

## THE DETERMINANTS OF FINANCIAL PERFORMANCE OF SOUTH AFRICAN STATE-OWNED ENTITIES

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### Abstract:

Several state-owned enterprises (SOEs) have suffered an imminent collapse, resulting in various support from the government. It has increased the debt level of the government and the SOEs. The study examined the factors that influence the financial performance of South African SOEs. This study used a quantitative methodology and secondary data from 33 South African SOEs from 1995 to 2017. The data were analyzed using a multiple regression model and the GMM estimation technique. The study's conclusions show a statistically significant inverse relationship between capital structure and financial performance. The evidence further showed that government intervention in financial assistance, such as grants, funds, rebates, and subsidies, has contributed to the poor performance of SOEs. The inverse association suggests that the SOE's performance worsens despite government support, which is quite concerning. The results demonstrate that there are better choices than government support for developing SOEs since it makes management more dependent on it to meet operational needs and seize expansion possibilities. Additionally, the increased use of debt stresses government finances due to the rise in government guarantees. The study concludes that, contrary to the agency theory, leverage does not enhance SOEs' performance, suggesting they should be careful when selecting their capital structure. Finally, the South African SOEs' performance could be better with government support. The findings have several policy implications for the government and the management of SOEs.

**Keywords:** Capital Structures, Trade-off Theory, State Owned Enterprises, Government Financial Support, Asset Tangibility.

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## INTRODUCTION

Many state-owned enterprises (SOEs) in developing and transition economies, including South Africa, are loss-making and inefficient, burdening government finances and scarce resources. Their poor financial performance affects service delivery and their ability to fulfill the government's growth and developmental objectives (Sadekin et al., 2020; Billio et al., 2021). The question dominating discussion is: How does the capital structure of South African SOEs affect their financial performance with and without government support? A robust debate among scholars on how SOEs in South Africa and elsewhere can improve their financial performance is occurring (Matuszak & Szarzec, 2019; Ntuli & Nzuza, 2022; Pinna, 2015). Considering the issues and widening gaps of high debt levels, increased government guarantees, corruption, credit rating downgrades, and poor financial performance of SOEs, financial performance is a burning issue (Arbatli & Escolano, 2015; Lee, 2019; Lindermüller et al., 2020). Worse still, the financial performance of many SOEs in South Africa is not improving, and they are in perpetual financial distress. Before making any decisions, it is crucial to understand why state-owned enterprises (SOEs) are struggling financially. It raises the

question of what explains SOEs' financial performance, capital structure, and the policies they pursue (Madumi, 2018). This question motivates the current research builds on gaps in the attendant literature (Chigunta, 2015; Haspolat, 2015; Locke & Duppati, 2014; Madumi, 2018), and it holds the center stage in scientific inquiry leading government officials in making strategic moves to improve the financial performance of these entities. Therefore, this research intends to extend the debate on the determinants of the financial performance of South African State-Owned Entities. This article analyzed how SOEs' specific factors, such as size, growth opportunities, leverage, tangibility, and profitability, influence a firm's financial performance (Capon et al., 2019). The study's findings contribute to the literature by demonstrating that government support and debt financing negatively affect the performance of state-owned enterprises.

**Literature Review and Relevant Theory.** The trade-off theory anchors the conduct of this study. The trade-off theory grew out of the shortcomings of the Modigliani and Miller (1963) proposition of capital irrelevance when corporate taxes were added, resulting in a benefit of debt with the assumption that the firm earns its debt obligation with certainty. According to Frank and Goyal (2009), the implication of the firm's debt financing being 100% results from its market value is a linear function of debt used. For this prediction to be avoided, where any tax-minimizing attempt would increase the firm's value, there was a need to offset the cost of debt, including bankruptcy penalties. One of the criticisms of the MM theorem was that it did not consider financial distress costs, which increase with leverage. Hence, Kraus and Litzenberger (1973) introduced the tax advantage of debt and bankruptcy costs into the framework, confirming the existence of an optimal capital structure in the trade-off theory. An optimal capital structure is the outcome of an optimization process in which firms trade off the costs and benefits of debt, including tax shields, agency costs, and financial distress costs, which then maximizes the firm's value (Frank & Goyal, 2009).

