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Paper: Financial Determinants and Pay-out Decisions of Auto Mobile Industries In India - an analysis

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Abstract:

This study explores the dividend policies of listed manufacturing companies in India, focusing on their influence on market value and enterprise value (EV). It addresses the gap in existing literature, which often neglects the industry-specific dynamics of dividend practices. Using stratified systematic sampling, data from 50 companies across five manufacturing industries—automobile, iron and steel, pharmaceuticals, FMCG, and durable consumer goods (DCG)—spanning FY 2014–2021 were analyzed. Statistical tools such as ANOVA and multiple regression models were employed to uncover significant relationships between financial metrics, including revenue, net profit, and dividends, with market valuation. The study also aims to design an optimal dividend policy model tailored to the manufacturing sector.

The DCG industry demonstrates a strong correlation between financial metrics and market valuation, with revenue growth and profitability emerging as critical determinants of EV and market capitalization (MC). Companies like Blue Star Ltd. and Whirlpool India Ltd. exemplify the benefits of strategic retention and balanced dividend policies in driving value creation. Blue Star's 77% cash earnings retention ratio supported an EV CAGR of 19%, while Whirlpool's balanced 40% dividend payout resulted in a 21% EV CAGR. Regression analysis highlights revenue and net profit as the strongest determinants of market valuation, with dividends playing a smaller but positive role. Firms like Jaipan Industries, however, face profitability challenges, limiting value creation despite high retention ratios.

In the automobile sector, companies such as Bajaj Auto Ltd. and TVS Motor Company Ltd. highlight the critical role of revenue growth and dividend payouts in driving EV and MC. Bajaj Auto's EV CAGR of 7% and TVS Motor's 31% reflect the significance of consistent dividend strategies coupled with stable retention ratios. Regression models confirm revenue from operations as a key driver of valuation metrics, while long-term liabilities negatively impact them. Firms like Tata Motors Ltd. and Ashok Leyland Ltd. must optimize

debt management, while companies like Mahindra and Mahindra Ltd., with retention ratios above 80%, should reinvest earnings into R&D and market expansion for sustainable growth.

The iron and steel industry reflects diverse financial strategies and outcomes among key players. Companies like Godawari Power & Ispat Ltd. and APL Apollo Tubes Ltd. achieved robust EV and MC growth through high retention ratios and reinvestment strategies. In contrast, Tata Steel Long Products Ltd. struggles with high profit variability, undermining investor confidence. Regression analysis underscores the positive impact of strategic dividend payouts on market capitalization, while long-term liabilities and inefficiencies in revenue management present significant challenges. Firms with high liabilities, like Usha Martin Ltd., have successfully reduced debt to enhance EV, highlighting the importance of effective liability management in the sector.

The pharmaceutical industry demonstrates the significant influence of profitability and dividend payouts on market valuation. Companies like JB Chemicals and Divis Laboratories Ltd. achieved strong EV and MC growth through robust operational strategies and consistent dividends. Regression analysis reinforces the role of net profit and dividends in boosting market value, as every ₹1 crore in net profit adds ₹15.484 crores to MC. However, firms like Aurobindo Pharma Ltd., with declining revenue and inconsistent dividends, face challenges in sustaining investor confidence. Addressing operational inefficiencies and aligning dividend policies with profitability goals are critical for companies aiming to enhance market positioning.

factors. Companies must balance reinvestment and shareholder rewards to foster growth and enhance market confidence.

Overall, the study highlights the critical role of aligning dividend policies with financial strategies to maximize market valuation in the manufacturing sector. Across industries, the findings underscore the importance of managing long-term liabilities, optimizing revenue growth, and leveraging profitability to enhance EV and MC. By adopting data-driven insights, companies can build sustainable growth strategies, strengthen investor confidence, and improve market positioning within India's dynamic manufacturing landscape.

dividends. This argument is supported by the findings of Fisher(1961) and Walter(1963). Baker, Powell, and Veit (2002), on the other hand, reach the opposite conclusion. They polled NASDAQ executives to gauge their thoughts on dividend policy issues. 54.9 percent of the 186 respondents disagreed with the statement, "Investors generally prefer cash dividends today over uncertain future price appreciation." As a result, they conclude, "...this finding does not support the bird-in-hand explanation for why companies pay dividends" (p.278). These theories demonstrate that dividends are relevant and can be predicted in a variety of ways. As a result, identifying and comprehending the key factors that motivate managers to distribute dividends is critical for investors. (2002), has no effect on the dividend behaviour of Indian firms. Nonetheless, there is no conclusive evidence on what fundamental characteristics determine Indian firms' dividend policy.

Furthermore, this study attempts to determine whether the determinants have a long or short run relationship with dividend policy. Thus, using the ARDL method, this study examines the determinants of dividend policy in Indian firms. This method is used because firm characteristics have a lag effect on dividend policy. For example, future growth opportunities influence today's dividend policy. Furthermore, the use of this method allows for the consideration of firm-specific heterogeneity. As a result, the ARDL method was used in this study, which is a cointegration technique developed by Pesaran and Shin (1995) Smith, Pesaran, and Shin (1997). The study contributes in two ways: it adds to the existing literature by investigating various factors

as determinants of dividend policy of Indian firms, particularly manufacturing firms, which helps investors predict dividend paying firms. As a result, investors who want to earn a consistent income from their investments make the appropriate decisions.

Review of Literature:

1. **(Brahmaiah Bezawada, 2017):** The relevance of dividend policies has been extensively researched, but the findings have produced little consensus. There are numerous factors that influence a given firm's dividend policy that can be found in the literature, such as the firm's risk, cash flow situation, agency costs, and so on. According to Bhattacharya (1979), a firm's dividend decision can be viewed as a source of signal, indicating that profitable firms with good project investment opportunities will pay higher dividends to differentiate themselves from other firms with projects with lower profits.

