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Asset Structure and Firm Performance: Evidence from Indian Automobile Companies

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Abstract

This study investigates the impact of asset structure on the financial performance and firm value of Indian automobile companies listed on the National Stock Exchange (NSE). Asset structure represents the composition of tangible and intangible resources employed by firms to generate earnings and maximize shareholder wealth. Despite its importance in corporate finance, empirical evidence on the relationship between asset composition and firm performance remains inconclusive, particularly in the Indian context. The study uses secondary data collected from six NSE-listed automobile companies, namely Bajaj Auto, Eicher Motors, Hero MotoCorp, Mahindra & Mahindra, Maruti Suzuki, and Tata Motors, covering the period from 2011–12 to 2020–21. Property, Plant and Equipment (PPE), Intangible Assets, Long-Term Investments, Long-Term Loans and Advances, and Total Current Assets were considered as explanatory variables, while Return on Assets (ROA) Tobin's Q were used as performance indicators. Descriptive statistics, correlation analysis, Granger causality tests, and multiple regression models were employed for analysis. The findings reveal that asset structure significantly influences both accounting-based and market-based measures of performance. PPE and intangible assets positively contribute to profitability, whereas leverage and certain long-term asset components adversely affect performance. The study highlights the importance of effective asset allocation in enhancing profitability, operational efficiency, and firm value in the Indian automobile sector.

Keywords

Asset Structure, Financial Performance, Firm Value, Property, Plant and Equipment (PPE), Intangible Assets

1. Introduction:

Asset structure represents the composition of a firm's assets and reflects how organizational resources are allocated among tangible assets, intangible assets, long-term investments, and current assets. The efficient allocation of these assets is essential for enhancing operational efficiency, profitability, and shareholder wealth. In corporate finance literature, asset structure is considered a critical determinant of firm performance because assets constitute the productive resources through which firms generate revenues and create value (Koralun-Bereźnicka, 2013). The strategic management of assets has become increasingly important in modern business environments characterized by technological advancements, market competition, and economic uncertainties.

The automobile industry plays a significant role in the economic development of India through employment generation, industrial production, exports, and technological innovation. As one of the largest manufacturing sectors in the country, the industry requires substantial investments in fixed assets, research and development, production facilities, and distribution networks. Consequently, the composition of assets becomes an important factor influencing the financial health and market valuation of automobile companies. Firms with an optimal asset mix are expected to achieve better operational performance, higher profitability, and greater shareholder value than firms with inefficient asset allocation strategies.

Previous studies have emphasized the relevance of asset structure in determining organizational performance. ZhengSheng and NuoZhi (2013) argued that asset structure possesses greater practical significance than capital structure because assets directly contribute to value creation and risk management. Similarly, Olatunji et al. (2014) reported that investment in fixed assets significantly improves profitability by enhancing productive capacity and operational efficiency. According to Lewellen (1971), asset composition influences firm valuation because different categories of assets contribute differently to earnings generation and risk reduction. Theoretical perspectives such as the Pecking Order Theory and Trade-Off Theory also suggest that firms with substantial tangible assets can access external financing more efficiently due to the collateral value of those assets, thereby improving financial performance (Myers, 1984; Kraus & Litzenberger, 1973).

Despite the theoretical importance of asset structure, empirical findings remain inconclusive. While some studies have documented a positive relationship between fixed assets and profitability (Olatunji et al., 2014; Olonite et al., 2021), others have reported weak or insignificant associations between asset composition and financial performance (Mawih, 2014). Omagwa and Mwanki (2017) found that property, plant, and equipment significantly influence firm performance, whereas current assets and intangible assets exhibited limited effects. Similarly, Patin (2020) demonstrated that efficient asset utilization positively affects stock returns and market performance. These mixed findings indicate that the relationship between asset structure and firm performance may vary across industries, countries, and economic environments.

