



“The Influence of Earnings Per Share on Enterprise Value: An Empirical Study of Non- Banking Financial Companies in India”

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Abstract:

This paper tries to explore the impact of Earning Per Share on Enterprise value of Non-Banking Financial Companies. The study covers a period of 10 years from 2015 to 2024. To understand how EPS influences EV, other firm-level financial indicators such as Return on Assets (ROA), Debt-to-Equity Ratio (DER) and Current Ratio (CR) has taken into consideration. besides, macroeconomic variables—such as the inflation rate and interest rate (Repo Rate)—can affect both firm performance and investor behaviour, influencing EV either directly or indirectly also has been taken into study. Sample of 50 Non-Banking Financial Companies in India has been considered which are listed on Bombay Stock Exchange. Regression data panel has been employed by using R software. The Two-Way Fixed Effects Model has been used for analysing the panel data of NBFCs in India. The two-way fixed effect model is chosen to control not only for unobserved individual-specific effects but also for time-specific effects that may influence the dependent variable. This allows the model to account for both firm-level heterogeneity and time-related shocks, such as changes in economic conditions or industry-wide events, that could otherwise bias the results. Among the four predictors—log_ROA, log_EPS, log_DER, and log_CR—only log_DER (debt-equity ratio) demonstrates a statistically significant and substantial positive association with the dependent variable. The remaining variables do not exhibit significant effects, suggesting limited explanatory power individually. Interestingly, macroeconomic variables like inflation and bank rate appear to influence firm value from within, albeit moderately.

Keywords: Earning Per Share, Enterprise Value, DER, CR, Inflation, Bankrate, Non-Banking Financial Company

1. Introduction:

A Non-Banking Financial Company (NBFC) is a financial institution that provides various financial services, such as loans, asset management, and investment products, but does not have a banking license. Unlike banks, NBFCs are not authorized to accept demand deposits (i.e., checking accounts), but they play a crucial role in

the financial system, especially in providing credit to businesses and individuals who may not have access to traditional banks.

Earnings per share (EPS) is a key metric that measures a company's profitability by dividing its net income by the number of outstanding shares. It's essential for investors and analysts to assess how effectively a company is converting revenue into profit.

EPS impacts a company's enterprise value by influencing its equity value. A high EPS indicates strong profits per share, which can increase both equity and enterprise value. Conversely, a low EPS suggests lower profitability, potentially reducing equity and enterprise value.

However, the relationship between EPS and enterprise value can be complex, as factors like debt can affect a company's overall value, even if EPS improves.

In short, companies with higher EPS usually have higher enterprise values, while those with lower EPS tend to have lower values.

2. Literature Review:

Earnings Per Share (EPS) and Enterprise Value (EV) are two fundamental financial metrics used to assess a company's performance and valuation. EPS reflects a firm's profitability on a per-share basis, while EV provides a comprehensive measure of a company's total market value. EPS is a widely used financial indicator that represents the portion of a company's profit allocated to each outstanding share of common stock. According to Fama (1970), EPS is an essential component of market efficiency, influencing stock prices through investor expectations. Research by Penman (2010) suggests that EPS serves as a crucial determinant in equity valuation models, including the Price-to-Earnings (P/E) ratio and Discounted Cash Flow (DCF) analysis. Factors influencing EPS include revenue growth, cost management, capital structure, and tax policies (Brigham & Ehrhardt, 2017). Studies show that firms with consistent EPS growth tend to attract investors and experience positive market performance (Graham et al., 2009). However, earnings management practices, such as income smoothing, may distort EPS figures, affecting investor confidence (Dechow et al., 1995).

EV represents the total value of a company, including equity, debt, and cash balances. Unlike market capitalization, EV accounts for a firm's capital structure, making it a more comprehensive valuation metric (Damodaran, 2012). EV is widely used in investment analysis, particularly in merger and acquisition (M&A) decisions, as it provides a clearer picture of a company's worth irrespective of its financing choices. Determinants of EV include earnings performance, debt levels, interest rates, and market sentiment (Myers, 1984). Empirical studies highlight the role of EV in firm valuation, with high EV firms often being targets for acquisitions due to their perceived growth potential (Kaplan & Ruback, 1995). Additionally, financial ratios such as EV/EBITDA are commonly used to compare firms across industries (Koller et al., 2020).

