

# Determinants of Capital Structure for Listed Retailing Firms on the JSE

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## ABSTRACT

The retailing industry of South Africa is one of the biggest in the African continent. The study examined the determinants of capital structure for listed retailing firms on the Johannesburg Securities Exchange, the 16th largest Securities Exchange in the world and an emblematic of emerging economies. Quantitative data was collected across 17 retailing firms from 2009-2018. Results from panel regression analysis supported both trade-off and pecking order theories while indicating that firm size, firm age, profitability, growth opportunities and tangibility are the significant determinants of capital structure for listed retailing firms. Liquidity was found to be insignificant.

**Keywords:** Capital structure, retailing industry, firm specific factors, pecking order theory, trade-off theory

## INTRODUCTION

As firms engage in their day-to-day operations, and in seeking to maximise shareholder wealth, the need to fund these operations and projects surfaces. Whether to finance operations with debt or equity has always been an important decision that firms have to make (Thippayana, 2014). It is therefore imperative that firms make the right decisions on whether to fund operations using debt or using equity. Such capital structure decisions affect the value of the firm and shareholder wealth, hence are one of the most important decisions taken by management when funding operations (Yinusa, Ismail, Yulia, & Olawane, 2019).

Whether a firm succeeds or fails in its operations can be attributed to its capital structure, amongst other factors (Bhattarai, 2016). This means a firm's capital structure is of great importance to shareholders, managers, as well as policy makers and financing providers. Firms with sound capital structures have the potential and capacity to grow and become sustainable. Since capital structure is linked to growth, capital structure decisions are paramount for economic growth. This view is supported by Mota and Moreira (2017) who conclude that capital structure studies are crucial to the field of finance.

Since the existence of modern business, most companies have had problems managing their capital structures, with the concept of capital structure being associated with much debate, contradicting results, and controversy (Yinusa, Ismael, Yulia & Olawane, 2019). According to Handoo and Sharma (2014), most companies struggle with capital structure decisions, hence the poor performance and lack of sustainability experienced by such companies. In order to make sound capital decisions, firms need to be aware of the significant variables that determine capital structure. An appropriate capital structure is therefore associated with well performing firms, ultimately leading to a healthy economy.

Capital structure studies are centred on perfect and imperfect market structures. Initial work on capital structures done by Modigliani and Miller (1958) is based on a capital market where perfect market conditions prevail (M'ng et al., 2017). This was then reviewed to incorporate tax (Modigliani & Miller, 1963). Theories such as pecking order, the trade-off theory, market timing theory and agency theory have since been advanced to explain capital structure decisions in imperfect capital markets. Interestingly, de Wet and Gossel (2016) argue that making financing decisions is complicated and cannot in reality be attributed to only one theory thereby possibly advocating for multi-layered theoretical lenses. Though many capital structure theories have since been advanced, Culata and Gunarsih (2012) believe that the pecking order theory and trade-off theory are the most widely used and the most illuminating theories for firm specific variables. The call for further studies is prompted by the ongoing debates within the field as capital structure studies are marked by a lot of controversy and inconclusive results. Given that this study is positioned at retailing firm level, and noting the debate regarding the theories, the researchers have aligned themselves with the stance of Culata and Gunarsih (2012) while also applying such premises to emerging markets.

South Africa as an emerging economy may be considered a pacesetter for other African countries. Studies carried out in South Africa are therefore important to the African region as a whole, and can be used to expand established theoretical positions. Capital structure is a vital concept in emerging countries (Vo, 2017) as may be borne out by the BRICS grouping. In 2010, South Africa was admitted as the only African nation to the BRICS, becoming the fifth member of major emerging nations, alongside Brazil, Russia, India and China (Gwatidzo, Ntuli & Mlilo, 2016). There is some room therefore to leverage South African studies further afield.

Though some effort has been made to examine capital structure determinants in South Africa (Moyo, Wolmarans & Brummer, 2013; de Wet & Gossel, 2016; Gwatidzo et al., 2016) the retailing industry of South Africa has been largely side lined. Given that retailing is important to the economy of South Africa, it is necessary to examine the determinants of capital structure in the retailing industry. Supporting this contention, Mouton and Smith (2016) noted that limited research has been carried out on capital structure per se, in South Africa, and, as such, in emerging economies (Cevheroglu-Acar, 2018). Researchers have focused mostly on the developed countries (Mouton & Smith, 2016; Mota & Moreira, 2017), although there has been a recent shift towards the African continent (Gwatidzo et al., 2016).

