			12		
		β	VIF		β		VIF
WCFP		-0.128 *	0.986		0.021		0.969
FS		0.037 *	0.949		-0.045		0.953
FL		-0.232 ***	1.016		-0.475	***	1.032
C		0.427 ***			0.618	***	
F-Statistic		45.261 ***			27.075	***	
Adjusted R-Squared		0.804			0.711		

***significance at 10%, 5% & 1% levels; **significance at 10%, 5%; *significance at 10% level
Source EViews10 output

The results of the regression equations as evidenced in Table 9 reflect a negatively significant relationship between profitability, measured as OPM and the WCFP. Within the South African clothing retailing industry, using a more aggressive working capital policy approach would have a negative impact on profitability. The coefficient of -0.128 indicates a very strong relationship among the variables as a 1% increase, all else equal, in a company's current liabilities position would have a 12.8% adverse impact on profitability. The increased position an entity assumes from a current liability perspective induces several implicit and explicit financial costs which will negatively impact its profitability. The minimal gains entities might garner in lengthening the time taken to repay creditors will be offset by the implicit costs of foregone discounts. Moreover, a larger short-term debt position exposes the entity to higher finance repayment costs, decreasing profitability. The gains an entity would have assumed through the additional liquidity injection are offset by the additional financial expenses they would assume.

5. CONCLUSIONS AND RECOMMENDATIONS

In summary, the study has found that efficient management of working capital by South African clothing retailers in an effort to positively impact profits should be handled in five main complementary approaches.

First, efficient inventory management practices need to be of primary purpose for these entities as this is a key working capital component for profitability growth in the South African clothing retail context. Entities need to ensure that they sell and replenish inventory as quickly as possible in order to increase profitability. To incentivise sales, the second key finding is that retailers need to allow for more relaxed credit granting and collection terms to their customers. This incentivises customers and grants them the ability to afford and purchase more clothes, growing the sales and profitability of these entities. Extensive credit granting and collection policies also give companies the added implicit benefit of interest income generated from the credit sales, another factor which has a positive influence on profitability. Third, the cash conversion cycle which is a culmination of these three elements shows a negative association with profitability thus purporting that in an attempt to increase profitability, the clothing entity's in the South African market should target an increase in inventory turnover and extended payables management based strategy, while in tandem, effectively managing the investment in accounts receivable to allow for increased sales and profits.

Fourth, considering this required additional investment in receivables to help the entity generate more sales, it is uncovered within the study that a more conservative, working capital investment approach is the incentivised approach for South African clothing retailers to increase profitability. Profitability of the entities operating in this industry can grow by as much as 6.5% with an additional one percent investment in current assets. Lastly, consistent with the

positive impact that a conservative or investment policy has on profitability, there is a strong negative association between a financing or aggressive working capital policy approach with profitability. Clothing retailers who have a large portion of their working capital financed will negatively impact their profitability.

Although not of primary interest for the purports of this research, there are also paramount lessons to be drawn from the relationships between profitability and the control variables. The insignificant relationship established between firm size and profitability indicated that the South African clothing retail industry is an oligopoly in nature and thus market dynamics do not allow for any singular firm to try influence its profitability through growing or increasing its size. Importantly though, the analysis reveals a significant and negative relationship between profitability and firm leverage. Within a South African retailing context, entities are advised to hold less leveraged positions as higher incidences of debt induces higher financing costs, possibilities of default and profitability erosion. This may also be related to the negative association found between an aggressive and leveraged WCFP with profitability.

5.1 LIMITATIONS OF STUDY

Although the study has been conducted in an encompassing and robust manner, sufficiently addressing the relationship between profitability and the WCM components and policies for South African clothing retail entities, there are however some limitations which have been observed.