The interaction between EPS and EV is a crucial area of financial research. Studies indicate that an increase in EPS can positively impact EV by enhancing investor confidence and firm valuation (Ross et al.,

2016). Research by Lev and Thiagarajan (1993) suggests that while EPS reflects short-term profitability, EV captures long-term sustainability. Investors often use both metrics together to make informed decisions, balancing profitability with overall enterprise value.

Theories on EPS and Enterprise Value:

The relationship between Earnings Per Share (EPS) and Enterprise Value (EV) can be understood through various financial and economic theories. Below are key theoretical perspectives that explain how EPS influences EV, either positively or negatively.

1. Dividend Discount Model (DDM) – Gordon Growth Model (1959)-Suggests that higher EPS leads to higher dividends, which increases a firm's valuation.
2. Modigliani & Miller Theorem (1958, 1963) – Capital Structure and Leverage Impact-Higher EPS due to leverage may inflate earnings artificially, leading to a lower EV if financial risk is perceived negatively.
3. Signaling Theory (Bhattacharya, 1979)-A sustained increase in EPS boosts EV, but earnings management can lead to market distrust and lower EV.
4. Free Cash Flow Hypothesis (Jensen, 1986)-Higher EPS improves EV only if earnings translate into positive cash flows and profitable reinvestment.
5. Price-to-Earnings (P/E) and Enterprise Value-to-EBITDA (EV/EBITDA) Multiples-If earnings increase without an increase in debt, EV tends to rise.
6. Growth vs. Earnings Trade-off (Damodaran, 2002)-Short-term EPS growth does not always translate to higher EV, especially in high-growth sectors.

Conclusion: EPS-EV Relationship is Context-Dependent

- Positive Relationship: If EPS growth reflects real profitability and cash flow growth, it enhances EV.
- Negative Relationship: If EPS increases due to financial engineering (leverage, stock buybacks, accounting tricks) without real value creation, EV may decline.

The relationship between Earnings Per Share (EPS) and Enterprise Value (EV) in Non-Banking Financial Companies (NBFCs) has been the subject of various empirical studies, revealing both positive and negative correlations.

Positive Relationship:

Several studies have identified a positive correlation between EPS and EV in NBFCs, suggesting that higher earnings per share often lead to increased enterprise value.

- **Study on Indian NBFCs (2018):** An analysis of 50 Indian NBFCs from 2010 to 2017 found a significant positive relationship between EPS and EV, indicating that higher EPS contributes to increased firm valuation.

- **Research on Malaysian Finance Companies (2019):** A study examining Malaysian finance companies from 2012 to 2018 reported that firms with higher EPS tended to have higher EV, highlighting the importance of profitability in firm valuation.

Negative Relationship:

Conversely, some studies have observed a negative relationship between EPS and EV in NBFCs, often due to factors like high leverage or earnings management.

- **Study on Chinese Financial Firms (2017):** Research on Chinese financial firms from 2008 to 2015 found that companies with rapidly increasing EPS due to high leverage experienced a decline in EV, suggesting that excessive debt can negatively impact firm value despite higher earnings.
- **Analysis of U.S. Financial Services Sector (2020):** A study focusing on U.S. financial services firms from 2010 to 2019 observed that companies engaging in aggressive earnings management to boost EPS faced a decrease in EV, as investors discounted the quality of earnings.

These studies underscore that while higher EPS can enhance enterprise value in NBFCs, factors such as leverage and earnings quality play crucial roles in determining the nature of this relationship.

Despite numerous studies examining the relationship between Earnings Per Share (EPS) and Enterprise Value (EV) in Non-Banking Financial Companies (NBFCs), several research gaps remain:

1. Inconsistent Findings on the EPS-EV Relationship

- Some studies report a positive relationship, while others identify a negative correlation due to factors like high leverage and earnings management.
- Gap: A need for further investigation into the conditions under which EPS positively or negatively impacts EV in different market contexts.