The trade-off theory recognizes that one of the benefits of debt is interest tax deductibility, suggesting that the more debt a firm has in its capital structure, the less tax it pays. The other benefits include controlling agency problems, reducing free cash flow problems because debt payments are contractual obligations, and reducing poor consumption by managers. The trade-off theory postulates that when a firm takes on debt financing, its value increases because of the interest tax shield. At some point, the value decreases because the firm may not have enough taxable income. As the firm takes on more debt, it will likely go into distress and incur the costs of financial distress. The firm's value will decrease at high borrowing levels because of its financial distress costs. It is the trade-off between costs and benefits where firms have the optimal capital structure; that is, the marginal benefits of debt (through interest tax shield) equal the marginal costs of debt (through financial distress costs). There would be variations in the debt ratio of firms. Some may value the tax benefits of high debt levels more than others. There would also be differences in the costs of distress that firms face, which may be costlier for some. It would result in cross-sectional differences in the leverage ratios across firms; that is, firms for which distress is less costly will be able to borrow more and vice versa. It implies significant variations in firms' amount of optimal debt based on the firm characteristics that define the benefits and costs. Many studies have employed the trade-off theory to determine the relationship between capital structure and firm performance.

Flannery and Rangan (2006) used a partial adjustment model. They found strong evidence of non-financial firms that pursued target capital structures and closed the gap between their actual and target debt ratios at a fast Speed of Adjustment (SOA) of 30%. Cross (2010) found evidence that contrary to the trade-off theory, firms that are not constrained by debt capacity or do not have excess capital expenditure do not adjust towards the target debt level but rather decrease leverage. Estimating the SOA as the basis to support the dynamic trade-off theory, Abdeljawad et al. (2013)

found that Malaysian firms that are far from the target and those that are over-levered exhibit a higher adjustment speed than firms that are closer to the target or under levered. Similarly, Tamirat et al. (2017) reported that Dutch firms exhibit some dynamics in the capital structure decision as a target debt ratio adjusts to this target. However, depending on the size and type of firm, SOA varies from 8.88% to 65.28%. Antoniou et al. (2008) confirmed that French firms have target leverage ratios and are faster in adjusting their capital structure toward their target level than firms in Japan. Their results were based on the System-GMM.

Huang and Ritter (2009) used the firm fixed effects and extended differencing estimator to deal with biases in estimates of the SOA towards the target. Based on listed US firms, the results revealed a moderate SOA of 17% with 3.7 years to reach the target based on book leverage and an SOA of 23% with 2.6 years to reach the target based on market leverage. This moderate speed was computed after controlling for the traditional determinants of capital structure. Syed et al. (2012) investigated the adjustment behavior toward the target level of leverage of 760 Chinese SOEs and non-SOEs. They found that Chinese SOEs have a higher adjustment rate than non-SOEs and an aggressive leverage policy. Other factors, including size, growth, and GDP, were found to have a positive impact, while liquidity and lending rates hurt the leverage policy. Soekarno et al. (2016) investigated the SOA amongst Indonesian SOEs to reach their targets from 1995 to 2013. The results were based on static and dynamic models with Generalised Least Squares estimation. They found that Indonesian SOEs have a target capital structure with an SOA of 46% per annum. Their analysis further revealed that the number of years to reach the target is 7.55, with most of the gap closed within two years.

Mirza and XianZhi (2016) investigated the SOA of 867 Chinese SOEs and non-SOEs from 2003 to 2012. In addition to adjustment behavior, the study investigated the effect of firm-specific and macroeconomic factors on leverage. Regression was done using GMM and reported positive and significant adjustment coefficients. It implies that Chinese firms follow the trade-off theory in their financing behavior by adjusting their current leverage towards the target leverage. The SOA was much higher at 70% for SOEs compared to 36% for non-SOEs, implying that the latter take longer to reach their target. Zhou and Xie (2016) found conflicting results in a similar study during 1999–2009, where the results indicated that Chinese SOEs have higher debt ratios and slower SOA toward the target capital structure. The results were based on the OLS and IV estimators. They suggested that SOEs' political resources can lead to higher persistence and a slower SOA when compared to non-SOEs.