In the Indian context, studies examining the effect of asset structure on financial performance remain limited, particularly within the automobile sector. Most existing research has focused on capital structure, leverage, or working capital management, leaving a significant gap regarding the role of asset composition in determining profitability and firm value. Furthermore, previous studies have largely relied on accounting-based performance measures, with limited attention given to market-based indicators such as Tobin's Q and Price-to-Book Value ratio.

Against this backdrop, the present study investigates the impact of asset structure on the financial performance and firm value of selected automobile companies listed on the National Stock Exchange (NSE) of India during the period 2011–2021. Specifically, the study examines the influence of Property, Plant and Equipment (PPE), Intangible Assets, Long-Term Investments, Long-Term Loans and Advances, and Total Current Assets on accounting-based measures of performance, namely Return on Assets (ROA), Return on Capital Employed (ROCE), and Return on Equity (ROE), as well as market-based measures including Tobin's Q and Price-to-Book Value ratio. By providing empirical evidence from the Indian automobile industry, the study contributes to the growing literature on asset structure and offers insights for managers, investors, and policymakers regarding efficient asset allocation strategies.

2. Literature Review

2.1. Asset Structure and Financial Performance

Asset structure has long been recognized as an important determinant of corporate performance because it reflects how efficiently firms allocate resources to generate earnings and sustain growth. Corporate finance literature suggests that investments in productive assets enhance operational efficiency, improve resource utilization, and contribute to profitability (ZhengSheng & NuoZhi, 2013). Tangible assets such as property, plant, and equipment (PPE) provide firms with the capacity to increase production and exploit economies of scale, while intangible assets facilitate innovation, brand development, and competitive advantage.

Several empirical studies have reported a positive relationship between asset structure and profitability. Olatunji et al. (2014) found that investments in fixed assets significantly improved the profitability of Nigerian commercial banks. Similarly, Nnenna et al. (2017) observed that growth in non-current assets positively influenced profit after tax among manufacturing firms, indicating that asset expansion contributes to financial performance. Olonite et al. (2021) further reported that fixed assets positively affected Return on Assets (ROA), while current assets significantly enhanced Earnings per Share (EPS). These findings suggest that efficient asset allocation can strengthen firm profitability through improved productivity and operational effectiveness.

However, evidence regarding the relationship between asset structure and profitability remains mixed. Mawih (2014), examining manufacturing firms listed on the Muscat Securities Market, found that asset structure had only a limited influence on profitability and significantly affected Return on Equity (ROE) only in specific sectors. Likewise, Okwo et al. (2012) reported a positive but statistically insignificant relationship between fixed asset investments and operating profit. These inconsistent findings imply that the profitability effects of asset structure may vary across industries, countries, and economic conditions.

2.2. Asset Structure and Firm Value

The relationship between asset structure and firm value has received increasing attention in recent years. Firm value reflects investors' perceptions regarding future growth opportunities, profitability, and risk. Theoretical arguments suggest that an optimal mix of assets enhances a firm's market valuation by improving operational performance and reducing uncertainty.

Azhou (2016) argued that asset structure directly influences enterprise value creation because assets determine the operating capability and growth potential of a company. Similarly, Al-Slehat (2020) found that asset structure positively affects firm value measured through Tobin's Q, indicating that investors reward firms possessing productive and strategically allocated assets. Patin (2020) also demonstrated that asset turnover positively influences stock returns, suggesting that efficient utilization of assets enhances market performance and shareholder wealth.

Further evidence is provided by Agburuga et al. (2019), who reported that different asset categories influence market valuation differently. Their findings revealed that intangible assets and current assets positively affected market valuation, while excessive investment in property, plant, and equipment negatively influenced investors' perceptions. These findings indicate that the composition of assets is as important as the total amount invested in assets when determining firm value.

2.3. Asset Structure and Capital Structure

A substantial body of literature has examined the interaction between asset structure and financing decisions. According to the Trade-Off Theory, firms possessing a higher proportion of tangible assets can obtain external financing more easily because such assets can be used as collateral against debt (Kraus & Litzenberger, 1973). Similarly, the Pecking Order Theory argues that firms with substantial tangible assets experience lower information asymmetry and can access debt financing at lower costs (Myers, 1984).