There is a lack of consensus, in different geographical areas, as well as different industries, concerning capital structure determinants (de Wet & Gossel, 2016). South Africa's retailing industry is an important industry characterised by growth (Statistics SA, 2018), yet literature on its capital structure is almost non-existent. The researchers therefore identified the need for more research on the determinants of capital structure, especially in the retail sector, which may also be related to the African continent and emerging market conditions. In response to inconclusive research results, and the research gap in Africa's retail industry, the contribution of this article is the determination of factors that influence the capital structure of listed retailing firms on the Johannesburg Securities Exchange, as an expression of emerging market dynamics. The research question for this particular study is:

What are the factors that influence the capital structure of listed retailing firms on the JSE?

The main purpose for this study is therefore to examine the determinants of capital structure for listed retailing firms on the JSE. Previous research indicates that there are many determinants in making the capital structure decision. Most commonly used determinants adopted for this study are firm size, firm age, profitability, growth opportunities, liquidity and tangibility (Handoo & Sharma, 2014; Mouton and Smith, 2016; Thiele & Wendt, 2017, Dakua, 2018; Chavali & Rosario, 2018). This study brings an awareness of firm specific factors that are important drivers when making capital structure decisions within the South African context, and therefore developing markets' context. It expands the body of knowledge on capital structure through a specific focus on the retail industry, which has, up to date, been lacking. The results of this study will benefit scholars, researchers and the corporate world at large with a specific focus on the developing economies.

This paper progresses as follows: section 2 presents literature review and hypotheses, section 3 methodology and data, section 4 research findings, section 5, the practical implications and conclusion.

## LITERATURE REVIEW AND HYPOTHESES

### ***Capital structure theories***

Capital structure theories, which have provided a framework for the determinants of capital structure, were pioneered by Modigliani and Miller (1958) through their capital structure irrelevancy theory. Their theory ignited much debate resulting in the emergence of countering theories such as, trade-off theory, pecking order theory, market timing theory and agency theory (Mitnick, 2013; Gwatidzo et al., 2016; Vo 2017; Muritala, 2018; Ramos, Santos, Gaio, Stefanelli & Passos, 2019). Despite the many theories of capital structure, Culata and Gunarsih (2012) argue that the trade-off theory and the pecking order theory are the most important theories that try to explain the capital structure of firms. These two theories therefore provide the conceptual basis for this article. Kraus and Litzenberg (1973) were the forerunners of the trade-off theory, whereas the pecking order theory was pioneered by Donaldson (1961).

Though there is consensus between the trade-off theory and the pecking order theory that firms can use debt and equity, the theories contradict each other on how debt and equity should be used. Whereas the trade-off theory focuses on balancing options towards an optimal capital structure, the pecking order theory's main focus is on the order of financing options (Culata & Gunarsih, 2012). The pecking order theory therefore stipulates that firms do not consider the optimal capital structure, but rather follow a prearranged order of financing options, starting first with internal funding before external funding. The pre-set order is according to the riskiness posed by the different financing choices to a firm, with internal funds considered as the least risky, and equity funding as the most risky (Akgul & Sigali, 2018).

Meanwhile, the trade-off theory suggests that firms can make use of more debt than equity if shareholders' wealth will be enhanced by the tax advantage associated with the use of debt (Ahmad & Aris, 2015). According to the trade-off theory, the decision to use debt or equity does not take into consideration any particular order. However, Butt (2016) is of the opinion that basing capital structure decisions mainly on tax benefits, as stipulated by the trade-off theory, is unjustifiable as firms have always been known to use debt in their capital structure well before the introduction of corporate tax.

Whereas the trade-off theory helps firms to determine the amount of debt they can service, the pecking order describes financing choices of firms. Birjandi, Hajizadeh, Sedaghat and Birjandi (2013) are of the opinion that the pecking order theory fails to adequately address all the funding options. In addition, the pecking order theory seems to be more applicable to very large firms. Though previous research seems to agree that the trade-off theory and pecking order theory are the most valid capital structure theories (Culata & Gunarsih, 2012), recent studies have shown conflicting results on these two theories (Mouton & Smith, 2016; Butt, 2016; Morade & Paulet, 2019). This also suggests the need for extending the analytical domain around these theories, as addressed by this study.

For the purposes of capital structure, leverage will be used as a reference and proxy to the capital structure of a firm (Mouton & Smith, 2016; M'ng et al., 2017). Leverage is instituted mainly by the total debt to equity.

### ***South Africa's Retailing Industry***

Retailing is an important industry within the South African economy that has seen positive growth over the years. Year 2017 saw South Africans spending about R31 900 per second in retailing (Statistics SA, 2018). In May 2019, year on year sales in the retailing industry increased by 2.2% from 2018 based on 2015 constant prices (Statistics SA, 2019), signifying growth in the industry. According to the Quarterly Bulletin (2012), major players in the retailing industry are Massmart Holdings, Spar Group, Shoprite, Woolworths and Pick n Pay. Other retailers mentioned are Clicks, Mr Price and the Foschini group. According to CEIC data (2020) the retailing industry realised only positive growth in sales from January 2019 to December 2019 with growth rate of 3.036% in June 2019 based on year-on-year monthly sales (Figure 1).

