

Sectoral Analysis of Capital Structure and Distribution Policies of Companies listed on the JSE

DOI: <https://doi.org/10.31920/1750-4562/2021/v16n4a3>

Mpinda Freddy Mvita*

Financial Management,

University of Pretoria

Email address: mvitampinda@gmail.com

Leon Marx Brummer

Financial Management,

University of Pretoria

Email address: leon.brummer@up.ac.za



Hendrik Petrus Wolmarans

Financial Management,

University of Pretoria

Email address: hendrik.wolmarans@up.ac.za

**Corresponding Author*

Abstract

The objective of this paper was to investigate whether companies listed in four sectors of the Johannesburg Stock Exchange (JSE) treated their financing and distribution policies differently and the interdependence thereof because of sectoral nuances. The research employed a single equation (fixed effect) and a simultaneous equation (3SLS) on a sample of twenty three companies from the basic materials sector, nine companies from the consumer goods sector, sixteen

companies from the consumer services sector and twenty one companies from the industrial sector over the period 1990-2017. The empirical findings provide evidence that sectoral nuances played an important role in explaining the treatment of financing and distribution decisions across these four sectors of the JSE. The empirical findings revealed that dividend payments and capital structure are positively significantly correlated with each other in the basic materials sector and consumer service sector, while in the consumer goods sector, capital structure and dividend payment are negatively significantly correlated with each other. Furthermore, the results provided evidence of joint determinants affecting the sectors significantly and differently because of sector nuances. Profitability, size, and assets tangibility were the strongest in explaining the effects of joint determinants within the 3SLS approach. The research proposed that South African managers must consider sector differences when formulating and inter-relating financing decisions to payout decisions.

Keywords: *Capital structure, payout policy, agency cost, sectoral nuances, and joint determinants*

1. Introduction

Over the past few decades, much research in finance have investigated the determinants of debt and dividend payments separately. For example, Moyo *et al.* (2013) investigated company-specific determinants of debt policy in South Africa, while Nyere and Wesson (2019) examined the factors influencing dividend decisions in South Africa.

However, it has been established in the academic literature that capital structure and dividend payments are inter-related (Short *et al.*, 2002; Jensen *et al.*, 1992). For example, Koch and Shenoy (1999) found interdependence between debt and dividend payments. Intuitively, the interplay between the two policies is evident because the payout ratio determines the retention rate and, as a result, the capital structure (Aggarwal & Kyaw, 2010). In addition, Jensen *et al.* (1992) posited that there is a direct and indirect relationship between the two policies. The agency theory can explain the cause of these relationships (Jensen & Meckling, 1976).

Agency theory suggests a conflict between managers and shareholders due to asymmetric information (Butler, 2016). The manager's role in the company is to maximise shareholders' value, and the conflict arises when managers try to maximise their own benefits. Shareholders can mitigate this conflict and reduce agency costs by

increasing debt or paying dividends, giving managers fewer opportunities to maximise their own benefits (Al-Najjar, 2011).

Most studies that investigated the simultaneous determination of debt and dividend payments have ignored the importance of sectoral differences on these decisions. La Porta *et al.* (2000) argued that debt and dividend policies differ across countries due to different tax and legal systems. This narrative can be true at the sectoral level. For example, companies operating in the same sector in South Africa should have similar characteristics. These characteristics will affect the nature of the sector (for example, profitability, risks, the level of cyclicality and return) and follow common business policies and norms. In addition, sectors are also subject to different challenges in terms of operating risk, technology requirement and environmental regulation. The literature indicates that companies' financing and distribution decisions rely on the specific characteristics of these companies and the nature of the industry. However, the sectoral analysis studies of the interplay between distribution policies and capital structure are scarce when it comes to developing countries like South Africa. Over the last two decades, the South African market has featured periods of high economic growth and low economic growth, massive capital inflows (during booming periods) and outflows (during periods of uncertainty in the market) and significant changes in the structure of capital and distribution strategies. The phenomenal variation in the economy of South Africa is reflected in the per capita income and the growth relative to the population. This has engendered a gradual transfer from traditional primary sectors (industrial and basic materials) to secondary or tertiary sectors (services) to serve the growing population's needs. Furthermore, some industries are still tightly controlled by the South African government (for example, the industrial sector), leading to different styles of agency problems and consequently resulting in different approaches to companies' capital structure and distribution policies. This narrative is in line with the research findings. For example, the research findings revealed that the degree of indebtedness varied across the sectors, which changes how the policies are treated and interrelated. The interdependence between capital structure and dividend payments appeared in the basic materials, consumer sectors and consumer goods when the two policies were interrelated using a single equation approach.

To the authors' knowledge, there is a paucity of research that examine the importance of sectoral nuances or industry nuances to the simultaneous decision-making between the capital structure and the

dividend payments in South Africa. Therefore, the main objective of this study is to examine the importance of sectoral nuances on the simultaneous decision-making between the capital structure and the dividend payments to understand how cross-sector differences (sector activities and the nature of the sector, market volatility and government policies) affect the interdependence between financing and distribution decisions within sectors in South Africa.

This study contributes to the existing literature in several aspects. First, it investigates the simultaneous determination of debt and dividend payments by using data from different sectors. Second, it provides evidence on how cross-sector differences affect the simultaneous treatment of financing and payout decisions across the four sectors of the JSE directly and indirectly through joint determinants. Finally, from a practitioner's point, it contributes to better knowledge of how agency cost problems can be mitigated across sectors by South African managers.

2. Literature review and testable hypotheses

Financing decisions

Jensen (1986) argued that because dividends and debt reduce free cash flow (which managers may use to finance their inefficient behaviour), these two variables may also be used to reduce agency costs. According to Kim *et al.* (2007), debt and dividends may be substitutes or complements depending on whether the convergence of interest theory or the entrenchment theory holds. Based on this narrative, the research expects an ambiguous relationship between dividend and debt across sectors. Dividend payments are expected to have a negative effect on debt if the convergence of interests theory is valid. In this case, managers are acting in the interest of the owners. This implies that there is no excess cash flow and/or liquidity. Increases in a company's debt load must be paid through other means, presumably by allocating fewer resources to dividends. In this case, debt and dividends are substitutes. Alternatively, dividends are expected to positively affect debt if the entrenchment theory is valid because both policies can be used to reduce cash flows and liquidity that would otherwise be misused by management.

Payout decisions

According to Miller and Rock (1985), under information asymmetry, managers are willing to use leverage and/or dividends to send a positive signal to the capital market. This induces debt and dividends to serve as substitute-signalling forces (Kim *et al.*, 2007). As a result, the research expects the impact of debt on dividend policies to be analogous to the impact of dividends on debt policies. That is, debt is expected to negatively affect dividends if the convergence of interest theory holds and to have a positive impact on dividend if the entrenchment theory holds (Kim *et al.*, 2007).