Empirical studies generally support these theoretical predictions. Koralun-Bereźnicka (2013) concluded that asset structure significantly influences capital structure decisions because firms with higher tangible assets tend to employ greater leverage. Dwita Ferina et al. (2021) found that asset structure positively and significantly affected the capital structure of manufacturing firms in Indonesia. Likewise, Ariyani et al. (2018) reported a positive relationship between asset structure and debt utilization, highlighting the role of tangible assets in facilitating external financing.

The influence of asset structure on financing decisions ultimately affects firm performance. Dennis Nyamasege et al. (2014) argued that assets provide the foundation for obtaining external funds, which can subsequently improve productivity and firm value. Therefore, asset structure indirectly influences profitability and market valuation through its impact on capital structure.

2.4. Synthesis and Research Gap

The existing literature provides substantial evidence that asset structure influences profitability, firm value, and financing decisions. Nevertheless, empirical findings remain inconclusive regarding the direction and magnitude of these relationships. While several studies have reported positive effects of tangible and intangible assets on financial performance (Olatunji et al., 2014; Nnenna et al., 2017; Olonite et al., 2021), others have documented weak or insignificant associations (Mawih, 2014; Okwo et al., 2012). Similarly, evidence regarding the impact of asset composition on market valuation remains fragmented.

More importantly, most prior studies have been conducted in developed or emerging economies outside India, particularly in Nigeria, Indonesia, Jordan, and Kenya. Limited empirical research has examined the effect of asset structure on both accounting-based and market-based performance measures in the Indian automobile sector. Furthermore, previous studies have generally focused on individual dimensions of performance, neglecting a comprehensive assessment involving profitability indicators (ROA, ROCE, ROE) and valuation measures (Tobin's Q and P/BV). Therefore, the present study seeks to bridge this gap by examining the influence of asset structure on financial performance and firm value among selected NSE-listed automobile companies in India.

3. Research Objectives

Objective 1

To examine the impact of asset structure on the financial performance of selected Indian automobile companies.

Objective 2

To investigate the impact of asset structure on the market value of selected Indian automobile companies.

4. Research Hypotheses

Financial Performance Hypothesis

H01: Asset structure has no significant impact on the financial performance (ROA) of selected Indian automobile companies.

H1: Asset structure has a significant impact on the financial performance (ROA) of selected Indian automobile companies.

Firm Value Hypothesis

H02: Asset structure has no significant impact on the firm value (Tobin's Q) of selected Indian automobile companies.

H2: Asset structure has a significant impact on the firm value (Tobin's Q) of selected Indian automobile companies.

5. Research Design

Particulars	**Description**
Research Design	Descriptive and Diagnostic
Nature of Study	Quantitative and Empirical
Data Source	Secondary Data
Sector	Indian Automobile Industry
Sample Firms	Bajaj Auto, Eicher Motors, Hero MotoCorp, Mahindra & Mahindra, Maruti Suzuki, T Motors
Sampling Method	Purposive Sampling
Study Period	2011–12 to 2020–21
Number of Firms	6
Number of Years	10
Total Observation	60 Firm-Year Observations

Particulars	Description
Software Used	EViews 10
Analytical Tools	Descriptive Statistics, Correlation Analysis, Granger Causality Test and Multi Regression Analysis

6. Variable Selection

Independent Variables

Variable	Description
PPE	Property, Plant and Equipment
INT_ASST	Intangible Assets
LTI	Long-Term Investments
LTLA	Long-Term Loans and Advances
TCA	Total Current Assets

Control Variables

Variable	Description
ATR	Asset Turnover Ratio
LEV	Leverage Ratio

Dependent Variables

Variable	Measurement	Justification
ROA	Net Profit ÷ Total Assets	Measures operational efficiency and profitability genera from total assets.
Tobin's Q	Market Value of Firm ÷ Tc Assets	Captures investors' perception and market valuation of firm.

