
Relationship of Company Age and Industry Sector with Financial Performance—An Indian Evidence

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Abstract

The purpose of this paper is to analyze the relationship of the age of companies and the industry sector on financial performance variables for NIFTY 100 Index companies. The minimum age of a company in NIFTY 100 index was seven years and the maximum age is 114 years. Further, these companies have been divided into nine industry sectors. To analyze the relationship, sixteen financial performance variables have been taken for the financial year 2019.

It has been found that older companies have better performance in terms of return ratios, stakeholder-related ratios, leverage, replacement ratios. Younger companies have better operational efficiency and market valuation. It has also been observed that there is a significant difference in return ratios for Telecom and Utility, Financial, Industrial, Consumer staples, IT, Energy and Consumer Discretionary Sectors. The findings of this paper will enable investors in making prudent investment decisions and will enable them to understand how the age and industry of a company impact the financial performance of companies in India.

Keywords: Corporate governance, Age, Industry sector, financial performance

I. Introduction

Businesses primary financial goal is achieving higher profitability as well as wealth maximization through all their operational activities. Apart from that sustainability, good corporate governance practices, and fulfilling their social responsibility are crucial to success for any business in present times. Readiness to change, innovation, and technological soundness also contribute to the long-term survival of a company. Further, in the context of

financial performance, the going concern concept of accounting reflects that age and long life of business entities are important for sustainability.

Basti et al. (2011) analysed Turkish companies and found that age significantly impacts firm performance. It has generally been observed that older companies perform better than younger companies because of the learning curve effect. Ghafoorifard et al., 2014, confirm that older companies have more experience, which makes them outperform newer firms. However, another set of financial literatures suggests that younger firms are more innovative and flexible, so they perform better (Lwango et al., 2017). Legesse's (2018). Prajogo, (2006) adds that process and product innovations are crucial to improvement in financial performance.

However, literature also indicates that the performance of companies also varies based on industrial sectors, as some industries may perform better than others. Esteve-Pérez et al. (2018) hold that age has a relationship with the industry (sector) life cycle and impacts firms' survival. MacKay and Phillips (2005) found a significant relationship between the industry sector and financial decision making. Hande (2017) suggests no strong association between the industry sector and financial performance. In this study, an attempt has been made to analyze and examine the link between age, industry sector and firm performance.

This paper analyzes the relationship of age and industry with different financial performance variables for NIFTY 100 Index companies. For the purpose of the study, Nifty 100 sample companies were categorized into 4 age groups, where the minimum age of a company in NIFTY 100 index was 7 years and the maximum age 14 years. Further, companies are divided into 9 industry sectors. Sixteen financial variables have been studied for the financial year 2019.

II. Literature Review

Since firms' performance is dependent on the operating efficiency as well as various other demographic characteristics like age, industry sector, ownership, business house association, stake of government, board characteristics, and other such variables, this study has analysed only two variables i.e. the age of the company and the industry sector.

The literature review here under highlights studies that focus on age and industry sector impact on firm performance in emerging economies. Legesse's (2018) study of the Ethiopian economy established no correlation between firm age and financial performance (sales). Akben-Selcuk (2016) examined the impact of age on the financial performance of 302 firms

and captured the convex relationship between age and firm performance. Capasso et al. (2015) justify the same by studying the Italian wine industry and revealed that the older wineries have better financial performance than the younger wineries. It also supports that financial performance is a significant determinant of the firm's going-concern assumption. Osunsan et al. (2015) found age to be a significant variable. Ghafoorifard et al. (2014) revealed that older firms have better performance by analysing 96 companies of Tehran. Bianco et al. (2013) analysed the impact of age and size on family-owned businesses' financial decisions. It was found that a business's financial performance declines with age, but in specific sectors, older companies perform better than younger companies. Kipsha (2013) analysed Tanzania and found a positive relationship between age and firm performance of microfinance institutions. Dogan (2013) revealed that age had a negatively significant result on firm performance. Coad et al. (2013) investigated the Spanish manufacturing sector and supported the argument that older companies have better productivity, sales, and profits. Basti et al. (2011) analysed Turkish companies and found that age significantly impacts firm performance. Gurbuz et al. (2010) could not find any significant relationship between age and firm performance. Loderer and Waelchli (2010) conclude that firm performance declines with age because of rigidity in operations in older companies and the high cost of corporate governance and top management compensation. . Majumdar (1997) established that older Indian firms are less productive but have better profitability, and firm performance improves with age and leveraged decreases.

