



Effect of Industry-Level Factors on Profitability of Manufacturing Sector: Evidence from Pakistan

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Abstract

The systematic and non-systemic dynamics influence the performance and efficiency of the overall industry. The management makes competitive strategies to get a competitive advantage in the condensed marketplace. To analyze this phenomenon the study considers a few firm-level factors to check the cause and effect on the profitability of the firms. The required data for the study have been collected from the balance sheet analysis (SBP). The analysis regression models were used after the execution of diagnostic tests. The test results found that the random effect mode is more appropriate than the other models. The findings reveal that debt ratio has a negative and significant effect on profitability when the debt portion will incline the profitability will decrease it is also supported by the pecking order theory. In addition, tangibility of assets and effectiveness and efficiency have a positive and significant influence on performance, the size is an insignificant determinant of the study. Thus, the top management should not rely on debt financing it can increase the percentage of equity financing

Keywords: Industry level, Profitability, Leverage, Manufacturing companies

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Introduction

1. Background

Efficient resource management and allocation within the operations, investments, and financing processes directly contribute to the performance of microeconomic indicators. Performance. The suitable economic results can only be attained by giving managerial decisions an adequate foundation. The financial statements reflect the picture of the business's financial position and performance. However the main source of data used to determine how funds are allocated throughout the value-creation process. The company must develop a clear strategy, establish measures, and create policies to guide top management.

To function in an efficient and financially sound manner over the long run, a business needs to create, carry out, and uphold strategies, measures, and well-thought-out policies. These decisions are the results of an in-depth knowledge of the unique internal and external environments in which the company functions. The effectiveness of a leader's managerial choices is measured by their comprehension of the components that, when applied effectively, would increase output and performance.

The annual financial statements provide an artificial image of the company's financial status and performance, making them the primary information sources that enable the qualitative examination of resource allocation throughout the value-creation process.

A company must develop, implement, and maintain strategies, measures, and coherent policies from an economic and financial point of view to operate in a long-term performance manner. These actions are the result of a thorough understanding of the internal and external specific conditions in which the firm operates. The ability of a leader to understand the parts that, when applied efficiently will improve output and performance determine the quality of their managerial options.

The industry contributes significantly to the growing economy and provides numerous prospects for multiple stakeholders. The management aims to enhance efficiency and productivity and pave the path to achieve shareholders' wealth (Rahman, 2012). Moreover, Ross (2010) proclaims that a company's board of directors maximizes share price and recognizes potential projects for capital budgeting decisions. In other words, the stock prices and the earnings disclosure are heading in the same direction. There is a direct relationship between a company's financial performance and its share value (Kalama, 2013). As per Coad (2007), a firm with high profitability will flourish, whereas a business with low profitability will see a decrease in the worth of its shares. For the company to be competitive in any competitive global environment, it will be essential to incorporate this profitably into a realistic firm's earnings control. Understanding profitability would demand more than a conceptual understanding; it is the cornerstone of a company's strategic goal. A firm's attempt to serve its financial status by taking actions without adequate mitigation planning will be even more visible during a crisis. These kinds of behaviors more typically deteriorate their financial health. However, evaluations of decisions made in light of this information are contingent on a range of other factors, such as the accuracy of accounting information and a wide variety of business news (Abdul Majid, 2017).

Financial data is essential for several types of decisions, mainly firm value reflects the actual financial strength, which enables their shareholders to get high capital gain (Santosa, 2020). However, the accounting data's reliability and market visibility play a crucial role in the decisions. According to Bigliardi, Galati, and Petroni (2011), in evaluating the incremental R&D process, organizational mechanisms are implemented to balance and manage marketing involvement's timing, essence, and influence. However, there needs to be more discussion or research on profitability concerning newer products and R&D. Also a top priority is to find the variables that affect effective organizational profitability.

