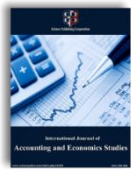
International Journal of Accounting and Economics Studies, 12 (8) (2025) 291-296

International Journal of Accounting and Economics Studies

Website: www.sciencepubco.com/index.php/IJAES
https://doi.org/10.14419/dpa51b60
Research paper



Market Capitalization Influence on Firm Size with R&D Investment as A Moderating Factor in The Indian Automobile Sector

Ms. Keerthana S. [1] *, Dr. P. Deivanai [2]

[1] Research Scholar, Department of Commerce, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, Tamil Nadu, India
[2] Assistant Professor (SG), Department of Commerce, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, Tamil Nadu, India
**Corresponding author E-mail: keerthanaskeerthus27@gmail.com*

Received: October 25, 2025, Accepted: December 3, 2025, Published: December 10, 2025

Abstract

Technical advances and inventions will enhance business and financing in Research and Development support, enabling competitors to compete in open markets. The study focused on the research and development (R&D) cost and whether investments in R&D, market capitalization, and performance impact the size of the firm. The study utilised R&D costs as a control factor and business performance as an independent factor that influences the firm size. Historical data from publicly accessible firm accounting records were used in this investigation. The samples are selected from NSE/BSE-listed automobile companies using purposive sampling. Based on the literature, it became necessary to analyse the commercial conditions, market capitalization, firm size, and R&D of the automobile industry. This study examined the impact of R&D costs, market capitalization, and commercial conditions on firm size. Including that firm size is treated as a dependent variable. A total of 150 data points were analysed to test the hypothesis for the period from 2010 to 2024, covering nominated automotive businesses. The results indicate that for certain Indian automobile manufacturers, research and development expenses are crucial, and they have a significant and positive relationship with the Size of the Firm. Including the control variable also optimizes the size, except for Return on Assets (Profitability). The moderator of the research is assessed by multiplying Market Capitalization and Research and Development Cost.

Keywords: *Financial Performance; Innovation; Research and Development; Technological Advancement.*

1. Introduction

Business performance is measured to determine whether the company is focusing on its objectives. Hussain Muhammad et al. (2024) described that expenditure on research and development is a vital indicator of a company's performance and level of development. It has a positive impact on the firm's performance and expansion (Insee & Suttipun, 2023). To boost their reputation and worth, High-progress companies like Google, Apple, and Samsung increased their R&D expenditures (Muhammad Arif Khan et al., 2023). In the manufacturing business, there are two types of R&D investment. One can be referred to as operating research innovation, and the other is known as product research innovation. In operational innovation, the researcher attempts to expand their production unit. In product innovation, research may create new products or revitalise existing ones (Nord & Ossella-Durbal, 2011). Increasing a company's productivity requires R&D, and a business can increase revenue in the future by investing in research. But investing in R&D is commonly considered perilous because it can take time to achieve an outcome (Susanto et al., 2024). Muhammad Usman (2017) described that research and development investment is an important performance factor. It is regarded as a long-term investment that kicks off economic growth and contributes to a gradual recovery. Research and Development Investment has made amazing progress in the past few years. In two ways, Businesses can demonstrate their progress and expand their size by investing in research to create new final products.

Businesses with R&D are more productivity-oriented than businesses without R&D (Asad Rind et al., 2023). Through monetary investments in technical advancement, research can increase a company's worth and prepare it for future trends (Hutauruk, 2024). During the current commercial period, industries are focused on their mission to find and control competitors by increasing research & development expenditures. In past years, many sectors were unaware of R&D, and they often faced difficult and competitive situations. The sectors should update their innovation to reduce the risk of insolvency. Spending money on research and development will generate revenue and increase market size; at the same time, it may be reflected in research and development costs (Ibhagui, 2019).

2. Review Literature

There is a difference between high-tech and low-tech companies. R&D costs have a significant impact on the firm (Dong-Min Jin 2022). The authorities of the R&D police will decide the investment portion of the research. Due to earlier studies on the nation's labour shortages, Japan has been involved in making research and development investments. Research is necessary to provide solutions to the problems that affect the function or process. The industrialised nations of the USA, Austria, and Canada encourage research and development investment, which component impacts the company's financial health (Insee & Suttipun, 2023). R&D funding can have a favourable or unfavourable impact on the firm, and it may determine whether the company's wealth grows faster or slows down (Xiang et al., 2020). In 2023, Muhammad Arif Khan et al. found that Fiscal wealth diminishes when R&D investment grows. Studies on the Market growth of the business, influenced by research, have been conducted for the past few years. Financial factors analysis and research investment are paths to examining the association between firm size (Nord & Ossella-Durbal, 2011).

