

## FIRM SIZE AND PROFITABILITY AS DETERMINANTS OF FIRM VALUE: EVIDENCE FROM NSE-LISTED COMPANIES IN INDIA

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### ABSTRACT

*This study examines the impact of profitability and firm size on firm value among companies listed on the National Stock Exchange (NSE) of India. Using a panel data approach, we analyse 20 firms from the FMCG and IT sectors over the period 2013–2022. The study employs panel Ordinary Least Squares (OLS) regression to assess these relationships. The results show that firm size has a significant positive impact on firm value, whereas profitability (proxied by Return on Assets) does not exhibit a statistically significant effect. These findings suggest that investors and corporate decision-makers should consider firm size as a key determinant when evaluating company valuation strategies. This study contributes to the ongoing discourse on corporate financial performance by providing empirical evidence from the Indian market and suggests future research avenues, including the role of capital structure, market conditions and sectoral dynamics in determining firm value.*

**KEYWORDS:** Profitability, Firm Size, Firm Value, Market Capitalisation, Financial Performance, Return on Assets (ROA), Panel OLS

### INTRODUCTION

The relationship between firm size, profitability and firm value has been a widely debated subject or topic in corporate finance research. Firms constantly strive to enhance their market valuation by improving financial performance, optimising capital structure and expanding their asset base. While firm size is often associated with economies of scale, better access to financial resources and enhanced market credibility, profitability reflects operational efficiency and the ability to generate consistent earnings. However, the extent to which these factors influence firm value remains inconclusive, particularly in emerging markets like India, where economic conditions, regulatory frameworks and industry dynamics differ from those of developed economies.

In financial literature, several studies have examined this relationship across various global markets. (Sudiyatno *et al.*, 2020) found that profitability mediates the relationship between firm size and firm value in Indonesian manufacturing firms, suggesting that larger firms tend to be more profitable, thereby enhancing their valuation. (AlGhusin, 2015) highlighted that financial leverage and company growth significantly impact profitability in Jordanian industrial companies, indicating that firm size alone may not directly determine market value. Similarly, (Acheampong *et al.*, 2014) reported a positive relationship between firm size and stock market returns among selected manufacturing firms in Ghana. However, in the case of Nigeria, (Akinlo, 2012) found that profitability and firm size have a bidirectional causal

relationship i.e., firm value can influence profitability and vice versa. These conflicting findings support the importance of context-specific research to understand how these factors interact in different financial markets.

Despite these global insights, limited empirical evidence is available for India, where stock market behaviour, investor sentiment and corporate governance practices may present distinct trends. Given the rapid expansion of the Indian corporate sector, the increasing foreign institutional investment (FII) inflows and the evolving financial regulations, it is crucial to examine whether profitability or firm size serves as a more dominant determinant of firm value. Understanding these dynamics can help investors make informed decisions, enable corporate managers to optimise strategic planning and assist regulators in formulating policies that promote financial stability and growth.

To address this research gap, this study examines the impact of profitability and firm size on firm value among companies listed on the National Stock Exchange (NSE) of India. Using a panel dataset of 20 firms from the FMCG and IT sectors over the period 2013 - 2022, the study employs Panel Ordinary Least Squares (OLS) regression to determine whether profitability, proxied by Return on Assets (ROA), significantly affects firm value and whether firm size, measured by total assets, plays a crucial role in influencing firm valuation.

The findings of this study will provide valuable insights for investors, corporate decision-makers and policymakers i.e., it helps to identify key determinants of firm valuation in the Indian market. These insights can guide investment decisions, strategic planning and policy formulation. Additionally, this research contributes to the existing literature by offering empirical evidence from NSE-listed firms, thus extending the discussion beyond developed markets.

The remainder of this paper is structured as follows: Section 2 reviews relevant literature, Section 3 outlines the research methodology, Section 4 presents empirical results and discussion and Section 5 concludes with recommendations for future research.