Yinusa (2015) reported that Nigerian firms have a service-oriented architecture of 32% based on short-term debt, 33% on long-term debt, and 50% on total debt. This relatively fast SOA resulted from low adjustment costs in Nigeria as commercial banks' debt is a cheaper finance source than public debt. Although many academics and practitioners have widely discussed the financial performance of SOEs, there needs to be more literature and information on SOEs' financial performance in South Africa and how government support influences such performance. Hence, research is urgently needed to investigate the factors that influence the financial performance of South African SOEs. The study examines the factors that influence the financial performance of SOEs in South Africa.

## **METHODS**

This research adopted a quantitative research approach. The research objective was achieved through structured observations from secondary data from external sources, including the McGregor BFA and Bloomberg databases and the SARB website. The target population was SOEs



listed under the Public Finance Management Act (PFMA). The population of this research was 33 South African SOEs analyzed from 1995 to 2017. A non-probability sampling design was selected, while a stratified sampling technique was used as the SOEs were classified into different schedules per the PFMA. Variables measures include variables: profitability (PROF), age (AGE), size (SIZE), asset tangibility (TANG), growth (GROW), risk (RISK), tax rate (TAX), liquidity (LIQ), probability of bankruptcy (BKCY), and non-debt tax shield (NDTS).

**Estimation Model and Technique.** The study employed panel data to estimate the results. The study used a dynamic model known as the generalized method of moments (GMM) to estimate the model's coefficients due to the endogeneity issue observed with prior studies. To estimate equations at levels, Arellano and Bond (1991) recommend using lagged differences as an instrument. The main advantage of estimating in levels is that even when the autoregressive coefficients are close to unity, the lagged differences provide information about the present variables (Ullah et al., 2018). Additionally, GMM can eliminate each unique fixed effect by first differencing the regression equations.

The factors influencing the performance of SOEs in South Africa were examined using a multiple regression model. Models 1 and 2 below were created to investigate the factors influencing the SOEs' performance. The models were developed using agency theory postulations and prior studies' findings (Assagaf & Ali, 2017; Mbo, 2017; Jin et al., 2018). Two performance metrics were used to proxy the financial performance of the SOEs. These performance metrics include return on investment (ROI) and return on assets (ROA). Model 1 examines the factors that influence the return on investment of the SOEs, and model 2 estimates the factors that influence the return on assets of the SOEs.

$$\begin{aligned}
 \text{ROI}_{it} &= \beta_0 + \beta_1 \text{ROI}_{it-1} + \beta_2 \text{LTD}_{it-1} + \beta_3 \text{STD}_{it-1} + \beta_4 \text{SIZE}_{it} + \beta_5 \text{TANG}_{it} + \beta_6 \text{GROW}_{it-1} & 1 \\
 &+ \beta_7 \text{LIQ}_{it} + \beta_8 \text{BOARD}_{it} + \beta_9 \text{NDTS}_{it} + \beta_{10} \text{CR}_{it-1} + \beta_{11} \text{CPI}_{it-1} + \epsilon_{it} \\
 \text{ROA}_{it} &= \beta_0 + \beta_1 \text{ROA}_{it-1} + \beta_2 \text{LTD}_{it-1} + \beta_3 \text{STD}_{it-1} + \beta_4 \text{SIZE}_{it} + \beta_5 \text{TANG}_{it} + \beta_6 \text{GROW}_{it-1} & 2 \\
 &+ \beta_7 \text{LIQ}_{it} + \beta_8 \text{BOARD}_{it} + \beta_9 \text{NDTS}_{it} + \beta_{10} \text{CR}_{it-1} + \beta_{11} \text{CPI}_{it-1} + \epsilon_{it}
 \end{aligned}$$

The paragraphs below present an explanation of the variables and their operationalizations.