2.1. Research gap

Numerous studies in developed countries have examined whether investment in R&D impacts firm size. Firm size is a crucial component of a company's attributes. However, there aren't many studies that combine market capitalization. R&D investment as a moderating factor in the Indian automotive industry is relatively new to the developing country.

2.2. Theoretical review

Resource-based Theory
RBT's "Resource-based theory" is an outline of business, which mainly concentrates on the abilities and internal position of the company. It plays a crucial role in supporting businesses in competitions. This theory provides exclusive sources (tangible and intangible factors) that enable companies to exert high control, management, smooth flow, development, and differentiation from competitors. Rahman & Howlader (2022) said RBT is an allocation of resources for future growth and technological revolution. The help of RBT leads to a positive impact on business performance (Insee & Suttipun, 2023). This study followed RBT (Resource-based theory) to describe and explain the connection between Research and Development, business performance, and the opponent's benefit.

2.3. Hypothesis

2.3.1. Impact of research & development on firm size

Research & Development is appreciated for new industrial (technological) innovations that focus on generating or upgrading existing ones. This R&D investment helps to preserve the business's stability and size by actively and effectively following the business's guidelines (Hutauruk, 2024). Spending on Investigation and growth is considered an impact factor on the firm's performance and size (Pazarzi & Sorros, 2018; Xuelian Piao & Myeongcheol Choi, 2022). But Hussain Muhammad et al. (2024) reveal that firm size and R&D investment are negatively associated.
Hypothesis 1: Research and development have a positive impact on the size of the firm.

2.3.2. The effect of firm performance on business size

Business performance can be calculated by examining the financial factors listed in the company's annual report. Plenty of research considers firm performance by using liquidity, Profitability, Leverage, and Solvency factors. In our study, we used the same variables as per the review to calculate business performance. There are some interlinks between firm size and performance.
Hypothesis 2: Firm performance has a positive impact on a company's size

2.3.3. The reaction of market capitalization on firm size

Several techniques, such as the logs of total assets or total sales, are used to determine the size of the firm. It shows the business size in numerical value (Hutauruk, 2024). A numerical value of firm size can play a pivotal role in a firm's health and research investment. This investigation uses the log of total sales as a size, as it indicates the company's profit. Innovation in products, services, and marketing may rise in share (Seclen-Luna et al., 2023). Growth in price and shares will increase market capitalization.
Hypothesis 3: The Market Capitalization has a positive impact on Firm Size.

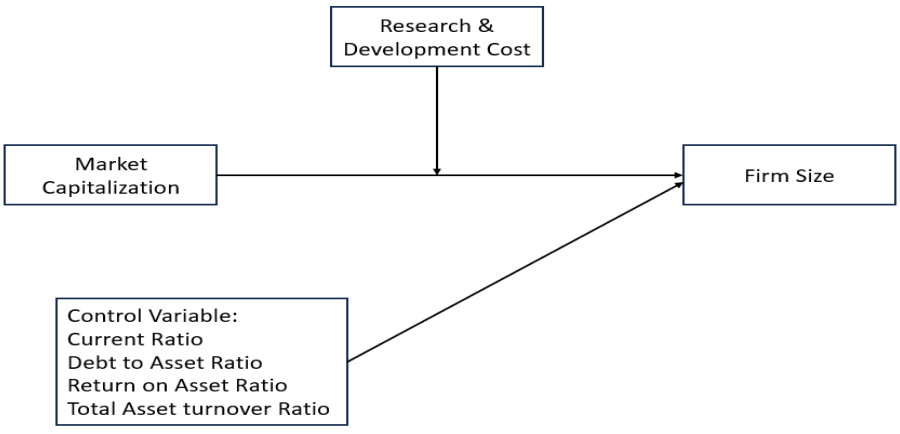


Fig. 1: Research Model.

3. Research Methodology

This paper measures firm performance by using liquidity, profitability, leverage, solvency, and research and development as independent variables. The size of the business functioned as a dependent variable. This research provides quantitative data for analysis and highlights the hypothesis.

