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The Influence of the Composition of a Company's Capital on Financial Performance

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Abstract: In the aftermath of a pandemic, companies struggle with survival and expansion issues. Companies are increasingly paying attention to their capital structure, which is vital for competitiveness, profitability, and financial stability. This paper looks at how long-term debt ratio (LTDR) and short-term debt ratio (STDR) affect return on equity (ROE) and return on assets (ROA). This paper wants to untangle the complex interactions among the financial profiles of S&P 500 firms covering the years 2010 to 2023. The findings suggest that while STDR adversely influences both, OLS regression shows LTDR's favorable relationship to ROA and ROE. Including firm size and liquidity (LQDT) improves the model's explaining ability. In the post-crisis age, financial stability and performance improvement depend on strategic capital structure decisions. Considering all factors, this article contributes to the ongoing discussion by examining how enhancing capital structures can boost businesses' resilience and performance in the wake of global events.

Keywords: Capital structure, Financial Performance, S&P 500.

1. Introduction

Ever since the financial crisis hit in 2010, the global economy has been fighting to recover, all the while facing huge challenges caused by the continuing COVID-19 epidemic. Many businesses, in response to the financial crisis, tightened their grip on debt, with many highlighting the need to reduce long-term debt as a key tactic for protecting themselves from financial risks. Many businesses had to reevaluate their short- and long-term funding needs in the wake of the COVID-19 pandemic, which created new obstacles to sustaining financial liquidity [1, 2].

Capital structure theory, first proposed in 1958 by Modigliani and Miller, provides the theoretical basis for how corporations make financial decisions [3]. A firm's fundamental worth is unaffected by its capital structure, according to this theory, in a perfect market. However, in reality, when businesses are trying to figure out the best capital structure for them, they need to think about things like taxes and bankruptcy expenses [3]. This study aims to explore the complex link between capital structure and company performance in the real-world economy, based on the aforementioned backdrop. Therefore, using quarterly financial data from S&P 500 members, this article aims to analyze the influence of STDR and LTDR on ROA and ROE, among other key performance measures.

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2. Literature Review

2.1. Theoretical Perspective

When deciding on the best capital structure to optimize the company's worth, firms should weigh the pros and cons of tax shelters and financial hardship, according to the trade-off hypothesis [4]. Companies can choose to lessen their taxable revenue and tax responsibilities by paying interest payments, which act as tax shields. This option was proposed by Miller and Modigliani in 1963. Debt has a direct and indirect impact on bankruptcy expenses, which in turn increases the level of financial risk [4]. This idea determines the value of a leveraged organization by adding the value of an unleveraged company to the tax shields, while also accounting for any financial difficulties.

The pecking order theory, initially introduced by Myers and Majluf in 1984, asserts that corporations prioritize financial sources based on a specified hierarchy. Their priority order is internal finance, followed by debt, and finally equity. They prefer internal funds to external funds because of their lower transaction and issue costs, as well as reduced information asymmetry. Debt issuance has lower expenses than share issuance, while retained earnings have even lower costs. Managers possess more knowledge regarding their organizations compared to external investors. Consequently, they view stock issuance as less favorable due to the expectation of larger returns from investors, indicating a perception of increased risks [5]. This theory suggests that the need for financing and the depletion of internal funds, rather than an optimal debt ratio, drive changes in the debt ratio.

Additionally, Jensen and Meckling introduced the concept of agency costs in 1976, highlighting the divergence of interests among managers, shareholders, and creditors. They claim that the best capital structure effectively reduces agency costs in order to maximize business value. Conflicts between debt and equity holders lead to debt agency costs, whereas shareholder-management disputes lead to equity agency costs [6]. Managerial-agency conflicts happen when managers prioritize their own goals ahead of the value of the business and the profits of the shareholders. This means that managers invest extra cash flows in projects that won't make them money [7]. Jensen proposes that large debt could reduce these conflicts by forcing management to prioritize lucrative initiatives in order to pay interest commitments. Debt causes conflicts between shareholders and debtholders. Higher debt may necessitate higher interest rates to offset bankruptcy risk or lower investment, resulting in decreased corporate value [8, 9]. Myers adds that high debt raises capital costs and limits financial flexibility, lowering a firm's value [5]. Thus, debt can reduce agency costs, but misuse can worsen disputes and lower business value.

2.2. Empirical Evidence

Various studies suggest that the use of leverage can have a favorable impact on a company's success. Abor conducted an analysis of 22 companies listed on the GSE between 1998 and 2002. The analysis revealed a clear correlation between profitability and capital structure, as measured by indices such as ROE, STDR, LTDR, and TDR [10]. In their study, Margaritis and Psillaki conducted regression studies on various businesses and discovered that leverage, as indicated by TDR, had a positive impact on ROA [11].