**Dependent variables.** In order to ensure the reliability of the gathered empirical evidence, we utilized alternative measures of firm performance, specifically return on assets (ROA) and return on investment (ROI).

ROI: ROI represents the return on assets of SOE *i* at time *t*. The ROI was measured as the percentage of operating profit to the total assets of the SOEs.

ROA: ROA denotes the return on assets of SOE *i* at time *t*., measured as the percentage of profit after tax to the total assets of the SOEs.

**Independent Variables.** The measures of leverage used to achieve the study's second objective included short-term and long-term debt. Book values are used to measure leverage, as most sampled SOEs are unlisted firms.

**Control Variables.** When control factors are omitted from the regression models, they can materially change the inferences made on core factors (Frank & Goyal, 2009). To avoid a spurious relationship between the dependent and the independent variables, the firm's size, asset tangibility, growth opportunities, liquidity, non-debt tax shield, credit ratings, and corruption are control variables.

**Dummy Variable.** The credit ratings have been proxied by the country's credit ratings as per Standard & Poor's ratings, as most of the sampled firms did not have ratings because they were

unlisted. There is no standard approach to credit ratings. Each agency defines its rating categories and employs its criteria. Standard & Poor's long-term issuer credit rating, also called the corporate credit rating, is employed in this study in line with (Kisgen, 2006). The long-term credit ratings are divided into different categories ranging from 'AAA,' reflecting the most robust credit quality, to 'D,' reflecting the lowest, with the addition of a (+) or (-) sign to show relative standing within the categories (Standard & Poor's Ratings Services, 2001).

Firms are classified as either investment grade or speculative grade. The former are firms with at least adequate capacity to meet their financial obligations and have a rating of BBB (-) or higher. The latter are firms with a rating below BBB- as they are more susceptible to default because they have more elements of uncertainty. Firms with a D rating are in default as they have failed to meet their financial obligations (Van Berlekom et al., 2012). The lowest category considered in this study is B (-), as South Africa has yet to be issued a rating lower than this. The credit rating variable takes a value of one (1) if it was in the higher ratings from A (-) and higher, and a value of zero (0) if the ratings were in the lower ratings of investment-grade ratings from BBB (+) and lower.

Government financial assistance (GOVT) would take a value of one (1) if the SOE received any financial assistance from the South African government, including grants, subsidies, and rebates; otherwise, zero (0).

**RESULT AND DISCUSSION**

This section presents the summary statistics for the variables used in the study. The numerical descriptive measures comprising mean (average), standard deviation, minimum, and maximum (range) of the panel data across the variables offer an enhanced understanding of the nature of the data. The average debt ratio for long-term debt is 30% and 27% for short-term debt, which is more or less similar to the high debt levels and mix among other developing economies such as Kenya, where Nyamita (2014) reported an average of 34% long-term debt ratio and 28% short-term debt ratio among SOEs. The mean for ROA, measured by the ratio of operating profit to total assets, and ROI, measured by the ratio of profit after tax to total assets, is 1%, which indicates the poor performance of South African SOEs.

The average liquidity (LIQ) measured by the ratio of current assets to current liabilities is 2, which is on par with the general norm of 2 for this ratio. This high liquidity indicates that internal debt financing is more significant than external debt financing, which supports the pecking order theory (Frank & Goyal, 2009). Overall growth, measured by the percentage change in total assets, was 10.8%, which is reasonably low compared to other developing countries, such as the 15.65% reported by Nyamita (2014) among Kenyan SOEs. It indicates a need to finance more long-term expansion projects for SOEs in South Africa.

Most variables have a relatively low standard deviation, indicating a slight variation of the actual data from the mean or expected values. All the variables indicate a high level of consistency as their mean values and standard deviation fall within the minimum and maximum range. Table 1 presents the results of the summary statistics of the variables.