The data used in this study are historical and quantitative, collected from the financial reports of selected automobile companies that are listed on the BSE/NSE. The sources collected for analysis are from the 2010 to 2024 financial years. Based on the literature reviews, Research and development investment (investment in researching future trends) is considered a moderating factor. The sample style utilised in this research was "purposive sampling". Statistical Package for the Social Sciences (SPSS) is used in this study for the investigation. Descriptive analysis, correlation, and regression analysis are the techniques used for examining the source. The linear Regression method is utilised to investigate the facts for selected automobile firms in India.

Table 1: The Factors, Characteristics of Variables, Formula, and Symbols for Factors

S. No	Characteristics of Variables	Name of Factors	Symbol	Formula
1	Liquidity	Current Ratio	CR	Current Asset / Current Liabilities
2	Leverage	Debt-to-asset ratio	DAR	Long-term debt / total assets
3	Profitability	Return on assets	ROA	Net profit before taxes / total assets
4	Activity	Total Asset Turnover Ratio	TATR	Sales / total assets
5	Technology investment/innovation	Research and Development Cost	RND	Research & Development cost or Investment
6	Market capital	Market capitalization	Market cap	No. of Shares outstanding * Share price
7	Firm characteristics	Firm size	SIZE	Natural Log of total sales

4. Analysis and Interpretation

The linear regression analysis method incorporates several stages for support, including descriptive statistics, normality testing, multicol-linearity, autocorrelation, and heteroscedasticity tests. The t-test is used in examining the hypothesis with a significance level of 0.05 ($\alpha = 0.05$).

4.1. Descriptive statistics

Descriptive statistical analysis was used to describe the factors incorporated in this study. The factors considered for the study are Market Capitalization, Current Ratio, Debt to Assets Ratio, ROA, TATR, R&D Cost, and Firm Size. The descriptive statistics give the minimum, maximum, mean, and standard deviation of selected automobile companies during the period from 2010 to 2024 (Table 3).

The mean of the Current Ratio is 1.2, with a maximum Current Ratio of 10.5, and a minimum of 1.2. At the same time, the mean of the debt-to-assets ratio is 0.5, and the maximum is 3.88. The standard deviations of the debt-to-assets ratio, Current Ratio, R&D Cost, and Firm Size are 0.49, 0.98, 2.4, and 2.8, which are considered the lowest standard deviations. Then the highest standard deviation is 405842.8 of the Market cap.

Table 2: Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Firm size	150	.0000	11.8126	8.416768	2.8254462
Market Cap	150	334.5300	2566965.0000	222603.36893	405842.80980
LN R&D Cost	150	.0000	9.7020	4.447889	2.4250766
Current Ratio	150	.0095	10.5063	1.286994	.9882959
ROA	150	-62.1100	112.2500	11.013333	17.6009341
Debt-to-Assets Ratio	150	.0916	3.8894	.557879	.4840176
Asset turnover ratio	150	.0003	4621.8800	32.172822	377.2639406

Source: Computed Data.

$$Y = b0 + b1\text{Market Capital} + b2\text{R\&D Cost} + b3\text{Current Ratio} + b4\text{ROA} + b5\text{debt to assets ratio} + b6\text{assets turnover ratio} + b7\text{Firm size} + e \quad (1)$$

Y is a Firm Size considered a dependent factor; Firm Size; b0 = intercept coefficient; b1 is regarded as independent factors; b2 as moderator variable: b3 to b6 are considered as control factors: they are Market capital, R&D Cost (LN of Research and development cost), Current Ratio, assets turnover ratio, debt to assets ratio, and Firm size; e = error.

4.2. Pearson correlation matrix

A Statistical technique used to calculate the resemblance and parallel of two datasets using values from -1 to +1 is known as the Pearson correlation matrix. The correlation matrix's outcome demonstrates that market capitalization and firm size have a positive relationship. It reveals that market capitalization will boost the size of the firm. The R&D Cost has a significantly positive relationship with Firm size. It means R&D Cost will automatically enhance the size of the business. The debt-to-assets ratio and firm size are negatively and significantly correlated. Firm size, market capitalization, LN R&D cost, current ratio, and ROA are all negatively correlated with the debt-to-assets ratio. R&D Cost has a negative correlation with the debt-to-assets ratio. Based on the collinearity diagnostic, the value of VIF indicates that there are no multicollinearity issues.