However, studies focusing on developing or changing economies often show a negative correlation between a company's financing and its overall performance. In their study, Nazir et al. discovered that both STDR and LTDR have a negative effect on the profitability of Pakistani firms [12]. This suggests that when organizations rely heavily on debt as a result of agency problems, their performance decreases [12]. Hamid et al. demonstrated a correlation between TDR and profitability in Malaysian enterprises, suggesting that increased debt levels may have a detrimental effect on performance [13].

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Furthermore, multiple studies emphasize a non-linear correlation between capital structure and corporate performance, indicating that debt can have both positive and negative effects. Kebewar's research on unlisted French companies in the commerce sector from 1999 to 2006 found a significant negative and curving correlation, particularly among small and medium-sized enterprises (SMEs) [14]. Omollo et al. studied 40 non-financial companies listed on the Nairobi Securities Exchange from 2009 to 2015, discovering that debt negatively influenced ROA while its effect on ROE was not statistically significant, highlighting the importance of managing debt levels to maximize profitability [15]. Furthermore, using the GMM, research on 136 companies listed on the JSE from 2000 to 2014 revealed a negative relationship between the D/E and D/A ratios with Tobin's Q and ROA, but a positive relationship between LTDR and these financial indicators. This suggests that companies should establish precise financial goals, such as ROA or ROE [16].

2.3. Hypothesis Development

Based on the above review of the literature, it can be seen that some studies have shown that leverage has a positive impact on financial performance indicators such as ROA and ROE, while others, especially in developing or transition economies, have shown a negative relationship. In addition, some scholars have observed non-linear relationships, suggesting that moderate levels of debt may be favorable to performance, but excessive debt may be detrimental. Therefore, this paper will focus on whether there is a relationship between capital structure (STDR and LTDR) and firm performance (ROA and ROE). The following are the hypotheses of this research:

Ho: There is no significant relationship between capital structure and firm performance.

H1: There is a significant relationship between capital structure and firm performance.

3. Methodology

3.1. Research Design

Hovakimian et al. have successfully demonstrated how the capital structure influences a firm's financial performance [2]. This study will thus additionally investigate the link between the two using quantitative regression analysis. It is feasible to precisely investigate how indicators such as STDR and LTDR influence performance measures such as ROA and ROE [2] by means of controlling for LQTD and SIZE to guarantee statistical rigour.

3.2. Data Collection & Analysis

The financial data for the sample in this study was sourced from Yahoo Finance, Wharton Research Data Services (WRDS), and the official S&P website, based on S&P 500 index companies. The study covers the years 2010 through 2023. This paper examined the performance of the S&P 500 companies using quarterly statistics spanning 2010 to 2023.

As suggested by Abor and Hamid et al., this study uses ROA and ROE as dependent variables to investigate the impact of capital structure on business performance [10, 13]. The primary indicators of capital structure are STDR and LTDR, which serve as independent variables. This study selects size and LQTD as control variables, drawing on the research of Afroze and Kebewar, as well as Margaritis and Psillaki [11, 14].

3.3. Model Design

For modelling purposes, this study will use the fundamental OLS model due to its interpretability and efficiency in providing unbiased and consistent estimates. Furthermore, the successful application of OLS regression by scholars like Abor, Margaritis, Psillaki, Kebewar, and others in relationship

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analysis underscores its relevance to the current study [10, 11, 14]. Here's a description of the OLS model (Formular 1):

$$Y = \alpha + \beta * X + \varepsilon \quad (1)$$

Were,

Y donates dependent variable (firm performance)

α symbolizes a constant term

β represents coefficient of the independent variable

X describes independent variable (capital structure)

ε represents the residual in the regression

The study used panel data for a balanced multiple regression analysis to determine how capital structure affects company performance. In contrast to most prior investigations, this study used a regression model with STDR and LTDR, excluding the TDR, to reduce autocorrelation and multicollinearity. The study's key models are below (Formular 2 & 3):

$$ROA = \alpha + \beta_1 * STDR + \beta_2 * LTDR + \beta_3 * LQTD + \beta_4 * SIZE + \varepsilon \quad (2)$$

$$ROE = \alpha + \beta_1 * STDR + \beta_2 * LTDR + \beta_3 * LQTD + \beta_4 * SIZE + \varepsilon \quad (3)$$