2. **(Geetanjali Pinto, 2019):** The purpose of this research is to determine whether a company's dividends are influenced by the industry to which it belongs. This paper also investigates the explanatory factors for dividends in India's various sectors. From 2006 to 2017, this longitudinal study used balanced data from companies listed on India's National Stock Exchange (NSE). In our estimation, we use pooled ordinary least squares (POLSS) and fixed effects panel models. We discover a significant positive relationship between dividend policy and size, profitability, and interest coverage ratios.

Objectives of the study:

- 1) To examine dividend policy followed by the Indian manufacturing sector in terms of retention & distribution of profit.
- 2) To examine the difference in the dividend policy adopted by the different industry of the manufacturing sector.
- 3) To analyse the trends in Market Value of the chosen companies in the manufacturing sector
- 4) To examine the impact of dividend policy on the Market Value of the chosen companies in the manufacturing sector.
- 5) Designing the appropriate model to the chosen industries across the manufacturing sector with respect to ideal dividend policy to be followed.

Hypothesis Testing and Comparative analysis across the companies in a Industry

H₀₁ (a): There is No Significant Variance in the Dividend Pay-out across the Companies & year in Automobile Industry

Table 51 Showing Dividend Pay-out Ratio among the Automobile Companies

year	Bajaj Auto mobile s	Atul Auto mobile s	TVS Motor compan y Ltd	Marut i Suzuk i india Ltd.	Hero Motocor p Ltd.	Eicher Motor s Ltd.	Mahindr a and Mahindr a Ltd.	Ashok Leylan d Ltd.	Tata Motor s Ltd.	Force Motor s Ltd.
Mar-13	39.12	39.12	15.24	42.85	56.56	29.11	23.8	36.8	213.77	27.68
Mar-14	37.13	37.13	55.53	36.09	61.59	24.24	22.94	36.8	193.87	5.08
Mar-15	102.12	102.12	40.03	32.21	50.22	24.24	22.44	38.25	213.77	6.49
Mar-16	102.12	102.12	65.59	42.76	45.89	35.76	26.42	39.56	193.87	7.34
Mar-17	80.71	80.71	15.24	42.85	51.44	35.76	23.08	26.6	213.77	7.34
Mar-18	39.12	39.12	55.53	36.09	45.91	18.51	21.24	31.98	193.87	8.96
Mar-19	37.13	37.13	40.03	32.21	56.05	14.59	19.43	43.35	213.77	8.95
Mar-20	102.12	102.12	65.59	42.76	53.32	35.84	89.23	530.32	193.87	22.64
Mar-21	102.12	102.12	15.24	42.85	64.02	35.84	108.74	32.5	213.77	-11.78
Mar-22	80.71	80.71	55.53	36.09	76.75	29.29	22.04	32.5	193.87	8.83

Anova: Two-Factor Without Replication				
SUMMARY	Count	Sum	Average	Variance
Mar-13	10	524.05	52.405	3344.132183
Mar-14	10	510.4	51.04	2773.922156
Mar-15	10	631.89	63.189	3820.483521
Mar-16	10	661.43	66.143	2947.291357
Mar-17	10	577.5	57.75	3629.172156
Mar-18	10	490.33	49.033	2777.170179
Mar-19	10	502.64	50.264	3502.377249
Mar-20	10	1237.8	123.781	22799.67385
Mar-21	10	705.42	70.542	4140.412907
Mar-22	10	616.32	61.632	2820.362996

Bajaj Auto mobiles	10	722.4	72.24	930.4480444
Atul Auto mobiles	10	722.4	72.24	930.4480444
TVS Motor company Ltd	10	423.55	42.355	424.1059167
Maruti Suzuki india Ltd.	10	386.76	38.676	21.03393778
Hero Motocorp Ltd.	10	561.75	56.175	87.94949444
Eicher Motors Ltd.	10	283.18	28.318	60.37941778
Mahindra and Mahindra Ltd.	10	379.36	37.936	1059.593738
Ashok Leyland Ltd.	10	848.66	84.866	24519.49576
Tata Motors Ltd.	10	2038.2	203.82	110.0027778
Force Motors Ltd.	10	91.53	9.153	110.4196678

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	43782.40545	9	4864.711717	1.87190972	0.067947	1.997609
Columns	262492.5013	9	29165.83347	11.22282477	3.44E-11	1.997609
Error	210502.4857	81	2598.79612			
Total	516777.3925	99				

Upon examining the dividend payout ratios across various automobile companies, it is evident that there is significant variance in their dividend policies. This leads to the rejection of Hypothesis H01(a): "There is No Significant Variance in the Dividend Pay-out across the Companies & year in the Automobile Industry." The data from Table 51 highlights the differences in dividend payout ratios, showing substantial fluctuations year over year and among different companies.

For instance, Tata Motors Ltd. consistently demonstrates the highest dividend payout ratios, particularly evident in Mar-20 with a payout ratio of 203.82%, and an average of 110.00 over the observed period. This high variance reflects the company's aggressive dividend distribution strategy, contributing significantly to the overall variance in the industry. Similarly, Ashok Leyland Ltd. shows substantial volatility, peaking at 84.866% in Mar-20, further accentuating the wide range of dividend policies among automobile firms.

On the contrary, companies like TVS Motor Company Ltd. and Eicher Motors Ltd. exhibit lower dividend payouts, averaging around 42.355% and 28.318% respectively, indicating a more conservative approach to dividend distribution. These lower ratios contribute to a much smaller standard deviation of 424.10 and 60.38, respectively.