Table 3: Correlations

	Firm size	Market Cap	LN R&D Cost	Current Ra-tio	ROA	Debt-to-Assets Ratio	Asset turnover ratio	VIF
Firm size	1							
Market Cap	.436**	1						1.139
LN R&D Cost	.713**	.333**	1					1.407

Current Ratio	.016	.010	.033	1				1.179
ROA	.110	.118	.062	.095	1			1.046
Debt-to-Assets Ratio	-.514**	-.194*	-.445**	-.360**	-.178*	1		1.500
Asset turnover ratio	.002	-.036	-.150	-.024	-.051	.075	1	1.025
"**. Correlation is significant at the 0.01 level (2-tailed)."								
"*. Correlation is significant at the 0.05 level (2-tailed)."								

Source: Computed Data.

4.3. Model fitness

Table 4 of the model summary indicates a positive correlation with an R-squared value of 0.804. The value of R Square (0.647) specifies nearly 65% of the independent and control factors that influence the dependent variable.

Table 4: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.804[a]	.647	.629	1.7199581

Source: Computed Data.

4.4. Moderator regression analysis

Table 5: The Moderator regression analysis investigates the independent or control factors' optimistic or adverse impact on the responding variable.

Table 5: Coefficients

Predictor	Beta	Std. Error	t-Statistic	p-value
Market Cap	6.263E-006	.000	4.302	.000
LN R&D Cost	.705	.072	9.752	.000
Moderator	-8.133E-007	.000	-3.434	.001
Current Ratio	-.281	.155	-1.815	.072
ROA	.002	.008	.234	.816
Debt-to-Assets Ratio	-1.458	.359	-4.058	.000
Asset turnover ratio	.001	.000	2.199	.030
Dependent Variable: Firm Size				

Source: Computed Data

The equation of moderator regression analysis for Table 5 is given below:

$$Y = 6.082 + 6.263\text{Market Capital} + 0.70\ \text{LN R\&D Cost} - 8.133\text{Moderator} - 0.281\text{Current Ratio} + 0.002\text{ROA} - 1.458\text{debt to assets ratio} + 0.001\text{assets turnover ratio} + e \quad (2)$$

This Coefficient table identifies the significance and connection between the explanatory, control, and response factors. The optimistic coefficient indicates a positive relationship between the explanatory or control factors and the response factors. Then, the negative coefficient denotes an opposing connection with the factors.

The output displays that the p-values of the variables are influential except for ROA. Based on the results, the research demonstrates that Market capitalization, Research and Development investment, and asset turnover ratio are positively and significantly related to firm size. Firm size increased when market capitalization, Research & development spending, and asset turnover ratio increased. Market capitalization is considered a strong predictor, based on its beta value. Even the Research and Development investment and expenses are associated with firm size. This gives the way to develop the business widely and advance. It clearly shows that when there are increases in market capitalisation, R&D costs, the moderator, and the debt-to-asset ratio, it has an inverse impact on Firm Size. The size of the firm shrinks by -8.133, -.281, and -1.458. When the Moderator, Current Ratio, and debt-to-assets ratio are increased by one unit, and vice versa. Because the coefficient value of Moderator, Current Ratio, and debt to assets ratio is -8.133, -.281, and -1.458. Market capitalization and LN R&D Cost (6.263 and 0.705) variables increased by one unit; the dimension of the business is directly influenced optimistically, and vice versa.

5. Empirical Results and Discussion

5.1. Research and development cost effect on firm size

A portion of the company's revenue is allocated to research and firm expansion. This investigation can be done from the angle of service or production to resolve the complication. The analysis indicates that the technological revolution will have a beneficial impact on business size. It shows that when a company invests in research, the firm's size expands. Research and development will provide long-term sustainability (Md Musfiqur et al, 2022). The outcome of the hypothesis suggests that spending in the research and development area by selected automobile companies will have a positive impact on firm size. The output and outcome support the study's conclusion.

5.2. Market capitalization affects firm size

Normally, the company's turnover is invested in physical assets. According to the investigation, market capitalization has a favourable impact on firm size. It means the share price or economic condition of the selected automobile companies will reflect the company size. The result of the hypothesis confirms that when there are increases in market capitalization, the size of the firm also increases. The output and outcome support the study's conclusion.