7. Econometric Models

Model 1: Asset Structure and Financial Performance

$$ROA_{it} = \beta_0 + \beta_1 PPE_{it} + \beta_2 INT\_ASST_{it} + \beta_3 LTI_{it} + \beta_4 LTLA_{it} + \beta_5 TCA_{it} + \beta_6 ATR_{it} + \beta_7 LEV_{it} + \varepsilon_{it}$$

Model 2: Asset Structure and Firm Value

$$TOBINQ_{it} = \beta_0 + \beta_1 PPE_{it} + \beta_2 INT\_ASST_{it} + \beta_3 LTI_{it} + \beta_4 LTLA_{it} + \beta_5 TCA_{it} + \beta_6 ATR_{it} + \beta_7 LEV_{it} + \varepsilon_{it}$$

Summary of Regression Results: Impact of Asset Structure on Financial Performance and Firm Value

Variables	ROA (Financial Performance)	Tobin's Q (Firm Value)
PPE	Positive (+) Significant	Negative (-) Significant
INT_ASST	Positive (+) Significant	Negative (-) Significant
LTI	Negative (-) Significant	Positive (+) Significant
LTLA	Negative (-) Significant	Positive (+) Significant
TCA	Negative (-) Significant	Negative (-) Significant
ATR	Negative (-) Significant	Negative (-) Significant
LEV	Negative (-) Significant	Negative (-) Significant
R^2	0.9967	0.9742
Adjusted R^2	0.9854	0.8842
Durbin-Watson Statistic	3.56	2.99
F-statistic Probability	0.0112**	0.0087***
Model Significance	Significant	Significant
Hypothesis Decision	Reject H01	Reject H02

Note: *, ** and *** indicate significance at 10%, 5% and 1% levels respectively.

Interpretation

The regression results reveal that asset structure significantly influences both financial performance and firm value. For financial performance, measured through ROA, Property, Plant and Equipment (PPE) and Intangible Assets (INT_ASST) exhibit a positive impact, suggesting that investments in productive and knowledge-based assets enhance profitability. Conversely, Long-Term Investments (LTI), Long-Term Loans and Advances (LTLA), Total Current Assets (TCA), Asset Turnover Ratio (ATR), and Leverage (LEV) negatively affect ROA.

With respect to firm value, measured through Tobin's Q, PPE, INT_ASST, TCA, ATR, and LEV demonstrate negative effects, whereas LTI and LTLA positively influence market valuation. The models explain 98.54% and 88.42% of the variations in ROA and Tobin's Q respectively, indicating strong explanatory power. The Durbin–Watson statistics suggest the absence of serious autocorrelation, while the overall model significance confirms that asset structure is an important determinant of both profitability and firm value in Indian automobile companies.

5. Discussion

The findings of the study demonstrate that asset structure significantly influences both financial performance and firm value in the Indian automobile industry. The positive impact of Property, Plant and Equipment (PPE) on Return on Assets (ROA) suggests that investments in productive fixed assets enhance operational efficiency and profitability. Automobile manufacturing is a capital-intensive industry where production facilities, machinery, and technological infrastructure play a critical role in generating returns. This finding supports the arguments of Olatunji et al. (2014) and ZhengSheng and NuoZhi (2013), who reported that tangible assets contribute positively to organizational performance by improving production capacity and resource utilization.

Similarly, intangible assets exhibited a positive influence on ROA, highlighting the growing importance of technology, patents, brands, and innovation in enhancing profitability. In the contemporary automobile industry, investments in research and development, digital technologies, and brand equity have become major sources of competitive advantage.

The results further reveal that long-term investments, long-term loans and advances, total current assets, asset turnover ratio, and leverage negatively affect ROA. One possible explanation is that excessive allocation of resources to non-operating investments and idle current assets may reduce productive efficiency and lower profitability. High leverage may also increase financial risk and interest obligations, thereby reducing returns generated from total assets.