Joint determinants of capital structure and distribution strategies

Profitability

According to the signalling theory, profitable companies tend to pay higher dividends as a signal of their performance because the dividends are usually distributed from annual profits (Al-Najjar, 2009). Further, some authors have shown that profitability is negatively associated with debt ratio because profitable companies are supposed to have more available internal capital, based on the pecking-order theory (Reyna, 2017; Vo, 2017; Mouton & Smith, 2016; Acaravci, 2015).

Asset liquidity

Companies with high liquid assets can use such assets to finance their investment (Al-Najjar, 2011). As a result, a company's liquidity position should negatively impact its leverage ratio. Similarly, when agency liquidity costs are high, outside creditors limit the amount of debt financing available to the company. Liquidity also plays a significant effect in payout decisions. According to Al-Najjar (2011), companies with more cash availability are more likely to pay dividends than companies with insufficient cash.

Tangibility of assets

According to Aivazian et al. (2003), asset tangibility has an inverse relationship with dividend payments, especially in developing economies. They argue that when assets are more tangible, fewer short-term assets are available for financial institutions to lend against. As a result, this imposes financial constraints on companies operating in more traditional

financial systems, where the source of debt is short-term bank financing. This argument is supported by Al-Najjar (2009). Similarly, the trade-off theory predicts tangibility positively related to debt levels for two main reasons: security and financial distress. First, tangible assets normally provide high collateral value relative to intangible assets, which implies that these assets can support more debt. Second, tangible assets often reduce the cost of financial distress because they tend to have higher liquidation value.

Company size

Lloyd *et al.* (1985) argued that large companies are likely to have a more dispersed ownership structure and, in this context, face higher potential agency costs. Furthermore, larger companies are more likely to be mature and have easier access to capital markets to raise external finance at lower costs. This supports the conclusion that company size is positively related to dividend payments. Some authors also reported this positive relationship (Baker *et al.*, 2019; Kisman, 2016; Yusof & Ismail, 2016; Hashemi & Zadeh, 2012). Furthermore, large companies have higher debt capacity and in line with the trade-off theory, a positive relationship is expected between size and leverage. This is consistent with the general results reported by other authors (Kieschnick & Moussawi, 2018; Dacosta & Adusei, 2016; Acaravci, 2015; Dang *et al.*, 2014; Al-Najjar, 2011).

Investment and growth opportunities

The transaction cost theory suggests that with high growth, there is more need for funds to finance investments, and thus the more likely the company is to preserve earnings for investments rather than paying dividends. Moreover, external financing is costly. Evidence from various studies support the narrative that companies distribute lower dividends when they experience higher growth opportunities because this growth seemingly involves higher investment expenditure (Ding & Murinde, 2010). In addition, agency problems are more severe for growing companies because they are more flexible in their selection of future investments. Therefore, the expected growth rate should be negatively related to long-term leverage (Titman & Wessels, 1988). Some works of literature support the negative correlation between growth and debt

(Dacosta & Adusei, 2016; Chadha & Sharma, 2015; Bonaimé *et al.*, 2014; De Jong *et al.*, 2011).

Non-debt tax shields

Chang and Rhee (1990) found that the greater the non-debt tax shields, the higher the dividend payments. This argument is supported by the narrative that the depreciation cost is a non-cash expense (does not involve any outflow of cash). Furthermore, companies with high non-debt tax shields, such as accelerated depreciation and investment tax credits relative to their expected cash flows, should use less debt. This leads to the prediction of a negative correlation between non-debt tax shields and debt, which is consistent with the results reported by some authors (Reyna, 2017; Acaravci, 2015; Handoo & Sharma, 2014; Hirota, 1999). In contrast, Chadha and Sharma (2015) state that the non-debt tax shield positively correlates with capital structure.

Market volatility

During periods of high market volatility, the cost of bankruptcy increases, and companies are faced with the possibility of financial distress. In this situation, companies should not pay dividends because they cannot with certainty predict their future earnings (Crutchley & Hansen, 1989). Similarly, because debt involves a commitment of periodic payments to the lender, highly leveraged companies are prone to financial distress cost (Al-Najjar, 2011). As a result, companies faced with market volatility are expected to use less debt in their capital structure.

3. Data and methodology

Data and variables

The data for this research was sourced from the Iress database for the period 1990 to 2017 for the four sectors. From this dataset, companies that reported their annual accounts without significant gaps for this period were selected to meet the definition of an unbalanced panel across sectors. The research winsorised the data to eliminate the bias outliers cause in panel regression,. The transformed data are identical to the original data except that, in this case, all data below the fifth percentile are set to the fifth percentile and all data above the 95th percentile are set to the 95th percentile.

Empirical model

In line with Al-Najjar (2011), the study applied fixed effects (one-way error component regression) models and a three-stage least square (3SLS) in line with Noronha, Shome and Morgan (1996) to investigate the treatment of financing and payout decisions across the four sectors of the JSE. The system equation models fixed effects are:

The distribution equation

$$\begin{aligned} CD_{i,t} = & \alpha_0 + \beta_1 GW_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 ROA_{i,t} + \beta_4 NDT_{i,t} + \beta_5 VO_{i,t} \\ & + \beta_6 TAN_{i,t} \\ & + \beta_7 CR_{i,t} + \beta_8 CS_{i,t} + u_{i,t} \end{aligned} \quad (1)$$

The capital structure equation

$$\begin{aligned} CS_{i,t} = & \alpha_0 + \beta_1 INVEST_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 ROA_{i,t} + \beta_4 NDT_{i,t} \\ & + \beta_5 VO_{i,t} + \beta_6 TAN_{i,t} \\ & + \beta_7 CR_{i,t} + \beta_8 CD_{i,t} + u_{i,t} \end{aligned} \quad (2)$$

We define the company's capital structure (CS) as the debt-to-equity ratio ((total long term loan capital+ total current liabilities)/total owners' interest), debt-to-asset ratio ((total long term loan capital + total current liabilities)/total assets) and the leverage factor ((profit after taxation/total owners interest)/((profit before interest and tax (EBT) - total profits extraordinary nature-taxation)/total assets)). Cash dividend as the reported dividend scaled by total assets. Return on assets ROA as a proxy for profitability ((profit before interest and tax (EBIT) - profit of extraordinary nature)/total assets) *100). Size is defined as the logarithm of sales and total assets). Non-debt tax shields (NDT) are defined as depreciation over total assets. Tangibility (TAN) is defined as net fixed assets over total assets. Current ratio is defined as current assets over current liabilities. Market volatility is defined as the product of the daily standard deviation of the stock price by the square root of the number of trading days during the historical year. The volatility measure is quantified (expressed as percentage). Growth opportunities (GW) defined $(Sales_{it} - Sales_{it-1}) / Sales_{it-1}$ or $(Total\ assets_{it} - Total\ assets_{it-1}) / Total\ assets_{it-1}$. $u_{i,t} = \mu_i + v_{i,t}$: the error term, which is the sum of an

(unobservable) individual-specific effect (time-invariant) and a well-behaved (remainder) disturbance. α is the constant term.