5.3. Moderator effects on firm size

Based on the study, when a company focuses on increasing its market capitalisation or research and development, it will automatically expand its size. If the company focuses on both size (market capitalization and research), it negatively impacts the size.
Because market capitalization can be increased by the firm's performance, which leads to an increase in the stock price. Comes to research and development, investing more in research to adopt new technology that upgrades the product may lead to a funding deficiency. Example: cost of upgraded raw material, tax for imported goods. When the management is on both sides, it might mislead the company and shrink its size. To avoid this, focus on the one component that can help grow the size.

5.4. Hypothesis result

Table 5 clarifies the impact of independent and control factors on the dependent factor.

- The value of the Research and Development factor on the size of the business is 9.752, and the p-value of the factor (.000) is lower than 0.05. It directly reveals that the size of the firm was influenced optimistically based on Research and development costs. Studies conducted by Martinus Robert Hutauruk, Yang Li, and Hussain Muhammad et al. (2024) supported this result.
- The value of Market Capitalization on the size of the business is 4.302, and the p-value of the factor (.000) is lower than 0.05. It reveals that the market capitalisation factor has a beneficial impact on the firm's size.
- The value of Moderator on the size of the firm is -3.434, and the p-value of the factor (.001) is less than 0.05. It directly reveals that the size of the firm was influenced negatively by the Moderator factor.
- The T-value of control variables like current ratio and Debt-to-Assets Ratio are -1.815 and -4.058. Even the P-value of the factors (.072 and .000) is less than 0.05. It reveals that the size of the firm was negatively reflected based on the Current Ratio and Debt-to-Asset Ratio.
- The t-value of the Asset turnover ratio “control factors” is 2.199, and the P-value of the factor (0.030) is less than 0.05. It shows that the firm size is optimistically affected by the Asset Turnover Ratio.
- The T-value of ROA “Return on Asset” is 0.234, and the P-value of the factor (0.816) is greater than 0.05. It reveals that the size of the firm was not affected by the Return on Asset Ratio.

6. Conclusion

Based on the investigation, the study reveals that selected automobile companies listed on BSE and NSE confirm that market capitalization and research & development costs have a significant impact on business size. It shows that market capitalization and research investment have a prominent influence on the size of the firm. Including the control variables of Current Ratio, Debt-to-Asset ratio, and Asset turnover ratio has a positive effect on Firm size, except for return on assets. The model of this study reveals and recommends that external valuation and strategic investment in research and development play a pivotal role in influencing the firm size. An R&D subsidy that influences the net return on investment and reduces the cost of innovation (Bettina Peters et al., 2022). Increasing market capitalization and funding in R&D will lead to corporate growth. The study suggests a shift towards an innovation-driven approach in modern markets.
Multiplying the research and development cost and market capitalization will play as a moderating factor. This investigation was restricted to secondary data, which was collected and assessed from the yearly reports of the nominated Indian automotive businesses. This suggests that excess research is necessary to broaden the study, and expanding research and development will lead to future business sustainability, market competition, and economic progress. Large data can be used to gather more information for future studies in the manufacturing and service sectors. To observe the variation, more financial variables could be included. Investors will benefit from this study, and businesses will grow sustainably.

7. Practical Implication

Investment in R&D and an Increase in Market capitalization will increase the firm's size. Issuing new shares and transactions easily in the financial market will increase market capitalization. Investment can be encouraged by the government by providing tax incentives for investor who invests in green or high-tech companies.
The government can increase R&D incentives and subsidies, particularly for automobile companies involved in technology, EURO 7, CAFÉ standards, EV technology, and fuel efficiency, etc. This will encourage the firm to increase its R&D activities. The findings of this study provide managers, investors, and policymakers with confidence to invest funds in R&D, which will promote organisational sustainability.

References

[1] Abdi, Y., Li, X., & Càmara-Turull, X. (2021). Exploring the impact of sustainability (ESG) disclosure on firm value and financial performance (FP) in the airline industry: the moderating role of size and age. *Environment Development and Sustainability*, *24*(4), 5052–5079. https://doi.org/10.1007/s10668-021-01649-w.

[2] Agarwal, N. (2015). Comparitive Financial Performance of Maruti Suzuki India Limited and Tata Motors Limited. *International Journal in Management and Social Science*, *3*(7), 68–74.