Specific researchers have established statistically significant differences in performance based on the firm sector. Al-Slehat (2019) analysed the industrial sector and suggested that for long term survival companies must have an optimal mix of debt and equity. Zaborek and Mazur's (2019) analysed Polish companies and revealed significant differences in the services and manufacturing sector, and the service sector doing better than the manufacturing. Li et al. (2018) analysed age, business sector, ownership and leverage and found that manufacturing and services firms operated differently, so their performance also varies. Dutta et al. (2018) analysed 6 industry sector companies of NSE and proved that there is an inverse relationship between financial leverage and the value of the firm. Lahiri and Purkayastha (2017) also revealed that the services sector performs better than the manufacturing sector in the Indian context. Likewise, Seo et al. (2016) investigated Korean firms and found different patterns between service and manufacturing companies. Reed and Storrud-

Barnes(2009)revealedthatmanufacturingandservicesectorcompaniesdifferinfinancialperformanc
e.

III. ResearchMethodology

The main objective of this study is to analyze the relationship between age, industry sector and financial performance of companies. For this analysis, a sample of Nifty 100 companies was categorized into 4 age groups and 9 industry sectors. Data for financial variables have been taken for sixteen variables for the year 2019, which has been compiled for NIFTY 100 Index companies from the CMIE Prowess database.

For analysis of financial performance sixteen variables include beta-measure of volatility, closing price, market capitalization, enterprise value, earnings per share (EPS), price to earnings ratio, tobin's Q, return on equity, earnings before interest and tax (EBIT), return on capital employed, return on assets ratio, return on sales, dividend yield, CSR spend, price to book ratio and total debt ratio. Age wise companies have been classified as 0-25 years, 25-50 years, 50-75 years and above 75 years. Industry sector affiliation of these companies comprises healthcare, information technology (IT), financials, consumer staples, energy, materials, consumer discretionary, industrials and utilities, and telecoms.

For analysis of data, the various statistical tools applied included descriptive statistics, ANOVA and Duncan's Post-Hoc Test

Hypotheses Framed

The following null hypotheses have been tested.

H₀₁: There is no significant difference in the age of companies and their financial performance variables

H₀₂: There is no significant difference in the industry sector companies and their financial performance variables

IV. Analysis of Data

The analysis of financial variables based on age and industry sector has been carried out in Table 1 and 2 below.

i) Relationship of Companies' Age with Financial Performance

The age of companies has been categorized into four groups, i.e. 0-25 years, 25-50 years, 50-75 years and above 75 years and mean values of financial variables are given against each category.