The system equation for the three-stage least squares approach (iterated 3SLS) is derived as follows:

System equation

$$\begin{cases} \text{CD} = (\text{DE}, \text{A}) \\ \text{CS} = (\text{CD}, \text{B}) \end{cases}$$

where

DE, DA, LF and CD are the endogenous debt-to-equity, debt-to-asset, the leverage factor, and dividend paid (the jointly determined variables). A and B are a set of exogenous variables (growth opportunities, return on assets, size, asset tangibility and current ratio). Using the simultaneous equation, the research examined the significance level of the coefficient estimates to determine if there is a simultaneous determination of financing and distribution decisions across sectors. For example, to accept a two-way causality between the debt-to-equity ratio and dividend payments, it is required that the coefficient estimates for the debt-to-equity ratio and dividend payments are significantly different from zero in equations 1 and 4. In addition, the signs of the coefficient estimates allow us to determine whether the convergence of interest theory or the entrenchment theory is dramatically opposed or work in a tandem (Kim *et al.*, 2007).

4. Analysis and interpretation of results across sectors

The pair-wise correlations

The pair-wise correlations among the main variables for the four sectors are presented in Tables 1 to 4. The findings indicate that the three alternative measures of the capital structure and the dividend payments negatively significantly correlate with each other in the basic materials sector, while two alternative measures of the capital structure (debt-to-equity and debt-to-asset ratio) and the dividend payments negatively significantly correlate with each other in the industrial sector and the consumer services sector. This result is consistent with the narrative that within the sectors of the JSE, companies carrying higher debt ratios pay out lower dividends. However, in the consumer goods sector, the correlation between the three alternative measures of the capital structure

and the actual dividend paid is positive and insignificant. Surprisingly, the leverage factor and the dividend payments positively correlate significantly in the consumer service sector. The finding in the consumer service sector is consistent with the entrenchment theory and the free cash flow hypothesis. Further, the finding is consistent with those of other authors (Aggarwal & Kyaw, 2010; Kim *et al.*, 2007), but it contradicts Jensen *et al.* (1992). The exogenous variables in each equation are correlated to a dependent variable in their respective equation.

Table 1: Correlation matrix for the basic materials sector (BCM)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) DE	1.000										
(2) DA	0.886 (0.000)	1.000									
(3) LF	0.356 (0.000)	0.203 (0.000)	1.000								
(4) CD	-0.165 (0.000)	-0.136 (0.001)	-0.090 (0.023)	1.000							
(5) CR	-0.445 (0.000)	-0.510 (0.000)	-0.154 (0.000)	0.120 (0.002)	1.000						
(6) TAN	0.234 (0.000)	0.312 (0.000)	-0.065 (0.099)	-0.125 (0.002)	-0.081 (0.039)	1.000					
(7) VO	0.038 (0.340)	-0.022 (0.582)	0.162 (0.000)	-0.207 (0.000)	0.139 (0.000)	-0.135 (0.001)	1.000				
(8) NDT	0.221 (0.000)	0.228 (0.000)	-0.076 (0.055)	-0.062 (0.116)	-0.066 (0.094)	0.240 (0.000)	-0.022 (0.580)	1.000			
(9) ROA	-0.090 (0.023)	-0.062 (0.118)	-0.205 (0.000)	0.536 (0.000)	0.083 (0.034)	0.049 (0.215)	-0.328 (0.000)	-0.051 (0.200)	1.000		
(10) SIZE	-0.045 (0.254)	-0.133 (0.001)	-0.035 (0.379)	0.106 (0.007)	0.064 (0.103)	0.065 (0.100)	-0.161 (0.000)	0.145 (0.000)	0.200 (0.000)	1.000	
(11) GW	0.069 (0.082)	0.059 (0.137)	0.027 (0.502)	-0.011 (0.786)	-0.042 (0.285)	-0.020 (0.609)	0.047 (0.237)	-0.083 (0.035)	0.124 (0.002)	0.025 (0.529)	1.000

p-values in parentheses

*** $p < .01$, ** $p < .05$, * $p < .1$

Table 2: Correlation matrix for the industrial sector (IND)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) DE	1.000										
(2) DA	0.749 (0.000)	1.000									
(3) LF	0.571 (0.000)	0.402 (0.000)	1.000								
(4) CD	-0.181 (0.000)	-0.098 (0.017)	-0.052 (0.206)	1.000							
(5) CR	-0.524 (0.000)	-0.639 (0.000)	-0.330 (0.000)	0.105 (0.011)	1.000						
(6) TAN	0.091 (0.027)	-0.096 (0.020)	-0.042 (0.313)	0.019 (0.646)	-0.232 (0.000)	1.000					
(7) VO	0.163 (0.000)	0.177 (0.000)	0.073 (0.076)	-0.238 (0.000)	-0.143 (0.001)	0.025 (0.542)	1.000				
(8) NDT	0.213 (0.000)	0.153 (0.000)	0.143 (0.001)	0.059 (0.156)	-0.408 (0.000)	0.567 (0.000)	0.091 (0.027)	1.000			
(9) ROA	-0.351 (0.000)	-0.398 (0.000)	-0.265 (0.000)	0.353 (0.000)	0.274 (0.000)	0.099 (0.017)	-0.208 (0.000)	-0.163 (0.000)	1.000		
(10)SIZE	-0.056 (0.173)	0.033 (0.428)	0.001 (0.975)	0.142 (0.001)	-0.119 (0.004)	0.160 (0.000)	-0.232 (0.000)	0.073 (0.078)	0.018 (0.669)	1.000	
(11) GW	-0.016 (0.696)	0.069 (0.094)	0.033 (0.423)	-0.048 (0.242)	-0.061 (0.141)	-0.016 (0.690)	-0.038 (0.355)	-0.019 (0.641)	0.090 (0.028)	0.101 (0.014)	1.000

p-values in parentheses

*** $p < .01$, ** $p < .05$, * $p < .1$

Table 3: Correlation matrix for the consumer services sector (CNS)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) DE	1.000										
(2) DA	0.867 (0.000)	1.000									
(3) LF	0.499 (0.000)	0.448 (0.000)	1.000								
(4) CD	-0.088 (0.062)	-0.110 (0.020)	0.148 (0.002)	1.000							
(5) CR	-0.563 (0.000)	-0.721 (0.000)	-0.257 (0.000)	-0.054 (0.251)	1.000						
(6) TAN	-0.099 (0.036)	-0.111 (0.019)	-0.041 (0.388)	0.367 (0.000)	-0.283 (0.000)	1.000					
(7) VO	0.079 (0.095)	0.100 (0.034)	-0.052 (0.270)	-0.194 (0.000)	-0.033 (0.488)	-0.119 (0.012)	1.000				
(8) NDT	-0.018 (0.710)	-0.108 (0.022)	0.173 (0.000)	0.230 (0.000)	0.080 (0.089)	0.369 (0.000)	-0.196 (0.000)	1.000			
(9) ROA	-0.196 (0.000)	-0.120 (0.011)	-0.014 (0.762)	0.555 (0.000)	-0.100 (0.035)	0.324 (0.000)	-0.289 (0.000)	0.152 (0.001)	1.000		
(10)SIZE	0.261 (0.000)	0.339 (0.000)	0.387 (0.000)	0.424 (0.000)	-0.321 (0.000)	0.159 (0.001)	0.093 (0.048)	0.310 (0.000)	0.157 (0.001)	1.000	
(11) GW	0.049 (0.303)	0.172 (0.000)	0.079 (0.095)	0.044 (0.351)	-0.203 (0.000)	0.016 (0.733)	-0.134 (0.005)	-0.042 (0.376)	0.255 (0.000)	0.071 (0.138)	1.000