4. Empirical Analysis

4.1. Descriptive Statistics

From 2010 to 2023, the mean ROA was 14.64%, with a standard deviation of 7.11%. As can be seen in Table 1, the range of ROA values spanned from -1.83% to 25.86%, indicating a level of volatility in the company's performance. The ROE had a significantly higher average of 195.07%, along with a notably larger standard deviation of 234.43%. The ROE values ranged from -9.15% to 1023.32%. This indicates a significantly higher level of spread and instability in ROE in comparison to ROA. Furthermore, the STDR exhibits a range of values between 7.71% and 57.90%, with an average of 31.10% and a standard deviation of 11.50%. The LTDR has a range of 38.59% to 101.91%, an average of 79.17%, and a standard deviation of 18.51%. These numbers indicate a greater dependence on long-term debt, reflecting a preference for long-term financing rather than short-term debt. In addition, LQDT exhibited an average return of 128.96% and a standard deviation of 31.57%. The results ranged from 78.00% to 231.00%. The company's liquidity is highly volatile. These fluctuations could suggest problems with fund availability or deliberate alterations in asset and liability management. The mean size was 104.04%, with a standard deviation of 32.76%. The size values were wide, ranging from 73.64% to 182.01%, indicating significant variation in the magnitude of processes.

Table 1: Statistics Data Summary

Variable	Obs	Mean	Std. dev.	Min	Max
ROA	56	0.1464	0.0711	-0.0183	0.2586
ROE	56	1.9507	2.3443	-0.0915	10.2332
STDR	56	0.3110	0.1150	0.0771	0.5790
LTDR	56	0.7917	0.1851	0.3859	1.0191
LQDT	56	1.2896	0.3157	0.7800	2.3100
SIZE	56	1.0404	0.3276	0.7364	1.8201

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4.2. Correlation Analysis

Table 2 indicates that the correlation coefficients of STDR with both ROA and ROE are exceedingly close to zero, at 0.0011 and -0.1039, respectively. This implies that there is no substantial correlation between STDR and performance, probably with a minor effect. Further analysis of the matrix reveals that ROE has a correlation coefficient of 0.5919 and LTDR with ROA is 0.5512. This suggests that the performance is positively influenced by LTDR. Additionally, LQDT and SIZE are employed as control variables, with correlation coefficients of 0.5857, 0.4350, and -0.2887, -0.0978 with respect to ROA and ROE, respectively. These coefficients indicate that performance is positively correlated with LQTD, whereas SIZE is negatively correlated. Consequently, the subsequent task of this paper is to confirm the correlation between the two by conducting a more thorough analysis of the effect's magnitude and statistical significance through regression analysis.

Table 2: Matrix of Correlations

	ROA	ROE	STDR	LTDR	LQDT	SIZE
ROA	1.0000					
ROE	0.6897	1.0000				
STDR	0.0011	-0.1039	1.0000			
LTDR	0.5512	0.5919	0.5433	1.0000		
LQDT	0.5857	0.4350	-0.0541	0.4190	1.0000	
SIZE	-0.2887	-0.0978	-0.8948	-0.7082	-0.1729	1.0000

4.3. Regression Analysis

Table 3 displays the findings from the four regression models. For ROA and ROE as dependent variables, Models 1 and 3 are regression equations between ROA and ROE and performance, respectively, while Models 2 and 4 are regression findings after controlling for factors. In Model 1, the regression coefficients for ROA in relation to LTDR and STDR are 0.3001 and -0.2618, respectively, at the 1% significance level. This shows a substantial positive link between LTDR and ROA, but a significant negative correlation with STDR. As a result, an increase in LTDR is likely to greatly improve the firm's ROA, whereas an increase in STDR may decrease it. This data lends credibility to the initial theory. Furthermore, the goodness-of-fit (R2) for Model 1 is 0.4301, indicating that LTDR and STDR combined explain around 43% of the variation in ROA. The 20.00 F-statistic reinforces the model's overall statistical significance.

In addition, Model 2, which incorporates SIZE and LQDT as additional control variables, shows a slight increase in the LTDR coefficient, maintaining its 1% level of significance. Additionally, STDR's coefficient is still statistically significant at the 1% level, suggesting that the negative effect it had on ROA is still there. The substantial impact of capital structure on return on assets is further supported by this. Model 2's R2 jumps to 0.5721, demonstrating how the extra control factors significantly explain ROA variance. The total statistical significance of Model 2 is further validated by the F-statistic, which is 17.05.

A strong correlation exists in Model 3 among ROE, LTDR, and STDR. Specifically, LTDR has a positive influence on ROE, as shown by the regression coefficient of 0.1510 at the 1% level of significance. The regression coefficient of STDR is -0.5272 at the 1% significant level, indicating that it has a negative effect on ROE. These results validate the hypothesis of a significant effect on ROE. In addition, the R2 is 0.6096, indicating that the two variables, LTDR and STDR, together explain about 61% of the variation in ROE. Model 1's F-statistic is 19.91, and the overall model is statistically significant.