Firstly, it is noted that a limited, and purposive, sample was employed in coming to the conclusions and inferences established about the South African clothing industry. For consistency of sampling, only the five clothing entities listed on the JSE during the period of the study were sampled and investigated. The first limitation relates to the fact that entities which were previously listed and subsequently delisted would not form part of the study. Moreover, the smaller unlisted entities, which provide their own working capital structural perspectives were also excluded from the study, a further limitation.

Secondly, the study has focused solely on the clothing retail sub-sector. This decision is important given that this study purported to grow the body of knowledge of working capital towards a more a specialised and focused view. The study reveals insights for the clothing retail sector within a developing economy context, a view which has never been provided previously. This does, however, expose the study to the limitation that the scope could have been broadened to encompass other retailing entities as well as other businesses which operate in other industries.

Lastly, the study has elected to study the components and policies of working capital in a linear regressive manner. Each underlying WCM component and policy element was considered from an isolated manner to determine its interaction with profitability. The limitation is in that the conclusions of this study are arrived at from a ceteris paribus perspective, holding all else constant. Thus, any possible interactions between the varying independent variables which could influence profitability are not specifically considered.

5.2 RECOMMENDATIONS FOR FUTURE STUDY

The theme of efficient inventory management is carried throughout this research and as a standalone WCM component is shown to have the most significant impact on profitability. Therefore, it would be advisable that future research hones in and further delves specifically into the impact of the various aspects of inventory and their impact on profitability for entities in retail and other industries.

Furthermore, it has been revealed throughout this research that relationships, both from a customer demand side and supplier supply side perspective, are important. From a customer demand side impact, it is shown that having credit policies that speak to a developing economy income perspective and relational context is crucial. Thus, further research should consider this insight and further probe how income levels and the importance of appreciating customer relationships within a market influences working capital management practices and ultimately profitability. On the supply side, although retailers in a South African environment have the leeway to slightly delay their repayment to creditors, this would not be advised in the longer term. Financing working capital at the expense of short-term supplier creditors will have a detrimental effect on entity profitability, largely due to ruined relationships affecting

operations and profits. Consequently, end–to-end supply chain management plays a crucial role in working capital management and its influence on profitability. Further research should be conducted on the effect of supply chain management as an efficient working capital management tool to broaden insights for the clothing sub-sector, retail industry and other industries.

Lastly, in addressing the limitation relating to the limited sample size and specific focuses of this research, forthcoming studies should broaden their scopes. Future studies should do this by widening their investigation of working capital management practices to other sectors and industries within the South African market. This work has already been commenced by Erasmus (2010), Louw (2015) and Kasozi (2017) who, in their studies, have assessed working capital and its impact on the profitability of various entities listed on the JSE. However, there remains much more work to be done. At an industry sub-sector level, the gap in the body of knowledge is much vaster and requires future researchers to probe these relationships at those hierarchical levels as well. The work contained in this study will prove to be pivotal in providing a starting point for these more specific sub-sector investigations in future.

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APPENDIX A

DETAILED REGRESSION EQUATIONS

Q1: The relationship between Profitability and Inventory Days on Hand

$$OPM_{it} = \beta_0 + \beta_1(IDH_{it}) + \beta_2(FS_{it}) + \beta_3(FL_{it}) + \gamma i + \lambda t + \varepsilon_{it} \quad \textbf{[1]}$$

$$ROA_{it} = \beta_0 + \beta_1(IDH_{it}) + \beta_2(FS_{it}) + \beta_3(FL_{it}) + \gamma i + \lambda t + \varepsilon_{it} \quad \textbf{[2]}$$

Q2: The relationship between Profitability and Accounts Receivable Days

$$OPM_{it} = \beta_0 + \beta_1(ARD_{it}) + \beta_2(FS_{it}) + \beta_3(FL_{it}) + \gamma i + \lambda t + \varepsilon_{it} \quad \textbf{[3]}$$

$$ROA_{it} = \beta_0 + \beta_1(ARD_{it}) + \beta_2(FS_{it}) + \beta_3(FL_{it}) + \gamma i + \lambda t + \varepsilon_{it} \quad \textbf{[4]}$$