[3] Bhagyalakshmi, K, & Saraswathi, S. (2019). A study on financial performance evaluation using DuPont analysis in selected automobile companies. *International Journal of Management, Technology and Engineering*, 9(1), 354-362.

[4] Dalayeen, B. A. (2017). Financial Performance Appraisal of Selected Companies in Jordan. *Open Journal of Business and Management*, 5(1), 131–140. https://doi.org/10.4236/ojbm.2017.51012.

[5] Delima, V. J. (2020). Impact of Working Capital Management on Firm’s Profitability: A Study on Listed Companies in Sri Lanka. *Asian Journal of Economics Business and Accounting*, 20(1), 42–58. https://doi.org/10.9734/ajeba/2020/v20i130318.

[6] Dr. Hetal C. Chotaliya (2020). The Empirical Study of Financial Performance of Automobile Industry in India. *Indian Journal of Research*, 9(1), 1-5.

[7] Dr. Kaushik Chakraborty (2020). Financial Performance of Indian Pharmaceutical Industry Before Outbreak of Covid 19: An Empirical Analysis. *International Journal of Management (IJM),* 11(8), 923-936.

[8] Dr. Ranjithkumar M. S. et al., (2018). A Study on Profitability Analysis of Indian Selected Automobile Industry in India. *International Journal for Research in Engineering Application & Management (IJREAM)*, 4(7), 412-416.

[9] Ehie, I. C., & Olibe, K. (2010). The effect of R&D investment on firm value: An examination of US manufacturing and service industries. *International Journal of Production Economics*, *128*(1), 127–135. https://doi.org/10.1016/j.ijpe.2010.06.005.

[10] Hiran, S. (2016). Financial Performance Analysis of Indian Companies Belongs to Automobile Industry with Special Reference to Liquidity & Leverage. *International Journal of Multidisciplinary and Current Research*, *4*, 39-51.

[11] Hutauruk, M. R. (2024). The effect of R&D expenditures on firm value with firm size moderation in an Indonesian palm oil company. Cogent Business & Management, 11(1), 1-24. https://doi.org/10.1080/23311975.2024.2317448.

[12] Ibhagui, O. (2019). Do large firms benefit more from R&D investment? *The European Journal of Applied Economics*, *16*(2), 155–173. https://doi.org/10.5937/EJAE16-21770.

[13] Insee, K., & Suttipun, M. (2023). R&D spending, competitive advantage, and firm performance in Thailand. *Cogent Business & Management*, *10*(2), 1-17. https://doi.org/10.1080/23311975.2023.2225831.

[14] Jin, D.-M. (2022). The Effect of R&D Expenditures on Firms Value: The Characteristics of Firms. *Korean Accounting Information Association*, *22*(4), 25-46. https://doi.org/10.29189/KAIAJFAI.22.4.2.

[15] Kalyan, N. B. (2021). Value Share Price Behaviour of Automobile Industry in India. *Cross-Currents an International Peer-Reviewed Journal on Humanities and Social Sciences*, *7*(1), 10–33. https://doi.org/10.36344/ccijhss.2021.v07i01.002.

[16] Kamal, J., & Singh, S. K. (2023). Effect of R&D and Advertisement on the Market Value of Firm: Evidences from Indian Firms. *The Journal of Business Perspective*. https://doi.org/10.1177/09722629231180419.

[17] Kanagavalli, G. & Saroja Devi, R. (2018). Financial Performance of Selected Automobile Companies. *International Journal of Management (IJM)*, 9(4), 14-23.

[18] Kumar, N. (2016). Firm Size and Profitability in Indian Automobile Industry: An Analysis. *Pacific Business Review International*, 8(7), 69-78.

[19] Lantz, J., & Sahut, J. (2005). R&D Investment and the Financial Performance of Technological Firms. *International Journal of Business*, *10*(3), 251–270.

[20] Lee, M., & Choi, M. (2015). The Determinants of Research and Development Investment in the Pharmaceutical Industry: Focus on Financial Structures. *Osong Public Health and Research Perspectives*, *6*(5), 302–309. https://doi.org/10.1016/j.phrp.2015.10.013.

[21] Yang Li. (2024). Empirical Determinants of Research and Development (R&D) Investment in Chinese Manufacturing Companies. *International Journal of Sociologies and Anthropologies Science Reviews*, *4*(2), 417-424. https://doi.org/10.60027/ijsasr.2024.3983.

