

DOES LEVERAGE MEDATE THE ROLE OF REINVESTMENTS IN ENHANCING FIRM PERFORMANCE? EMPIRICAL EVIDENCE FROM DEVELOPED ECONOMIES

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ABSTRACT

This study attempts to reestablish at the explanatory power of the pecking order theory of optimal capital structure in the context of developed countries. This way it makes some extensions to empirical work on pecking order theory. It looks at those aspects of pecking order theory, which has not been empirically examined before. Like, an argument could be established that if it is true that internal funds are necessary to utilize first before hiring finances from debts and equity, then is it also true that by using internal funds the firms can get rid of debts and equity gradually? Panel data methodology was used to conduct the study for a sample of 110 firms from developed countries like Australia, New Zealand, Japan, and Hong Kong during 2015 to 2023. The study employs reinvestment (independent variable), the debt ratio and the debt-to-equity ratio (mediator), and return on assets as a performance metric (dependent variable), and one control variable is size (natural log of total assets). The results demonstrate that financial leverage acted as a mediator in the relationship between reinvestment and business performance. However, this partial mediation and performance level of the firm can be enhanced by lowering the external financing level in the firm's capital structure. The results of the study show that if a firm reinvests its internal funds rather than hiring capital from debts (external resources), then low leverage enhances firm performance by lowering the heavy cost of capital (cost of debts and equity). This study outlines a financial framework for organizations in developing countries, illustrating how they emulate the practices of developed countries and can establish their standards based on those practices. It also includes that, by employing finances from internal funds and by lowering the external finances, the organizations become free from the heavy cost of external financing that enhances firm performance.

Keywords: Leverage, Capital Structure, Company Performance, Debt Ratio, Debt to Equity Ratio, Return on Assets.

INTRODUCTION

Corporate performance is greatly impacted by financial strategies, which are essential for establishing capital structure in developed economies. Research shows that by carefully controlling the debt ratios and debt to equity ratios, businesses in developed markets can attain greater financial stability and profitability. Sound financial management practices are crucial, as evidenced by the fact that companies that successfully manage their capital structure through a balanced mix of debt and equity typically report higher Return on Assets (ROA) and Return on Equity (ROE) (Ferandy, 2024). Furthermore, companies that have more financial flexibility, typically due to well-structured capital strategies, face less volatility during financial crises (Prasetya & Santoso, 2023). Notably, research indicates that an ideal capital structure can result in lower capital costs and easier access to financing, both of which raise shareholder value and overall corporate competitiveness (Liaqat et al., 2017). The capital structure of developed economies is greatly influenced by their financial strategies, which center on their institutional frameworks, market maturity, and financial structures. An improved capital structure alternative improves business performance with the goal of increasing shareholder wealth and drawing in large investment. Good capital structure guidelines help management and investors create strategic plans, which enhances business success (Tseng and Liao, 2015). Therefore, developed economies serve as prime examples of how sound capital structures that support long-term business viability and growth depend on strategic financial decision-making. Firm performance is the primary goal of any business, as it ensures a steady flow of finances for future operations and growth. Profits demonstrate a company's reliability, efficiency, and forward thinking. Firm performance is often associated with a company's financial health, and strong finances allow businesses to take advantage of

opportunities and capabilities (Van et al., 2022). To reach required finances, businesses should keep them fully visible. Factors such as management strategies, capital structure selection decisions, and supply chain management are essential for firm performance (Teeratsirikool et al., 2013; Greer and Theuri, 2012). With the right capital structure, a company can satisfy investors and shareholders with better performance while maintaining financial stability.

The term "capital structure" refers to the debt-to-equity ratio used to finance an organization's activities and assets (CFA Institute, 2022). Equity is a costlier, durable source of capital with greater monetary adaptability, allowing an organization to raise capital when needed based on reasonable conditions. Debts are less expensive and limited to maturity, committing an organization to guaranteed cash outflows over time with time to renegotiate. Financial leverage research aims to understand the combination of funding sources used by businesses to support investment, with studies focusing on the ideal balance between debt and equity on an organization's balance sheet. Equity and debt decisions are not general, but there are several conditional theories. The trade-off theory suggests that businesses should balance the tax benefits of debt with the costs of financial distress. Pecking order theory suggests that corporations will borrow money if internal profit is insufficient to pay capital expenditures, resulting in a higher debt amount. Free cash flow theory suggests that risky debt levels will increase in value even if there is future financial distress. This hypothesis was established for well-established corporations with potential for overinvestment (Myers, 2001).

Financial leverage refers to a business's use of debt and equity to fund its assets, involving long-term financial sources like debt, retained profits, preferred stock, and common stock. The choice of the right capital funding source is crucial, as it affects total risk and cost of capital. Corporate studies in finance focus on how firms decide about their capital structure, examining variables influencing financing decisions that affect an organization's capital cost, market share, and value (Cam and Ozer, 2022). The Modigliani-Miller theorem suggests a firm's capital composition affects its value, but factors like taxes, bankruptcy costs, and asymmetric information influence the choice. Understanding these elements is crucial in experimental finance (Cenci and Kealhofer, 2022). An efficient capital structure can overcome the total cost of capital, ensuring efficient utilization of available funding resources. Better capital structure decisions can increase earnings by providing investors with larger yields due to decreased capital costs. A company's capital structure should be planned to minimize the weighted average cost of capital to reduce the cost of capital.

Therefore, the main discussion to study the capital structure, is to find its best mix and its relation with firm financial performance. Companies need to adopt that mix of capital structure in which debts and equity to be set where the cost of capital is at its lowest point. Cost and benefit analysis is a procedure that make it possible to find which leverage option is better. Long term capital raising options includes issuance of debts and equity and usage of retained earnings. According to Gitman et al. (2011), the weighted average cost of capital (WACC) encompasses debts, preferred stock, common stock, and retained earnings. The cost of retained earnings is generally lower than other financing options, such as flotation costs, interest on debts, and dividends on equity. Companies often prefer to utilize internal profits rather than rely heavily on external resources like debt and equity. Reinvestment is a strategic decision for businesses, aiming to retain earnings for future growth before dividends are paid out (Nguyen et al., 2020); (Song et al., 2022). This decision is crucial for small businesses and their viability, as it reflects the owner's desire to retain earnings for future opportunities (Casey et al., 2022). Reinvestment decisions have been studied for their impact on business sustainability and the broader societal implications, especially in cooperative and community-oriented businesses (Pellegrini et al., 2020). Reinvestment contributes to financial health, growth, community development, and sustainability, promoting economic development, job creation, and attracting companies and capital to a community. Scholarly inquiry highlights the broader societal implications of reinvestment decisions, particularly in cooperative and community-oriented businesses.