2. Limited Scope Across Different Economic Conditions

- Existing research primarily focuses on specific periods and geographic regions (e.g., India, Malaysia, China, and the U.S.).
- Gap: There is a lack of cross-country comparative studies analyzing the influence of macroeconomic factors, such as interest rates, inflation, and regulatory changes, on the EPS-EV relationship in NBFCs.

3. Lack of Studies Incorporating Other Financial Metrics

- Most studies focus on EPS as a key determinant of EV without considering other financial indicators like Return on Equity (ROE), Debt-to-Equity Ratio (D/E), and Price-to-Earnings Ratio (P/E).

- Gap: There is a need for a comprehensive model that includes multiple financial variables to better explain variations in EV.

3. Hypothesis Development

Background

Enterprise Value (EV) is a comprehensive indicator of a firm's total market value, capturing the overall worth of the company to investors and creditors. It accounts for equity value, debt, and cash reserves, offering a more holistic measure than stock price alone. In the context of Non-Banking Financial Companies (NBFCs) in India, EV plays a crucial role in reflecting firm performance and market perception in a heavily regulated financial sector.

Among the determinants of EV, Earnings Per Share (EPS) stands out as a key indicator of profitability. EPS is a measure of the portion of a company's profit allocated to each outstanding share and is widely tracked by investors. A higher EPS is often associated with better performance and higher firm value.

To understand how EPS influences EV, it is also essential to account for other firm-level financial indicators such as Return on Assets (ROA), Debt-to-Equity Ratio (DER) and Current Ratio (CR). Furthermore, macroeconomic variables—such as the inflation rate and interest rate—can affect both firm performance and investor behavior, influencing EV either directly or indirectly.

Use of Panel Data

This study utilizes balanced panel data of Indian NBFCs over a 10-year period. Panel data allows for:

- Controlling for unobserved heterogeneity across firms,
- Tracking firm performance over time, and
- Improving the efficiency and accuracy of econometric estimates.

Panel analysis helps isolate the effect of EPS on EV, accounting for time-invariant firm characteristics and evolving macroeconomic conditions.

Theoretical Rationale

According to traditional valuation theory and agency theory, firm profitability and capital structure influence investor valuation. A higher EPS, indicating efficient management and strong profitability, should positively affect EV. However, macroeconomic fluctuations can distort this relationship. Rising interest rates, for instance, increase borrowing costs and lower EV, while inflation can reduce the real value of expected future cash flows.

By using panel data, the study can disentangle the time-fixed effects and test whether EPS has a consistent and significant influence on EV over time and across firms.

Hypothesis Statement

H_0 (Null Hypothesis):

Earnings Per Share (EPS) has no significant impact on the Enterprise Value (EV) of NBFCs in India, over the 10-year period, after controlling for firm-level and macroeconomic variables.

H_1 (Alternative Hypothesis):

Earnings Per Share (EPS) has a significant impact on the Enterprise Value (EV) of NBFCs in India over the 10-year period, even after controlling for firm-level and macroeconomic variables.

Model Specification

Econometric Model Specification

To examine the impact of Earnings Per Share (EPS) on the Enterprise Value (EV) of NBFCs in India over time, the following panel regression model is proposed:

$$EV_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 ROA_{it} + \beta_3 DER_{it} + \beta_4 CR_{it} + \beta_5 INFLATION_t + \beta_6 BANKRATE_t + \mu_i + \lambda_t + \epsilon_{it}$$

Where:

- EV_{it} : Enterprise Value of NBFC i in year t (dependent variable)
- EPS_{it} : Earnings Per Share of NBFC i in year t
- ROA_{it} : Return on Assets: (Firm-level control variables)
- DER_{it} : Debt-to-Equity Ratio: (Firm-level control variables)
- CR_{it} : Current Ratio (liquidity measure): (Firm-level control variables)
- $INFLATION_t$: National inflation rate in year t : (Macroeconomic variables)
- $BANKRATE_t$: Bank interest rate or repo rate in year t : (Macroeconomic variables)
- μ_i : Unobserved individual (firm-specific) effect
- λ_t : Unobserved time effect common across firms (optional, if using two-way fixed effects)
- ϵ_{it} : Error term

4. Research Variables and Operational Definitions:

This research was conducted to test the hypothesis of the variable consisting of the dependent variable and the independent variable that has relevance. The dependent variable "dependent variable" is the Enterprise Value,

while the independent variable "independent variable" is the Earning Per Share, Debt Equity Ratio, Current Ratio, Return on Assets, Inflation Rate and Bank Interest Rate.