**FIGURE 1**  
**2019 REPORTED GROWTH IN RETAIL SALES**



Source: www.ceic data.com

South Africa has the biggest retailing industry in Africa, particularly in Sub Saharan Africa, and ranks number twenty globally (Features, 2016). This makes the South African retailing industry an essential area of study. Furthermore, trade which combines retail and wholesale, contributes meaningfully to the country's GDP, and employs a significant percentage of the South Africa's labour force (Quarterly Bulletin, 2012). Despite the business cycle economic slowdown, South Africa's retail trade sales have been growing fairly well (Quarterly bulletin, 2018). However, with the Covid-19 pandemic that South Africa is experiencing in full force since 2020, these figures will definitely be much different to previous years and will require specific investigation in the future to fully understand the effect of the pandemic on retail firms' capital structures.

### **Firm specific factors**

The firm specific factors relevant to this study are firm size, growth opportunities, tangibility, profitability, liquidity and firm age. Accordingly, studies on determinants of capital structure have been conducted and a summative outline is tabled (table 2.1).

Reviewing firm specific factors, Thiele and Wendt (2017) report that the size of the firm has a positive relationship with leverage, while Bhattarai (2016) argue that as the firm size grows, its level of debt falls. Meanwhile, an investigation by Irk and Karaca (2015) shows growth opportunities to be significantly and positively related to leverage. This contradicts the study by Gwatidzo et al. (2016) which portrays growth opportunities as an insignificant determinant of capital structure. On the other hand, Moyo et al. (2013) assert that tangibility is an important determinant of capital structure and is negatively related to leverage. But Dakua (2018) is of the opinion that firms with tangible assets are better positioned when it comes to receiving funding from banks, and the more tangible a firm is, the more debt they use in their capital structure.

Furthermore, Chavali and Rosario (2018) find profitability as measured by Return on Assets (ROA) to be negatively related to capital structure, while profitability as measured by Return on Equity (ROE) is found to be positively related to capital structure. On another note, Rashid and Mehmood (2017) find a negative relationship between liquidity and leverage. Interestingly, Ghasemi and Razak (2016) believe the real impact of liquidity on firm's financing decisions is yet to be established. Though Ahmad and Aris (2015) conclude that factors like firm age are important when making capital structure decisions, and have a negative relationship with leverage, Kieschnick and Moussawi (2018) beg to differ by claiming that a positive relationship exists between firm age and leverage.

Notwithstanding the active interrogation in these various studies, the researchers present the central variables/determinants which form the current unit of analysis and the main authors associated with such studies. This provides a modest coverage of these key concepts so as to springboard the hypotheses and the empirical study. Table 2.1 provides a summary of previous studies on capital structure determinants.

**TABLE 1**  
**SUMMARY OF PREVIOUS LITERATURE**

Determinant	Previous studies that used similar determinant
Firm size	Thippayana (2014); Bhattarai, (2016); Moradi & Paulet (2019)
Firm age	Adair & Adaskou (2015) Ahmad & Aris (2015); Kieschnic & Moussawi (2018)
Profitability	Thippayana (2014); Irk & Karaca (2015); Butt (2016); M'ng et al., (2017); Chavali & Rosario (2018)
Growth opportunities	Chang et al. (2014); Irk & Karaca (2015); Thiele & Wendt (2017); Cevheronglu-Acar (2018)
Liquidity	Handoo & Sharma (2014); Mouton & Smith (2016); Mota & Moreira (2017); Rashid & Mehmood (2017)
Tangibility	Moyo et al. (2013); Haron (2014); Gwatidzo et al. (2016); Vo (2017); Dakua, (2018)

*Source: Authors' creation*

In sum, most of these studies were carried out in developed countries, demonstrating conflicting standpoints and sparse evidence of what these concepts add to our understanding of capital structure for emerging markets (M'ng et al., 2017). To extend the coverage of current literature, this study consequently differentiates the most important determinants of capital structure from existing literature, despite their application to mature economies. The researchers extrapolate the concepts to an emerging economy with hypotheses for the retailing industry and within the theoretical remit that has been discussed above.

As firms grow, the perception is that it will become easier to access funding from banks, thereby increasing leverage. This is associated with reputational advantage (Gwatidzo et al., 2016) and firms being more established, thereby having more collateral security available, a reliable stream of income and lower risk of non-payment of debt (Handoo & Sharma, 2014; Thippayana, 2014 and Thiele & Wendt, 2017). Thus, the first hypothesis is:

H<sub>1</sub>: There is a positive relationship between firm size and leverage.