Similarly, financing can create massive gains, but capital must still be maintained properly and effectively. The cost of capital is influenced by numerous scientific and quasi-factors. The entirety of prior findings on credit risk was undertaken in traditional finance, i.e. (Alshehadeh & Al-Khawaja, 2022). So, according to a study by Alarussi and Alhaderi (2018), there is no obvious link between profitability and the current ratio. There is a correlation between

total sales, working capital, corporate efficiency (measured by the asset turnover ratio), and profitability. Studies conducted by Jang and Park (2011) as well as Lee (2014) explored the connection between a company's growth and its profitability. Both studies found that growth can have both positive and negative impacts on profit. Equity information needs to be accurate, appropriate, and reliable. Technically, in addition to corporate governance as a control variable and company size as a moderating variable, financial performance such as liquidity, leverage, profitability, and efficiency are critical attributes to predict the business value. Actual situations, however, entail flexibility in interpreting performance data that maximize investments and the equity market (Birkyt, 2020). The defendant's actions are under the management's control to ensure that the costs incurred comply specific with criteria. The net profit margin is one parameter that can be used to measure the efficiency of the business (NPM).

1.2 Problem Statements

Financial and Economic dynamics have an impact on a company's performance. Internal elements are micro factors, whilst the country level is macro aspects. Any change in the economy's micro or macro variables impacts businesses, which may be observed in their performance. These effects might be favorable or detrimental depending on the macro environment and the firm's structure. Even the same macro-environmental change may or may not have the same influence on two companies in the same industry (Wei & Zhang, 2008). Moderation is used with the relationship between controllable variables and stock return. Muigai and Muriithi (2017) discovered that while debt had a generally negative and significant effect on the financial distress of the companies they studied, this effect became positive and significant as the firm size increased. However, this study is significant from the earlier studies in several different aspects in developed and developing countries. It first explores various independent variables such as business effectiveness and Working Capital. Second, the study employs two methods for determining profitability: the earnings per share and return on equity. These techniques can provide more precise results that are favorable to the different stakeholders in these businesses, including shareholders, creditors, investors, and management. Drawing on prior research, this study investigates the effects of five factors on organizations' profitability. Various studies have been conducted in many sectors Rahman (2018), but a recent study conducted by

Muhammad et al.(2024) Endogenous -level variables in various sectors, this study investigates micro dynamics of the Financial Performance of the Manufacturing sector.

1.3 Objectives of Study

1. To analyze the effect of industrial-level factors (e.g.: Debt ratio, Tangibility of Assets, Firm of size, efficiency, and effectiveness) on the profitability of Manufacturing Companies.
2. To forward recommendations to the industry in light of key findings.

1.4 Significance of the study

The financial indicators have a great significance in the development of industry dynamics. Each parameter has its significance and needs to be controlled efficiently to enhance the market share and growth. This shows a variety of components that explain and impact how a company's return changes, and such as the financial outcome, the effective use of the financing structure, the scope of the productive and technical infrastructure, the effectiveness of the current assets. Economic expansion and industry profitability are fundamental for societal welfare. A company's performance greatly impacts how much money the country generates and how many people are employed there. Thus, businesses that aim to attain stable profitability must be conscious of internal and external issues that could impact profitability. The policymaker can use this report to help with company strategy. Moreover, this study will benefit all industries with stakeholders that are related to it directly or indirectly. The study will add a body of language that can be used in the upcoming study in a similar field.

II. LITERATURE REVIEW

Manufacturers perpetually look for methods to reduce expenses and increase profitability in the dynamic American industrial sector. Businesses need profit to maintain firm survival and serve the requirements of their shareholders. As social responsibility and charity tend to be positive externalities of business, they can also benefit stakeholders. Therefore, it is in the manager's best interest to routinely assess the organization's effectiveness and performance, usually using profitability measures. Examining profitability makes it feasible to assess the significant factors that contribute to profit, offer invaluable input for building strategies, and create an exclusive focus on return on investment.

This study delves into more revenue determinants than earlier research to increase the usefulness of the findings. Traditionally, research had generally used three to four variables. To establish a more realistic model and give more detail into the factors impacting profit rate, this study will look into eight variables. A sizable sample of listed manufacturing companies that are involved in the same industry is also looked at, which broadens the scope of previous research while providing a viewpoint on the US industrial market. Factors like net working capital, leverage ratio, and fixed asset turnover usually get left out of other studies since the data is either unavailable or the factors are deemed to be of lesser significance. However, the purpose of this study is to clarify how they relate to an organization's profit margin. Relevant connections between independent factors and profitability are investigated for US manufacturing companies.