p-values in parentheses

*** $p < .01$, ** $p < .05$, * $p < .1$

Table 4: Correlation matrix for the consumer goods sector (CNG)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) DE	1.000										
(2) DA	0.895 (0.000)	1.000									
(3) LF	0.317 (0.000)	0.182 (0.004)	1.000								
(4) CD	0.034 (0.594)	0.100 (0.114)	0.044 (0.490)	1.000							
(5) CR	-0.502 (0.000)	-0.540 (0.000)	-0.230 (0.000)	-0.147 (0.020)	1.000						
(6) TAN	-0.300 (0.000)	-0.379 (0.000)	-0.041 (0.517)	-0.150 (0.017)	-0.357 (0.000)	1.000					
(7) VO	-0.157 (0.013)	-0.108 (0.087)	-0.027 (0.673)	-0.135 (0.032)	0.185 (0.003)	-0.015 (0.819)	1.000				
(8) NDT	0.033 (0.602)	0.024 (0.699)	-0.013 (0.842)	0.231 (0.000)	-0.381 (0.000)	0.341 (0.000)	-0.017 (0.787)	1.000			
(9) ROA	0.118 (0.062)	0.130 (0.040)	0.082 (0.195)	0.579 (0.000)	-0.043 (0.501)	-0.263 (0.000)	-0.226 (0.000)	0.236 (0.000)	1.000		
(10)SIZE	0.202 (0.001)	0.304 (0.000)	0.109 (0.083)	0.262 (0.000)	-0.112 (0.076)	-0.287 (0.000)	-0.074 (0.239)	-0.139 (0.028)	0.043 (0.498)	1.000	
(11) GW	0.155 (0.014)	0.124 (0.050)	-0.036 (0.573)	-0.138 (0.028)	-0.013 (0.840)	-0.027 (0.670)	-0.121 (0.056)	-0.008 (0.900)	0.067 (0.289)	-0.241 (0.000)	1.000

*p-values in parentheses**** $p < .01$, ** $p < .05$, * $p < .1$ *Discussion and analysis of empirical results for sectors: fixed effects and 3SLS*

This section discusses and analyses the treatment and the interplay between the capital structure and dividend payments across the four sector sectors using an individual decision approach (fixed effects) and a simultaneous decision-making approach (Three stage least square approach).

Cash dividend and capital structure decision across four sectors sector: fixed effects

Tables 5, 6, 7 and 8 present the interplay between the three alternative measures of the capital structure and the dividend payments in the basic material sector, industrial sector, consumer services sector and consumer goods sector, respectively, for the period 1990 to 2017, using the fixed effects single-decision approach.

Allowing for cross-section heterogeneity and assuming a different intercept for each company across sector sample, the results in Tables 5, 6, 7 and 8 indicate the following: the capital structure and the dividend payment positively significantly correlate with each other (equation 3 and 6 of Tables 5 and 7) in the basic material sector and consumer services sector. The finding is consistent with the signalling theory, suggesting

that dividend payment represents a signal of improved financial health and more debt-issuing capacity. The positive relationship between capital structure and the dividend payments also infers a negative relationship between leverage and the retention rate (Al-Najjar, 2011). The entrenchment theory is valid because both policies can be used to reduce cash flows and liquidity that the management would otherwise misuse. However, this finding contradicts the finding in the pair-wise correlation matrix in the basic materials sector. The capital structure and the dividend payments were not correlated with each other in the industrial sector, suggesting that there was no interplay between capital structure and dividend payments in the industrial sector. Capital structure and dividend payments are negatively correlated with each other in the consumer goods sector. The findings suggest that the convergence of interests theory is valid. In this case, managers of the consumer goods sector are acting in the interest of the owners. This implies that there is no excess cash flow or liquidity. As a result, increases in a company's debt load must be paid through other means, presumably resulting in dividend reduction. The finding contradicts those in the pair-wise correlation results. Crutchley and Hansen, (1989) argued that the two policies can be inter-related through joint determinants. Some of the selected joint determinant variables worked well to explain the financing decision and dividend payment across sectors. The empirical findings revealed the following: the company growth opportunities are positively and significantly correlated with the capital structure in the basic material sector, consumer services sector and the consumer goods sector, suggesting that in these sectors, companies with growth opportunities raised more debt. Growth opportunities are negatively significantly correlated with the dividend payments in the industrial sector, consumer services sector and consumer goods sector. This suggests that the higher the growth opportunities, the more the need for funds to finance expansion, and the more likely the company is to retain earnings rather than pay them as dividends and reduce agency conflicts (Al-Najjar, 2011, Chang & Rhee, 1990).

Company performance is positively significantly correlated with dividend payments and negatively significantly correlated with the capital structure in the basic material sector and industrial sector. The finding aligns with the pecking order theory and suggests that profitable companies prefer internal financing sources over external sources and are more likely to pay dividends (Al-Najjar, 2011). However, company performance is positively correlated with dividend payments only in the

consumer services and consumer goods sectors. In addition, company size is negatively and significantly correlated with the dividend payment, while it is positively and significantly correlated with the capital structure in the basic material sector, suggesting that large companies in the basic materials sector paid lower dividends and raised more debt. This finding is consistent with the findings by some authors (Al-Najjar, 2011; Ahmed & Javid, 2009; Huda & Farah, 2011).

Table 5: Capital structure and distribution decision in the basic material sector

	(1) cd	(2) cd	(3) cd	(4) dc	(5) da	(6) lf
Growth opportunities	0 (0)	0 (0)	0 (0)	.001* (.001)	0** (0)	0 (.002)
Return on assets	.001*** (0)	.001*** (0)	.001*** (0)	-.001 (.002)	0 (0)	-.027*** (.006)
size	-.003*** (.001)	-.004*** (.001)	-.004*** (.001)	.112*** (.022)	.019*** (.005)	.287*** (.069)
Non-debt tax shields	.16** (.063)	.154** (.064)	.17*** (.062)	5.416*** (1.035)	1.825*** (.245)	-8.826*** (3.295)
Tangibility	-.023*** (.008)	-.024*** (.008)	-.023*** (.008)	-.237* (.131)	-.019 (.031)	-.086 (.417)
Volatility	0 (0)	0 (0)	0 (0)	.002** (.001)	0 (0)	.005* (.002)
Current ratio	.001 (.002)	.001 (.002)	.002 (.002)	-.307*** (.027)	-.097*** (.006)	-.37*** (.086)
Debt-to-equity ratio	-.001 (.002)					
Debt-to-asset ratio		.001 (.01)				
Leverage factor			.002** (.001)			
Dividend paid				-.214 (.675)	.015 (.16)	4.861** (2.149)
_cons	.038*** (.009)	.04*** (.009)	.037*** (.008)	.299** (.144)	.309*** (.035)	.378 (.458)
Observations	644	642	644	644	642	644
R-squared	.248	.25	.254	.235	.335	.087

Note: The dependents variables are the dividend paid (equation 1 to 3) and capital structure

(The three Alternative measures of the capital structure, equation 4 to 6).