The number of years listed refer to firm age. Just like firm size, acquiring debt is reliant on reputational advantage and reputation increases as a firm creates a record of finances over the years (Gwatidzo et al., 2016). In addition, firms that are young in terms of listing should have more capital available raised by the initial listing on the exchange, especially a developed exchange such as the Main Board of the JSE. Therefore, the second hypothesis is:

H<sub>2</sub>: There is a positive relationship between firm age and leverage.

Profitability is a contentious but crucial determinant of capital structure (Chen, 2004). Profitability indicates that a firm's revenue exceeds the expenses, which in turn is apparent in a firm's ROE and ROA, as measurements of profitability (M'ng et al., 2017). Using these two proxies for profitability contributes to the debate and therefore it was decided to include only ROE in the analysis of this article as it is a widely used proxy. ROA was included as a robustness check (see appendix C). Gwatidzo et al. (2016) and Butt (2016) state that a firm will use less debt as their profitability improves. However, a positive relationship is an indicator of low financial risk; the firm being able to pay the debt and the interest on the debt. The management between debt repayments and the available profits converted to retained earnings will also increase shareholders' return (M'ng et al., 2017). The third hypothesis is:

H<sub>3</sub>: There is a positive relationship between profitability and leverage.

When firms have growth opportunities, they would naturally search for external funding as internal funds might not be enough to finance these opportunities (Acedo-Ramirez, Ayala-Calvo & Navarrette-Martinez, 2017). Consequently, as growth opportunities increase, firms will fund their growth by borrowing, as it is a simpler process, rather than issuing shares. The fourth hypothesis is:

H<sub>4</sub>: There is a positive relationship between growth opportunities and leverage.



Firms with high liquidity are less likely to increase leverage exposure in its capital structure decisions (Rashid & Mehmood, 2017). The firm with high liquidity would then rather use retained earnings instead of leverage for investment opportunities, thus supporting the pecking order theory (Cevheroglu-Acar, 2018). The fifth hypothesis is:

H<sub>5</sub>: There is a negative relationship between liquidity and leverage.

Tangibility; the tangible assets of a firm; can be used as collateral security when borrowing funds as well as securing lower borrowing costs (Handoo & Sharma, 2014; Gwatidzo et al., 2016). Lower borrowing costs can motivate firms to use leverage instead of equity when making capital structure decisions. The sixth hypothesis is:

H<sub>6</sub>: There is a positive relationship between tangibility and leverage.

## METHODOLOGY AND DATA

Secondary data for 17 retailing firms listed on the JSE was collected from INET BFA database, an international recognised database for secondary data, for the period 2009-2018, in order to capture recent developments after the 2008 financial crisis. Ethical clearance was obtained with clearance code SAREC2019200802. Delisted retailing firms and listed retailing firms with incomplete data were excluded. Firm specific determinants and their proxies used were adopted from previous studies (Mouton & Smith, 2016; Thiele & Wendt, 2017; Dakua, 2018; Chavali & Rosaria, 2018). The data were analysed using Eviews and panel data regression. Data used for this particular study were two dimensional with both cross sectional and time series data, encompassing information across space and time, hence making panel regression an appropriate data analysis approach for this study. The use of both time series and cross-sectional data resulted in better estimates as more information over multiple periods was available for the study and increased the degree of freedom.

The empirical model used to test hypotheses for this study is specified as follows:

$$LEV_{it} = \alpha_i + \beta_1 SIZE_{it} + \beta_2 AGE_{it} + \beta_3 ROE_{it} + \beta_4 GRO_{it} + \beta_5 LIQ_{it} + \beta_6 TAN_{it} + \epsilon_{it}$$

The independent variables are represented by SIZE (size), AGE (age), ROE (profitability), GRO (growth opportunities), LIQ (liquidity) and TAN (tangibility). LEV (leverage) is the proxy used for the dependent variable capital structure,  $\beta$  denotes parameter vectors for estimation and  $\epsilon_{it}$  is the error term.

Leverage is measured using debt equity ratio. Firm size is measured using the natural log of total sales and firm age by the natural log of the number of years since listed. The proxy used for profitability is return on equity while yearly sales growth percentage represents growth opportunities. Liquidity is represented by the ratio of current assets to current liabilities and tangibility by the ratio of fixed assets to total assets.

## RESEARCH FINDINGS

Appendix A shows the correlation matrix and the Variance Inflation Factor (VIF) test results for multicollinearity and Appendix B shows the data descriptive statistics. All the absolute values of the correlation are less than 0.8 signifying that there are no multicollinearity problems between the independent variables. The results show very low VIF values for all variables implying that multicollinearity is not a problem among the independent variables used for the study. The random effects and fixed effects models were explored to find the best model for the study. Results for the redundant fixed effects and the Hausman test are shown in Table 2 and 3.