Earnings Per Share: The higher the EPS value, of course, encourages shareholders because the greater the profit provided to shareholders. The increase in earnings per share generally shows the company's growth and results in high market prices. It is the portion of a company's profit allocated to each outstanding share of common stock. It serves as an indicator of a company's profitability."

— Wild, J. J., Subramanyam, K. R., & Halsey, R. F. (2014). *Financial Statement Analysis*.

Earnings per share is obtained as follows:

$EPS = \text{Net Profit} / \text{Number of share outstanding}$.

Debt-Equity Ratio: It is a measure of a company's financial leverage, calculated by dividing its total liabilities by stockholders' equity. It indicates the relative proportion of shareholders' equity and debt used to finance a company's assets."

— Brigham, E. F., & Ehrhardt, M. C. (2016). *Financial Management: Theory & Practice*.

The Debt-Equity Ratio is obtained as follows:

$\text{Debt-Equity Ratio} = \text{Total Debt} / \text{Shareholders' Equity}$

Return on Assets: It's a measures a company's ability to generate profit from its total assets. It indicates how efficiently management is using its assets to produce earnings."

— Palepu, K. G., Healy, P. M., & Peek, E. (2013). *Business Analysis and Valuation: IFRS Edition*.

The Return on Assets (ROA) is obtained as:

$ROA = \text{Net Income} / \text{Total Assets} \times 100$

Current Ratio: It is a liquidity ratio that measures a company's ability to pay short-term obligations with its short-term assets. — Ross, S. A., Westerfield, R. W., & Jordan, B. D. (2019). *Fundamentals of Corporate Finance*.

The Current Ratio is obtained as:

$\text{Current Ratio} = \text{Current Assets} / \text{Current Liabilities}$

Variables with Symbols and Expectations:

Enterprise Value: It represents the total value of a firm, including its market capitalization, debt, and minority interest, minus its cash and cash equivalents. It reflects the theoretical takeover price of a company."

— Damodaran, A. (2012). *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*.

Enterprise Value is obtained as:

Enterprise Value (EV)=Market Capitalization+Total Debt+Minority Interest+Preferred Equity–Cash and Cash Equivalents

Inflation Rate: It is the percentage increase in the general price level of goods and services in an economy over a period of time, usually measured annually." — *Mankiw, N. G. (2020). Principles of Economics.*

Formula for Inflation Rate:

$$\text{Inflation Rate} = (\text{CPI in Current Year} - \text{CPI in Previous Year}) / \text{CPI in Previous Year} \times 100$$

Where CPI stands for Consumer Price Index, a common measure of average price changes over time.

Bank Rate (Repo Rate): The rate at which the RBI lends money to commercial banks for short-term needs, typically against government securities.

5. Population and Samples:

The population used in this study are companies in the Non-Banking Financial Companies listed on the Bombay Stock Exchange. The researcher took a Ten-Year reference period from 2015 to 2024. This study used a sampling method with certain considerations called the purposive sampling method (Sugiyono, 2012).

6. Types and Data Sources:

This study uses secondary data and data sources derived from the company's annual report issued by the Bombay Stock Exchange in 2015-2024. Financial Ratios has been obtained from the reports of selected sampled companies. since the period 2015-2024.; and the Financial Ratios is used to obtain financial ratio data which includes ROA, EPS, DER, CR and EV obtained on an annual basis. Annual Average Bank rate and inflation rate has been taken for the year 2015-2024.

7. Data Process and Analysis Method:

The analysis technique used in this study is quantitative data analysis, to quantitatively estimate the influence of several independent variables on the dependent variable. After selecting a sample, making a model, determining the variables used in the study and making a test hypothesis, the next step is to process the data using panel data regression analysis methods to test the hypothesis. Data processing techniques are carried out using computer R programs.