Table1-Age-wiseDescriptiveStatisticsofFinancialPerformanceVariablesofF.Y. 2019

| FinancialPerformance Variables | MeanStatistic | | | |
|--------------------------------|----------------------|--------------|-------------|--------------|
| | AgeofCompanyCategory | | | |
| | 0-25Years | 25-50Years | 50-75Years | Above75Years |
| Beta-Measureofvolatility | .9336 | .8993 | 1.2465 | .7945 |
| ClosingPrice | 1487.8743 | 1494.0383 | 4825.7390 | 1170.0545 |
| MarketCapitalization | 664835.7929 | 1472559.4890 | 519529.2880 | 1412629.2255 |
| EnterpriseValue | 788213.8786 | 1731281.5081 | 481274.1480 | 1311694.5800 |
| EarningsPershare | 30.4757 | 67.1069 | 180.0215 | 33.7755 |
| PricetoEarningsratio | 62.8800 | 34.9083 | 61.1775 | 37.5573 |
| Pricebybookratio | 8.9121 | 5.4636 | 5.2870 | 12.1391 |
| TotalDebtratio | 36517.4071 | 152212.3476 | 127714.8200 | 45686.8000 |
| Tobin'sQ | 5.3367 | 2.9374 | 2.3765 | 5.6672 |
| ReturnonEquityratio | 0.1256 | 0.1552 | 0.1433 | 0.2646 |
| Earningsbeforeinterest andtax | 25320.621 | 79938.052 | 45708.760 | 70716.082 |
| ReturnonCapital Employed | 0.1180 | 0.1754 | 0.1642 | 0.2880 |
| ReturnonAssetsratio | 0.0787 | 0.1074 | 0.0710 | 0.1397 |
| ReturnonSalesratio | 0.2649 | 0.2254 | 0.1578 | 0.1909 |
| DividendYieldratio | 20.5164 | 63.7995 | 109.4843 | 30.6520 |
| CSRSpent | 0.0181 | 0.0216 | 0.0300 | 0.0278 |

Table 1 depicts age-wise descriptive of financial performance variable for the financial year 2019. Beta, which is considered a measure of volatility, the value is the highest for companies under the age group of 50-75 years, reflecting that this age group has a high risk and high return. Companies above 75 years have more wealth than other age group companies, as market capitalization mean is the highest. The enterprise value reflecting the cost of purchasing a company is the highest for 25-50 years. 50-75 years of companies have the highest EPS mean, thus, these companies are relatively profitable based on per-share price. Price to earnings ratios show that investors want to invest more in companies with a high price to earnings ratio as it leads to higher future growth or future return. Companies above 75 years are relatively more confident about their growth aspects as price to book is highest. However, a too high price to book ratio can reflect that the company is overvalued. 25-50 years of companies are at risk as their borrowing capacity reduces with a high total debt ratio, leading to financial inflexibility. High Tobin's Q ratio reflects that the company's market value is greater than the value of company recorded assets. The companies falling in age group for

above 75 years has the highest Tobin's Q ratio. Above 75 years of companies has the highest return on equity ratio, and these companies efficiently utilized equity capital to generate profits. For EBIT companies with the age of 25-50 years reflect that companies under age group 25-50 years have more earning ability that generates high revenue than other age groups. Return on capital employed values reveal that companies under the age group above 75 years have generated the highest return for their investors. Return on assets ratios mean score for above 75 years of companies is the highest and these companies generate the highest returns by utilizing their assets. Looking at return on sales ratios, 0-25 years of companies have the highest average score. High return on sales ratios reflects that the companies are efficiently converting their sales into profit. Similarly, if we look at the dividend yield ratio, the average score of 50-75 years of companies is relatively high. For CSR spending, as per the Companies Act, companies must spend 2 per cent of their average profit for the preceding three years. The companies under 50-75 years of age group spend relatively higher as compared to other age group companies.

ii) Relationship of Industry Sector with Financial Performance

This section analyses the relationship of the industry sector with financial performance. The industry has been classified under nine heads: healthcare, information technology, financials, consumer staples, energy, materials, consumer discretionary, industrials and utilities, and tel ecoms. Mean values of 16 financial performance variables of nine industries are analysed here.