Reinvestment is a crucial decision for companies to make regarding financing a venture and the amount of debt and equity to include in their financial structure. It involves reevaluating the validity of investigations by considering new components and viewpoints. Capital structure theories suggest that investing profits in the business is better than the issuance of too much equity and debt. This is because reinvesting profits in the business distributes ownership control, requiring dividends to equity holders and avoiding double taxation. Equity financing is costly, and debt financing requires interest payments to lenders, leading to a higher payment amount than the acquired amount. Conversely, reinvestment in the business can lead to no or minor enhancements in capital structure regarding equity and debt financing. This means no additional dividends on equity and interest on debts, as the company finances its operations by reinvesting its own profit (Comino-Jurado et al., 2021).

Retained earnings refer to the decisions organizations make regarding the allocation of internal profits and equity and debt in their capital structure. This is crucial for financing resources, investment decisions, and investor value creation (Comino-Jurado et al., 2021). Research and financial strategies should be explored to understand whether successful companies issue additional debt and equity or reinvest their profits back into the company. Retained earnings are the primary funding source for most businesses in the US and other countries, with over half of CEOs stating this as their preferred source of finance (Gitman et al., 2015). Reinvestment of internal resources leads to the use of internal profits rather than external funding, overcoming the balances of debt and equity in the capital

structure. Firm performance can be enhanced by combining debt and equity in a capital structure, thereby lowering the cost of capital. A 2010 CEO study by the Australian Industry Group and Deloitte found that retained earnings are the main source of finance for most Australian enterprises.

LITERATURE REVIEW

As per the pecking order theory, businesses need to decide and prefer to raise funds from internal financing over outside funding. Over time, the profitable corporations will become less leveraged if investments and payouts or dividends are fixed. Basically, the concept behind the lower leverage of profitable firms is that these firms are in trend and prioritize reinvesting their internal profit/internal funds again in business rather than issuing new debts or equity. Frank and Goyal (2009) claimed that the firm's leverage and profitability are negatively correlated. It enhances the concept that more profitability of firms will lower the debt level. Because as per the pecking order theory, if a firm has more profit, then it raises its funds by reinvestment rather than too much enhancement of debt or equity financing. Cull and Xu (2005); Chakravarty and Xiang (2011); and Johnson et al. (2002) explored that reinvestment of funds is a crucial choice for businesses since it has an immediate effect on their performance and success. Reinvestment of profit has a significant effect on the company's performance and growth. Firms' decisions to reinvest their profits are influenced by a number of important factors, including ownership structure, institutional environment, property rights, state ownership, and access to external finance. Comprehending these variables is imperative for companies to make knowledgeable choices about the distribution of earnings to ensure long-term expansion and excellence. The best way to finance the company is, of course, to reinvest the retained profits back into the company. If a business is profitable, it can reinvest those earnings to boost business strength and further increase profitability, productivity or efficiency.

Chaiyakul (2021) explored that liquidity positively impacts financial performance by enabling firms to manage short-term debts effectively, implement efficient credit management strategies, and enhance their ability to meet obligations by reinvesting more profits with high liquidity. Fayyaz and Nabi (2016) investigated that key liquidity ratios, such as the current ratio and quick ratio, are recognized as important indicators affecting financial performance. Hongli et al. (2019) discovered that liquidity of assets, as indicated by the ratio of current assets to current liabilities, has been found to have a significant positive effect on firm performance. Gopalan et al. (2012) find that asset liquidity not only directly influences financial performance but also interacts with other variables. Studies have demonstrated that asset liquidity enhances stock liquidity, particularly for firms with limited growth opportunities and financial constraints. Akhtar et al. (2019) explored that liquidity serves as a crucial moderator between capital structure variables and performance metrics like return on assets and earnings per share, underscoring its importance in optimizing firm performance.

As per the capital structure requirement in corporate finance, internal cash, debt, and new stock are the three main sources of funding. According to the pecking order idea, organizations prioritize and organize their financial funding sources (from internal resources to equity), and if all else fails, they turn to equity financing as a last resort. Initial use of internal reserves is followed by debt issuance after they run out; equity must be offered at the time when it is careless to issue more debt. The pecking order idea ties to an organization's capital structure (Donaldson, 1961). Baloch et al. (2015) explained the effects of business size, asset tangibility, and retained earnings on financial leverage. This study was conducted on the auto sector of Pakistan. It is evidenced that a negative relationship was found between the variables. From the viewpoint of pecking order theory, it is final that if a company uses its internal finances that are retained earnings, then its capital structure becomes better and valuable, as when the retained earnings decrease by reinvestment, it means that retained earnings are reinvested in the business, by which there is less need to get finances from debts and equity, and these both become stable and run towards good structure. Huang et al. (2018) investigated with reference to Chinese listed companies' capital structures. They discovered that the best capital structure occurs when equity and debt are mixed in lowering capital costs and that business earnings are an important factor in determining the ideal capital structure. Proenca et al. (2014) investigated elements influencing capital structure. They discovered that three main factors influencing capital structure are asset structure, profitability, and liquidity.

According to the trade-off theory, companies with strong liquidity may be able to take on a lot of debt due to their capacity to pay for existing obligations. As the firms have more liquidity, they can bear the high costs of external financing and also can bear the high debt and equity cost without any hurdle. However, pecking order theory contends that highly liquid corporations shouldn't depend on outside funding because they have greater internal cash equivalents available for further business reinvestments. Khemiri and Noubbigh (2018) explored the drivers of capital structure. As per the trade-off theory and pecking order theory, liquidity has a significant impact on capital structure.