**TABLE 2**  
**REDUNDANT FIXED EFFECTS TEST**

Effects Test	Statistic	Prob.
Cross-section Chi-square	346.508	0.000***
Period Chi-square	49.558	0.000***

Source: Eviews estimation

\*\*\* 99% confidence level, \*\*95% confidence level, \*90% confidence level)

The p-values for both the cross-section chi-square and period chi-square are 0.000. These results suggest that both the cross section and period chi-square are significant at 1% significance levels and can be used to identify the determinants of capital structure for listed retailing firms on the JSE.

Diagnostic testing in terms of the Hausman test was conducted to establish if the random effects model is preferred over the fixed effects model for the data set. The results shown in Table 3 indicate that the fixed effects is the better model based on the significant probability statistic.

**TABLE 3  
HAUSMAN TEST**

Test summary	Chi-Sq. Statistic	Prob (test statistic)
Cross-section random	39.731	0.000***

Source: Eviews estimation

\*\*\* 99% confidence level, \*\*95% confidence level, \*90% confidence level

The fixed effects model was adopted as the most appropriate model with the results as shown in table 4.

**TABLE 4  
FIXED EFFECTS MODEL**

Variable	Coefficient	Prob.	
C	-9.946	0.000	
SIZE	0.222	<b>0.015</b>	**
AGE	2.126	<b>0.000</b>	***
ROE	0.015	<b>0.001</b>	***
GRO	0.006	<b>0.024</b>	**
LIQ	-0.057	0.361	
TAN	2.472	<b>0.001</b>	***
Adjusted R squared	0.934	Prob (F-statistic)	0.000***

Source: Eviews estimation

\*\*\* 99% confidence level, \*\*95% confidence level, \*90% confidence level

The probability (F-statistic) of less than 0.05 supports that the fixed effects model adopted is appropriate. Therefore 93.4% of the capital structure variance can be explained by the independent variables included in the data set. The fixed effects model results indicated that firm size, age, profitability, growth opportunities and tangibility were significant with p-values of less than 0.05. Only liquidity was insignificant with a p-value greater than 0.05.

## DISCUSSION OF FINDINGS

### **Firm Size**

Size is significant at 95% confidence level with a p-value of 0.015. This implies that size is a significant determinant of capital structure for listed retailing firms on the JSE. The coefficient is positive, meaning that there is a positive relationship between leverage and size. Hypothesis H<sub>1</sub>, which predicted a positive relationship between firm size and leverage, is not rejected. The positive relationship is to be expected since the study focused on listed firms which are normally large firms that can reap reputational advantages when it comes to funding from financial institutions.

The findings are in line with previous research carried out by Thippayana (2014), who found a positive relationship between size and leverage, and is also supported by Gwatidzo et al. (2016), Thiele and Wendt (2017), and Moradi and Paulet (2019). The positive significant relationship is also in agreement with findings on the UK retailing industry (Abdou & Pointon, 2012). The findings differ from research carried out by Irk and Karaca (2015). Research by Irk and Karaca (2015) reveal that size is not an important determinant of capital structure. Their study concentrated on the manufacturing sector, and the differences in the results might well be attributed to the different sectors of study. This study's findings are contrary to findings by Mouton and Smith (2016), who found firm size to be an insignificant determinant of capital structure. Although their study was also carried out on the JSE, the sample was not industry specific, and this may explain the contradicting results. The results of this study also contradict studies by Bhattari (2016) who found a negative relationship between size and leverage, arguing that larger firms use less debt than small firms. It can be concluded, from this study, that the capital structure of listed retailing firms on the JSE is significantly determined by size.

### ***Firm Age***

Age is significant at 99% confidence level with a p-value of 0.000. Firm age showed a positive relationship hence hypothesis H<sub>2</sub> is not rejected. The p-value suggests that age is a significant determinant of capital structure for listed retailing firms. The results are in line with findings by Adair and Adaskou (2018), based on a study they carried out in France which reveals age as a significant determinant of capital structure. One of the findings by Gwatidzo et al. (2016) in a study carried out, similarly, on JSE listed companies, also found age to be significant, supporting the results for this study. The results are also consistent with the study carried out by Ahmad and Aris (2015), which show a significant relationship between age of the firm and leverage. The results are, however, inconsistent with studies carried by Handoo and Sharma (2014) in India. The different results may be attributed to the different geographical areas. All other things being constant, the authors of this research conclude that age significantly determines the capital structure of listed retailing firms on the JSE.