## REVIEW OF LITERATURE

The relationship between firm size, profitability and firm value has been largely explored in financial/economic research. It all provides varying conclusions across different economies and sectors. Since firm value reflects a company's financial health, market position and growth potential it is crucial to identify these factors for corporate managers, investors and policymakers. This section trying to reviews key empirical studies that have examined these relationships in different markets, highlighting the research gap that this study aims to address.

### Profitability and Firm Value

Profitability is a critical determinant of firm value, as higher profitability signals strong financial performance and investor confidence. (Pratiwi, 2020) examined the relationship between profitability, firm size and capital structure with firm value in Indonesian firms, finding that profitability positively influences firm value, while firm size did not exhibit a significant effect. Similarly, (Odularu, 2009) used the Ordinary Least Squares (OLS) technique to establish a positive relationship between a company's profitability and its market capitalisation in the Nigerian confectionary sector. (Husna & Satria, 2019) conducted a study on Indonesian manufacturing firms and found that Return on Assets (ROA), a key measure of profitability, significantly affects firm value. But, they found that other financial ratios such as Debt-to-Asset Ratio (DAR) and Current Ratio (CR) do not. These findings suggest that profitability is a strong indicator of firm value, particularly in developing economies.

However, contradictory evidence exists in different markets. (Sudiyatno *et al.*, 2020) found that profitability plays a mediating role between firm size and firm value, implying that large firms may not directly enhance firm value unless they are also profitable. This indicates that the relationship between profitability and firm value is not always direct and may depend on firm size and other financial metrics.

### **Firm Size and Firm Value**

Firm size is often considered a determinant of firm value due to economies of scale, better access to financial resources and increased investor confidence. (Acheampong *et al.*, 2014) examined manufacturing firms on the Ghana Stock Exchange and reported a positive and significant impact of firm size on stock returns, implying that larger firms tend to have higher market valuations. Similarly, (Akinlo, 2012) found a long-run steady-state relationship between firm size and profitability in Nigerian firms, suggesting that firm size influences financial performance, which in turn affects firm value.

However, some studies have produced mixed findings. (AlGhusin, 2015) analysed Jordanian industrial firms and found that firm size and financial leverage significantly impact profitability, but their direct influence on firm value remains weak. Additionally, (Pratiwi, 2020) concluded that firm size does not significantly impact firm value, suggesting that other financial metrics may play a more dominant role. These contradictions highlight the need for further empirical investigation where firm size and profitability may interact differently due to distinct economic and regulatory conditions.

(Khan, 2022) found that larger firms in GCC countries benefit from financial advantages and face lower financial risks, while (Ali & Fatima, 2023) reported that large-cap Indian oil and gas firms outperform mid-cap and small-cap firms in financial performance. Similarly, (Le *et al.*, 2020) found that firm size & revenue growth positively impact profitability. Beyond financial performance, (Ho *et al.*, 2019) pointed that larger firms tend to have better corporate social responsibility (CSR) practices which may enhance their reputation and investor confidence. (Tan *et al.*, 2012) found that larger stock markets attract more foreign investment, suggesting that large-cap Indian firms may experience greater institutional investor interest. (Wincent, 2005) highlighted how larger firms gain strategic advantages through networking, fostering business growth and financial stability. These all studies emphasise the need to examine this relationship in the Indian context.

### **Studies on Indian Firms**

In spite of extensive research in global markets, empirical evidence on Indian firms still remains limited. Most studies on firm value in India have focused on factors such as corporate governance, capital structure and financial leverage, with little emphasis on the combined effect of profitability and firm size. Since there is rapid growth of India's corporate sector, the increasing role of foreign institutional investors (FIIs) and evolving financial regulations, it is important to analyse how these variables influence firm value in the Indian context.

This study aims to fill this gap by examining the relationship between profitability, firm size and firm value among NSE-listed firms. By employing Panel OLS regression on data from 2013 to 2022, this research contributes to the literature by providing new empirical evidence from the Indian financial market.

## RESEARCH DESIGN

This study employs a quantitative research approach to examine the relationship between profitability, firm size and firm value among NSE-listed firms in India. The analysis is based on secondary data collected from publicly available financial databases over a period of 2013 - 2022. A panel data regression model is applied to capture both cross-sectional and time-series variations, ensuring a robust estimation of the impact of firm size and profitability on firm value.