Nazir et al. (2021) investigated the connection between the debt levels of the listed companies and their performance during a five-year period on the Pakistan Stock Exchange (PSX). The results demonstrate that debt, both long- and short-term, significantly and negatively affects a company's profitability. This implies that problems inside the agency might result in a policy of excessive debt, which would impair performance. However, the profitability of businesses in the nonfinancial sector benefits from both sales growth and firm size. Salim and

Yadav (2012) examined the connection between financial leverage and corporate financial performance. The findings show a negative association between the independent variables of total debt (TD), long-term debt (LTD), and short-term debt (STD) and the measures of corporate financial performance, such as return on equity (ROE), return on assets (ROA), and earnings per share (EPS). Moreover, growth and performance in each industry are positively correlated. When performance is measured by Tobin's Q, there is a statistically significant positive correlation with long-term debt (LTD) and short-term debt (STD). Additionally, it demonstrates a strong negative link between total debt (TD) and the firm performance, which is in line with the results of the earlier studies. Pirzada et al. (2015) examined the interlink between business performance, institutional ownership, and financial leverage. It is discovered that institutional stockholding and financial leverage do not significantly correlate. Hasbi (2015) examined how the firm value is changed by its growth, profitability, and financial leverage in Indonesia's Islamic microfinance institutions. The company's value and its growth, profitability, and financial leverage are highly correlated. Dao and Ta (2020) investigated the relationship between a company's financial leverage and performance. They found a strong link between the financial leverage and performance of businesses.

Vatavu (2015) explored to ascertain the interlink between financial leverage and firm performance in 196 Romanian industries' businesses that are included on the Bucharest Stock Exchange. The findings suggest that these enterprises do better by getting financing from equity rather than debt. Mehzabin et al. (2023) examined how the profitability of the banking sector is affected by long-term debt, operating efficiency, and non-interest revenue, while financial leverage is determined by the leverage ratio. Findings demonstrated that debt financing boosts the firm's profitability by confirming that a rise in the bank's overall debt ratio increases its profit margin as the agency cost theory suggests. Furthermore, the results show that cutting operational costs and properly controlling expenses may enhance a bank's profitability. Additionally, non-interest income is quite significant when interest rates are lower. Consequently, the study suggests that wise investment in this area can increase revenue and the profit margin of the banking sector. Anozie et al. (2023) investigation focused on how financial leverage affects the oil and gas industry's financial performance. A comparison was made between financial leverage and financial performance factors: return on assets, total debt to equity, and the ratios of short-term and long-term debt. The study's conclusions show that while short-term and overall debt have little positive effect on return on equity and return on assets, long-term debt has a significant negative impact on return on assets. Kasasbeh (2021) evaluated the impact of financing decision ratios on firm financial performance using data from Jordanian listed firms. The review's conclusions showed that total debt and short-term debt had significant and negative effects on return on equity and return on assets. In addition, long-term debt significantly and favorably affects both return on assets and return on equity. The study suggested that a company's success in terms of financial performance is significantly influenced by its choice of financing. Cuevas-Vargas et al. (2022) highlighted how capital structure and company performance interact. In their investigation on the connection between company performance, innovation, and financial leverage, results demonstrate that capital structure has a direct influence on innovation and only a secondary effect on business performance. Because of the innovation exhibited to have a critical full intervening relationship, in the event that SMEs need to have better firm performance, they should build their degree of advancement. Accordingly, managers should pay unique thoughtfulness regarding the reinvestment to build the degree of innovation and firm performance. Doorasamy (2021) examined the connection between managerial ownership, business value, and financial leverage. The study provided insights into how managerial ownership influences the interlink in capital structure and firm value with enhanced knowledge about regional corporate governance dynamics. Dada and Ghazali (2016) examined the connection between a company's financial leverage and firm performance. The financial leverage and performance of the company are positively correlated.

Jaisinghani and Kanjilal (2017) intended further to understand the non-linear link of financial leverage and company performance for the Indian manufacturing sector. The results have significance for small businesses, since they can lower their overall operating expenses by decreasing their total debt, which leads to enhanced firm performance. Abor (2005) provided the study to examine, over a five-year period, the link between listed businesses' profitability and financial leverage on the Ghana Stock Market (GSE). The ratio of short-term debt to total assets and return on equity show a statistically significant positive relationship. Additionally, it was shown that the long-term debt to total assets ratio and return on equity had a negative link. The results indicate a strong positive correlation between total debt, total assets, and return on equity in relation to total debts. Yazdanfar and Ohman (2015) investigated the connection between financial leverage and firm performance. The purpose of the study was to look at the relationship between debt and small and medium-sized enterprise (SME) performance. This study shows that a company's ability to make a profit in the trade credit market is negatively impacted by both short- and long-term debt ratios. Given that a high debt ratio enhances agency costs and losing control of the business, increased agency costs are thought to improve firm performance.

According to corporate governance theory, leverage has an impact on agency costs, which in turn impacts company performance. Berger and Udell (1994) suggested an alternative strategy for dealing with this hypothesis testing that makes use of benefit effectiveness, or the degree to which a business's earnings resemble the benchmark of a best-practice company handling analogous external conditions. Additionally, it takes into account how to test financial leverage proportions. Furthermore, given the premise, it has been demonstrated

that data on the American banking industry is reliable, and the outcomes are financially significant and quantitatively important.

Khemiri and Noubbigh (2018) and Titman and Wessels (1988) analyzed that, as per the pecking order theory, the three primary funding sources are debt, new shares, and internal profit. The pecking order hypothesis states that as organizations choose priorities to arrange their financial funding sources (internal funds towards equity), they turn to equity financing as a last option. Therefore, when a company reinvests its own profit, the firm does not enhance external financing too much or sometimes go for repurchasing of its own securities in order to overcome the cost of capital. So, when a firm reinvests its own profit in business, it positively affects the firm performance that is mediated by capital structure.

Khemiri and Noubbigh (2018) and Titman and Wessels (1988) analyzed that as per trade-off theory, companies that are strong regarding liquidity may be able to take on a lot of debt due to their capacity to pay for existing obligations. Because the company has greater cash, it can easily afford the high expenses of both debt and stock as well as the high costs of external financing. However, according to the pecking order principle, businesses with significant cash/liquidity should not depend on outside funding, because high-liquidity firms have more internal cash equivalents to reinvest in business, and they need to use their own capital rather than relying on outside funding. Capital structure mediates the link between liquidity and company performance, just as liquidity influences a business's capital structure and performance.