Force Motors Ltd., on the other hand, has the lowest dividend payout at 9.153% in Mar-21, highlighting a stark contrast with companies like Tata Motors and Ashok Leyland. This divergence illustrates the differing financial strategies adopted by these firms, further supporting the rejection of H01(a).

The ANOVA results further substantiate these observations. The significant p-value of 3.44E-11 for the rows (companies) and a critical F-value of 1.997609 confirms that there is a substantial difference in dividend payout ratios across companies. Additionally, the high standard deviations indicate the substantial variability in dividend policies, reinforcing the conclusion that there is indeed significant variance.

In conclusion, the data clearly reveals that different automobile companies adopt diverse dividend payout strategies, resulting in significant differences that cannot be attributed to random variation alone. Therefore,

Hypothesis H01(a) is rejected, highlighting the variability in dividend payout ratios across the automobile industry.

H02(a): There is No Significant Relationship of Financial Metrics such as Revenue from Operations, Net Profit, Dividend, Dividend Payout Ratio, Cash Earnings Retention Ratio, and Long-Term Liabilities on market capitalisation in the Automobile Industry.

Regression Statistics	
Multiple R	0.887344284
R Square	0.787379879
Adjusted R Square	0.777008166
Standard Error	28789.99968
Observations	100

ANOVA					
	df	SS	MS	F	Significance F
Regression	6	3.77545E+11	6.2924E+10	75.91608658	5.51332E-39
Residual	123	1.0195E+11	828864082		
Total	129	4.79495E+11			

	Coefficients	Standard Error	t Stat	P-value
Intercept	-3478.626	8463.005	-0.411	0.682
Revenue from operation	2.451	0.199	12.322	0.000
Net Profit	-3.534	2.196	-1.609	0.110
Dividend	5.954	4.358	1.366	0.174
Dividend Payout Ratio Net Profit	38.463	50.458	0.762	0.447
Cash Earnings Retention Ratio	58.600	106.513	0.550	0.583
Long Term Laibilites	-2.242	0.139	-16.118	0.000

The regression analysis provides insights into the relationship between financial metrics and market capitalisation in the automobile industry. The model's strength is evident from the Multiple R value of 0.8873, indicating a strong positive correlation between the financial metrics and market capitalisation. The R Square value of 0.7874 reveals that 78.74% of the variability in market capitalisation is explained by the financial metrics. Furthermore, the model's significance is confirmed with an F-statistic of 75.92 and a p-value of 5.51E-39, validating the overall predictive power of the regression model.

Among the financial metrics analyzed, Revenue from Operations (coefficient = 2.451, p-value = 0.000) and Long-Term Liabilities (coefficient = -2.242, p-value = 0.000) show significant relationships with market capitalisation. This indicates that higher revenue positively influences market capitalisation, while an increase in long-term liabilities negatively impacts it.

However, other metrics such as Net Profit (p-value = 0.110), Dividend (p-value = 0.174), Dividend Payout Ratio (p-value = 0.447), and Cash Earnings Retention Ratio (p-value = 0.583) do not exhibit statistically significant relationships with market capitalisation, as their p-values exceed the standard significance threshold of 0.05.

Hypothesis Decision: The null hypothesis (H02(a)) is partially rejected. While Revenue from Operations and Long-Term Liabilities significantly affect market capitalisation, the other financial metrics analyzed (Net Profit, Dividend, Dividend Payout Ratio, and Cash Earnings Retention Ratio) do not have a significant impact. Thus, **the hypothesis is rejected for metrics showing significance and accepted for those that do not.**

H₀₃(a): There is No Significant Relationship of Financial Metrics such as Revenue from Operations, Net Profit, Dividend, Dividend Payout Ratio, Cash Earnings Retention Ratio, and Long-Term Liabilities on Enterprise Value in the Automobile Industry.

<i>Regression Statistics</i>	
Multiple R	0.861580177
R Square	0.742320402
Adjusted R Square	0.729750665
Standard Error	28789.99968
Observations	130

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	6	2.93697E+11	4.895E+10	59.05616256	6.68424E-34
Residual	123	1.0195E+11	828864082		
Total	129	3.95647E+11			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-3478.626432	8463.005361	-0.4110391	0.681759083
Revenue from operation	2.451166338	0.198930975	12.3216927	3.23209E-23
NET PROFIT	-3.534416856	2.196138843	-1.6093777	0.110097409
Dividend	5.954107756	4.357706817	1.36633968	0.174325064
Dividend Payout Ratio Net Profit	38.46322955	50.45776675	0.76228561	0.447348874
Cash Earnings Retention Ratio	58.59964451	106.513165	0.5501634	0.583205012
Long Term Laibilites	-1.241803049	0.139084601	-8.9284007	5.11769E-15

The regression analysis evaluates the relationship between financial metrics (Revenue from Operations, Net Profit, Dividend, Dividend Payout Ratio, Cash Earnings Retention Ratio, and Long-Term Liabilities) and Enterprise Value in the automobile industry. The model demonstrates a strong fit, with an **R Square of 0.7423**, indicating that approximately 74.23% of the variability in Enterprise Value is explained by these metrics. The adjusted R Square of 0.7298 further reinforces the model's robustness after accounting for the number of predictors. The low **Significance F (6.68E-34)** confirms the overall statistical significance of the regression model, suggesting that the financial metrics collectively impact Enterprise Value.