### ***Profitability (ROE)***

ROE is significant at 99% confidence level. The p-value for ROE is 0.001 meaning profitability as measured by ROE is a significant determinant of capital structure for listed retailing firms on the JSE. The coefficient shows a positive relationship between profitability as measured by ROE and leverage. Hypothesis H<sub>3</sub> is therefore not rejected. The results are in agreement with Chavali and Rosario (2018), who found a positive relationship between leverage and profitability as measured by ROE. A positive relationship between profitability and leverage was also found by Moyo et al. (2013) who concluded that profitability is a significant determinant of capital structure. The results concur with Adair and Adaskou (2018), who found profitability to be significant and positive. These results imply that for listed retailing firms on the JSE, as firms become more profitable, they tend to rely more on debt, possibly because profitable firms normally do not struggle to get debt funding for operations as they are considered less risky. Profitability increases confidence in the performance of the firm and could compel managers to borrow more. As firms become more profitable, finance managers might incorporate debt so as to enjoy tax shield benefits. The results herewith show that profitability significantly determines the capital structure of listed retailing firms on the JSE.

### ***Growth Opportunities***

Growth opportunities is significant at 95% confidence level with a p-value of 0.024, implying that it is a significant determinant of capital structure for listed retailing firms on the JSE. The coefficient shows that there is a positive relationship between growth and leverage. Hypothesis H<sub>4</sub>, which predicted a positive relationship, is not rejected. A positive relationship between growth and leverage was also found by Acedo-Ramirez et al. (2017) and Chang, Chen and Liao (2014), concurring with the current study findings. These results contradict studies by Thippayana (2014), and Gwatidzo et al. (2015) who found growth opportunities to be an insignificant determinant of capital structure. Additionally, the findings do not conform to findings by Chen (2004) who found a negative relationship between



growth opportunities and leverage. The findings for this study indicate that growth opportunities determine capital structure, and as growth opportunities increase, listed retailing firms on the JSE tend to use more debt than equity to finance their operations, all other things being constant. This could be due to the need to borrow for expansion as growth opportunities increase.

### **Liquidity**

The results show that liquidity with a p-value of 0.361 is not a significant determinant of capital structure for listed retailing firms as it is statistically insignificant at 90% confidence level. For liquidity, hypothesis H<sub>5</sub> is rejected, since liquidity was found to be insignificant, the relationship is considered meaningless to the capital structure of listed retailing firms on JSE. The results concur with findings by Handoo and Sharma (2014) whose study based in India shows that liquidity is not a significant factor that determines capital structure. Liquidity was found to be an insignificant determinant of capital structure by Mouton and Smith (2016) who carried out a study on the top 40 JSE firms while also implying the need for industry specific determinants of capital structure. The results are inconsistent with findings by Ghasemi and Razak (2016) and Rashid and Mehmood (2017), whose study show liquidity to be an important determinant of capital structure. Interestingly, contrary to the results of this study, liquidity was found to be significant for the UK retailing sector (Abdou & Pointon, 2012). South Africa and UK are in different phases of economic development and this might explain the contradicting results, even though both studies looked at the same industry. Thus, results of this South African study in the retailing industry are extremely important to the overall understanding of the retailing industry's capital structure decisions. The results of this study indicate that for listed retailing firms on the JSE, liquidity does not significantly determine capital structure decisions. This could be because listed retailing firms on the JSE consider other factors, other than liquidity, to be more important when making financing decisions.

### **Tangibility**

The p-value for tangibility is 0.001. The results show that tangibility is a significant determinant of capital structure at 99% confidence level. The coefficient indicates a positive relationship between tangibility and leverage. Hypothesis H<sub>6</sub>, which predicts a positive relationship, is not rejected. The results are consistent with the study by M'ng et al. (2017) who found tangibility to be a significant determinant of capital structure for Malaysia and Singapore. Conversely, Thippayana (2014) found tangibility to be an insignificant determinant of capital structure. Study carried out on the Steel Industry of India by Dakua (2018) also contradicts the study findings as tangibility was not found to be a significant determinant of capital structure. The contradicting results support the argument that capital structure is best viewed through an industry-based approach. It is concluded that tangibility is a significant determinant of capital structure for listed retailing firms on JSE, based on the parameters of this research.

Overall, firm size, firm age, profitability, growth opportunities and tangibility are important for maximising shareholder wealth and firm value for listed retailing firms on the JSE. These variables ought to be considered when making financing decisions for firm investments. Investment decisions are important for firm growth which will eventually increase the value of the firm and shareholder wealth (Akgul & Sigali, 2018). The positive relationship found between leverage and firm size, firm age, profitability and tangibility support the trade-off theory predictions (Cekrezi, 2013; Cheng e al., 2014; Mn'g, Rahman & Sannacy, 2017; Akgul & Sigali, 2018) while the positive relationship between leverage and growth opportunities support the pecking order theory prediction (Cevheronglu-Acar, 2018). The utility of both these theories for this study is thereby demonstrated. These findings reveal that listed retailing firms on the JSE support both the trade-off theory and the pecking order theory, though there is more support for trade-off theory than pecking order theory. This suggests that when making financing decisions, both the trade-off theory and the pecking order theory play a significant role, with firms aligning themselves more to the trade-off theory.