Standard errors are in parentheses

*** $p < .01$, ** $p < .05$, * $p < .1$

Company size is positively correlated with the dividend payments and the capital structure in the industrial and consumer services sectors. The finding suggests that large companies in these sectors paid more dividends and raised more debt. The finding is in line with the idea that large companies are more diversified and less prone to bankruptcy. In addition, the finding is consistent with the narrative that large companies are likely to be mature and, as a result, have easier access to capital

markets, and such companies are more likely to pay dividends (Ho, 2003; Holder, Langreh & Hexter, 1998). Non-debt tax shields are positively and significantly correlated with dividend payments and capital structure in the basic material sector, positively significantly correlated with dividend payments and negatively significantly correlated with capital structure in the industrial sector, negatively and significantly correlated with the dividend payments and positively and significantly correlated with capital structure in the consumer services sector, negatively significantly correlated with the dividend payments and the capital structure in the consumer goods sector. The positive relationship between non-debt tax shields and capital structure is surprising because companies with high non-debt tax shields, such as accelerated depreciation and investment tax credits, relative to their expected cash flows should use less debt. Asset tangibility negatively and significantly correlated with dividend payments and capital structure in the basic material sector. The finding contradicts the narrative that the more tangible the company's assets are, the more these assets can be used as collateral. However, the finding is in line with the idea that the less the tangible assets, the more secured the short-term financing and the lower the agency conflict, suggesting a negative and significant relationship between asset tangibility and dividend payments. In contrast, asset tangibility was positively significantly correlated with the dividend payments and the capital structure in the consumer service sector. Market volatility was negatively and significantly correlated with dividend payments and the capital structure in the industrial sector, suggesting that during periods of higher market volatility, there is a possibility of higher interest rates and required rate of return to compensate for the risks arising from the heightened volatility which hampers the ability of companies in the industrial sector to raise debt and pay dividends. Therefore, volatility was a major issue in this sector because it is highly cyclical and easily affected by overall economic volatility. Liquidity was positively significantly correlated with dividend payments and negatively significantly correlated with capital structure in the basic material sector and consumer services sector. The finding suggests that when the agency cost of liquid assets is high, outside creditors limit the amount of debt financing available to the company (Myers & Ranjan, 1998). On the contrary, liquidity negatively correlated with dividend payments and capital structure in the consumer goods sector. The finding supports the idea that companies are more likely to pay dividends with more cash availability.

Table 6: Capital structure and distribution policies in the industrial sector

	(1) cd	(2) cd	(3) cd	(4) dc	(5) da	(6) lf
Growth opportunities	-.007*** (.003)	-.007*** (.003)	-.008*** (.003)	-.052 (.133)	0 (.014)	.21 (.181)
Return on assets	.001*** (0)	.001*** (0)	.001*** (0)	-.017*** (.006)	-.002*** (.001)	-.027*** (.008)
size	.004*** (.001)	.004*** (.001)	.004*** (.001)	.041 (.044)	.038*** (.005)	.048 (.059)
Non-debt tax shields	.187*** (.068)	.177** (.069)	.179*** (.068)	-.623 (3.319)	-1.024*** (.347)	10.848** (4.513)
Tangibility	-.009 (.008)	-.01 (.008)	-.011 (.008)	1.792*** (.385)	.084** (.04)	-.142 (.523)
Volatility	0** (0)	0** (0)	0** (0)	-.003* (.002)	0 (0)	-.002 (.003)
Current ratio	.003 (.002)	.002 (.002)	.004** (.002)	-8.856*** (.084)	-.173*** (.009)	-.451*** (.115)
Debt-to-equity ratio	-.001 (.001)					
Debt-to-asset ratio		-.011 (.008)				
Leverage factor			.001 (.001)			
Dividend paid				-3.107 (2.046)	-.29 (.214)	3.847 (2.781)
_cons	-.012* (.007)	-.009 (.009)	-.018** (.007)	2.774*** (.331)	.625*** (.035)	2.112*** (.45)
Observations	588	588	588	588	588	588
R-squared	.153	.152	.152	.275	.487	.072

Note: The dependents variables are the dividend paid (equation 1 to 3) and capital structure (The three Alternative measures of the capital structure, equation 4 to 6).

Standard errors are in parentheses

*** $p < .01$, ** $p < .05$, * $p < .1$

Table 7: Capital structure and distribution policy in the consumer services sector

	(1) cd	(2) cd	(3) cd	(4) de	(5) da	(6) lf
Growth opportunities	0***	0***	0***	.001	.001**	.003
Return on assets	(0) .001***	(0) .001***	(0) .001***	(.004) -.005	(0) -.001	(.004) -.012
size	(0) .009***	(0) .009***	(0) .009***	(.008) .058	(.001) 0	(.009) .115*
Non-debt tax shield	(.001) -.21**	(.001) -.218**	(.001) -.211**	(.06) 7.896**	(.008) -.699	(.064) .566
Tangibility	(.094) .016	(.094) .018*	(.093) .017*	(3.903) -.775*	(.504) .169***	(4.184) -.309
Volatility	(.01) 0***	(.01) 0***	(.01) 0***	(.418) -.001	(.054) 0	(.449) -.001
Current ratio	(0) .004**	(0) .003	(0) .004**	(.003) -.387***	(0) -.098***	(.003) -.161**
Debt-to-equity ratio	(.002) 0 (.001)	(.002)	(.002)	(.076)	(.01)	(.082)
Debt-to-asset ratio		-.01 (.009)				
Leverage factor			.002* (.001)			
Dividend paid				-.219 (2.022)	-.299 (.261)	3.584* (2.168)
_cons	-.04*** (.008)	-.034*** (.01)	-.042*** (.008)	1.921*** (.348)	.641*** (.045)	1.179*** (.373)
Observations	444	444	444	444	444	444
R-squared	.308	.311	.313	.088	.281	.029

Note: The dependents variables are the dividend paid (equation 1 to 3) and capital structure (The three Alternative measures of the capital structure, equation 4 to 6).