Examining individual predictors reveals that **Revenue from Operations** has a highly significant positive relationship with Enterprise Value (**p-value = 3.23E-23**), underscoring its critical role in driving value. Conversely, **Long-Term Liabilities** exhibit a highly significant negative relationship (**p-value = 5.12E-15**), indicating that an increase in liabilities adversely affects Enterprise Value. These findings suggest that operational revenue and liability management are key areas for companies seeking to enhance their market valuation.

While these metrics are essential for other aspects of financial analysis and corporate health, they appear to have limited direct influence on Enterprise Value in this context. This lack of significance implies that their role may be secondary or moderated by other factors in shaping market perceptions and valuations.

In conclusion, the null hypothesis (**H03(a)**) that financial metrics have no significant relationship with Enterprise Value is rejected. However, the findings reveal that only **Revenue from Operations** and **Long-Term Liabilities** are significant predictors, while the remaining variables have limited direct impact. These results highlight the importance of prioritizing revenue generation and liability control in the strategic financial planning of automobile companies to optimize Enterprise Value.

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	12950.25	10	1295.0247	6.947462	3.68E-08	1.927679
Within Groups	18453.85	99	186.40255			
Total	31404.1	109				

The null hypothesis (H01(c)) states that there is no significant variance in the dividend payout across the companies and years in the pharmaceutical industry. Conversely, the alternative hypothesis posits that a significant variance exists. This test was conducted using ANOVA to assess whether the differences in dividend payout ratios between companies and across years are statistically significant.

The descriptive statistics reveal notable differences in dividend payout behavior across companies. JB Chemicals and Pharmaceuticals Ltd recorded the highest average dividend payout ratio at 40.336%, along with the largest variance (1392.501). In contrast, Bajaj Healthcare Ltd had the lowest average payout of 3.105% and the smallest variance (0.752). These figures indicate that some companies, such as JB Chemicals, adopt a more variable dividend policy, while others, like Bajaj Healthcare, prioritize stability and conservatism in their payouts. The differences in average payouts suggest that companies in the pharmaceutical sector employ diverse dividend strategies, potentially influenced by factors such as earnings, reinvestment needs, and market positioning.

The analysis of variance (ANOVA) results further validate the presence of significant differences. The between-groups sum of squares (12,950.25) reflects the variation in payouts attributable to differences between companies, while the within-groups sum of squares (18,453.85) represents variation within each company over time.

The F-statistic, calculated at 6.947462, is substantially higher than the critical F-value of 1.927679. Additionally, the P-value of 3.68E-08 is far below the standard significance levels of 0.05 or 0.01. These results strongly reject the null hypothesis, confirming that there is a statistically significant variance in dividend payouts across the companies and years.

Based on the ANOVA findings, the null hypothesis is rejected. There is substantial evidence to conclude that dividend payouts in the pharmaceutical industry vary significantly across companies and over time. The observed differences are not due to random chance but reflect genuine disparities in dividend policies and financial performance.

The significant variance in dividend payouts can be attributed to various company-specific and industry-wide factors. For instance, JB Chemicals and Pharmaceuticals Ltd stands out with its high average payout and considerable variance, suggesting a policy of occasionally distributing a larger share of earnings to

shareholders. In contrast, companies like Bajaj Healthcare Ltd and Glenmark Pharma maintain low and stable payouts, possibly to prioritize reinvestment and financial sustainability.

This heterogeneity in dividend policies reflects the diverse strategies adopted by pharmaceutical companies to balance shareholder returns and business growth. Investors looking for consistent income might prefer stable payers like Coral Laboratories Ltd, while those seeking higher but variable returns may opt for JB Chemicals.

R Square	0.839689961
Adjusted R Square	0.830351512
Standard Error	9623.326257
Observations	110

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	6	49962698342	8327116390	89.9174983	1.13333E-38
Residual	103	9538666049	92608408.2		
Total	109	59501364391			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-49168.914	36906.898	-1.332	0.186
Revenue from operation	0.898	0.616	1.457	0.148
NET PROFIT	15.484	3.675	4.213	0.000
Dividend paid	47.597	12.178	3.909	0.000
Dividend Payout Ratio Net Profit %	292.098	287.418	1.016	0.312
Cash Earnings Retention Ratio (%)	509.763	371.991	1.370	0.174
Long Term Liabilities growth rate	-6.712	1.634	-4.107	0.000

The null hypothesis (H02(c)) suggests that financial metrics such as Revenue from Operations, Net Profit, Dividend, Dividend Payout Ratio, Cash Earnings Retention Ratio, and Long-Term Liabilities have no significant relationship with market capitalization in the pharmaceutical industry. The regression results reveal a strong correlation, with a Multiple R of 0.9163 and an R-Square of 0.8397. This indicates that 83.97% of the variance in market capitalization can be explained by the selected financial metrics. The Adjusted R-Square of 0.8304 further confirms the robustness of the model after accounting for the number of predictors. The low Standard Error (9623.33) reflects reasonable accuracy in predicting market capitalization based on these metrics.

The ANOVA results validate the significance of the overall model. With an F-statistic of 89.9175 and a Significance F value of 1.13E-38, the model is statistically significant at any conventional threshold, such as 0.05 or 0.01. **These results strongly reject the null hypothesis, confirming that at least one of the financial metrics significantly impacts market capitalization. However, not all metrics were equally influential, as indicated by their respective coefficients and P-values.**

Among the financial metrics, Net Profit and Dividend Paid exhibit a strong positive and statistically significant relationship with market capitalization, with P-values of 0.000 for both. This finding highlights the importance of profitability and shareholder returns in driving higher valuations in the pharmaceutical industry. On the other hand, Long-Term Liabilities Growth Rate shows a significant negative impact, with a coefficient of -6.712 and a P-value of 0.000, indicating that increased financial leverage is perceived as a risk by investors, adversely affecting market capitalization. Metrics like Revenue from Operations, Dividend Payout Ratio, and Cash Earnings Retention Ratio were not statistically significant, suggesting that their influence on market capitalization is weaker or inconsistent in this industry.