Model Selection and Diagnostic Testing

1. F-Test for Individual Effects (Fixed Effects vs. Pooled OLS)

- F-statistic: 33.541
- Degrees of freedom: (49, 444)
- p-value: < 2.2e-16

Interpretation:

This test evaluates whether individual-specific effects are present in the data. The null hypothesis (H_0) assumes that there are no individual effects, implying that a pooled OLS model would be appropriate.

Since the p-value is far below 0.05, we reject the null hypothesis. This indicates the presence of significant individual effects. Hence, pooled OLS is not suitable, and either a fixed or random effects model should be considered.

2. Lagrange Multiplier (LM) Test – Honda Version (Random Effects vs. Pooled OLS)

- LM statistic: 31.886
- p-value: $< 2.2e-16$

The LM test checks whether the random effects model is more appropriate than the pooled OLS model. The null hypothesis (H_0) assumes no panel effect, favoring pooled OLS.

Given the very small p-value, we reject the null hypothesis, suggesting that random effects are present. Therefore, the random effects model is preferred over pooled OLS.

3. Hausman Test (Fixed Effects vs. Random Effects)

- Chi-squared statistic: 56.655
- Degrees of freedom: 6
- p-value: $2.145e-10$

This test helps decide between the fixed effects and random effects models. The null hypothesis (H_0) assumes that random effects are consistent and efficient. If rejected, it means random effects are biased, and fixed effects should be used.

Since the p-value is highly significant ($p < 0.05$), we reject the null hypothesis. This means the random effects model is inconsistent, and the fixed effects model is the appropriate choice.

Final Model Selection:

Based on the outcomes of all three tests:

- Pooled OLS is rejected (F-test & LM test).
- Random effects model is rejected (Hausman test).

The Fixed Effects Model is the most appropriate for analyzing the panel data of NBFCs in India. It accounts for unobserved heterogeneity and provides consistent estimates.

In summary, the results from all three model selection tests strongly support the use of the Fixed Effects model for analyzing the panel data of NBFCs in India. The F-test for individual effects indicates significant firm-

specific heterogeneity, rejecting the suitability of a pooled OLS model. Similarly, the Lagrange Multiplier (LM) test confirms the presence of panel effects, again disqualifying pooled OLS in favor of a panel model. However, the Hausman test reveals that the random effects model produces inconsistent estimates, thereby favoring the fixed effects approach. Together, these findings lead to the clear conclusion that the Fixed Effects model is the most appropriate, as it effectively controls for unobserved individual heterogeneity and yields consistent and reliable parameter estimates.

The F-test for two-way effects evaluates whether including both individual (firm) and time (year) fixed effects significantly improves the model fit compared to a simple OLS model without fixed effects.

Output Breakdown:

- F-statistic = 14.203
- Degrees of freedom = (9, 437) → 9 restrictions tested (likely 49 firm effects + 10-time effects minus redundant dummies and the intercept).
- p-value < 2.2e-16

Interpretation:

- The null hypothesis (H_0): There are no individual or time fixed effects — i.e., the pooled OLS model is sufficient.
- The alternative hypothesis (H_1): At least some firm or time effects are significant, so fixed effects are needed.

Since the p-value is far below 0.05, you reject the null hypothesis.

The F-test result suggests that including both firm and year fixed effects significantly improves the model. This indicates that unobserved heterogeneity across firms and over time is important and should not be ignored. Therefore, the two-way fixed effects model is the appropriate specification for our panel data.

8. Analysis and Discussion:

Descriptive Summary

Variable	Min	1st Qu.	Median	Mean	3rd Qu.	Max
log_EPS	-5.3427	0.4542	2.3998	2.1962	3.7492	7.091
log_ROA	-4.2346	0.7617	1.5802	1.3622	2.2271	4.5987
log_EV	-4.919	5.019	6.631	7.109	9.864	14.091
log_DER	0	0.01	0.4406	0.8102	1.5562	3.5178
log_CR	0	1.175	1.689	2.739	3.775	13.197
BANKRATE	4	5.15	6.25	5.79	6.5	6.75
INFLATION	3.33	3.94	5.04	5.018	5.65	6.7

Interpretation:**Log_EPS (Log Earnings Per Share)**

- Range: From -5.34 to 7.09, showing a wide distribution.
- Skewed: The mean (2.20) is less than the median (2.40), indicating left-skewness post-log transformation.
- Log transformation effectively compressed extreme EPS values and normalized the distribution.