Standard errors are in parentheses

*** $p < .01$, ** $p < .05$, * $p < .1$

Table 8: Capital structure and distribution policy in the consumer goods sector

	(1) cd	(2) cd	(3) cd	(4) de	(5) da	(6) lf
Growth opportunities	0*	0*	0**	.005***	.001***	0
Return on assets	(0) .002***	(0) .002***	(0) .002***	(.002) -.001	(0) 0	(.002) .004
Size	(0) .008***	(0) .009***	(0) .009***	(.005) .006	(.001) .013	(.005) -.066
Non-debt tax shields	(.002) -.334*	(.002) -.423**	(.002) -.346*	(.04) -.052	(.01) -2.119***	(.045) 2.713
Tangibility	(.172) -.003	(.175) -.002	(.177) .015	(3.045) -1.39***	(.796) -.418***	(3.462) -.337
Volatility	(.016) 0	(.016) 0	(.015) 0	(.256) 0	(.067) 0	(.291) .002
Current ratio	(0) -.01***	(0) -.01***	(0) -.005*	(.002) -.421***	(0) -.144***	(.002) -.081
Debt-to-equity ratio	(.003) -.012***	(.003)	(.003)	(.047)	(.012)	(.053)
Debt to asset ratio	(.004)	-.04*** (.014)				
Leverage factor			-.001 (.003)			
Dividend paid				-3.795*** (1.117)	-.819*** (.292)	-.501 (1.269)
_cons	-.008 (.017)	-.003 (.019)	-.033* (.017)	2.096*** (.273)	.787*** (.071)	1.708*** (.311)
Observations	252	252	252	252	252	252
R-squared	.306	.296	.272	.398	.474	.055

Note: The dependents variables are the dividend paid (equation 1 to 3) and capital structure (The three Alternative measures of the capital structure, equation 4 to 6).

Standard errors are in parentheses

*** $p < .01$, ** $p < .05$, * $p < .1$

Simultaneous decision-making between CD and DE across the four sectors (3SLS)

Tables 9, 10, and 11 present a simultaneous decision-making framework between the debt-to-equity ratio, debt-to-asset ratio, the leverage factor, and the actual dividend paid across the four sectors from 1990 to 2017. The findings were computed using an iterated 3SLS for accounting for endogeneity. The empirical findings in Tables 9, 10 and 11 indicate the following: a simultaneous decision-making framework did not exist between the capital structure (debt-to-equity ratio, debt-to-asset ratio, leverage factor) and the dividend payments. Although no interplay was detected using a 3SLS approach, the findings indicate that capital structure negatively significantly correlated with dividend payments in the basic materials, consumer service and industrial sectors, while dividend

payments negatively significantly correlated with capital structure in the consumer goods sector. In addition, capital structure negatively significantly correlated with dividend payments in the basic materials and consumer service sectors. Furthermore, the simultaneous decision approach indicated the following: the two policies were indirectly interrelated through profitability, company size, non-debt tax shields, and asset tangibility across sectors. The return on assets negatively correlated with the capital structure and positively correlated with the dividend payments in the consumer service and industrial sectors. However, the return on assets positively correlated with the capital structure and dividend payments in the consumer goods sector. Company size was negatively significantly correlated with capital structure and positively significantly correlated with dividend payments in the industrial sector, while it was positively significantly correlated with capital structure and dividend payments in the consumer goods and consumer service sectors.

Asset tangibility negatively significantly correlated with capital structure and positively significantly correlated with dividend payments in the consumer service sector, while it negatively significantly correlated with capital structure and dividend payments in the industrial sector. The non-debt tax shields negatively significantly correlated with the leverage factor and the dividend payments in the basic materials sector. Liquidity negatively and significantly correlated with capital structure across all four sectors. Growth opportunities negatively significantly correlated with dividend payments across all four sectors. It is worth pointing out that some of the nuances in the results across sectors suggest that South African sectors might be subjected to different regulations, leading to different treatment of the two policies directly and indirectly through joint determinants.

Table 9: Simultaneous decision-making between CD and DE across the four sectors (3SLS)

	BM		CNG		CNS		IND	
	(1)		(2)		(3)		(4)	
	DE Eq.	Cd Eq.	DE Eq.	Cd Eq.	DE Eq.	Cd Eq.	DE Eq.	Cd Eq.
	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
ROA	-.0701 (.167)	.001*** (.167)	.039* (.022)	.003*** (.000)	-.065* (.034)	.002*** (.000)	-.046** (.023)	.001*** (.000)
NDT	-22.510* (12.545)	-.052 (.062)	3.437 (3.846)	.275* (.140)	13.979*** (5.082)	-.055 (.070)	-4.241 (6.027)	.287*** (.062)
VO	.044*** .0149		-.001 (.002)		.001 (.005)		.002 (.003)	
SIZE	-.477* .282	-.001 (.001)	.148 .101	.009*** (.002)	-.131 (.352)	.016*** (.002)	-.178** (.079)	.004*** (.001)
TAN	4.295 (2.827)	-.0153** (.007)	-1.372*** (.180)	.006 (.009)	-2.153*** (.658)	.018*** (.005)	.419 (.482)	-.022*** (.007)
CR	-1.253** (.505)		-.482*** (.046)		-.713*** (.094)		-1.090*** (.100)	
CD	28.833 (110.969)		-17.637** (8.622)		18.029 (21.701)		7.123 (18.170)	
_Cons	3.956 (2.965)	.032** (.011)	1.210 (.744)	-.068*** (.017)	4.149** (2.128)	-.082*** (.010)	4.931*** (.483)	
GW		-.000** (.000)		-.000** (.000)		-.000** (.000)		-.009** (.003)
DE		-.002** (.001)		.005 (.004)		-.005*** (.001)		-.003* (.002)
Equation								
3SLS reg								
Obs	644	644	252	252	444	444	588	588
"R-sq"	0.0581	0.0985	0.1122	0.4062	0.4024	0.4343	0.3092	0.1782
RMSE	7.163	.034	.442	.021	1.017	.021	1.019	.022
chi2	42.93	230.80	152.16	180.62	341.70	375.54	284.88	132.17
P	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors are in parentheses.

*** $p < .01$, ** $p < .05$, * $p < .1$

Endogenous variables: Debt-to-equity ratio and dividend paid

Exogenous variables: Return on assets (ROA), non-debt tax shields (NDT), volatility (VO), company size (SIZE), tangibility (TAN) current ratio (CR) and growth opportunities (GW)

Table 10: Simultaneous decision-making between CD and DA across the four sectors (3SLS)

	BM		CNG		CNS		IND	
	(1)		(2)		(3)		(4)	
	DA Eq.	Cd Eq.	DA Eq.	Cd Eq.	DA Eq.	Cd Eq.	DA Eq.	Cd Eq.
ROA	.006 (.004)	.002*** (.000)	.012* (.007)	.003*** (.000)	.005 (.005)	.002*** (.000)	-.000 (.003)	.001 (.000)
NDT	1.168*** (.301)	.027 (.055)	1.070 (1.126)	.272** .140	.145 (.748)	-.099 (.069)	.799 (.835)	.292*** (.063)
VO	.000 (.000)		.000 (.000)		-.000 (.000)		.000 (.000)	
SIZE	-.023*** (.007)	-.000 .001	.061** (.029)	.009*** (.002)	.117** .052	.016*** (.002)	.017 .011	.005*** (.001)
TAN	.108 (.068)	-.017*** (.006)	-.507*** (.053)	.006 .009	-.200** .097	.018*** (.005)	-.272*** (.067)	-.026*** (.007)
CR	-.094*** (.012)		-.169*** (.014)		-.115*** (.014)		-.177*** (.014)	
CD	-3.416 2.634		-5.308 (2.520)	-.000*** (.000)	-4.963 (3.196)		-3.330 (2.516)	
_Cons	.610*** (.073)	.032*** (.010)	.464** (.217)	-.069*** .016	.103 (.313)	-.080*** (.009)	.840*** (.064)	-.010 (.010)
GW		-.000** (.000)		-.000** (.000)		-.000* (.000)		-.008*** (.003)
DA		-.027** (.014)		.015 (.013)		-.026*** (.006)		-.019* (.010)
Equation								
3SLS reg								
Obs	642	642	252	252	444	444	588	588
"R-sq"	0.0751	0.3142	0.2646	0.4139	0.5191	0.4775	0.2481	0.1631
RMSE	.167	.029	.130	.0211	.156	.0198	.141	.022
chi2	250.40	300.04	234.90	182.99	681.48	407.62	418.64	130.22
P	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors are in parentheses.