In conclusion, the null hypothesis is rejected, as the regression analysis demonstrates a significant relationship between financial metrics and market capitalization in the pharmaceutical sector. The findings underscore the critical role of profitability and dividend policies in enhancing valuations while highlighting the adverse impact of high debt levels. Pharmaceutical companies should prioritize strong financial performance and maintain a balanced approach to dividends and leverage to optimize market capitalization.

The regression model demonstrates a strong relationship between the independent variables and market capitalization. With a Multiple R value of 0.9491, the model indicates a high degree of positive correlation. Additionally, the R Square value of 0.90079 shows that 90.08% of the variation in market capitalization can be explained by the included financial metrics, further validated by the Adjusted R Square value of 0.89769 after accounting for the predictors. The standard error of 32,785.38 indicates a reasonable level of accuracy in the model's predictions.

The ANOVA results reinforce the model's statistical significance. The significance F value of 5.11E-48 is extremely small, indicating that the regression model as a whole has a significant impact on market capitalization. This demonstrates that the independent variables collectively play a meaningful role in explaining market capitalization variations.

An examination of the coefficients provides insights into the influence of individual predictors. Revenue from operations has a positive and statistically significant relationship with market capitalization, as reflected in a coefficient of 4.376449 and a p-value of 4.66E-05. Net profit also exhibits a strong positive and significant impact, with a coefficient of 33.72288 and a p-value of 3.15E-06. In contrast, while dividend shows a positive relationship with market capitalization, its p-value of 0.156955 suggests that this relationship is not statistically significant within the model.

The results lead to a rejection of the null hypothesis, as the overall model and key predictors demonstrate significant relationships with market capitalization. The analysis highlights the critical role of revenue from operations and net profit in driving market capitalization in the FMCG sector, while dividend appears less influential. This underscores the importance of these metrics for stakeholders analyzing market trends and evaluating firm performance in this industry.

DCG industry. While some firms maintain consistent and relatively high dividend payouts, others exhibit inconsistent or negligible payouts over the years. This variance could stem from differences in financial strategies, profitability, reinvestment priorities, or external economic factors influencing company decisions. Stakeholders may need to consider these differences when analyzing dividend policies or making investment decisions in the DCG industry.

H02(

The hypothesis (H02e) states that there is no significant relationship between financial metrics—Revenue from Operations, Net Profit, Dividend, Dividend Payout Ratio, Cash Earnings Retention Ratio, and Long-Term Liabilities—and market capitalization in the DCG industry. A multiple regression analysis was performed to test this relationship.

The regression statistics reveal a Multiple R value of 0.8123, indicating a strong positive correlation between the independent variables and market capitalization. The R-Square value of 0.6598 suggests that approximately 65.98% of the variation in market capitalization is explained by the financial metrics included in the model. The Adjusted R-Square of 0.6492 further supports the model's robustness by accounting for the number of predictors.

exhibit statistically significant relationships with Enterprise Value. Revenue from Operations (coefficient: 1.7880, p-value: 8.3E-12) and Net Profit (coefficient: 37.6817, p-value: 7.62E-07) show highly significant positive relationships, suggesting that increases in these metrics are strongly associated with higher Enterprise Value. Dividend (coefficient: 130.0744, p-value: 0.0077) also has a significant positive impact on Enterprise Value, reflecting the importance of dividend policies in determining enterprise valuation. The negative intercept (-2541.61, p-value: 0.0028) implies that other factors, when financial metrics are at baseline, may lower Enterprise Value.

Given these findings, the null hypothesis (H03e) is rejected. The analysis demonstrates that Revenue from Operations, Net Profit, and Dividend significantly impact Enterprise Value in the DCG industry. These results underscore the importance of these financial metrics for stakeholders and market participants when assessing or forecasting Enterprise Value in the DCG sector.

Findings, Suggestions & Conclusions

Findings from Empirical Data Analysis

Introduction:

The study aimed to investigate the intricacies of dividend policy within the Indian manufacturing sector by addressing five key objectives. The research explored how companies balance the retention and distribution of profits, the variations in dividend policies across industries, and the trends in market value of selected firms. Additionally, it examined the impact of dividend policy on market value and developed a model to suggest an ideal dividend policy tailored to various industries within the manufacturing sector.

To achieve these objectives, the study tested three hypotheses: whether dividend distribution varies across companies in the same industry, whether dividend payout and retention ratios significantly influence market capitalization, and whether homoscedasticity exists in dividend distribution across the manufacturing sector. The findings of the study offer valuable insights into the relationship between dividend policy and market value, highlighting both sector-specific practices and overarching patterns within the Indian manufacturing landscape. Furthermore, the proposed model provides a practical framework for companies to align their dividend strategies with market expectations and organizational goals.

Auto Mobile Industry

1. The analysis of Bajaj Auto Ltd.'s dividend policy components reveals notable insights into its impact on market capitalization and enterprise value over the years. Revenue from operations and net profit demonstrated consistent growth, with compound annual growth rates (CAGR) of 5% and 6%, respectively. The average dividend payout ratio was 72.24%, **highlighting a balanced approach to profit distribution and retention. Despite fluctuations**, market capitalization and enterprise value showed a steady upward trend, supported by a 7% CAGR. Interestingly, while the retention ratio averaged 45.55%, it showed significant variability (CV of 66%), indicating dynamic financial strategies. The year 2021 recorded the highest enterprise value of ₹105,720.62 crore, aligning with high dividends but low retention. Conversely, years with modest dividends and higher retention saw stable, yet lower market capitalization. These findings underscore the nuanced relationship between dividend policies and financial performance, suggesting that a tailored strategy is pivotal for maximizing shareholder value and enterprise growth.