### Data Collection and Sample Selection

The study focuses on 20 publicly listed companies from the FMCG and IT sectors, chosen using a purposive sampling method. The selection criteria are based on:

- Market Representation – Top 10 companies each from the NIFTY FMCG and NIFTY IT Sectoral Indices.
- Data Availability – Companies with consistent financial data available for the entire study period (2013 - 2022).
- Sector-Specific Focus – FMCG and IT sectors were selected due to their distinct financial characteristics and their significant role in India's economy.

The financial data, including firm value, profitability and firm size, were sourced from the CMIE Prowess database, which is widely used in empirical financial research in India.

### Variable Definition and Measurement

The study considers three key variables and the *Dependent Variable* is Firm Value (MCAP) – Measured as Market Capitalisation (Share Price × Number of Outstanding Shares), a common proxy for firm valuation in stock market research.

The *Independent Variables* were taken as (a) *Profitability (ROA)* – Measured using Return on Assets (ROA) and calculated as:

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

ROA is widely used to assess how efficiently a company utilises its assets to generate earnings and (b) *Firm Size (Total Assets, TA)* – Measured as the total book value of a firm's assets, reflecting its financial scale and market presence.

### Econometric Model and Method of Analysis

Given the panel structure of the data, the study employs Panel Ordinary Least Squares (OLS) regression, which is well-suited for analysing relationships between multiple independent variables and a dependent variable over time (Wooldridge, 2010). Panel OLS assumes no firm-specific unobserved heterogeneity (Brooks, 2019). The regression model is specified as follows:

$$Y_{it} = \alpha + \beta_1 X1_{it} + \beta_2 X2_{it} + \varepsilon_{it}$$

Where:

- $Y_{it}$  = Firm Value (Market Capitalisation) of company i at time t
- $\alpha$  = Constant term
- $\beta_1$  and  $\beta_2$  = Coefficients for independent variables
- $X1_{it}$  = Profitability (ROA) of company i at time t
- $X2_{it}$  = Firm Size (Total Assets) of company i at time t
- $\varepsilon_{it}$  = Error term

### Addressing Non-Stationarity

Time-series data often exhibit non-stationarity, which can lead to spurious regression results if not properly addressed. This study applies the Jarque-Bera Normality Test to assess whether the data follows a normal distribution or not. Given the presence of non-normality, a First-Difference Transformation is applied to convert non-stationary variables into stationary ones, reducing potential autocorrelation and unit root issues. Furthermore Durbin-Watson Test has been used to detect autocorrelation in residuals, ensuring that the regression estimates remain unbiased and efficient.

### Statistical Software and Robustness Checks

All statistical analyses were conducted using gretl, which ensures computational accuracy and replicability. To validate the robustness of the results, the study applies a Multicollinearity Check (Variance Inflation Factor - VIF Test) to confirm that the independent variables do not exhibit high correlation. In addition, the Breusch-Pagan Test has been performed to detect heteroskedasticity. This ensures that the variance of errors remains constant across observations. These tests enhance the reliability and validity of the regression model.

## RESULTS AND DISCUSSION

Before conducting the regression analysis, the Jarque-Bera test was applied to assess the normality of the dataset. The test result of 2302.567 with a p-value of 0.00000 shows a significant deviation from normality. This result suggests presence of skewness and kurtosis. This may affect the reliability of regression estimates if it is not properly addressed. In order to mitigate potential biases, first-difference transformations were applied to make the data stationary. This may ensure more reliable regression results.