Table 2- Industry-wise Descriptive Statistics of Financial Performance Variables of F.Y. 2019

| Financial Performance Variables | Mean Values | | | | | | | | |
|---------------------------------|-------------------------|------------------------|------------|------------------|----------|-----------|------------------------|-------------|---------------------|
| | Industry Classification | | | | | | | | |
| | Health Care | Information Technology | Financials | Consumer Staples | Energy | Materials | Consumer Discretionary | Industrials | Utilities & Telecom |
| Beta-Measure of volatility | .6650 | .3717 | 1.0881 | .5450 | 1.0370 | 1.2479 | .9938 | 1.3556 | .8233 |
| Closing Price | 914.200 | 1284.6217 | 1497.2225 | 2064.7700 | 333.7170 | 2123.8236 | 7257.8362 | 789.1556 | 214.6500 |
| Market | 4006 | 24695 | 15507 | 11965 | 17635 | 67864 | 657130 | 58306 | 71977 |
| Capitalization | 04.7967 | 50.8400 | 40.4750 | 28.1330 | 94.2610 | 8.3079 | .5038 | 8.3444 | 1.1867 |

| | | | | | | | | | |
|---|-------------|--------------|--------------|--------------|--------------|-------------|-------------|-------------|-------------|
| Enterprise Value | 394493.1133 | 2342613.7900 | 2251551.6188 | 1171823.5830 | 1972537.1810 | 681518.6079 | 543670.8192 | 523238.0667 | 864580.7533 |
| Earnings Per Share | 27.7067 | 59.8450 | 41.1863 | 27.6250 | 26.1480 | 47.7521 | 362.1415 | 12.2300 | 2.8833 |
| Price to Earnings Ratio | 43.2983 | 21.5017 | 55.2681 | 64.6980 | 12.5900 | 51.8121 | 64.5400 | 37.8922 | 10.5867 |
| Price by Book Ratio | 3.6600 | 6.0550 | 5.8244 | 22.4110 | 2.6500 | 4.7671 | 5.5554 | 5.1856 | 1.9300 |
| Total Debt Ratio | 15467.4333 | 9365.8333 | 104333.5063 | 3964.0100 | 482397.7200 | 121365.4500 | 9422.7462 | 47683.4000 | 342765.9667 |
| Tobin's Q | 2.3322 | 4.1778 | 3.1320 | 10.7871 | 1.4126 | 2.5075 | 3.0531 | 2.0184 | 1.2748 |
| Return on Equity Ratio | 0.1146 | 0.2635 | 0.0289 | 0.3654 | 0.2084 | 0.1303 | 0.1849 | 0.1228 | 0.0828 |
| Earnings before interest and tax | 18081.867 | 146410.867 | 63459.488 | 37000.120 | 166874.340 | 47067.364 | 36157.092 | 24497.233 | 4475.267 |
| Return on Capital Employed | 0.1332 | 0.3446 | 0.0323 | 0.3774 | 0.1784 | 0.1353 | 0.2458 | 0.1327 | 0.0815 |
| Return on Assets Ratio | 0.0822 | 0.2062 | 0.0222 | 0.1944 | 0.1142 | 0.0760 | 0.1251 | 0.0584 | 0.0620 |
| Return on Sales Ratio | 0.1884 | 0.3092 | 0.2754 | 0.1946 | 0.1998 | 0.1868 | 0.1906 | 0.1529 | 0.2097 |
| Dividend Yield Ratio | 3.8768 | 50.2391 | 23.5902 | 31.2457 | 241.6015 | 80.0243 | 14.3137 | 19.1985 | 194.6181 |
| CSR Spend | 0.0235 | 0.0191 | 0.0185 | 0.0205 | 0.0290 | 0.0347 | 0.0193 | 0.0276 | 0.0112 |