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Further analysis using Model 4 reveals that LTDR still has a positive effect on ROE at the 1% significant level, with a coefficient of 0.3001 in Model 2. Meanwhile, STDR has a coefficient of -0.2618, which has a negative effect on ROE at the 1% significant level. In addition, other control variables, such as LQTD with a coefficient of 0.0560, also show a positive trend, although its effect on ROE is less significant in Model 4. Model 4's R2 is 0.5721, indicating an increase in the explanatory power of the additional variables compared to Model 3. The F-statistic for Model 4 is 17.05, which continues to validate the overall model's statistical significance.

Table 3: Regression Results

	Development variable: ROA		**Development variable: ROE**	
	(1)	(2)	(3)	(4)
STDR	-0.2618***	-0.5272***	-12.3083***	-10.1181**
	(0.0764)	(0.1450)	(2.0906)	(4.566)
LTDR	0.3001***	0.1510***	11.6505***	11.8531***
	(0.0475)	(0.0554)	(1.2986)	(1.7451)
LQTD		0.0560**		0.2819
		(0.0254)		(1.8045)
SIZE		-0.1585***		0.9121
		(0.0573)		(1.8045)
_cons	-0.0098	0.2835**	-3.4458***	-5.5997
	(0.0326)	(0.1314)	(0.8908)	(4.1377)
N	56	56	56	56
R^2	0.4301	0.5721	0.6072	0.6096
Adj R^2	0.4086	0.5385	0.5924	0.579
F	20.00	17.05	40.97	19.91

Standard errors in parentheses: $^{*}p<0.1$, $^{**}p<0.05$, $^{***}p<0.01$

5. Discussion

The empirical studies show a significant relationship between the firm's capital structure and success. More precisely, there exists a direct relationship between LTDR and both ROA and ROE. As the LTDR increases, the firm's performance improves. This is because long-term debt often has smaller monthly payments, reducing the burden on the company's available cash and allowing for better resource and investment allocation. On the other hand, STDR has an inverse relationship with both ROA and ROE. These findings indicate that a larger STDR might put pressure on the company's capacity to fulfill its immediate financial responsibilities, increase the level of financial risk, and eventually result in a decrease in performance. These findings are consistent with previous studies done by Abor and Hamid et al. [10, 13]. Including control variables sharpens the explanatory ability of the model. However, further research is necessary to determine the precise impact of LQTD and SIZE in the model.

Not only did the study's control variables have an effect on business performance, but there are a number of additional aspects that need to be taken into account as well. First and foremost, earlier studies have shown that investment in research and development (R&D) greatly impacts performance by fostering innovation and long-term growth [16]. In addition, market share becomes an important

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factor since companies with a large share of the market have more opportunities to gain an edge and take advantage of economies of scale, which improves their performance overall [17]. Finally, one important consideration is the effectiveness of corporate governance. Research has shown that good governance is associated with better financial performance, which may be explained by better decision-making and lower agency costs [18].

6. Conclusion and Limitation

From 2010 through 2023, this research examines the relationship between the capital structure composition and the operational performance of the S&P 500 corporation. This examination focuses on important capital structure components, the STDR and LTDR, as well as their effects on ROA and ROE and other important performance metrics. According to the data, the company's overall performance is improved when its financial mix includes a larger proportion of long-term debt. This is because this type of debt promotes stability, lowers interest expenses, and increases investment opportunities. Conversely, this paper observes a negative association between STDR and both ROA and ROE, implying that an overreliance on short-term debt could potentially undermine a company's financial flexibility, heighten the risk of financial distress, and ultimately diminish its performance.

Furthermore, the incorporation of control variables, including LQDT and firm size, significantly enhances the explanatory power of the model, enabling a more nuanced understanding of the data variations under investigation. This paper's conclusions not only present empirical evidence supporting the trade-off theory and pecking order theory, but they also provide practical recommendations for business managers and policymakers to improve company performance by making optimal capital structure decisions.

However, the inherent limitations of the data in this paper need to be acknowledged. Only the S&P 500 company limits the applicability of this analysis to other industries. Future research could consider a broader sample to improve the robustness and applicability of the results. Additionally, the study assumes a linear relationship between the variables, which may not fully reflect the complexity of financial performance. In order to find possible non-linear and endogenous factors, future research could look into non-linear models or different statistical methods, such as dynamic panel data models. Furthermore, future studies could delve deeper into other variables, such as corporate governance practices, innovation spending, and market dynamics, to gain a more comprehensive understanding of the factors influencing firm performance.

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