THEORETICAL IMPLICATIONS

Pecking Order Theory

The pecking order idea in the context of business finance assumes the prioritization of financing orders from internal resources towards external. Internal cash, debt, and new stock are the three main sources of funding. As per the pecking order idea, organizations prioritize and organize their financing sources (internal resources towards equity) along with the view that equity financing is considered the last option in the event that all other options have failed. When internal funds are depleted, debt must be issued. Internal funds are used first. When issuing additional debt becomes unwise, equity must be issued. The pecking order idea, which was created by Donaldson in 1961, ties to an organization's capital structure. The theory states that managers consider and make decisions regarding financial resources in an ordered sequence, and Stewart Myers and Nicolas Majluf popularized it in 1984. Pecking Order asserts managers to exhibit the corresponding propensity of sources to support speculative open doors: first, through the company's retained earnings/internal funds, followed by debts, as well as, if all else fails, choosing stock. Here, as per the concept of pecking order theory, it is to find whether reinvestment of internal profits becomes enough that the firm does not need to hire finances and debts and equity, and later on, whether there is any possibility that extra internal profits will be generated to be used to retire debts or equity. If so, then firms can save themselves from the high cost of external finances.

Hypotheses for this study are as,

Hypothesis 1. Reinvestment positively influences firm's financial performance.

Hypothesis 2. Leverage negatively affects firm's financial performance.

Hypothesis 3. Reinvestment negatively affects firm's leverage.

Hypothesis 4. Leverage mediates effect of reinvestment on firm's financial performance.

DATA AND METHODS

Date Sources and Sample Description

There is a clear distinction in corporate governance practices between developed and emerging economies, primarily due to the lack of strong and transparent systems that safeguard shareholders' legal rights. In emerging economies, corporate governance tends to be ineffective, largely because of the poor and complex information environment. Businesses in these regions would greatly benefit from enhanced corporate governance, especially in challenging legal environments. The designated population, by definition, refers to a specific group of individuals, cases, or entities that share certain defining characteristics. This study focuses on companies from developed economies, as they offer valuable insights into effective governance practices that could guide emerging economies and provide a solid framework for financial strategies in these developing markets.

According to Morgan Stanley Capital International (MSCI) market categorization, the research divides Asian Markets in developed and emerging markets. As per MSCI's classification there are five Asian developed economies. These marketplaces are referred to as the study's population. Developed countries are defined by S & P DJI are defined as:

"Countries depicting higher level of consistency in their policies, are most supportive and accessible to overseas investors are characterized as 'Developed countries'."

Zada et al. (2021) used sample selection technique in which first stage in the process is choosing the type of financial markets to include in the sample. In this analysis, it is selected to encompass developed Asian markets.

Asian Developed Economies are as Australia, Japan, New Zealand, Hong Kong and Singapore are included in population.

The second stage involves determining which countries will be included in the sample. This step is crucial as it ensures the selection of countries that meet specific criteria for the study, ensuring a diverse and representative sample. Furthermore, all Asian developed markets are taken into account for analysis in this study, with the exception of those whose indices were created after 2001. The developed markets of Asia comprise Australia (SandP ASX 200 index), Japan (Nikkei 225 index), Hong Kong (Hang Seng index) and New Zealand (NZX 50 index) from the five that are Australia, Japan, New Zealand, Hong Kong and Singapore. The smallest unit in these indices is New Zealand (NZX 50 index). The main purpose to select these indexes from the stock exchanges of relevant countries because these set of indexes are of similar features, such as, largest market capitalization, free float, liquidity and show all the sectors. Andleeb et al. (2021); Jaffari et al. (2021) created selection criteria for selections of firms as per corporate governance mix. According to this criteria, top 50 companies with respect to highest market capitalization in June 2024 in each specific country's selected index are included in the sample. The rationale behind selecting these top 50 most highly capitalization companies is because larger companies typically have a more diverse board of directors, including directors with varying levels of independence, size, gender, and nationality, who can have a greater influence on capital structure. Therefore, there are 200 companies are proposed from above four countries (50 from each of nine countries).

The empirical study will solely on behaviour of developed economies. At first, this review will wipe out financial, real estate and insurance firms from the sample. Since the guidelines and bookkeeping standards distributed here are extremely restricted and not the same in different areas. Besides, the review, excludes those organizations whose information will not accessible and those with the exception. The information includes an assessment of yearly data for the time of 09 years from 2015 to 2023. For firm-specific data, the study uses publicly available sources such as Google Finance, Yahoo Finance, Morningstar, Investing.com, Financial Times, as well as annual reports, SEC filings, form 10K, and websites of the companies. The information will also be gathered from the yearly reports of the organizations as well as from relevant stock exchanges. Belal (2000) explored that yearly reports are considered as the main way for the correspondence of data about the organization. Overall rationalization is when a firm reinvests its internal finances back into the business, it reduces the need to rely on external borrowing, leading to a decrease in debt levels. Lower leverage improves the firm's financial stability by minimizing interest obligations and the risk of default. This efficient use of internal funds not only strengthens the capital structure but also enhances investor confidence. As a result, reduced financial pressure allows the firm to allocate more resources toward growth and innovation, ultimately improving overall firm performance. Therefore, reinvestment of internal funds contributes to both lower leverage and higher financial success.

As this study based on mediation analysis than for mediation analysis the regression technique known as hierarchical multiple regression (HMR) is used that involves adding predictors to the model in phases, or blocks, according to theoretical justifications or hypotheses. HMR is researcher-driven; we choose the sequence in which variables enter the model, in contrast to stepwise regression, which is data-driven. Researchers can test how predictors (and mediators) contribute to explaining variance in the dependent variable using the stepwise, theory-driven technique known as hierarchical multiple regression. To find the descriptive statistics, correlations, regressions and to run the hierarchical multiple regression following method is used,

RESEARCH MODEL

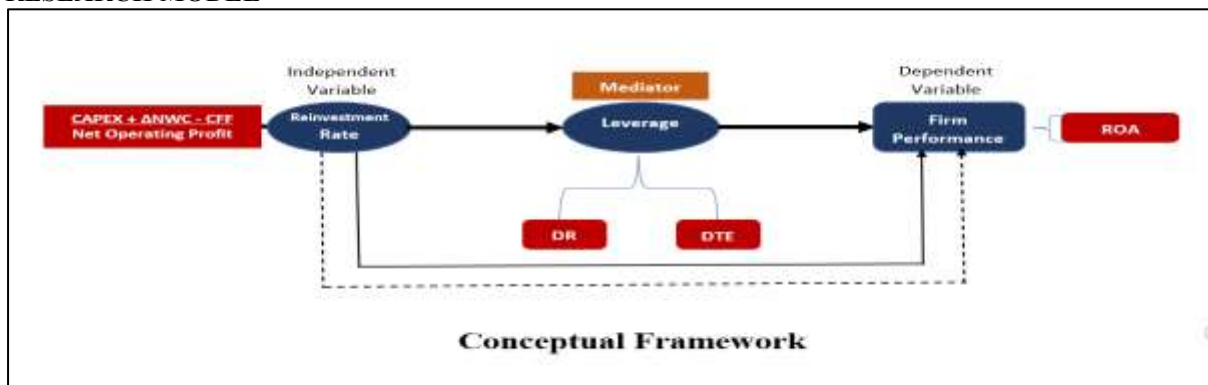


Figure: Mediating Role of LEV on the relationship of reinvestment with firm performance