**Table 1: Descriptive Statistics**

Variable	Mean	Std. Dev.	Min	Max
LTD	0.3001097	0.270392	0	1.656702
STD	0.2707794	0.219648	0.0020266	1.412478

ROA	0.014656	0.141529	-0.749	0.998
ROI	0.010497	0.130972	-0.747	0.998
BOARD	12.175080	4.8626	5	42
GOVT	0.583871	0.0778	0	1
SIZE	15.066100	1.73456	11.6975	19.1331
TANG	0.991350	0.02861	0.46711	1.00000
GROW	0.108160	0.18083	-0.26491	1.25891
LIQ	2.003840	1.83950	0.20575	13.0053
CR	0.658416		0	1
CPI	0.197892	0.227715	-0.12	0.67

**Correlation Analysis.** This section presents the degree of association between pairs of variables revealing the linear relationship and whether multicollinearity exists between the variables. It can pose serious issues in the estimations. The Pearson correlation test was utilized in this study to assess the degree of multicollinearity. The table indicates that no two explanatory variables are strongly correlated beyond the rule of thumb of 0.80. Therefore, there are no concerns regarding multicollinearity. The correlation results are shown in Table 2 below.

**Table 2: Correlation Analysis**

	ROA	ROI	LTD	STD	SIZE	TANG	GRO W	LIQ	BOAR D	GOVT	CR	CPI
ROA	1											
ROI	0.9636	1										
LTD	-0.0746*	-0.1677	1									
STD	-0.2845	-0.2949	-0.2155	1								
SIZE	0.0519**	0.0144	0.2284	-0.1942	1							
TANG	-0.1081	0.010***	-0.3544	0.0846**	0.033	1						
GRO W	0.1962**	0.2053	-0.0392	-0.0311	0.0148*	0.0659	1					
LIQ	-0.0961	-0.0841*	-0.176	-0.2114	-0.081*	0.0538	-	1				
BOAR D	0.0591**	0.0108	0.0557**	-0.0214	0.4736	0.021*	-	-	1			
GOVT	-0.2305*	-0.182	-0.0167	0.2305**	-0.0107	0.223	0.0091	0.0279	-	1		
CR	0.1363	0.1033**	-0.0025*	-0.0265	-0.0656	-	0.0374	0.092*	0.023*	-	1	
CPI	0.117***	0.0768	0.1282**	-0.0078	-0.017	-	0.038*	0.0000	-0.014	-	0.2694	1.000
						0.1336	*	*	0.0761			
						0.2213	*		0.0399			



\*\*\* $p < 0.01$  statistically significant at 1% level \*\* $p < 0.05$  significant at 5% level, \* $p < 0.1$  significant at 1% level

**Regression Analysis.** Table 3 displays the regression analysis results for the firm performance variables (ROA and ROI) under the System-GMM panel regression model. The findings indicate that the lagged performance variable is driven by past performance, and a lagged ROA and ROE variable captures previous performance trends on current performance levels. The coefficients of lagged ROA and ROI are statistically significant at 1% and positive. Furthermore, there is consistency with dynamic stability where the lagged performance coefficients are less than one.

The results are mixed for long-term debt and short-term debt. The optimal mix between long-term and short-term debt is usually based on parameters, including the firm's observable credit rating, its portfolio of growth opportunities, the profitability of investments and ability to fund the investments through internal financing, the assets liquidation value, the perceived accuracy of financial information, the firm's size and age, and the level of competition amongst banks (AbuTawahina, 2015). As indicated in Table 3, the existing mix based on the average debt levels shows that the levels are almost equal, with long-term debt slightly higher.