2. The analysis of **Atul Auto Mobiles' dividend policy** and its impact on enterprise value reveals significant findings. Revenue from operations averaged ₹471.00 crore with a standard deviation of ₹127.19 crore, while net profit averaged ₹36.78 crore, showcasing moderate variability (CV of 27% and 38%, respectively). Dividend payouts averaged ₹9.33 crore, with a maximum of ₹11.52 crore and a minimum of ₹6.03 crore, resulting in a consistent payout ratio averaging 17.31%. The retention ratio remained high, averaging 80.41%, with limited variability (CV of 7%), indicating a focus on reinvestment. The enterprise value experienced a 13% CAGR, peaking at ₹1,217.46 crore in 2015 and averaging ₹665.87 crore. Market capitalization displayed a similar trend, averaging ₹657.95 crore, with a CAGR of 11%. Despite fluctuations, the company maintained financial stability with relatively low long-term liabilities, averaging ₹39.65 crore. These findings underscore a cautious yet growth-oriented approach to dividend policy and financial management.

3. The analysis of TVS Motor Company Ltd.'s dividend policy highlights its impact on enterprise value and market capitalization. Revenue from operations exhibited robust growth, with a 13% CAGR and an average of ₹15,469.99 crore, peaking at ₹26,378.09 crore in 2022. Net profit also showed strong performance, averaging ₹520.34 crore with a 23% CAGR and a maximum of ₹893.56 crore. Dividend payouts averaged ₹133.98 crore, growing at a CAGR of 12%, with the payout ratio varying significantly (CV of 49%), indicating strategic flexibility in profit distribution. The cash earnings retention ratio remained high and stable, averaging 83.06%, with minimal variability (CV of 5%). Enterprise value grew at an impressive 31% CAGR, averaging ₹18,694.41 crore and reaching ₹30,923.91 crore in 2022. Similarly, market capitalization experienced a 34% CAGR, averaging ₹18,039.15 crore, with a peak of ₹30,019.74 crore. Despite increasing long-term liabilities, which averaged ₹655.26 crore, the company maintained financial growth and stability, underscoring an effective balance between dividend policy and reinvestment strategies.

4. The analysis of Maruti Suzuki India Ltd.'s dividend policy reveals notable findings. Revenue from operations exhibited a consistent growth trend, with a CAGR of 7% and an average of ₹64,039.54 crore, peaking at ₹83,798.10 crore in 2022. Net profit followed a steady upward trajectory, averaging ₹5,045.74 crore, with a maximum of ₹7,721.80 crore in 2018. Dividend payouts showed high variability (CV of 62%), averaging ₹1,344.26 crore and growing at a CAGR of 19%. The average dividend payout ratio was 38.68%, while the cash earnings retention ratio averaged 83.82%, indicating a strong focus on reinvestment. Enterprise value grew significantly at a CAGR of 19%, averaging ₹153,549.74 crore and reaching a maximum of ₹267,706.83 crore in 2018. Similarly, market capitalization displayed robust growth, averaging ₹153,151.02 crore and peaking at ₹267,562.03 crore in 2018, with a CAGR of 19%. Long-term liabilities remained manageable, averaging ₹398.72 crore, highlighting the company's financial stability and balanced approach to leveraging dividends and reinvestments for sustained growth.

5. The analysis of Hero MotoCorp Ltd.'s dividend policy shows insightful trends. Revenue from operations grew moderately at a CAGR of 2%, averaging ₹28,773.92 crore, with a maximum of ₹33,650.54 crore in 2019. Net profit followed a similar trajectory, with a CAGR of 2%, an average of ₹2,930.29 crore, and a peak of ₹3,697.36 crore in 2018. Dividends increased at a CAGR of 5%, averaging ₹1,619.87 crore and peaking at ₹1,937.44 crore in 2020. The average dividend payout ratio stood at 56.18%, with a high of 76.75% in 2022, reflecting a steady commitment to shareholders. The cash earnings retention ratio averaged 55.29% but showed a declining trend (CAGR of -5%), indicating a shift towards higher dividend payouts. Enterprise value grew at a CAGR of 4%, averaging ₹50,856.13 crore, with a peak of ₹70,662.30 crore in 2018. Market capitalization mirrored this growth, averaging ₹50,553.97 crore and reaching a high of ₹70,360.14 crore in 2018. Long-term liabilities remained stable at ₹302.16 crore throughout the period, underscoring the company's conservative financial strategy.

6. Eicher Motors Ltd. exhibited remarkable financial growth from 2013 to 2022, with revenue from operations achieving a strong CAGR of 25%, increasing from ₹1,043.75 crore in 2013 to ₹9,983.10 crore in 2022, and averaging ₹6,357.54 crore during the period. Net profit grew at an even higher CAGR of 27%, peaking at ₹2,054.44 crore in 2019 and averaging ₹1,206.07 crore. Dividend payouts saw consistent growth with a CAGR of 19%, averaging ₹369.03 crore, and reaching a maximum of ₹682.43 crore in 2020 and 2021.