Table 2 presents industry-wise mean values of financial performance variables for the financial year 2019. Beta indicates that the industrials sector is riskier as compared to other industries, and the information technology industry has the least risk. For the closing price, mean values show that the highest value is of consumer discretionary, and the least is of utilities and telecom. The market capitalization, which is a proxy of the company's size, the information technology outstanding shares market value is the highest and the least is for

industrials. Looking at enterprise value, again information technology sector overall value is the highest. For earning per share, consumer discretionary has the highest mean, reflecting that this sector makes more money from its shares as compared to the rest of the sectors. The consumer staples book ratio, reveals that this sector market valuation is the highest. The total debt ratio of energy indicates that it uses the highest leverage. Tobin's Q highest average score is of consumer staples, thus have the the highest replacement cost. From a return on equity ratio, it can be seen that the highest mean score is of consumer staples and the least mean score is of utilities and telecom. Earnings before interest in tax average scores indicates that the highest mean score is of energy. The average score of information technology (IT) is the highest for return on capital employed, return on assets and return on sales ratio. The dividend yield ratio highest mean score is of the energy sector. And looking at CSR average scores, the the highest spending is by materials and the lowest score is utilities and telecom.

iii) Differences in Financial Performance as per Age and Industry Sector

Table 4 shows ANOVA results of demographic-wise differences in financial performance variables.

Table 4- ANOVA Results of Differences in Financial Performance

| Financial Variables | Age | | Industry Sector | |
|----------------------------------|-------|------|-----------------|------|
| | F | Sign | F | Sign |
| Beta-Measure of volatility | 6.220 | .001 | 6.255 | .000 |
| Closing Price | 1.574 | .201 | 1.277 | .265 |
| Market Capitalization | 2.335 | .079 | 1.946 | .062 |
| Enterprise Value | 3.369 | .022 | 1.942 | .063 |
| Earning Per share | 1.200 | .314 | 1.959 | .061 |
| Price to Earning ratio | .820 | .486 | .820 | .587 |
| Tobin's Q | 1.532 | .212 | 4.119 | .000 |
| Return on Equity | 1.688 | .175 | 10.334 | .000 |
| Earnings before interest and tax | 1.240 | .300 | 4.943 | .000 |
| Return on Capital Employed | 1.895 | .136 | 10.946 | .000 |
| Return on Assets ratio | 1.263 | .292 | 8.133 | .000 |
| Return on Sales | 1.134 | .340 | .885 | .533 |
| Dividend Yield | 1.684 | .176 | 4.715 | .000 |
| CSR Spend | 1.820 | .150 | 1.537 | .158 |
| Price to Book Ratio | 1.255 | .294 | 9.228 | .000 |
| Total Debt Ratio | 1.099 | .354 | 4.033 | .000 |

For age-wise classification of beta, F value (6.220) is significant at 0.01 level of significance, market capitalization and age; the F value is 2.335, which is significant at a 0.079 level of significance. The F value for enterprise value is 3.369, which is significant at a 5 percent

level of significance (0.022). This indicates that beta, market capitalization and enterprise value significantly differ age-wise. Thus, *null hypothesis H₀* is partially supported for beta, enterprise value and market capitalization. These results suggest that out of four age group categories, category 50-75 years is significantly different from the rest of the age groups. For enterprise value, companies which belong to the age group of 25-50 years are significantly different from the rest of the groups. Based on the age-wise classification, other financial variables do not show a significant difference in their characteristics.

For the industry sector, the beta F value is 6.255, which is significant at a 0.00 level of significance. Similarly, for market capitalization, the F value is 1.946, which is significant at a 0.062 level of significance. Considering enterprise value, results show F value 1.942 significant at 0.063 level of significance. For earnings per share, the F value is 1.959, which is also significant at a 0.061 level of significance. ANOVA results for Tobin's Q shows that the F value is 4.119, which is significant at 0.000 level. Similarly, the return on equity F value is 10.334. For EBIT, the F value is 4.943, return on capital employed F value is 10.946, return on assets F value is 8.133, dividend yield F value is 4.715, price to book ratio F value 9.228 and the total debt ratio of value 4.033. This shows that these F values are significant at 0.000 level of significance. Thus, *null hypothesis H₀* is partially supported for the beta, market capitalization, enterprise value, earnings per share, Tobin's Q, return on equity, Earnings before interest in tax, return on capital employed, return on assets, dividend yield, price to book ratio and total debt ratio.

iv) Differences in Financial Performance Variables

Table 5 shows the Duncan post-hoc test results for demographic differences in financial performance variables.