### Panel OLS Regression Analysis

The Panel OLS regression model was employed to analyse the relationship between firm size (total assets), profitability (ROA) and firm value (market capitalisation). The first-difference model was used to correct for non-stationarity and omitted variable bias. Table 1 presents the regression results:

**Table 1: Panel OLS Regression Results (First-Difference Model)**

Variable	Coefficient	Std. Error	t-Statistic	p-Value
Constant (C)	117973.5	46455.24	2.5395	0.0120*
Profitability (ROA1)	9382.499	10409.81	0.9013	0.3686
Firm Size (TA1)	3.2436	0.8546	3.7954	0.0002***
R-Squared				0.0754
Adjusted R-Squared				0.0649
F-Statistic				7.2186
Prob (F-Statistic)				0.000969***
Durbin-Watson Stat				1.9320

Source: Data compiled by the researcher from CMIE ProwessIQ

Notes: \*\*\* Significance at 1% level; \* Significance at 10% level.

## Interpretation of Results

### 1. Impact of Profitability (ROA) on Firm Value

The coefficient for profitability (ROA1) is 9382.50, but its p-value (0.3686) is not statistically significant. This indicates that profitability does not have a significant impact on firm value among NSE-listed FMCG and IT firms during the period 2013 - 2022. These findings contrast with studies such as (Pratiwi, 2020) and (Husna & Satria, 2019), which found a positive and significant impact of profitability on firm value in Indonesia. However, they align with (Sudiyatno *et al.*, 2020), who suggested that profitability may act as an intervening variable rather than a direct determinant of firm value.

A possible explanation for this result could be that while profitability is important for financial health, Indian investors may prioritise other factors such as growth potential, market share and corporate governance, particularly in sectors like FMCG and IT, where brand equity and innovation often play a larger role in determining firm valuation.

### 2. Impact of Firm Size (Total Assets) on Firm Value

Firm size, proxied as total assets (TA1), shows a significant positive impact on firm value (coefficient of 3.24 and a p-value of 0.0002). This suggests that larger firms tend to have higher market valuations. The findings are consistent with studies such as (Acheampong *et al.*, 2014) and (Akinlo, 2012), which found that firm size positively influences financial performance and stock market valuation.

The strong impact of firm size on market capitalisation may indicate that investors perceive larger firms as more stable and capable of generating long-term returns. In the Indian market context, larger firms also have greater access to capital, stronger bargaining power and better risk diversification, which may contribute to their higher valuations.

### 3. Model Fit and Robustness Checks

- R-Squared and Adjusted R-Squared: The R-squared value of 0.0754 indicates that only 7.5% of the variation in firm value is explained by firm size and profitability. While this may seem low, it suggests that other factors such as market sentiment, industry growth and capital structure may also significantly influence firm value.
- Durbin-Watson Statistic (1.9320): The near 2.0 value suggests that there is no serious autocorrelation, confirming the reliability of the regression results.

### Implications of the Study

The findings of this study have significant implications for investors, corporate managers and policymakers. Investors should prioritize firm size over profitability when evaluating NSE-listed firms, as factors such as asset base, market share and scalability have a stronger influence on valuation than short-term earnings, particularly in the FMCG and IT sectors. Corporate managers should focus on strategic expansion, financial stability and long-term growth rather than relying solely on profitability improvements, as a more holistic financial management approach, including investments in growth opportunities and operational efficiencies, can enhance firm value. For policymakers, the study highlights the need for a regulatory framework that supports firm growth and expansion, with considerations for capital market regulations, tax policies and corporate governance reforms. Additionally, future research should explore other determinants of firm value such as capital structure, ownership patterns, etc., to develop a good understanding of firm valuation dynamics in emerging markets like India.

### CONCLUSION

This study examined the relationship between profitability, firm size, and firm value among NSE-listed FMCG and IT firms in India (2013–2022) using panel OLS regression. The findings indicate that firm size has a significant positive impact on firm value, while profitability (ROA) does not exhibit a statistically significant effect. This indicates that investors prioritise firm size over profitability, emphasising the importance of market dominance, asset expansion and long-term growth strategies. The results challenge the conventional view that profitability is the primary driver of firm value. This study aligns with studies highlighting the benefits of financial stability and economies of scale in larger firms. Given the low explanatory power of the model (R-squared: 7.5%), future research should explore capital structure, corporate governance and market conditions to develop a more comprehensive understanding of firm valuation in emerging markets like India. Additionally, employing a Fixed or Random Effects model in future studies could help control for firm-specific variations more effectively.

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