MEASUREMENT OF VARIABLES

Dependent Variable

Firm financial performance is the ability of the company to manage and control its resources (IAI, 2007). There are two firm performance proxies utilized for this examination as under based on Salim and Yadav (2012):

Return on assets

The ROA variable addresses the benefit proportions a firm has. The ROA is processed as follows:

$$ROA = \frac{\text{Net Income after Tax}}{\text{Total Assets}}$$

Independent Variable

Reinvestment

$$\text{Reinvestment Rate (RR)} = \frac{\text{Capex} + \text{Change NWC} - \text{CFF}}{\text{Net Operating Profit}}$$

Mediating Variable

Leverage

Financial leverage is the process of using borrowed money, or debt, to finance the purchase of assets with the expectation that the income or capital gain from the new asset will exceed the cost of borrowing. Leverage will be estimated using the total debt-to-equity ratio and total debt to assets ratio (Anozie et al., 2023), model can be figured out and formed numerically as follows:

$$\text{Debt Ratio} = \frac{\text{Total Debts}}{\text{Total Assets}}$$

$$\text{Debt to Equity Ratio} = \frac{\text{Total Debts}}{\text{Total Debts} + \text{Shareholder's Equity}}$$

Control Variable

An experimental condition or ingredient that is kept constant throughout the experiment and has no bearing on the main objective or outcome is known as a control variable. As per the study of Khemiri and Noubbigh (2018), here control variable firm size is to be use and calculated as follows.

Firm Size Size Natural Log of Total Assets (Firm level)

Econometric Modeling

$$FP_{it} = \beta_0 + \beta_1 RR_{it} + \beta_2 SIZE_{it} + e_{it}$$

$$FP_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + e_{it}$$

$$LEV_{it} = \beta_0 + \beta_1 RR_{it} + \beta_2 SIZE_{it} + e_{it}$$

$$FP_{it} = \beta_0 + \beta_1 RR_{it} + \beta_2 LEV_{it} + \beta_3 SIZE_{it} + e_{it}$$

In this study, Firm Performance (FP) serves as the dependent variable and represents the overall financial success of a firm, which can be measured using indicators such as Return on Assets (ROA) and Tobin's Q. Leverage (LEV) refers to the extent of a firm's reliance on debt in its capital structure and is commonly measured as the ratio of total debt ratio and debt to equity ratio. Reinvestment (RR) captures the portion of earnings that a firm reinvests back into its operations, reflecting its growth and expansion strategies. Firm Size (SIZE) is measured as the natural logarithm of total assets, a transformation used to normalize the data and reduce skewness caused by large variations in firm size. Finally, e denotes the standard error, which indicates the level of accuracy and reliability of the estimated coefficients in the regression model. A smaller standard error suggests more precise estimates, enhancing the credibility of the model's findings.

EMPIRICAL ANALYSIS

Results

The results of the mediation analysis provide valuable insights into the role of leverage in the relationship between reinvestment and firm performance. In this model, Firm Performance (FP) is treated as the dependent variable, Reinvestment (RR) as the independent variable, and Leverage (LEV) as the mediating variable. The analysis reveals that reinvestment has a significant positive effect on firm performance, indicating that firms that allocate a greater portion of their earnings back into the business tend to perform better financially. Additionally, reinvestment is found to significantly influence leverage, suggesting that firms with higher reinvestment levels tend to manage their debt levels differently, possibly reducing their reliance on external financing. The mediating role of leverage is partially supported, as leverage also has a statistically significant effect on firm performance. This indicates that part of the impact of reinvestment on firm performance operates indirectly through changes in leverage. Therefore, leverage acts as a partial mediator in the relationship, revealing that both direct and indirect pathways contribute to the overall effect. These findings highlight the importance of capital structure decisions in maximizing firm performance and suggest that reinvestment strategies should consider their potential impact on leverage to optimize financial outcomes.

Table 1: Descriptive Statistics

	DR	DTE	N LOG TA	ROA	RR
Mean	0.170933	0.548048	25.36144	5.723363	1.177590
Median	0.144185	0.320000	25.15247	5.045000	0.969527
Maximum	0.796452	9.630000	31.93917	29.87000	58.26902
Minimum	8.92E-05	0.000108	16.13976	-31.83000	-8.894333
Std. Dev.	0.128547	0.728038	3.196361	7.364893	2.668404

Skewness	1.116772	5.194971	0.038174	-0.916088	10.86176
Kurtosis	4.568087	50.23436	2.036828	8.120163	222.4499
Jarque-Bera	307.2142	96485.24	38.50806	1219.884	2005995.
Probability	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	169.2238	542.5672	25107.82	5666.130	1165.814
Sum Sq. Dev.	16.34255	524.2083	10104.34	53644.99	7042.053
Observations	990	990	990	990	990

Table 2: Covariance Analysis

Covariance Analysis: Ordinary					
Sample: 1 990					
Included observations: 990					
Correlation					
t-Statistic	DR	DTE	N LOG TA	ROA	RR
DR	1.000000				

DTE	0.717048	1.000000			
	32.33544	-----			
N LOG TA	-0.194076	-0.121669	1.000000		
	-6.218523	-3.852994	-----		
ROA	-0.168001	-0.179914	0.042374	1.000000	
	-5.356834	-5.748954	1.333112	-----	
RR	-0.063995	-0.032799	0.072728	-0.142607	1.000000
	-2.015664	-1.031495	2.292084	-4.528789	-----

Table3: Group Unit Root Test Summary I

Group unit root test: Summary				
Series: ROA, RR, DTE, DR, PO				
..				
Sample: 1 990				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 18				
Newey-West automatic bandwidth selection and Bartlett kernel				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-19.6811	0.0000	5	4926
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-30.0122	0.0000	5	4926

ADF - Fisher Chi-square	506.430	0.0000	5	4926
PP - Fisher Chi-square	576.845	0.0000	5	4945
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