Rahman et al.(2018) investigate by Using data gathered from 41 firms to study the elements that affect profitability in Pakistan's insurance sector. The research results indicate that macroeconomic and insurance-specific variables such as company risk, debt, and inflation rate have a big impact on profitability. Size and GDP rate, however, have a significant effect. Growth and liquidity are insignificant. For senior managers in Pakistan's insurance industry, this report is crucial. The firm can survive in the marketplace where it could generate profit and make rivalry with the competitor. (Adebayo and Onyeiwu, 2018). A firm's position in the market and its development and growth strategies are determined by its profitability (Al-Mwalla, 2012). Ultimately, the growth and success of any business enterprise depend on its ability to consistently make profits, even in the face of financial difficulties.

In the literature, authors focus on determining various financial indicators that affect profitability. The primary objective of any business is to maximize profit. To attract investors or ensure long-term survival, a business's profitability is a major factor. Companies have to analyze the prospects to forecast the earnings at a particular period. Profitability is always a measure of success in any business, and without it, no business can survive.

Global market trends have changed the way businesses operate, and firms have adopted efficient financial management practices (FMP) to remain competitive and increase productivity (Yunis et al.2018). A good and effective FM practice would identify company growth regardless of the firm's size.in addition, FM practices are essential in diversifying services and product lines, penetrating new markets, and planning for growth.

Kant's (2018), this study aims to evaluate the variables affecting profitability. Several firm-level variables were used in the study. Profitability is thus the dependent variable. For the years 2012–2017, information on 250 American manufacturing companies was gathered from the ORBIS database. The findings reveal that the dependent variable, profitability, and the following variables have positive relationships: debt ratio and R&D investment. There was no statistically significant association identified between the independent variables of profitability and business age and size. Also, the data suggest an unfavorable relationship between profitability and net asset turnover.

Zubair et al. (2013) argue that WCM is a critical determinant of a firm's profitability. Therefore, it is important to acknowledge that WCM plays a significant role in enhancing profitability. Implementing WCM practices ensures that businesses have enough cash available to meet their short-term debts and operational expenses. According to Norah et al. (2015), there is a positive correlation between profitability and efficient management of trade credit and cash in small businesses. This correlation is particularly strong in the context of working capital management. Companies that effectively manage their financial practices consistently report improved financial performance. On the other hand, inefficiency in financial management can cause damage to business growth and adversely affect the firm.

Financial management practices are extremely important for the success and profitability of business enterprises (Lakew and Rao, 2014). These practices are mainly focused on factors such as profitability, liquidity, market values of the business, and investment. When businesses have a higher percentage of tangible assets as part of their total assets, investors tend to perceive this as a positive measure. In this situation, extending the level of debt would be considered a normal practice (Nivorozhkin, 2005).

Evidence demonstrating a positive correlation between tangibility and capital structure has been discovered by Harris & Raviv (1990) and Williamson (1988), as reported by Ullah et al. (2017). Empirical studies were performed to develop a negative relationship between the tangibility of assets and the total level of obtaining them. This pattern has been identified in research done by Nivorozhkin (2002) and Serghiescu et.al (2014).

Thus, a larger size has a positive effect on leverage. Size can be seen as a measure of the difference in information between managers and external investors. They ought to possess more capacity for issuing equity, an asset that is more reactive to the presence of unequal information, and have a reduced level of debt (Rajan & Zingales, 1995). Efficient companies optimize their resources by turning labor, materials, and money into successful products and services. In contrast, inefficient groups have a lack of organization, resulting in lethargic operations, loss of time and financial resources, and a negative impact on profitability. Activity ratios and profitability ratios are vital analytical tools that assist investors in assessing different facets of a company's financial strength. Profitability ratios reveal the business's opportunity to make profits, though efficiency ratios assess how well a company employs its resources to generate those profits.

III RESEARCH METHODOLOGY

3.1 Nature of the study

As the nature of the studies is different based on the phenomena, therefore the current study we are going to test the hypotheses so it is deductive. The published data has been collected so it is secondary and quantities in nature.

3.2 Population and Sample Size

In statistics, a population is the set of participants from which a statistical sample is derived. So, a population can be termed any set that includes people who share an attribute. A sample can also refer to the statistically significant part of a population as an alternative to the entire population. This is the reason why a statistical study of a sample from the entire population must disclose the standard deviation, often referred to as the standard error. If the study was limited to a population, the standard error would not be present. The entire non-financial firm is going to represent the study's population. Based on Sekaran & Bougie's (2009) approach, the sample size was collected continuously.