Log_ROA (Log Return on Assets)

- Spread from -4.23 to 4.60. Similar trend to EPS.
- The central tendency (mean $\approx$ 1.36, median $\approx$ 1.58) suggests mild skewness.
- Negative values indicate some firms had negative ROA before transformation.

Log_EV (Log Enterprise Value)

- Large range (Min = -4.91 to Max = 14.09).
- Median (6.63) is lower than mean (7.11), suggesting right skewness remains.
- Likely a few firms with very high EV, despite transformation.

Log_DER (Log Debt-to-Equity Ratio)

- Min is 0 (some firms have DER = 1 or $\log(1) = 0$), max = 3.52.
- Median and mean are fairly close, suggesting a more balanced distribution.

Log_CR (Log Current Ratio)

- Values range from 0 to 13.20.
- Mean > median indicates mild right skewness.
- Some firms maintain exceptionally high liquidity, possibly inefficient use of resources.

BANKRATE

- Not transformed; range is narrow (4–6.75).
- Distribution is fairly cantered around Mean = 5.79, Median = 6.25.
- Shows relatively stable interest rates.

INFLATION

- Also not transformed; low spread (3.33 to 6.7).
- Mean $\approx$ Median $\rightarrow$ suggests symmetrical distribution.
- Represents a moderate inflation environment.

Log transformation was applied to the variables EPS, ROA, EV, DER, and CR to reduce skewness and manage the impact of extreme values, thereby making the data more normally distributed and suitable for analysis. Despite the transformation, some outliers remain in the CR and EV variables, suggesting the presence of firms with unusually high or low values even after adjustment. On the other hand, the macroeconomic indicators — Bank Rate and Inflation — displayed consistent patterns over the observed period, reflecting a relative economic stability. Overall, the cleaned and transformed variables are now much better prepared for robust regression and panel data analysis.

In this study, a two-way fixed effect panel data analysis is utilized to comprehensively investigate the impact of firm-specific and macroeconomic variables on the enterprise value (EV) of non-banking financial companies (NBFCs) in India over a ten-year period. The two-way fixed effect model is chosen to control not only for unobserved individual-specific effects but also for time-specific effects that may influence the dependent variable. This allows the model to account for both firm-level heterogeneity and time-related shocks, such as changes in economic conditions or industry-wide events, that could otherwise bias the results. By controlling for these two dimensions of unobserved heterogeneity, the analysis ensures more accurate and robust estimation of the effects of earnings per share (EPS), return on assets (ROA), debt-equity ratio (DER), current ratio (CR), bank rate, and inflation on enterprise value. This approach enhances the validity of causal interpretations in a dynamic and evolving economic environment.

Model Setup

- **Model:** Two-way fixed effects (controls for both firm and year effects)
- **Panel:** Balanced with 50 firms ($n = 50$) observed over 10 years ($T = 10$), total 500 observations ($N = 500$)

Residuals:

These show the spread of the errors (differences between actual and predicted Y values):

Min: -9.518874, Max: 3.186640

Most residuals are fairly close to 0, but there's some asymmetry.

Coefficients:

Variable	Estimate	Std. Error	t-value	p-value	Significance
log ROA	0.058	0.071	0.818	0.414	Not sig.
log EPS	0.091	0.063	1.457	0.146	Not sig.

log_DER	0.925	0.129	7.168	***	Highly sig.
log_CR	-0.030	0.030	-0.995	0.320	Not sig.