For retailing firms listed on the JSE, as growth opportunities increase, their leverage increases as predicted by the pecking order theory. This could be because the need to fund growth opportunities puts pressure on current retained earnings, prompting firms to look for debt funding, thereby increasing leverage. Concerning firm size, listed firms on the JSE increase leverage as the firms become larger as predicted by the trade-off theory. The support for the

trade-off theory could be explained by the fact that larger firms tend to diversify their business lines, become more visible, and reap reputational advantages while also enjoying good credit records, and hence easily borrow funds from financial institutions. The research results can be an indication that smaller retailing firms opt for an optimum capital structure by considering the benefits and bankruptcy costs, while the larger retailing firms tend to give priority to retained earnings.

The support for both the pecking order theory and trade-off theory by listed retailing firms on the JSE is important as it supports the contention by de Wet and Gossel (2016) that no one specific individual capital theory can be used to fully explain the capital structure for listed retailing firms on the JSE. As put forward by these authors financing decisions are complex, and do not revolve on singular theory. This suggests that capital structure theory relevance cannot be compared, and that no one capital structure theory is better than the other, as is proof by this study. The findings are not uncommon, and concur with previous studies that have also found support for both the trade-off theory and the pecking order theory, with some variables supporting the trade-off theory, and others the pecking order theory (Moyo et al., 2013; Mouton & Smith, 2016; Thiele & Wendt, 2017; M'ng et al., 2017; Chavali & Rosario, 2018). There is, however, a disparity with conclusions made by Abdou and Pointon (2012) on the UK retailing industry. They concluded that the UK retailing firms follow the pecking order theory. This disparity can be attributed to the fact that the UK is an advanced economy compared to the South African economy, and its net profit for the retailing sector might be very high, rendering it unnecessary to even consider the benefits of using debt. The results are also inconsistent with findings by Irk and Karaca (2015), whose study of the determinants of capital structure show results that support the pecking order theory. The results of this study, differing from the UK study, emphasises the fact that there are material differences between developed and emerging economies, and such is important to be researched and reported to provide an understanding of these differences.

## PRACTICAL IMPLICATIONS

The results of this study are relevant to finance managers of listed retailing firms who can use it to maximise shareholder wealth by considering the significant factors. This is especially important since capital structure impacts on the value of the firm, and hence the value of shares on the market. Finance managers for listed retailing firms can therefore capitalise on the significant factors in order to maximise shareholder wealth and firm value. Capital structure decisions affect investment decisions that a firm makes, and hence affect firm growth, which is important for increasing firm value and shareholder wealth.

The significant factors to consider when making financing decisions for listed retailing firms on the JSE are firm size, age, profitability, growth opportunities and tangibility. Knowing that these significant factors have a positive relationship with leverage, will assist managers of retailing firms to make sound capital structure decisions to contribute to a financial healthy firm, ultimately maximising shareholders' wealth.

## CONCLUSION

Capital structure decisions are of the utmost importance to maximise shareholders' wealth. It is imperative to decide whether a firm use debt or equity in making various investment decisions. These decisions attribute to the financial wealth of a firm and the aim of this article is to investigate factors influencing the capital structure of retailing firms on the JSE, using panel data analysis.

Evidence indicates support for both the trade-off theory and the pecking order theory though more support is shown for the trade-off theory. Hence it can be concluded that the capital structure of listed retailing firms cannot be successfully explained by only one theory. This is an important theoretical implication for scholars of the retailing industry and scholars of emerging market capital structure. This study therefore extends theory through a combination of the two dominant capital structure theories that is, trade-off theory and pecking order theory.

Furthermore, listed retailing firms in an emerging market can achieve success by focusing on firm size, age, profitability, growth opportunities and tangibility when making capital structure decisions. Interestingly, liquidity was found to be insignificant to the capital structure for listed retailing firms. The study contributes to literature by illustrating

the relevant determinants of capital structure for listed retailing firms on the JSE. As noted, South Africa forms part of the BRICS economies and the SA retailing industry is the one of the largest on the African continent. Therefore, the results have important implications for emerging economies, adding value to the body of knowledge on the South African, African and emerging economies scope.

To scholars and other researchers, this study is advocated for industry comparison especially with regard to studies carried out in different industries, or in the same industry, but in different countries. Policy makers may well find this study useful when deciding on policies that boost the financing of the retailing industry. All these considerations are important, considering the size of the industry and that the retailing industry acts as a link connecting manufacturers with consumers.