Table 4: Group Unit Root Test Summary II

Group unit root test: Summary				
Series: ROA, RR, DTE, DR, PO				
..				
Sample: 1 990				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 1 to 17				
Newey-West automatic bandwidth selection and Bartlett kernel				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-42.3432	0.0000	5	4908
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-47.3142	0.0000	5	4908
ADF - Fisher Chi-square	884.331	0.0000	5	4908
PP - Fisher Chi-square	219.784	0.0000	5	4940
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

Diagram 1: Graph

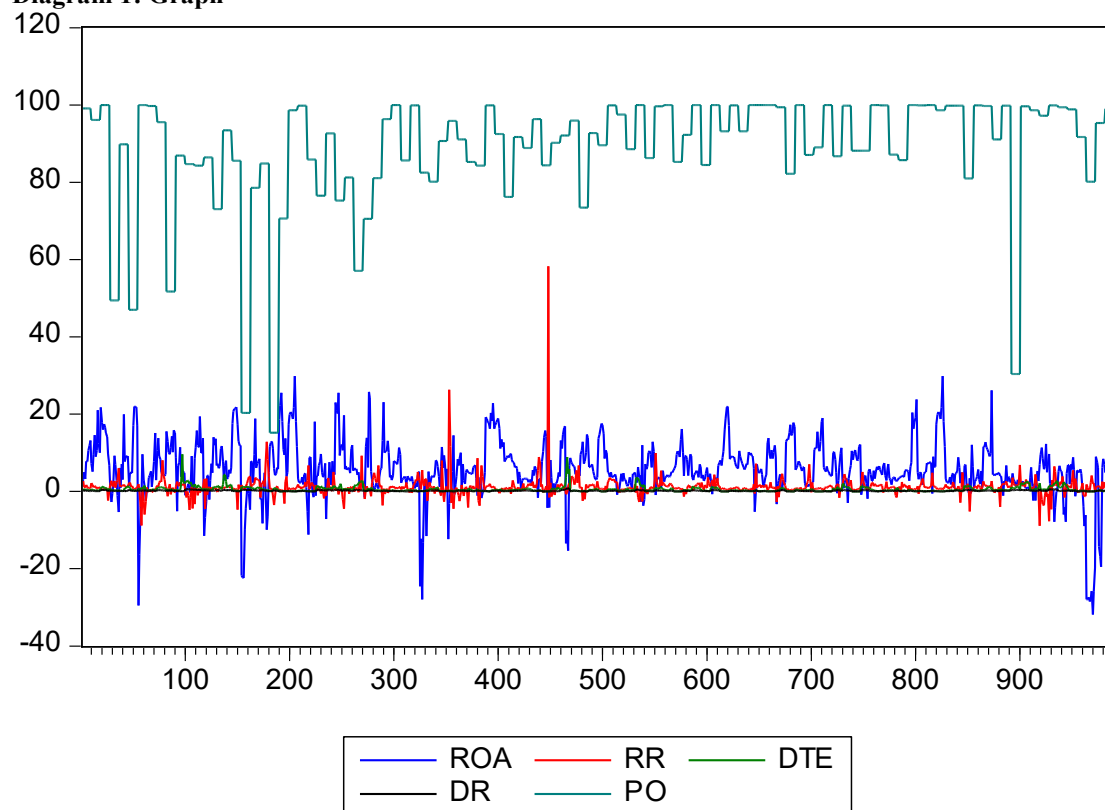


Diagram 2: Autocorrelation

Sample: 1 990

Included observations: 990

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.714	0.714	506.85	0.000
		2	0.529	0.037	784.49	0.000
		3	0.383	-0.01...	930.72	0.000
		4	0.294	0.031	1016.7	0.000
		5	0.226	0.005	1067.5	0.000
		6	0.192	0.038	1104.3	0.000
		7	0.133	-0.05...	1122.0	0.000
		8	0.087	-0.01...	1129.7	0.000
		9	0.038	-0.03...	1131.1	0.000
		1...	0.044	0.068	1133.0	0.000
		1...	0.037	-0.00...	1134.4	0.000
		1...	0.024	-0.02...	1135.0	0.000
		1...	0.029	0.035	1135.9	0.000
		1...	0.009	-0.04...	1135.9	0.000
		1...	-0.00...	-0.01...	1136.0	0.000
		1...	0.007	0.043	1136.1	0.000
		1...	0.033	0.041	1137.2	0.000
		1...	0.047	0.005	1139.4	0.000
		1...	0.025	-0.05...	1140.1	0.000
		2...	0.015	0.006	1140.3	0.000
		2...	0.006	-0.00...	1140.3	0.000
		2...	0.015	0.029	1140.5	0.000
		2...	0.024	0.002	1141.1	0.000
		2...	0.042	0.027	1142.9	0.000
		2...	0.022	-0.03...	1143.4	0.000
		2...	-0.00...	-0.04...	1143.5	0.000
		2...	-0.00...	0.032	1143.5	0.000
		2...	0.009	0.026	1143.6	0.000
		2...	-0.01...	-0.06...	1143.8	0.000
		3...	-0.02...	-0.01...	1144.6	0.000
		3...	-0.03...	0.015	1145.5	0.000
		3...	-0.01...	0.050	1145.6	0.000
		3...	-0.01...	-0.02...	1145.9	0.000
		3...	-0.01...	-0.01...	1146.1	0.000
		3...	-0.00...	0.009	1146.1	0.000
		3...	-0.01...	-0.01...	1146.4	0.000

Table 5: Effect of RR on ROA

Dependent Variable: ROA				
Method: Least Squares				
Sample: 1 990				
Included observations: 990				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RR	-0.393602	0.086911	-4.528789	0.0000
C	6.186865	0.253386	24.41680	0.0000
R-squared	0.020337	Mean dependent var		5.723363
Adjusted R-squared	0.019345	S.D. dependent var		7.364893
S.E. of regression	7.293307	Akaike info criterion		6.813809
Sum squared resid	52554.02	Schwarz criterion		6.823704
Log likelihood	-3370.836	Hannan-Quinn criter.		6.817572
F-statistic	20.50993	Durbin-Watson stat		0.614552
Prob(F-statistic)	0.000007			