*** $p < .01$, ** $p < .05$, * $p < .1$

Endogenous variables: Debt-to-asset ratio and dividend paid

Exogenous variables: Return on assets (ROA), non-debt tax shields (NDT), volatility (VO), company size (SIZE), tangibility (TAN) current ratio (CR) and growth opportunities (GW)

Table 11: Simultaneous decision-making between CD and LF across the four sectors (3SLS)

	BM		CNG		CNS		IND	
	(1)		(2)		(3)		(4)	
	Lf Eq.	Cd Eq.	Lf Eq.	Cd Eq.	Lf Eq.	Cd Eq.	Lf Eq.	Cd Eq.
ROA	-.032 (.032)	.001*** (.000)	-.005 (.019)	.002*** (.000)	.014 (.033)	.002*** (.000)	-.005 (.029)	.001*** (.000)
NDT	-6.452** (2.506)	-.036*** (.055)	-5.069 (3.263)	.325** (.141)	11.804** (4.800)	.052 (.087)	10.347 (7.738)	.308*** (.070)
VO	.008*** (.003)		.001 (.002)		-.001 (.004)		.001 (.004)	
SIZE	.123*** (.043)	.000 (.001)	-.022 (.085)	.009*** (.002)	.587* .337	.018*** (.003)	.066 (.101)	.005*** (.001)
TAN	-.106 (.553)	-.024*** (.005)	-.152 (.153)	.002 (.008)	-.691 (.630)	.013** (.006)	-1.412** (.619)	-.027*** (.007)
CR	-.366*** (.101)		-.143*** (.040)		-.184** .089		-.639*** (.129)	
CD	7.163		4.142		-12.453		-18.012	

	(21.585)		(7.318)		20.803		(23.328)	
_Cons	1.216** (.514)	.026*** (.009)	1.691*** (.630)	-.080*** (.020)	-1.859 2.040	-.096 (.015)	2.824*** (.608)	
GW		-.000** (.000)		-.000** (.000)		-.000* (.000)		-.008** (.004)
Lf		-.005* (.003)		.015 (.014)		-.011* (.004)		-.004 (.003)
Equation								
3SLS reg								
Obs	644	644	252	252	444	444	588	588
"R-sq"	0.088	0.262	0.0069	0.3691	0.1125	0.2918	0.0350	0.1296
RMSE	1.432	.030	.375682	.0218812	.9734124	.0230351	1.295305	.0228305
chi2	70.86	280.34	21.64	169.99	128.80	292.43	99.77	123.78
P	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000
<i>Standard errors are in parentheses.</i> *** $p < .01$, ** $p < .05$, * $p < .1$ Endogenous variables: The leverage factor and dividend paid Exogenous variables: Return on assets (ROA), non-debt tax shields (NDT), volatility (VO), company size (SIZE), tangibility (TAN) current ratio (CR) and growth opportunities (GW)								

5. Recommendation and Conclusion

Recommendation

The study offers valuable input to the board of directors for formulating and revising payout and financing decisions across sectors by considering the nuances that have been evidenced in this research. Investors should focus on the effect of the joint determinants on the two policies across the four sectors when making investment decisions because the policies appear to be treated and interrelated differently as a result of cross-sector nuances.

Conclusion

The findings of this research showed that sectoral nuances play an important role in explaining the treatment and interplay between the three-alternative measure of the capital structure (the debt-to-equity ratio, the debt-to-asset ratio, and the leverage factor) and the dividend payments in South Africa across the four sectors of the JSE. The degree of indebtedness varied across the sectors, which changed how the policies were treated and interrelated. The evidence obtained using the single equation approach confirms that financial decisions are interdependent in the basic materials, consumer service and consumer goods sector.

The empirical findings revealed that dividend payments and the capital structure positively correlate with each other in the basic materials sector and consumer service sector, while in the consumer goods sector,

the capital structure (debt-to-equity and debt-to-asset ratio) and the dividend payment are negatively correlated to each other. However, the interplay was not detected across all four sectors when the simultaneous decision-making approach (3SLS) was used. Profitability, size, and assets tangibility were the strongest in explaining the effects of joint determinant variables on the dividend payment and the capital structure across sectors.

The empirical results in this research provide evidence of sectoral nuances in the treatment of dividend payments and capital structure decisions and the interplay between them. These sectoral nuances arose as a result of cross-sector differences (sector activities and the nature of the sector, market volatility and government policies), which affect the treatment and the interdependence between financing and distribution decisions within sectors in South Africa.

References

- Acaravci, S. K. (2015), "The determinants of capital structure: Evidence from the Turkish manufacturing sector", *International Journal of Economics and Financial Issues*, Vol 5 No.1, pp.158-171.
- Aggarwal, R., and Kyaw, N. A. (2010), "Capital structure, dividend policy, and multinationality: Theory versus empirical evidence", *International Review of Financial Analysis*, Vol. 19 No.2, pp.140-150.
- Ahmed, H., and Javid, A.Y. (2009), "The determinants of dividend policy in Pakistan", *International Research Journal of Finance and Economics*, Vol.29 No. 1, pp.110-125
- Aivazian, V., Booth, L., and Cleary, S. (2003), "Do emerging market firms follow different dividend policies from US firms?", *Journal of Financial Research*, Vol. 26 No. 3, pp. 371-387.
- Al-Najjar, B. (2009), "Dividend behaviour and smoothing new evidence from Jordanian panel data", *Studies in Economics and Finance*, Vo. 26 No. 3, pp.182-197.
- Al-Najjar, B. (2011), "The inter-relationship between capital structure and dividend policy: empirical evidence from Jordanian data", *International Review of Applied Economics*, Vol. 25 No.2, pp.209-224.
- Baker, H. K., Dewasiri, N. J., Yatiwelle Koralalage, W. B., & Azeez, A. A. (2019), "Dividend policy determinants of Sri Lankan firms: a triangulation approach", *Managerial Finance*, Vol. 45 No. 1, pp.2-20.