The study differentiates itself from other previous studies by focusing only on the retailing industry as opposed to examining capital structure determinants for listed firms irrespective of industry. As highlighted, there has been little research carried out in Africa and this study was carried out in South Africa, an emerging and pivotal African economy. To the best of the researchers' knowledge, this is the first study to be carried out on the retailing industry of South Africa, therefore making an important applied contribution. There is still room to bolster the body of literature on the retail industry of other emerging economies as there are still many variables to explore.

Future studies also need to concentrate on other emerging economies, so as to intensify the knowledge base on less mature business systems. It will be extremely interesting to repeat this study on the time period of which COVID-19 emerged and its subsequent impact on the retailing sector, to determine whether retail firms in a period of severe financial distress follow the same capital structure theories.

Since firm size was found to be a significant determinant of capital structure, further research can be carried out on smaller firms in order to deepen the understanding of the impact of company determinants on capital structure. Conclusively, it should be noted that book-value debt equity ratio was used for the study. Given this consideration, it would be interesting to explore the capital structure of the retailing industry using market-value variables. In sum, this study has built on capital structure theories, complements previous studies, as reviewed herein, and provides room for future extension of knowledge in the field of capital structure.

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## APPENDIX A

## TEST FOR MULTICOLLINEARITY

Correlation Probability	LEV	SIZE	AGE	ROE	GRO	LIQ	TAN
LEV	1.000 -----						
SIZE	0.144 0.060	1.000 -----					
AGE	-0.012 0.879	-0.269 0.000	1.000 -----				
ROE	0.120 0.120	0.587 0.000	-0.276 0.000	1.000 -----			
GRO	-0.052 0.498	0.269 0.000	-0.126 0.101	0.314 0.000	1.000 -----		
LIQ	-0.625 0.000	-0.394 0.000	0.065 0.399	-0.256 0.000	-0.095 0.220	1.000 -----	
TAN	-0.272 0.0003	-0.067 0.386	0.079 0.304	-0.138 0.074	0.120 0.120	-0.191 0.013	1.000 -----

Source: Eviews estimation

All the absolute values of the correlation are less than 0.8 signifying that there are no multicollinearity problems between the independent variables.

## VARIANCE INFLATION FACTOR

Variable	Coefficient Variance	VIF
C	1.089	NA
SIZE	0.003	1.757
AGE	0.014	1.109
ROE	4.97E-05	1.669
GRO	3.15E-05	1.163
LIQ	0.003	1.266
TAN	0.286	1.122

Source: Eviews estimation

The results show very low VIF values for all variables implying that multicollinearity is not a problem among the independent variables used for the study.

## APPENDIX B

## DESCRIPTIVE STATISTICS

	LEV	SIZE	AGE	ROE	GRO	LIQ	TAN
Mean	1.716	15.850	3.406	24.884	9.118	2.2034	0.241
Median	1.105	16.000	3.910	23.345	9.000	1.325	0.220
Maximum	7.270	19.000	4.060	67.490	84.000	7.370	0.730
Minimum	0.100	11.000	1.610	-27.070	-82.000	0.260	0.020
Std. Dev.	1.605	1.919	0.722	14.877	15.611	1.670	0.161
Observ	170	170	170	170	170	170	170
Cross S.	17	17	17	17	17	17	17

Source: Eviews estimation

## APPENDIX C

## ROBUSTNESS CHECKS

With profitability being one of the most important determinants of capital structure (Chen, 2004), robustness is checked by using a different proxy for profitability. The fixed effects model is run using Return on Asset (ROA) as a proxy for profitability to see how the model behaves if a different proxy for profitability is used. The results are shown below:

**TABLE 4**  
**ROBUSTNESS CHECKS**

Variable	Coefficient	Std. Error	Prob.	
C	-8.153	1.810	0.000	***
SIZE	0.182	0.093	0.052	*
AGE	1.889	0.410	0.000	***
ROA	-0.001	0.008	0.885	
GRO	0.009	0.003	0.001	***
LIQ	-0.044	0.066	0.504	
TAN	2.386	0.765	0.002	***
Adjusted R-squared	0.928	Prob(F-statistic)	0.000***	

Source: Eviews estimation  
(\*\*\* 99% confidence level, \*\*95% confidence level, \*90% confidence level)

The robustness check shows that liquidity is still insignificant with size, age, growth and tangibility still significant when the measure of profitability is changed. The robustness check results are therefore consistent with the main analysis as depicted by the fixed effects model as the other variables that are significant when ROE is used are still significant when ROA is used for profitability. The insignificant p-value for ROA confirms the choice of using ROE as a measure of profitability and might imply that ROE can be the better measure for profitability for listed retailing firms.