Q3: The relationship between Profitability and Accounts Payable Days

$$OPM_{it} = \beta_0 + \beta_1(APD_{it}) + \beta_2(FS_{it}) + \beta_3(FL_{it}) + \gamma_i + \lambda_t + \varepsilon_{it} \quad \textbf{[5]}$$

$$ROA_{it} = \beta_0 + \beta_1(APD_{it}) + \beta_2(FS_{it}) + \beta_3(FL_{it}) + \gamma_i + \lambda_t + \varepsilon_{it} \quad \textbf{[6]}$$

Q4: The relationship between Profitability and the Cash Conversion Cycle

$$OPM_{it} = \beta_0 + \beta_1(CCC_{it}) + \beta_2(FS_{it}) + \beta_3(FL_{it}) + \gamma_i + \lambda_t + \varepsilon_{it} \quad \textbf{[7]}$$

$$ROA_{it} = \beta_0 + \beta_1(CCC_{it}) + \beta_2(FS_{it}) + \beta_3(FL_{it}) + \gamma_i + \lambda_t + \varepsilon_{it} \quad \textbf{[8]}$$

Q5: The relationship between Profitability and Aggressive WCM Policy

$$OPM_{it} = \beta_0 + \beta_1(WCFP_{it}) + \beta_2(FS_{it}) + \beta_3(FL_{it}) + \gamma_i + \lambda_t + \varepsilon_{it} \quad \textbf{[9]}$$

$$ROA_{it} = \beta_0 + \beta_1(WCFP_{it} + \beta_2(FS_{it}) + \beta_3(FL_{it}) + \gamma_i + \lambda_t + \varepsilon_{it} \quad \textbf{[10]}$$

Q6: The relationship between Profitability and Conservative WCM Policy

$$OPM_{it} = \beta_0 + \beta_1(WCIP_{it}) + \beta_2(FS_{it}) + \beta_3(FL_{it}) + \gamma_i + \lambda_t + \varepsilon_{it} \quad \textbf{[11]}$$

$$ROA_{it} = \beta 0 + \beta_1(WCIP_{it}) + \beta_2(FS_{it}) + \beta_3(FL_{it}) + \gamma_i + \lambda_t + \varepsilon_{it} \quad \textbf{[12]}$$

The above expressions denote balanced panel regressions employed to assess the relationship between profitability and the WCM components and policy within the South African clothing retail context. In the equations, *i* denotes the *i*th firm with *t* delineating a specific year *t*. The variables in the regressions are expressed as follows:

$\mathbf{OPM}_{it}$	:	Operating Profit Margin of firm *i* at time *t*
$\mathbf{ROA}_{it}$	:	Return on Operational Assets of firm *i* at time *t*
$\mathbf{IDH}_{it}$	:	Inventory Days on Hand of firm *i* at time *t*
$\mathbf{ARD}_{it}$	:	Accounts Receivable Days of firm *i* at time *t*
APDit	:	Accounts Payable Days of firm *i* at time *t*
$\mathbf{CCC}_{it}$	:	Cash Conversion Cycle of firm *i* at time *t*
$\mathbf{WCIP}_{it}$	:	Working Capital Investment Policy of firm *i* at time *t*
$\mathbf{WCFP}_{it}$	:	Working Capital Financing Policy of firm *i* at time *t*
FSit	:	Firm Size of firm *i* at time *t*
$\mathbf{FL}_{it}$	:	Firm Leverage of firm *i* at time *t*
$\boldsymbol{\beta}_0$	:	Intercept coefficient
$\boldsymbol{\gamma}_i$	:	Firm specific effects assumed constant for firm *i* over *t*
λ_t	:	Time specific effects assumed constant over time for given *t* over *i*
$\boldsymbol{\varepsilon}_{it}$	:	Random error term for firm i at time *t*