- Bonaimé, A. A., Oztekin, O., and Warr, R. S. (2014), "Capital structure, equity mispricing, and stock repurchases", *Journal of Corporate Finance*, Vol. 26 No, pp.182-200.
- Butler, K. C. (2016), *Multinational Finance: Evaluating the Opportunities, Costs, and Risks of Multinational Operations*: John Wiley & Sons.
- Chadha, S., and Sharma, A. K. (2015), "Determinants of capital structure: An empirical evaluation from India", *Journal of Advances in Management Research*, Vol.12 No. 1, pp.3-14.
- Chang, R. P., and Rhee, S. G. (1990), "The impact of personal taxes on corporate dividend policy and capital structure decisions", *Financial Management*, Vol.19No2, pp.21-31.
- Crutchley, C. E., and Hansen, R. S. (1989), "A test of the agency theory of managerial ownership, corporate leverage, and corporate dividends", *Financial Management*, Vol. 18 No. 4, pp.36-46.
- Dacosta, L., and Adusei, C. (2016), "Testing the pecking order theory of capital structure in FTSE 350 food producers firms in United Kingdom between 2001 and 2005", *Expert Journal of Finance*, Vol. 4, pp.66-91.
- Dang, V. A., Kim, M., and Shin, Y. (2014), "Asymmetric adjustment toward optimal capital structure: Evidence from a crisis", *International Review of Financial Analysis*, Vol. 33, pp.226-242.
- De Jong, A., Verbeek, M., and Verwijmeren, P. (2011), "Firms' debt-equity decisions when the static trade-off theory and the pecking order theory disagree", *Journal of Banking and Finance*, Vol. 35 No. 5, pp.1303-1314.
- Ding, X., and Murinde, V. (2010), "Simultaneous financial decision-making: evidence from UK firms", *Strategic Change*, Vol. 19 No. (1-2), pp.45-56.
- Handoo, A., and Sharma, K. (2014), "A study on determinants of capital structure in India", *IIMB Management Review*, Vol. 26 No. 3, pp.170-182.
- Hashemi, S. A., and Zadeh, F. (2012), "The impact of financial leverage operating cash flow and size of company on the dividend policy (case study of Iran)", *Interdisciplinary Journal of Contemporary Research in Business*, Vol. 3 No. 10, pp.264-270.
- Hirota, S. (1999), "Are corporate financing decisions different in Japan? An empirical study on capital structure", *Journal of the Japanese and International Economies*, Vol. 13 No. 3, pp.201-229.
- Ho, H. (2003), "Dividend policies in Australia and Japan", *International Advances in Economic Research*, Vol 9 No. 2 pp91-100.

- Holder, M. E., Langrehr, F. W., & Hexter, J. L. (1998), "Dividend policy determinants: An investigation of the influences of stakeholder theory", *Financial Management*, pp.73-82.
- Huda, F., and Farah, T. (2011), "Determinants of dividend decision: A focus on banking sector in Bangladesh", *International Research Journal of Finance and Economics*, Vol.77 No. 1, pp.33-46
- Jensen, G. R., Solberg, D. P., and Zorn, T. S. (1992), "Simultaneous Determination of Insider Ownership, Debt, and Dividend Policies", *The Journal of Financial and Quantitative Analysis*, Vol. 27 No. 2, pp.247-263.
- Jensen, M. C. (1986), "Agency costs of free cash flow, corporate finance, and takeovers", *The American Economic Review*, Vol.76 No. 2, pp.323-329.
- Jensen, M. C., and Meckling, W. H. (1976), "Theory of the firm: Managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3 No. 4, pp.305-360.
- Kieschnick, R., and Moussawi, R. (2018)," Firm age, corporate governance, and capital structure choices", *Journal of Corporate Finance*, Vol. 48, pp. 597-614.
- Kim , Y. H., Rhim, J. C., and Friesner, D. L. (2007)," Interrelationships among capital structure, dividends, and ownership: evidence from South Korea", *Multinational Business Review*, Vol.15 No.3, pp.25-42.
- Kisman, Z. (2016), "Factors influencing dividend: Pay or not to pay on the Indonesia Stock Exchange", *International Journal of Innovations in Business*, Vol. 5 No.1, pp. 670-715
- Koch, P. D., and Shenoy, C. (1999), "The information content of dividend and capital structure policies", *Financial Management*, Vol. 28 No. 4, pp.16-35.
- Lloyd, W. P., Jahera, J. S., and Page, D. E. (1985), " Agency costs and dividend payout ratios", *Quarterly Journal of Business and Economics*, Vol. 24 No. 3, pp.19-29.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R. W. (2000), " Agency problems and dividend policies around the world" *The Journal of Finance*, Vol. 55 No. 1, pp.1-33.
- Miller, M. H., and Rock, K. (1985), " Dividend policy under asymmetric information", *The Journal of Finance*, Vol. 40 No. 4, pp.1031-1051.
- Moyo, V., Wolmarans, H., and Brummer, L. (2013), "Dynamic capital structure determinants : some evidence from South African firms", *Journal of Economic and Financial Sciences*, Vol. 6 No. 3, pp.661-682.

- Mouton, M., and Smith, N. (2016), “ Company determinants of capital structure on the JSE Ltd and the influence of the 2008 financial crisis”, *Journal of Economic and Financial Sciences*, Vol. 9 No.3, pp.789-806.
- Myers, S. C. and R. G. Rajan (1998), “The paradox of liquidity.” *The Quarterly Journal of Economics*, Vol. 113 No.3 pp.733-771.
- Noronha, G. M., Shome, D. K., and Morgan, G. E. (1996), “The monitoring rationale for dividends and the interaction of capital structure and dividend decisions”, *Journal of Banking and Finance*, Vol.20 No. 3, pp.439-454.
- Nyere, L., and Wesson, N. (2019), “Factors influencing dividend payout decisions: Evidence from South Africa”, *South African Journal of Business Management*, Vol. 50 No. 1, pp. 1-16.
- Reyna, J. M. S. M. (2017), “Ownership structure and its effect on dividend policy in the Mexican context”, *Contaduría y Administración*, Vol. 62 No. 4, pp.1199-1213.
- Short, H., Zhang, H., & Keasey, K. (2002), “The link between dividend policy and institutional ownership”, *Journal of Corporate Finance*, Vol. 8 No. 2, pp.105-122.
- Titman, S., and Wessels, R. (1988), “The determinants of capital structure choice”, *The Journal of Finance*, Vol. 43 No. 1, pp.1-19.
- Vo, X. V. (2017), “Determinants of capital structure in emerging markets: Evidence from Vietnam.”, *Research in International Business and Finance*, Vol. 40, pp.105-113.
- Wiwattanakantang, Y. (1999), “An empirical study on the determinants of the capital structure of Thai firms”, *Pacific-Basin Finance Journal*, Vol. 7 No. (3-4), pp.371-403.
- Yusof, Y., and Ismail, S. (2016), “ Determinants of dividend policy of public listed companies in Malaysia”, *Review of International Business and Strategy*, Vol. 26 No. 1, pp.88-99.

Reproduced with permission of copyright owner.
Further reproduction prohibited without permission.