[22] Muhammad Usman, Muhammad Shaique, Shahbaz Khan, Ruqia Shaikh & Nida Baig. (2017). Impact of R&D Investment on Firm Performance and Firm Value: Evidence from Developed Nations (G-7). Revista de Gestão Finanças e Contabilidade, 7(2), 302-321.

[23] Nga, T. T. T., Vy, H., & Pham, K. D. (2022). The Effect of Business Strategy on R&D Expenditure and Firm Performance – Evidence from Taiwan. *Management Systems in Production Engineering*, *30*(1), 80–90. https://doi.org/10.2478/mspe-2022-0011.

[24] Nord, Lawrence J. (2011). R&D Investment link to Profitability: A Pharmaceutical Industry evaluation. *Undergraduate Economic Review*, *8*(1), 6.

[25] Pazarzi, G., & Sorros, J. (2018). The effect of R&D expenses on earnings and market value. *Econstor*, 68(2-3), 39–47.

[26] Peruri Praveen Kumar (2024). Fundamental and Financial Performance Analysis of Selected Automobile Companies: A Comparative Study on Tata Motors, Ashok Leyland, Olectra Greentech, Force Motors and SML Isuzu. *International Journal of Science and Research (IJSR)*, 13(2), 702-707. https://doi.org/10.21275/SR24207225255.

[27] Peters, B., Roberts, M. J., & Vuong, V. A. (2022). Firm R&D investment and export market exposure. *Research Policy*, *51*(10), 104601. https://doi.org/10.1016/j.respol.2022.104601.

[28] Piao, X., & Choi, M. (2022). The Different Effects of Firm Resources on Firm Performance under Volatility: An Examination Using Big Data. *Discrete Dynamics in Nature and Society*, *2022(1)*, 6151667. https://doi.org/10.1155/2022/6151667.

[29] Rafiq, S., Salim, R., & Smyth, R. (2016). The moderating role of firm age in the relationship between R&D expenditure and financial performance: Evidence from Chinese and US mining firms. *Economic Modelling*, *56*, 122–132. https://doi.org/10.1016/j.econmod.2016.04.003.

[30] Rahman, M. M., & Howlader, M. S. (2022). The impact of research and development expenditure on firm performance and firm value: evidence from a South Asian emerging economy. *Journal of Applied Accounting Research*, *23*(4), 825-845. https://doi.org/10.1108/JAAR-07-2021-0196.

[31] Ramya, A., & Kavitha, S. (2017). A Study on Financial Analysis of Maruthi Suzuki India Limited Company. *IOSR Journal of Business and Management (IOSR-JBM)*, *19*(07), 93–101. https://doi.org/10.9790/487X-19070293101.

[32] Rind, A. A., Abbassi, W., Bigelli, M., & Rouatbi, W. (2023). Industry influence on firms' R&D and innovation. *Journal of International Financial Management and Accounting*, *34*(2), 162-210. https://doi.org/10.1111/jifm.12177.

[33] Saigeetha, S., & Surulivel, S. T. (2017). A Study on Financial Performance Using Ratio Analysis of Bhel, Trichy. *International Journal of Innovative Research in Management Studies (IJIRMS)*, 2(3), 31–39.

[34] Seclen-Luna, J. P., Moya-Fernandez, P., & Cancino, C. A. (2023). Innovation and performance in Peruvian manufacturing firms: does R&D play a role? *RAUSP Management Journal*, *58*(2), 143-161. https://doi.org/10.1108/RAUSP-07-2022-0176.

[35] Susanto, I. R., Soewarno, N., & Tjahjadi, B. (2024). Role of R&D Investment on Future Performance: Evidence From Malaysian Companies. *Jurnal Akuntansi Dan Keuangan*, *26*(1), 29–34. https://doi.org/10.9744/jak.26.1.29-34.

[36] Xiang, E., Gasbarro, D., Cullen, G., & Ruan, W. (2020). Does R&D expenditure volatility affect stock return? *Journal of Contemporary Accounting & Economics*, *16*(3), 100211, 1-15. https://doi.org/10.1016/j.jcae.2020.100211.

[37] Zhu, Z., & Huang, F. (2012). The Effect of R&D Investment on Firms' Financial Performance: Evidence from the Chinese Listed IT Firms. *Modern Economy*, 3(8), 915–919. https://doi.org/10.4236/me.2012.38114.