Leverage can increase shareholders' wealth; failure to do so will erode shareholder wealth (Thomas, 2013). Long-term debt shows a negative relationship with firm performance measured by ROI. The coefficients of the long-term debt ratio are significant and damaging at a 1% level. The findings are statistically significant at 1% for the SOEs to the extent of 0.172. It implies that an increase in the SOEs' long-term debt is associated with decreased performance. The capital structure decisions taken by South African SOEs could be more efficient. These findings concur with those of Abor (2007), who also reported a negative relationship between long-term debt and firm performance, suggesting that agency issues may have led to pursuing high debt policies, resulting in lower performance. These negative findings could result from risk-shifting behavior, where there is a possibility of default leading to debt overhang and possible bankruptcy. Hence, the agency cost theory is supported, which predicts a negative relationship between capital structure and firm performance (Yinusa, 2015). Debt overhang occurs when an entity has excessively high existing debt, which limits it from borrowing, even though the additional debt may be to its benefit.

Nyamita (2014) also found a negative effect between long-term debt and firm performance, indicating that SOEs in Kenya are forced to increase their debt levels to finance their operations, causing reduced profitability. Reducing debt levels may increase efficiency, improving firm performance (Lemmon & Zender, 2010). However, this reasoning cannot be applied to South African SOEs due to their increased debt levels and poor performance. The negative effect of long-term debt on firm performance may also indicate that it is used to discipline managers due to the increased monitoring associated with reducing agency costs (Berger & Bonaccorsi, 2006).

Developing economies have higher growth opportunities, and studies have shown that debt financing in such conditions causes companies to commit to future fixed repayments and thus deters investment in immediately available positive NPV projects (Iavorskyi, 2013). As a developing economy, South Africa has high growth potential, which is a possible reason for a negative relationship between long-term leverage and firm performance. Another explanation could be the high-interest rates in developing economies which increase the cost of borrow and hence the fees of financial distress that cause firms to fail. Another possible explanation is the lack of proper bond markets in capital markets (Abata et al., 2017).

On the other hand, short-term debt shows a positive relationship with firm performance measured by ROA. The coefficients of the short-term debt ratio are significant and positive at a 1% level. The findings are statistically significant at 1%, where a unit increase in short-term debt results

in a proportional decline in the ROI of the SOE to the extent of 0.648. It implies that an increase in the SOEs' short-term debt is associated with increased performance. From an agency perspective, debt financing disciplines managers and reduces agency costs by mitigating agency problems, as managers must pay off a debt to avoid bankruptcy. Managers would also try to maximize the firm's value through improved performance to meet debt commitments. Hence, the agency cost theory's prediction of a positive relationship between capital structure and firm performance is supported. According to Nyamita et al. (2015), the positive effect of short-term debt on firm performance indicates that when retained earnings are insufficient, more profitable SOEs will opt for an increase in short-term debt financing and a reduction in long-term debt.

The results show that the size of the SOE affects its performance, measured by ROI, negatively, while a positive relationship is found when ROA measures performance. Both these findings are weak and insignificant. An optimistic prediction between the size of the SOE and firm performance would imply that larger SOEs would enjoy economies of scale that can be used to exercise influence over the product and marketplace. However, since the findings are insignificant, this variable does not impact SOE performance in South Africa, unlike in other developing economies like Kenya and China, where the size of the SOEs positively influenced their performance (Chang et al., 2014; Nyamita et al., 2015).

The weak negative coefficients for asset tangibility with both performance measures imply that increased asset tangibility would decrease firm performance. An optimistic prediction implies that the tangible assets of SOEs provide good collateral and are easily monitored, resulting in the mitigation of agency conflicts between shareholders and bondholders. However, the finding of a pessimistic prediction suggests that SOEs with high levels of intangible assets have more investment opportunities in the long term. Therefore, performance is improved in the case of lower tangible assets.