3.3 Data and Sources of Data

. In part to the secondary and panel traits of the study, the SBP website as well as the websites of the people and companies will serve as the sources of the data. Conversely, the study has made use of panel data, which combines time series with cross-sectional data. For panel data analysis, several econometric techniques are employed; the most well-liked and usually used ones are FE, RE, PO

$$PF = \beta_0i + \beta_1FLit + \beta_2TA + \beta_3SZEit + \beta_4EFit + \beta_5EFFit + uit$$

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3.4 Model Selection Panel Data

Individual behavior can be analyzed using panel data models across individuals and over time. Both cross-sectional and time-series dimensions are present in the data and models. Panel data is balanced then all individuals are observed in all periods. When individuals are not observed in all periods, panel data is unbalanced. Estimating the influence of education on income using data

from various periods and individuals, and estimating the impact of income on savings using data from various years and nations, are two examples.

3.4.1 Fixed Effect and RE

In the FE model, there is a fixed or stable connection between the response variable and the explanatory variable for every observation. Let's examine how patients' responses can be estimated with fixed-effect and mixed models, which combine FE and RE. However, the models show entirely distinct beliefs when assessing the data. Selecting the right model is crucial for precisely estimating a range of statistics. Furthermore, more significantly, the model offers a framework for knowing the extent of the study. RE based on unpredictability and shortage of relationship between the differences across objects.

3.4.3 The Hausman Test and Breusch pagan test

In panel data analysis, the Hausman test and BP tests select the most appropriate mode between FE and RE and Pooled OLS.

3.5.1 Dependent Variable

Financial Performance

The Financial performance shows the financial health of the company and how the company earnings in the presences of total assets. When the income is high so the investment generate high earnings (Alama and Hassion, 2014). Proxy for ROA

$$\text{ROA} = \text{Net Asset} / \text{Total Assets}$$

Financial Leverage

Leverage is a form of investment strategy where an investor's return on investment is raised by taking out loans, particularly by using different financial instruments cash. Financial leverage can be determined with the following formula by Rahman et al. (2018) and Endri et al. (2020).

Financial leverage = Total Debt/Total Assets

Tangibility of Assets

Figuring out whether a company has credit constraints is part of asset tangibility. Companies with a bigger number of physical things can find it easy to obtain external funding and might be able to use such possessions as collateral. Substantial funding in pledge-able assets has been made conceivable by investment and borrowing, which convert assets into pledge-able assets that may back further borrowings. One way to calculate tangible resources is to divide total assets by fixed assets. It is an essential aspect that decides the leverage of the business. Offerings signed by firms with a lot of tangible assets allow them to quickly and risk-free raise extra funds. Leverage and asset tangibility should therefore show a positive trend (Rahman et al. 2018;

TA = FA/TA

Activity ratio:

“Businesses utilize the "activity ratios" class of financial ratios to assess how well they can use the various operating assets shown on their balance sheet and turn them into cash or revenue”. Activity ratios assess a company's operating efficiency by looking at its inventories, accounts receivable, and fixed assets. It displays how the elements of the balance sheet are used as well as the financial stability of the organization. Alivia, N. R., & Chabachib, M. (2013) are among the proxies that most researchers utilize Gunadi et al. (2020);

NPM = $\frac{\text{Net profit}}{\text{Sales}}$

Effectiveness

It is the success with which a business, its uses, and the organization together interact to create value. Effectiveness can be used in a wide range of business activities. From a management perspective, a company wins when its workers complete the required tasks. As a company grows more effective, its value rises. Barus and Leilani (2013) and Sunaryo, D. (2020) define return on

equity as the ratio of a company's capital to its overall revenue after taxes. Generally speaking, higher TATO, higher ROE, and better corporate owner status result in more equity