Table 6: Effect of RR on DR

Dependent Variable: DR		
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Method: Least Squares				
Sample: 1 990				
Included observations: 990				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RR	-0.003083	0.001529	-2.015664	0.0441
C	0.174564	0.004459	39.14767	0.0000
R-squared	0.004095	Mean dependent var		0.170933
Adjusted R-squared	0.003087	S.D. dependent var		0.128547
S.E. of regression	0.128348	Akaike info criterion		-1.266119
Sum squared resid	16.27562	Schwarz criterion		-1.256225
Log likelihood	628.7289	Hannan-Quinn criter.		-1.262357
F-statistic	4.062903	Durbin-Watson stat		0.400976
Prob(F-statistic)	0.044105			

Table 7: Effect of RR on DTE

Dependent Variable: DTE				
Method: Least Squares				
Sample: 1 990				
Included observations: 990				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RR	-0.008949	0.008675	-1.031495	0.3026
C	0.558585	0.025293	22.08475	0.0000
R-squared	0.001076	Mean dependent var		0.548048
Adjusted R-squared	0.000065	S.D. dependent var		0.728038
S.E. of regression	0.728014	Akaike info criterion		2.205025
Sum squared resid	523.6444	Schwarz criterion		2.214920
Log likelihood	-1089.488	Hannan-Quinn criter.		2.208788
F-statistic	1.063982	Durbin-Watson stat		0.594397
Prob(F-statistic)	0.302561			

Table 8: Effect of DR on ROA

Dependent Variable: ROA				
Method: Least Squares				
Sample: 1 990				
Included observations: 990				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	-9.625369	1.796839	-5.356834	0.0000
C	7.368658	0.384229	19.17780	0.0000
R-squared	0.028224	Mean dependent var		5.723363
Adjusted R-squared	0.027241	S.D. dependent var		7.364893
S.E. of regression	7.263887	Akaike info criterion		6.805726
Sum squared resid	52130.89	Schwarz criterion		6.815620
Log likelihood	-3366.834	Hannan-Quinn criter.		6.809488
F-statistic	28.69567	Durbin-Watson stat		0.567837
Prob(F-statistic)	0.000000			

Table 9: Effect of DTE on ROA

Dependent Variable: ROA				
Method: Least Squares				
Sample: 1 990				
Included observations: 990				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DTE	-1.820027	0.316584	-5.748954	0.0000
C	6.720825	0.288397	23.30404	0.0000
R-squared	0.032369	Mean dependent var		5.723363
Adjusted R-squared	0.031390	S.D. dependent var		7.364893
S.E. of regression	7.248381	Akaike info criterion		6.801451
Sum squared resid	51908.55	Schwarz criterion		6.811346
Log likelihood	-3364.718	Hannan-Quinn criter.		6.805214
F-statistic	33.05048	Durbin-Watson stat		0.583616
Prob(F-statistic)	0.000000			

Table 10: Effect of RR and DR on ROA

Dependent Variable: ROA				
Method: Least Squares				
Sample: 1 990				
Included observations: 990				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RR	-0.425016	0.085721	-4.958123	0.0000
DR	-10.18997	1.779418	-5.726576	0.0000
C	7.965663	0.398357	19.99629	0.0000
R-squared	0.051840	Mean dependent var		5.723363
Adjusted R-squared	0.049919	S.D. dependent var		7.364893
S.E. of regression	7.178717	Akaike info criterion		6.783144
Sum squared resid	50864.03	Schwarz criterion		6.797986
Log likelihood	-3354.656	Hannan-Quinn criter.		6.788788
F-statistic	26.98181	Durbin-Watson stat		0.617596
Prob(F-statistic)	0.000000			

Table 11: Effect of RR and DTE on ROA

Dependent Variable: ROA				
Method: Least Squares				
Sample: 1 990				
Included observations: 990				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RR	-0.410330	0.085474	-4.800652	0.0000
DTE	-1.869354	0.313279	-5.967069	0.0000
C	7.231059	0.304391	23.75581	0.0000
R-squared	0.054448	Mean dependent var		5.723363
Adjusted R-squared	0.052532	S.D. dependent var		7.364893

S.E. of regression	7.168839	Akaike info criterion	6.780390
Sum squared resid	50724.15	Schwarz criterion	6.795232
Log likelihood	-3353.293	Hannan-Quinn criter.	6.786034
F-statistic	28.41712	Durbin-Watson stat	0.632691
Prob(F-statistic)	0.000000		

Table 12: Effect of RR, DR and DTE on ROA

Dependent Variable: ROA				
Method: Least Squares				
Sample: 1 990				
Included observations: 990				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RR	-0.420727	0.085472	-4.922386	0.0000
DR	-5.326060	2.544090	-2.093503	0.0366
DTE	-1.196290	0.448521	-2.667188	0.0078
C	7.784831	0.402875	19.32321	0.0000
R-squared	0.058632	Mean dependent var		5.723363
Adjusted R-squared	0.055768	S.D. dependent var		7.364893
S.E. of regression	7.156586	Akaike info criterion		6.777975
Sum squared resid	50499.68	Schwarz criterion		6.797764
Log likelihood	-3351.098	Hannan-Quinn criter.		6.785500
F-statistic	20.47059	Durbin-Watson stat		0.625512
Prob(F-statistic)	0.000000			

Descriptive Statistics (Table 1) show the mean, median, and variation of the study variables: Reinvestment Rate (RR), Debt Ratio (DR), Debt to Equity (DTE), Firm Size (N_LOG_TA) and Return on Assets (ROA). The mean ROA is 5.72, indicating moderate profitability among the sampled firms. The mean DR (0.17) suggests that firms rely modestly on debt financing. The high kurtosis and skewness values for RR and DTE indicate partially normal data distribution, confirmed by the Jarque-Bera test ($p < 0.01$), showing all variables are partially normally distributed.

Correlation Analysis (Table 2) reveals that DR and DTE are strongly positively correlated ($r = 0.717$), implying that as debt ratio increases, the debt-to-equity ratio also rises. ROA is negatively correlated with DR (-0.168), DTE (-0.180), and RR (-0.143), indicating that higher leverage and Reinvestment Rate are associated with lower profitability. Most correlations are statistically significant ($p < 0.05$), suggesting meaningful relationships between the variables.

Unit Root Tests (Tables 3 & 4) that the Levin, Lin & Chu, Im, Pesaran and Shin, ADF-Fisher and PP-Fisher tests all have p-values of 0.000, rejecting the null hypothesis of a unit root. Thus, all variables are stationary, ensuring that regression analyses are valid and not spurious.