Growth, measured by the percentage change in total assets, reveals a positive effect on the performance measures. At the 5% confidence level, a statistically significant favorable influence on firm performance, measured by ROI, suggests that SOEs can generate more profits due to increased investment opportunities. A positive effect on performance measured by ROA is found; however, these findings are weak and insignificant. The negative effect of leverage on ROI tends to exist for high-growth SOEs as debt binds the SOE to future fixed repayments, and managers should postpone some immediately available projects with a positive NPV. Debt is used as an instrument to prevent managers from investing in projects that have a negative NPV. As a developing economy, South Africa has high growth potential, and this is a possible reason why a negative relationship is found between long-term leverage and firm performance, as long-term debt is used to finance investments and capital expenditures. Liquidity, included as a control variable as it controls for industry-related, firm-specific, and operating cycle factors, shows an inverse relationship with performance. This finding is consistent with both performance measures and is statistically significant at 1% with the ROI measure. These findings conflict with Dawar (2014), whose positive findings indicate superior working capital management.

Board monitoring has a feeble, positive influence on firm profit. Hence, no significant relationship is shown with the performance of SOEs. The agency theory prediction suggests that boards are seen as a panacea for good firm performance as larger boards improve performance due to their power and effectiveness. However, given that the findings are insignificant, this cannot be suggested with certainty in the case of SOEs in South Africa. The board is a crucial role player in corporate governance and overseeing SOEs' performance, and it acts as an intermediary between the government and executive management. Appointing board members by a political executive can



compromise the governance of an SOE, especially when the government wholly owns the entity. It occurred in the case of SAA, where the appointment of board members was politically motivated (Chilenga, 2016). Chilenga (2016) suggested that government-appointed members of different SOE boards are not selected for their skills but based on political affiliation. Political influence on SOE boards can seriously jeopardize their functions (OECD, 2018).

The negative influence of board monitoring on firm performance suggests that these board members need to gain the necessary skills and expertise to manage these commercial SOEs efficiently. This adverse finding, even though weak, can be related to corruption and concurs with Chilenga's (2016) assertion that appointments to SOE boards are based on political affiliation. It consolidates a patronage system across SOE operations, providing a haven for corruption.

Non-debt tax shield, excluding the debt tax shield of interest expense, has a statistically significant ( $p < 5\%$ ) negative influence on firm performance measured by ROI, consistent with the ROA measure; however, the findings are weak. The results indicate that the country's credit ratings positively influenced firm performance, consistent between both measures. When the ratings improved from speculative grade (firms that have a rating below BBB- and are more susceptible to default) to investment grade (firms with a rating of more than BBB- and capacity to meet their financial obligations), this had a weak, positive influence on the SOEs' performance. It is essential for developing economies to obtain an excellent sovereign credit rating to access international bond market funding.

The government subsidy (GOVT) variable also has a negative relationship with ROA and ROI, which is significant at the 1%. The result indicates that support by the government in the form of guarantees and subsidies has a significant adverse effect on the financial performance of SOEs. The significant negative relationship between government financial assistance and firm performance is supported by Assagaf and Ali (2017), who posited that the subsidy policy reduces the cost of other economic sectors and can be viewed as a burden on government spending. They added that government subsidies encourage management to be less concerned about financial strength and more reliant on the subsidy to meet operational and investment needs. They are an unfavorable option for SOEs' development. These authors found that government subsidies significantly negatively affected the financial performance of Indonesian SOEs.

All signs for the credit rating variable are positive between the models, indicating that the country's credit rating improves and so performs the SOEs. A better measure of the credit rating would have been at the firm level; however, only a limited number of SOEs have a corporate credit rating by rating agencies. Kisgen (2006) introduced credit ratings to the capital structure debate and found that firms with a rating downgrade issue less debt in the subsequent year. The reason is that they seek to appear to be more financially stable and less distressed. This argument can be linked to the positive relationship between credit ratings and firm performance, as an improvement in the rating results in increased debt, which, as per the agency theory, is used to improve performance.

South Africa's corruption level, proxied by the corruption perception index, has an insignificant effect on performance. Firms with a high CPI (low corruption) would perform better due to reduced information asymmetry problems. High levels of corruption (low CPI) are associated with such problems. Given the high levels of corruption in SOEs discussed earlier and the fact that corruption causes inefficiencies, this is a crucial variable in determining firm performance. The insignificant findings could suggest that the country's CPI may need to measure the extent of corruption among SOEs better. Van and Williamson (2017) found that corruption, measured by intensity, negatively impacted firms' financial performance. However, the findings were insignificant when corruption was measured using a dummy variable. This finding can be tied to

the board monitoring variable, where an adverse effect was also found. It suggests that board appointments are tied to the corruption level and concurs with Chilenga's (2016) assertion that political appointments to SOE boards consolidate a system of patronage across SOE operations, creating the conditions for corruption.