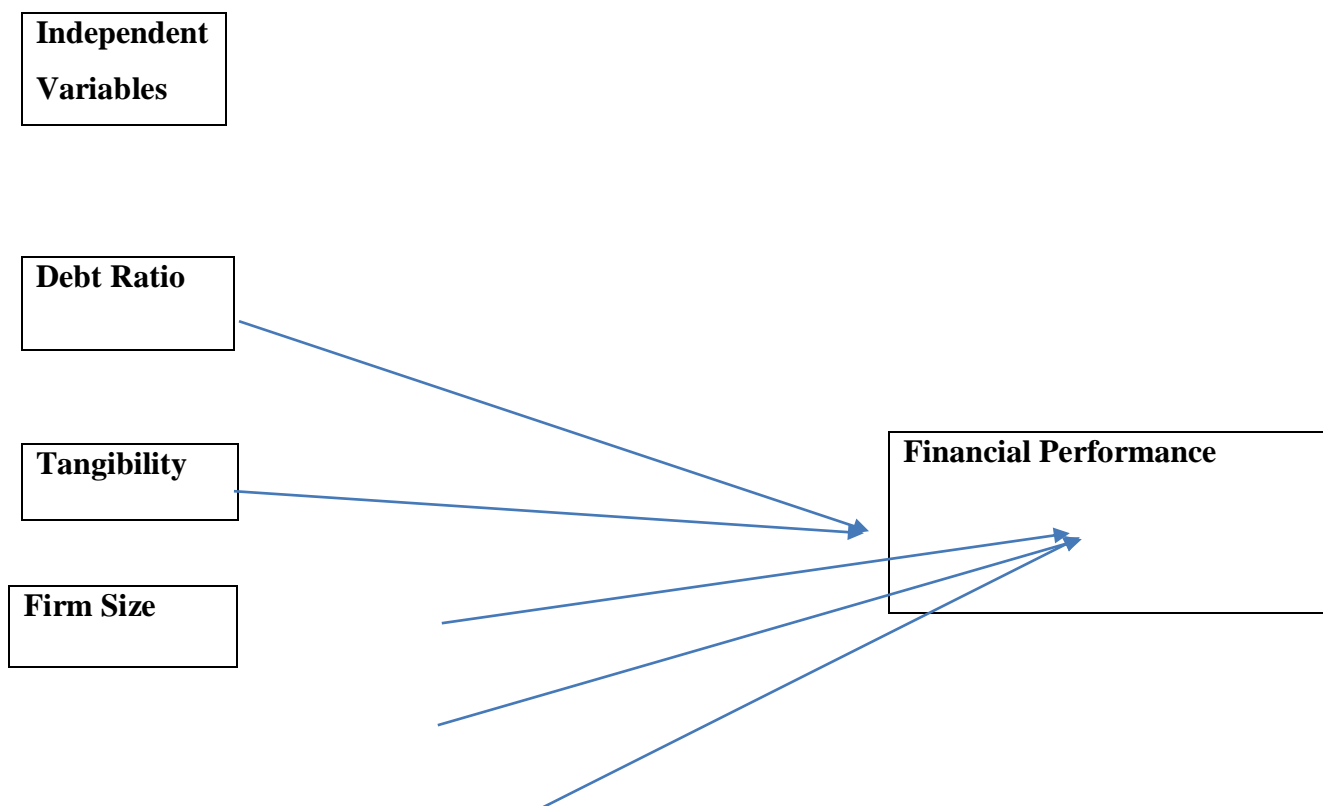
$$\text{TATO} = \text{Sales} / \text{Total Assets}$$

Size

It sets the scope that a specific business produces. The profitability and efficiency of an operation are greatly influenced by its size, thus analyzing it is crucial. Determining the "size" of a company and how it impacts the organization and the efficiency of business operations is one of the greatest entrepreneurial milestones in the business. The relationship between size and profitability varies all over the literature. Any business strives to appear at its ideal size. A firm often begins as a smaller enterprise and grows during its operation to achieve the proper size. According to Endri et al. (2020) and Rahman (2018), profitability is favorably and statistically greatly affected by size.

$$\text{Firm Size} = \text{Ln} (\text{Total Asset})$$

Theoretical Frame Work



Efficiency

Effectiveness

IV. Data Analysis (Results and Discussion)

4.1 Correlation analysis

The key objectives of bivariate, or correlation, analysis are determining when a connection between variables exists and, if so, what kind of strong it is. The intensity goes from +1 to -1. there ought to be a connection between defined values. This relationship shows the positive or negative link between two variables.