Table 5- Duncan Post Hoc Test Results of Demographic wise Differences in Financial Performance Variables

| Financial variables | Age | Industry Sector |
|----------------------------|-------------|---|
| Beta-Measure of volatility | 50-75 years | IT, financial, utility, consumer discretionary, materials, industrial |
| Closing Price | | |
| Market Capitalization | | |
| Enterprise Value | 25-50 years | |
| Earnings Per Share | | |
| Price to Earnings ratio | | |
| Tobin's Q | | Consumer Staples |

| | | |
|------------------------------|--|--|
| ReturnonEquity | | Utility,Financial,Industrial,Consumer staples,ITEnergy |
| Earningsbeforeinterestandtax | | EnergyandUtility |
| ReturnonCapitalEmployed | | Consumerstaples,financials,energy |
| ReturnonAssetsratio | | Financials,Energy,IT,consumer staples. |
| ReturnonSales | | |
| DividendYield | | Energy,HealthcareandUtilities |
| CSRSpend | | |
| PricetoBookRatio | | EnergyandUtilities |
| TotalDebtRatio | | ConsumerStaples |

For different industry sectors, beta is statistically significantly different for Information technology, finance companies, utility and telecom companies, consumer discretionary, materials, and industrial sector companies. Tobin's Q is found to be significantly different for consumer staples. Return on equity is statistically significantly different with an F value of 10.334, which is statistically significantly different at the 0.05 percent level of significance for utility and telecom, financials, industrial sector, consumer staples, the information technology sector, and energy sectors. Earnings before interest tax was found to be statistically significantly different for the energy and utility sector. Return on capital employed is significantly different for consumer staples, financial and energy sector companies. A return on assets is statistically significantly different for the financial and sector and consumer staple sectors. The dividend yield for companies was found to be statistically different for energy, healthcare, utility and telecom companies. Return on assets is statistically significantly different for the financial, IT, and consumer staple sectors. The dividend yield for companies was found to be different for energy, healthcare and utility and telecom sectors. The price to book ratio is different for the energy and utility and telecom sectors. Total debt ratio was found to be statistically significantly different for the consumer staple sector. This implies that the *null hypothesis* (H_0) that there is no significant difference between the industry sector-wise classification of financial performance variables is rejected. And for most of the variables, the companies which belong to different industrial sectors usually do have different levels of financial performance. This indicates that the industrial sector can be an important variable, which influences the performance of companies.

V. Conclusion

Beta, closing price, earning per share, dividend yield, and CSR spending are the highest for companies aged 50-75 years. Price to book ratio, Tobin's Q, return on equity, total debt ratio,

return on capital employed, return on assets is the highest for companies above 75 years of age. This indicates that older companies have better return ratios, stakeholder related ratios, leverage, replacement ratios like price to book ratio and Tobin's Q. Younger companies have better market capitalization, enterprise value, price to earnings ratio, earnings before interest and tax and return on sales ratio. This reveals that younger companies have better operational efficiency and market valuation. Thus, null hypothesis H_{01} is partially supported for beta, enterprise value and market capitalization.

The industry sector has emerged as a significant variable for the financial performance of firms. Utility, Financial, Industrial, Consumer staples, IT, Energy, consumer discretionary sectors are significantly different for return ratios.

Overall it can be concluded that null hypothesis H_{02} , that there is no significant difference in the demographic characteristics of companies and their financial performance variables, is partially supported.

The study has implications for the corporate sector to formulate strategies for the long term survival strategies. Investors can decide about investing in older companies that have higher performance and investing in industries that are high in companies' financial performance. Age and industry sector do impact financial performance of corporate entities in Indian context.

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