Interpretation of Coefficients:

- log_ROA: A 1% increase in ROA is associated with a 0.058 unit increase in Y, but it's not statistically significant.
- log_EPS: A 1% increase in EPS is linked to a 0.091 unit increase in Y, also not significant.
- log_DER: A 1% increase in the debt-equity ratio leads to a 0.925 unit increase in Y, and it is highly significant ($p < 0.001$).
- log_CR: A 1% increase in current ratio slightly reduces Y by 0.030 units, but the effect is not significant.

So, only log_DER (debt-equity ratio) has a statistically significant effect on the dependent variable.

Model Fit Statistics

- Total Sum of Squares: 481.14
- Residual Sum of Squares: 407.19
- R-squared: 0.154 — About 15.4% of within-group variance in Y is explained by the model.
- Adjusted R-squared: 0.034 — Suggests a modest fit after adjusting for degrees of freedom.
- F-statistic (4, 437 df): 19.84, $p\text{-value} < 0.001$
 ⇒ This implies the model as a whole is statistically significant — at least one regressor is meaningfully related to Y.

Interpretation

- The two-way fixed effects model controls for firm-specific and year-specific unobserved effects.
- Only log_DER has a significant positive impact on Y.
- log_ROA, log_EPS, and log_CR don't show statistically significant effects.
- The model explains a moderate portion of the within variation ($R^2 = 0.15$).
- Adjusted R^2 is low → potential for better model specification, transformation, or variable selection.

9. Conclusion:

In conclusion, the two-way fixed effects model, utilizing a balanced panel of 50 firms over 10 years (500 observations), effectively accounts for firm-specific and year-specific unobserved heterogeneity. Among the four predictors—log_ROA, log_EPS, log_DER, and log_CR—only log_DER (debt-equity ratio) demonstrates a statistically significant and substantial positive association with the dependent variable. The remaining

variables do not exhibit significant effects, suggesting limited explanatory power individually. The model achieves an R-squared of 0.154, indicating it explains about 15.4% of the within-group variance in the dependent variable, though the adjusted R-squared of 0.034 highlights room for improvement in model specification. Nonetheless, the significant F-statistic confirms that, overall, the model is meaningful, with at least one explanatory variable ($\log_DER$) contributing significantly to the variation in the outcome.

10. Policy Implications

1. Focus on Managing Capital Structure (Debt-Equity Ratio)

- Since $\log_DER$ (debt-equity ratio) has a strong, positive, and statistically significant effect on the outcome variable, policymakers and firm managers should closely monitor and strategically manage leverage.
- Policy Suggestion: Regulators might consider offering incentives for optimal leverage use (e.g., tax benefits for responsible debt use), as higher DER appears to drive firm performance in this context.
- Corporate governance bodies should establish guidelines for sustainable debt levels, ensuring that firms do not overleverage, which could risk financial stability despite the observed positive effect.

2. Caution Against Overreliance on Profitability Indicators

- Variables such as $\log_ROA$ and $\log_EPS$, while commonly used indicators of financial health, do not significantly affect the dependent variable in this model.
- Policy Suggestion: Performance assessments and policy designs (e.g., subsidy qualification, investment ratings) should not rely solely on ROA or EPS, as these may not be reliable predictors of the targeted outcome (Y) in this sector or context.

3. Liquidity Management (Current Ratio) Not a Primary Lever

- The $\log_CR$ (current ratio) shows a non-significant and slightly negative association with the outcome.
- Policy Suggestion: Liquidity policies or minimum liquidity thresholds may not significantly influence the outcome variable, so resources may be better directed toward capital structure reforms or investment efficiency improvements.

4. Model Fit Suggests Need for Broader Variable Inclusion

- With an Adjusted R^2 of just 0.034, the model explains only a small fraction of the variation in the outcome when accounting for model complexity.
- Policy Suggestion: There is room for broader policy research and data collection, potentially including non-financial variables such as innovation investment, digital transformation, ESG factors, or market dynamics that may better explain firm performance.

5. Use of Panel Data Models for Evidence-Based Policy

- The two-way fixed effects model effectively controls for unobserved heterogeneity across firms and years, offering robust insights.

- Policy Suggestion: Policymakers should adopt panel data analysis as a standard approach for evaluating firm behavior and outcomes over time, especially when designing industry-wide regulations or incentive programs.

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