Through Regression Analyses, table 5 (Effect of RR on ROA) shows that RR has a negative and significant effect on ROA ($\beta = -0.394$, $p < 0.001$). A higher Reinvestment Rate reduces profitability. Table 6 (Effect of RR on DR) shows that RR negatively affects DR ($\beta = -0.003$, $p = 0.044$), indicating that higher Reinvestment Rate reduces leverage levels. Table 7 (Effect of RR on DTE) shows that RR has an insignificant effect on DTE ($p = 0.303$), showing no clear influence of Reinvestment Rate on firms' debt-equity structure. Table 8 (Effect of DR on ROA) shows that DR significantly and negatively impacts ROA ($\beta = -9.625$, $p < 0.001$). Firms with higher debt ratios experience lower profitability. Table 9 (Effect of DTE on ROA) shows that DTE also negatively affects ROA ($\beta = -1.820$, $p < 0.001$), suggesting that excessive leverage harms firm performance.

Through Multiple Regression Models, table 10 (RR and DR on ROA) shows that Both RR and DR significantly reduce ROA. The model explains about 5.2% of profitability variation ($R^2 = 0.052$). Table 11 (RR and DTE on ROA) shows that Both predictors are negatively significant. Reinvestment Rate and high debt-to-equity ratios jointly reduce profitability ($R^2 = 0.054$). Finally, table 12 (RR, DR, and DTE on ROA) shows that when combined, all three predictors (RR, DR, DTE) negatively and significantly affect ROA ($p < 0.05$). The overall model fit improves slightly ($R^2 = 0.059$). This implies that financial Reinvestment Rate and leverage collectively explain nearly 6% of the variation in firm profitability, confirming the adverse impact of debt and Reinvestment Rate on performance.

The empirical findings indicate that higher financial Reinvestment Rate and leverage reduce firm profitability. Both debt ratio and debt-to-equity ratio negatively influence ROA, and Reinvestment Rate amplifies this effect. The results align with the trade-off theory, which posits that excessive debt increases financial distress costs, outweighing its benefits.

Financial leverage and Reinvestment Rate have a statistically significant and impact on firm profitability. Firms should optimize their capital structure to maintain profitability while minimizing financial Reinvestment Rate exposure that leads to overcome financial leverage and low financial leverage is beneficial in enhancing firm profitability.

DISCUSSION AND CONCLUSION

The study aimed to analyze the impact of Reinvestment Rate (RR), Debt Ratio (DR), and Debt-to-Equity Ratio (DTE) on firm profitability measured through Return on Assets (ROA). The results demonstrated that financial leverage and reinvestment decisions significantly influence firm performance. The negative coefficients for DR and DTE indicate that higher levels of debt financing adversely affect profitability, suggesting that firms with excessive leverage face increased financial costs and reduced returns. These findings are consistent with the trade-off theory, which explains that while debt can provide tax benefits, it also increases the risk of financial distress if used excessively. This study indicates that leverage (especially DR and DTE) negatively impacts ROA, which is consistent with Ebaid (2009), who also documented the same results. And in addition, DR and DTE have a negative significant impact on firms' performance measured by ROA, and these findings are consistent with Rajan and Zingales (1995), Zetun and Tian (2007), and Abor (2007), who indicated that a firm's performance is negatively related to capital structure. These findings are in contrast with Champion (1999), Gosh et al. (2000), Hardlock and James (2002), Frank and Goyal (2009), and Berger and Bonaccora di Patti (2003), who revealed that there is a positive relation between firm performance and capital structure. The empirical analysis of the relationship between reinvestment rate (RR) and return on assets (ROA) shows that RR has a significant negative impact on ROA in short run but not in long run. The effect of RR on debt ratio (DR) is also notable, but it does not significantly predict debt-to-equity (DTE). The effect of DR on ROA is also notable, with a negative impact on ROA. The effect of DR on ROA is significant, with a negative impact on ROA. The effect of DTE on ROA is also significant, with a negative impact on ROA.

The negative relationship between RR and ROA implies that reinvestment decisions may reduce short-term profitability, as firms allocate more resources to future growth rather than immediate financial performance. This finding aligns with the view that high reinvestment may benefit long-term value creation but can temporarily lower accounting profitability. The low R-squared values (ranging from 0.02 to 0.06) suggest that while leverage and reinvestment rate are significant, other factors such as operational efficiency, firm size, and market environment also play a role in determining profitability.

Overall, the findings suggest that firms should be cautious in balancing debt and reinvestment decisions. Excessive financial leverage reduces firm profitability and increases exposure to financial risks. Therefore, firms should focus on maintaining an optimal capital structure that balances debt benefits and financial stability.

The study concludes that financial leverage and reinvestment rate have a statistically significant and negative impact on firm profitability. A higher debt ratio and debt-to-equity ratio reduce profitability, while excessive reinvestment also dampens short-term financial performance. These results support the trade-off theory, emphasizing that firms should pursue an optimal mix of debt and equity to sustain profitability and minimize financial risk.

From a managerial perspective, it is recommended that firms implement prudent financial policies to control leverage levels and manage reinvestment efficiently. Financial managers should prioritize long-term sustainability by avoiding over-dependence on external debt and maintaining flexibility in capital allocation. Future research can extend this study by including other financial indicators such as liquidity, market value ratios, and industry-specific variables to better understand the determinants of profitability in different sectors.

In summary, debt ratios and debt-to-equity ratios separately lower ROA, while reinvestment directly lowers ROA. The debt ratio is a more obvious mediator than the debt-to-equity ratio, as reinvestment indirectly contributes to the effect. The mediation is partial rather than complete, as reinvestment remains substantial even after the addition of mediators. The findings suggest that reinvestment lowers firm performance, with higher debt ratios and debt-to-equity indirectly contributing to this effect. However, the effect cannot be fully explained by these factors, as reinvestment still predicts return on assets strongly after mediators are included.

The results demonstrate that financial leverage acted as a mediator in the relationship between reinvestment and business performance. However, this partial mediation and performance level of firm can be enhanced by lowering the external financing level in firm capital structure. The results of study shows that if a firm reinvest its internal funds rather than hiring capital from debts (external resources) than low leverage enhances firm performance as by lowering heavy cost of capital (Cost of debts and equity). Therefore, finally, we can conclude that the debt ratio and debt-to-equity ratio have negative effects on firm performance. It means if we decrease the level of external finances in our capital structure, then performance can be enhanced. It's the same; if a firm invests more of its

internal profits in the firm, it decreases the level of external finances, and when external finances decrease, then performance can be boosted up.

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