Table 4.1

Summary Statistics

Variables	ROA	Leverage	Firm Size	Tangibility	Effectiveness	Efficiency
ROA	1.000	-0.5432	0.1583	0.1361	0.2780	0.0534
F.Leverage		1.000	-10.91	-0.1121	-0.1755	0.0024
Firm SIZE			1.000	0.1368	-0.0339	0.1084

TA	-	1.00	0.650	0.0421
EF			1.000	-0.0307
EFF				1.000

The association between the variables is presented in Table 4.2. Profitability (ROA) and leverage have a negative relationship; as debt levels rise, revenues will fall. Also, there is an adverse relationship between leverage and firm size. Effectiveness and tangibility have a negative relationship with leverage. Effectiveness and firm size as well as efficiency and effectiveness are inversely associated. In the table, all the other factors also have positive relationships with one another. while the numbers are within the range of +1 and -1

Table 4.5 displays the REM for the PM, which was chosen using the Hausman and BP test. This model explores the causal connection across independent and dependent variables. The R-square number is the proportion of the variance in the dependent variable that can be explained by the selected independent variables, which in this case is 57 percent. As a result of the other factors that have been gone from the equation, the remaining impact continues. The F value exceeds 4, showing that the model is suitable.

The t-values of the independent variables indicate a significant negative association between leverage and the profitability of manufacturing enterprises. The profitability (ROA) is well related to the size of the firm, but also to its efficiency and effectiveness.

Discussion

The impact of independent variables on the profitability of a manufacturing company is analyzed

INDVAR	Coeff	Std.Er	T-Val	P-Val
Cont	8.21985	2.5894	3.174	0.0012***
FL	-2.5589	0.9564	-2.55	0.0045 ***
SZE	0.96526	0.6686	1.443	0.1078
TA	2.56848	0.58965	4.3559	0.0354 **
EF	3.65495	0.59862	6.105	.0034 ***
AFF	0.0586241	0.0215659	2.718	0.0141 **
R-squ	0.48			
Adj R-squ	0.42	F-v= 12		

through the analysis of its explanatory variables. All of the independent variables have a

significant impact on the dependent variable, evidenced by an R-sqr value of 48. The variable that can be altered or controlled in a study is considered as the dependent variable. There is a significant negative link between the profitability of the industrial sector and leverage. Thus, an increase in manufacturing's debt burden will lead to a decline in profitability. Bankruptcy is the result of a high debt ratio. Therefore, a significant amount of debt decreases the level of profitability. An escalation in borrowing numbers entails an equal increase in interest charges for the business

Random-effects Model (Dependent variable: ROA)

Higher operating costs and lower corporate profitability could result from this. Our findings imply an increase in effectiveness. Enhancing effectiveness may significantly improve a company's overall profitability through cost reduction, gaining a competitive edge, and boosting productivity, among other benefits. The result is in line with other research on the connection between profitability and leverage. Several findings from the studies performed by Endri et al. (2020), and Perdana (2020) contradict the current findings. In the manufacturing sector, the size of a firm is not significantly influenced by its profitability. The correlation between effectiveness and profitability is well-established. Businesses that frequently enhance their effectiveness through innovation and process optimization are more likely to achieve long-term profitability and stability. Improved results Providing superior products or services, expedited delivery, or more economic cost might provide a more robust company an advantage over its competitors. Productivity gains frequently accompany improvements in effectiveness. This could lead to higher revenue and a larger market share. Research conducted by Hitt et al. (2001) indicates that businesses that employ more effective strategies tend to reach higher levels of revenue. Furthermore, our research indicates that both engagement and being present have a positive impact on a company's financial performance. Research by Musa et al. (2018) suggests when firm composed bulk number of plant assets in the statement of financial position it lower the financial risk and it also enhances creditworthiness. As a result, these companies reveals good returns and lower cost of capital. Furthermore, our data suggests that the size of a company positively impacts its profitability

V- Conclusions

This study figure out the impact of micro dynamics on Financial Performance. The data has been collected from the official website of the State Bank of Pakistan, specifically to conduct carrying out a balance sheet analysis. Sekaran & Bougie's (2009) technique was used to gather the sample size at the same time. To study the phenomenon, the most dependable panel data models were employed. The prevailing data was examined with the three models of FE, RE, and collaboration model. The most suitable model was then chosen based on the HM and BP test. The RE model investigates the considerable negative relationship between leverage and profitability. Furthermore, the factors of tangibility, efficiency, and effectiveness exhibit a strong and positive correlation with profitability. The size of the firm is insignificant. The theory support MM theory.

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