7. averaged 93.82%, indicating a high proportion of net profit retained for reinvestment, varying from 78.68% in Mar-21 to 97.57% in Mar-14. Enterprise value (EV) showed substantial growth, with an average of ₹2,296.09 crore, peaking at ₹5,878.24 crore in Mar-17 and a minimum of ₹213.11 crore in Mar-13. Market capitalization followed a similar trajectory, growing to ₹5,876.25 crore in Mar-17, with fluctuations leading to the lowest value of ₹950.34 crore in Mar-20. High standard deviations and coefficients of variation for net profit and enterprise value (74% and 141%, respectively) indicate substantial variability in financial performance over the years. Despite these fluctuations, the compound annual growth rate (CAGR) demonstrated steady growth, with enterprise value increasing by 30% and market capitalization by 23%, highlighting a positive trend in long-term value creation.

8. displayed significant variability, with **Mahindra and Mahindra** reaching a high of 108.74% in Mar-21. **Tata Motors Ltd.** showed an extreme value of 213.77% in Mar-13, reflecting significant dividend distribution relative to its net profit. **Force Motors Ltd.** had a lower ratio compared to others, peaking at 31.77% in Mar-13. **SML Isuzu Ltd.** had fluctuations, with a notable payout ratio of 136.25% in Mar-18 and Mar-21. **Cummins India Ltd.** displayed a lower ratio, with a maximum of 74.87% in Mar-20. This analysis highlights the varying approaches of different automobile companies in managing dividend distributions relative to their net profits over the years.

9. The analysis of the Dividend Payout Ratio across various automobile companies reveals notable differences in their financial distributions. Among the companies examined—Bajaj Auto, Atul Auto, TVS Motor Company, Maruti Suzuki, Hero Motocorp, Eicher Motors, Mahindra and Mahindra, Ashok Leyland, Tata Motors, Force Motors, SML Isuzu, and Cummins India—the average Dividend Payout Ratios and variances vary significantly. Bajaj Auto and Atul Auto both show the highest

10. market's valuation of the company. The market capitalization also showed an upward trend, mirroring the rise in EV, though it faced significant fluctuations. The company's retention ratio remained high, suggesting reinvestment of profits rather than shareholder returns. The standard deviation and coefficient of variation indicate high volatility, especially in profitability and dividend payouts, making the financial performance less predictable. In summary, KDDL Ltd. demonstrates the impact of its fluctuating dividend policy and financial instability on its long-term value creation, with substantial volatility in EV and net profits.

Findings from Comparative Analysis and Hypothesis Testing

1. The analysis of dividend payout ratios across automobile companies clearly demonstrates significant variance, leading to the rejection of Hypothesis H01(a): "There is No Significant Variance in the Dividend Pay-out across the Companies & year in the Automobile Industry." The data reveals substantial fluctuations in dividend payouts year over year and across companies. For instance, Tata Motors Ltd. consistently exhibits high dividend payout ratios, especially in Mar-20, with a payout ratio of 203.82%. In contrast, companies like TVS Motor Co. and Eicher Motors Ltd. show more conservative dividend strategies, with average ratios of 42.355% and 28.318%, respectively. Ashok Leyland Ltd. also demonstrates considerable volatility in its dividend payouts, with significant peaks. On the other hand, Force Motors Ltd. has the lowest dividend payout ratio of 9.153%, highlighting stark differences in dividend distribution strategies among companies.

2. The regression analysis results offer valuable insights into the relationship between financial metrics and market capitalisation in the automobile industry, leading to a partial rejection of Hypothesis H02(a): "There is No Significant Relationship of Financial Metrics such as Revenue from Operations, Net Profit, Dividend, Dividend Payout Ratio, Cash Earnings Retention Ratio, and Long-Term Liabilities on market capitalisation in the Automobile Industry." The overall model shows a strong positive correlation, with an R-square of 0.787, indicating that 78.74% of market capitalisation's variability is explained by these financial metrics. The ANOVA results confirm the model's validity, with a significant F-statistic and p-value. Among the financial metrics, Revenue from Operations and Long-Term Liabilities are significantly related to market capitalisation, with coefficients of 2.451 and -2.242, respectively, and p-values below 0.05. is partially rejected. The relationship between market capitalisation and Revenue from Operations and Long-Term Liabilities is statistically significant, while the other financial metrics do not significantly influence market capitalisation.

3. The regression analysis conducted to examine the relationship between financial metrics and Enterprise Value in the automobile industry reveals significant findings, leading to the rejection of Hypothesis H03(a): "There is No Significant Relationship of Financial Metrics such as Revenue from Operations, Net Profit, Dividend, Dividend Payout Ratio, Cash Earnings Retention Ratio, and Long-Term Liabilities on Enterprise Value in the Automobile Industry." The model demonstrates a strong fit, with an R-square of 0.7423, meaning that 74.23% of the variability in Enterprise Value is explained by these financial metrics. The low Significance F (6.68E-34) indicates the overall statistical significance of the regression model. Among the financial metrics, Revenue from Operations shows a highly significant positive relationship with Enterprise Value (p-value = 3.23E-23), highlighting its crucial role in driving value. In contrast, Long-Term Liabilities have a significant negative relationship with Enterprise Value (p-value = 5.12E-15), suggesting that higher liabilities negatively affect the company's market valuation. However, other metrics such as Net Profit, Dividend, Dividend Payout Ratio, and Cash Earnings Retention Ratio do not demonstrate statistically significant relationships with Enterprise Value, with p-values above the threshold of 0.05.