The above findings indicate that, after controlling for the size of SOEs, asset tangibility, growth opportunities, liquidity, board monitoring, non-debt tax shields, South Africa's credit rating, and corruption, there are significant, mixed empirical findings on the relationship between capital structure and the performance of South African SOEs. The above evidence supports the postulates of the agency theory accepted in other developing and developed economies.

**Table 3: GMM Regression Results**

VARIABLES	ROI	ROA
L.ROI	0.323*** (0.106)	
L.ROA		0.584*** (0.22)
LTD	-0.172*** (0.0495)	0.105 (0.0656)
STD	-0.15 (0.0962)	0.648*** (0.317)
SIZE	-0.00601 (0.0189)	1.84E-10 (1.18E-10)
TANG	-1.312 (1.799)	-0.194 (0.64)
GROW	0.164** (0.0807)	-0.0321(0.0535)
LIQ	-0.0476*** (0.0206)	-0.0134 (0.0132)
BOARD	0.0019 (0.00597)	0.00345 (0.00255)
NDTS	-3.542** (1.911)	-0.992 (1.155)
GOVT	-0.0808** (0.062)	-0.0669** (0.0744)
CR	-0.0623 (0.0801)	0.0466 (-0.047)
CPI	(0.163) -0.128	(0.0189) -0.0497
CONSTANT	1.729 (1.72)	-0.0863 (0.645)
OBSERVATIONS	295	295
NUMBER OF IDS	33	33
WALD STATS	0.000	0.000
NO OF INSTRUMENT	24	26
AR2	0.245	0.342
HANSEN STAT	0.983	1.000

In dynamic panel data analysis, it is crucial to test whether the model specification and instrumental variables are legitimate to ensure estimations' reliability. The Arellano Bond AR2 tests were also run to test for autocorrelation at second difference levels. The AR (2) test results for serial autocorrelation reflected non-significant p-values of 0.245 and 0.342 in Table 3. These test results indicated that autocorrelation of order 2 was absent. Hence, these results were an indication that the models passed the test.

The Wald test was applied to the system-GMM results to test the reliability of the estimators in the models, whereby the  $p(\chi^2) < 0.05$  indicates that the estimators are reliable at the 95% confidence level. The Hansen instruments-identification test evaluates the 'goodness of fitness' of the System-GMM estimator by testing for over-identification of the variables (Bond, 2002). The results of the Hansen test revealed that all the models were not over-identified. Higher values suggest the robustness of the model; hence, all models passed the over-identification of instruments test. These model specification tests all indicate the models' correct specifications.

## CONCLUSION

The study examined the determinants of firm performance within South African SOEs. The main focus of this study was to provide a clear understanding of the combination of factors that influence performance, especially the effect of capital structure. This research adopted a quantitative approach through secondary data from external sources of 33 South African SOEs analyzed from 1995 to 2017. A multiple regression model and GMM estimation technique were used to analyze the data. The research findings indicate a statistically negative relationship between capital structure and financial performance. The results show that government support such as grants, funds, rebates, and subsidies has negatively affected the performance of these SOEs and allowed poorly performing entities to survive. The study concludes that there are better options than government support for developing SOEs as it causes management to rely more on such assistance to meet operational needs and take advantage of growth opportunities rather than being concerned about financial strength. It is also concluded that leverage does not improve SOEs' performance as predicted by the agency theory. The findings of this study could assist in alleviating the financial burden on the government. The findings could be helpful to critical stakeholders in improving SOEs' performance. It implies that South African SOEs should be meticulous about their capital structure choice.

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