Regarding firm value, measured through Tobin's Q, the study found that PPE and intangible assets negatively influence market valuation, whereas long-term investments and long-term loans and advances positively affect firm value. This indicates that investors may perceive strategic investments and future growth opportunities more favorably than heavy investments in physical assets. The market often values growth prospects, diversification opportunities, and future earnings potential rather than merely the existing asset base. The negative influence of leverage on Tobin's Q further suggests that investors penalize firms with higher financial risk.

Overall, the findings indicate that asset structure affects accounting-based and market-based performance measures differently. While productive assets improve profitability, market participants evaluate assets based on their future value-creation potential. Therefore, managers should focus not only on increasing assets but also on optimizing their composition to balance profitability and shareholder value.

6. Major Findings of the Study

The major findings of the study are summarized as follows:

1. Asset structure significantly influences both financial performance and firm value of Indian automobile companies.

2. Property, Plant and Equipment (PPE) positively affects Return on Assets, indicating that investment in productive fixed assets improves operational profitability.

3. Intangible assets positively contribute to financial performance, emphasizing the importance of innovation, technology, and intellectual capital.

4. Long-term investments, long-term loans and advances, current assets, asset turnover ratio, and leverage negatively affect profitability.

5. Long-term investments and long-term loans and advances positively influence Tobin's Q, suggesting that investors value future growth opportunities associated with strategic investments.

6. PPE, intangible assets, current assets, asset turnover ratio, and leverage negatively influence market valuation measured through Tobin's Q.

7. The regression models exhibit high explanatory power, with R^2 values of 99.67% for ROA and 97.42% for Tobin's Q.

8. The overall regression models are statistically significant, confirming the importance of asset composition in determining firm performance and value.

7. Managerial Implications and Suggestions

Based on the findings, the following suggestions are proposed:

1. Automobile companies should optimize their asset composition by maintaining an appropriate balance between fixed assets, current assets, and long-term investments.

2. Firms should continue investing in productive fixed assets that directly contribute to operational efficiency and profitability.

3. Greater emphasis should be placed on intangible assets such as technology, research and development, patents, and brand building to sustain competitive advantage.

4. Management should avoid excessive accumulation of idle current assets, as inefficient utilization of working capital may adversely affect profitability.

5. Companies should carefully evaluate long-term investments to ensure that they contribute to future value creation and strategic growth.

6. Financial leverage should be maintained at an optimal level to reduce financial risk and improve investor confidence.

7. Managers should adopt a strategic asset management approach that aligns asset allocation decisions with long-term organizational objectives and shareholder wealth maximization.

8. Limitations of the Study

Despite providing valuable insights, the study has certain limitations:

1. The study is limited to six automobile companies listed on the National Stock Exchange of India.

2. The analysis covers a ten-year period from 2011–12 to 2020–21, which may not fully capture long-term structural changes in the industry.

3. Only asset structure variables were considered, while other determinants of financial performance such as corporate governance, ownership structure, macroeconomic conditions, and market competition were excluded.

4. The study relies exclusively on secondary data obtained from annual reports and company disclosures.

5. Financial performance was measured using only ROA and Tobin's Q in the condensed journal version, which may not capture all dimensions of firm performance.

6. The findings are specific to the automobile sector and therefore may not be directly generalizable to other industries.

9. Conclusion

The present study examined the impact of asset structure on the financial performance and firm value of selected Indian automobile companies during the period 2011–12 to 2020–21. The findings provide strong evidence that asset composition plays a significant role in determining both profitability and market valuation. Investments in Property, Plant and Equipment and intangible assets contribute positively to financial performance, while long-term investments and strategic asset allocations enhance firm value. However, excessive leverage and inefficient utilization of certain asset categories negatively affect both profitability and market perception.

The study highlights that merely increasing the volume of assets is insufficient for achieving superior performance. Instead, firms must focus on maintaining an optimal asset mix that supports operational efficiency, innovation, and sustainable growth. Effective asset management not only improves profitability but also enhances shareholder wealth and market confidence. Therefore, strategic asset allocation should remain a key priority for managers seeking long-term competitiveness in the Indian automobile industry. The findings contribute to the growing literature on asset structure and provide useful implications for corporate managers, investors, and policymakers in emerging economies.

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