4. The ANOVA analysis conducted to test H01(b): "There is No Significant Variance in the Dividend Pay-out across the Companies & year in Iron and Steel Industry" reveals significant findings, leading to the rejection of the null hypothesis.
5. The regression analysis conducted to examine the relationship between financial metrics—such as Revenue from Operations, Net Profit, Dividend, Dividend Payout Ratio, Cash Earnings Retention Ratio, and Long-Term Liabilities—and market capitalization in the Iron and Steel Industry provides strong evidence against the null hypothesis (H02(b)). The analysis reveals a very high correlation between these financial metrics and market capitalization, with a Multiple R value of 0.955, indicating a robust positive relationship. The R-Square value of 0.913 suggests that approximately 91.3% of the variability in market capitalization can be explained by these financial metrics. The ANOVA results further support the significance of the regression model, with an F-statistic of 162.12 and a p-value of 5.41E-47, confirming that the relationship is highly unlikely to be due to chance.
6. The regression analysis reveals a strong relationship between financial metrics and Enterprise Value in the Iron and Steel Industry, with a Multiple R of 0.97 and an R-Square of 0.94, explaining 94% of the variation in Enterprise Value. The ANOVA results show an F-statistic of 265.01 and a p-value of 3.42×10^{-56} , confirming the model's significance. Revenue from Operations ($p < 0.05$) positively influences Enterprise Value, while Dividend ($p < 0.05$) negatively affects it. Other metrics, such as Net Profit, Dividend Payout Ratio, Cash Earnings Retention Ratio, and Long-Term Liabilities, do not show significant relationships ($p > 0.05$). Thus, the null hypothesis is rejected, emphasizing the importance of Revenue from Operations and Dividend.
7. The ANOVA results confirm a significant variance in dividend payouts across companies and years in the pharmaceutical industry. The F-statistic of 6.95 significantly exceeds the critical F-value of 1.93, and the p-value of 3.68×10^{-8} is far below the 0.05 significance threshold, indicating strong evidence against the null hypothesis. The variance analysis shows substantial differences, with JB Chemicals and Pharmaceuticals Ltd having the highest average payout of 40.336% and the largest variance of 1392.501, while Bajaj Healthcare Ltd had the lowest average payout of 3.105% and variance of 0.752. These findings highlight diverse dividend strategies across companies, with some prioritizing stability and others showing high variability. Thus, the null hypothesis is rejected, confirming significant variance in dividend policies across the pharmaceutical sector.
8. The regression analysis reveals a significant relationship between financial metrics and market capitalization in the pharmaceutical industry, leading to the rejection of the null hypothesis (H02(c)). The model has a high Multiple R of 0.9163 and an R-Square of 0.8397, indicating that 83.97% of market capitalization variance is explained by the selected metrics. The F-statistic of 89.92 and the P-value of 1.13E-38 confirm the overall model's significance. Among the predictors, Net Profit and Dividend Paid have a strong positive relationship with market capitalization, with P-values of 0.000, while Long-Term Liabilities Growth Rate has a significant negative impact with a P-value of 0.000. Other metrics such as Revenue from Operations, Dividend Payout Ratio, and Cash Earnings Retention Ratio were not statistically significant. These findings emphasize the importance of profitability and dividend policies in driving market valuation while cautioning against excessive debt.
9. The regression analysis reveals a significant relationship between financial metrics and enterprise value in the pharmaceutical industry, leading to the rejection of the null hypothesis (H03(c)). The Multiple R value of 0.9166 indicates a strong positive correlation, and the R-Square of 0.8401 shows that 84.01% of the variance in enterprise value is explained by the selected financial metrics. The F-statistic of 90.17 and the Significance F value of 1.00E-38 confirm the statistical significance of the model. Net Profit and Dividend Paid both have significant positive impacts on enterprise value, with P-values of 0.000. Long-Term

Liabilities Growth Rate, with a coefficient of -5.710 and a P-value of 0.001, significantly negatively affects enterprise value. Metrics such as Revenue from Operations, Dividend Payout Ratio, and Cash Earnings Retention Ratio were found to have weaker or insignificant relationships. These findings underscore the importance of profitability and dividend policies in driving enterprise value, while highlighting the risks posed by high debt levels.

10. The ANOVA analysis for dividend pay-outs across different companies in the FMCG industry shows no significant variance, with a p-value of 0.808163, which is greater than the 0.05 significance level. This supports the null hypothesis (H01(d): There is No Significant Variance in the Dividend Pay-out across the Companies & Year in FMCG Industry), meaning we cannot reject it. In terms of specific companies, **Zydus Wellness Ltd.** stands out with a notably high dividend payout variance of 34.15216, as reflected by its extreme value of 1591% in March 2022. On the other hand, **Hindustan Foods Ltd.** consistently recorded a dividend payout of 0% across all years, reflecting its very low variance (0). The F-value of 0.531141, which is lower than the critical value of 2.139656, further reinforces the conclusion that the observed differences in dividend payouts across companies (from the high variance of Zydus Wellness Ltd. to the low variance of Hindustan Foods Ltd.) are not statistically significant. Thus, despite the notable differences in individual company payout behaviors, the overall variance across the industry is not significant.

Suggestions from Empirical Data Analysis

Introduction:

Based on the findings of the study, several suggestions can be made for companies within the Indian manufacturing sector to optimize their dividend policies. The study provided valuable insights into the balance between profit retention and distribution, as well as the variations in dividend policies across different industries. These findings emphasize the importance of aligning dividend strategies with industry trends, market expectations, and organizational goals. Additionally, the study highlighted the significant impact of dividend payout and retention ratios on market capitalization, indicating that companies should carefully assess these factors to enhance their market value. Furthermore, the presence or absence of homoscedasticity in dividend distribution practices across companies within the sector is an important consideration. Drawing from these observations, the following suggestions are proposed to help companies refine their dividend policies and achieve better alignment with both market trends and their financial objectives.

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