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Analysis of Financial Performance for Tesla: Based on Comparison with General Motors, Ford, and Toyota

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Abstract: As a matter of fact, the emergence of electric cars and new state-of-the-art technologies is changing the face of the automobile industry. This study compares the financial performance of Tesla with that of Toyota, General as well as Ford. To be specific, the critical financial variables compared are revenue, profitability, and market share over five years: 2019–2023. According to the numbers, Tesla revenues increased by 18.8% yearly, from $24.58 billion in 2019 to $96.77 billion in 2023. However, also in this very regard, Tesla appears to have way higher volatility in profitability than rivals, showing net income that is highly variable. General Motors and Ford both showed slower growth but are accompanied by Toyota, which still indicates good free cash flow margins and less overall volatility in results. This report highlights top automakers' competitive dynamics and strategic positioning, which benefit industry stakeholders and investors. Indeed, with an understanding of these financial trajectories, one can make wise investment decisions and spot future market trends.

Keywords: Financial performance, automotive industry, comparative analysis, Tesla, market Share.

1. Introduction

Over the past few decades, there have been tremendous changes in the automobile world, influenced by technological developments, changing consumer tastes, and stringent environmental restrictions. Internal combustion engine (ICE) vehicles have been particularly hurt, forcing automakers to defend their technologies and business models [1]. Tesla has pioneered EV development and commercialization since 2003. The company leads the EV market with its strong R&D strategy and direct-to-consumer sales model [2]. General Motors, founded in 1908, and Ford Motor Company, founded in 1903, are notable automakers. Both have extensive auto industry experience and plan to integrate electric vehicle technology into their product lines [3]. Toyota Motor Corporation, founded in 1937, pioneered hybrid technology worldwide. Since consumer preferences and legal requirements are changing, it focuses more on electric and hydrogen fuel cell cars [4].

However, for all these changes, the shift towards electric vehicles in the industry has remained uniform. As entrenched as ever are the older car manufacturers (e.g., Ford and GM), keeping their significant portfolios of ICE cars while heavily investing in EV technologies. The plan Toyota develops, which emphasizes hydrogen and hybrid technologies in addition to electric vehicles, is part of a multi-faceted approach toward sustainable mobility [4]. These different approaches only show

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the complexity of the industry and the other ways businesses will grow and sustain in this environment [3].

Tesla's growth within the auto industry is said to come from its innovative business model and timely investments in technology. The success of this company has been mainly due to its focus on vertical integration, from software development to battery making. This made Tesla's revenues leap from $24.58 billion in 2019 to $96.77 billion in 2023, thanks to the expanding market and customers' acceptance of EVs [5]. Due to increased R&D expenditure and spending on production scale-up, profitability is quite volatile for Tesla; hence, even with impressive sales, the net income fluctuated a lot [6]. Ford and General Motors respond equally to changing market conditions. Compared to Tesla, General Motors' revenue rose from $137.24 billion in 2019 to $171.84 billion in 2023 due to investments in electric vehicles and autonomous driving [7]. General Motors has balanced innovation and financial management to grow net income more consistently [8]. Ford struggled financially despite its electric vehicle technology. It earned $176.19 billion in 2023 from Mustang Mach-E and F-150 Lightning. Toyota experienced stable economic performance, earning ¥4.94 trillion ($36.83 billion) in the current year to support hybrid and electric vehicle technology [9]. Previous research suggests that Toyota's strong free cash flow and competitiveness justify further investment in sustainable transport.

This study compares Tesla's financial performance and strategic platform to General, Ford Motor, and Toyota. The motivation behind the research is that the automobile industry has substantially changed, primarily driven by the new trend of electric vehicles. For instance, how Tesla will differ from these big automakers can help explain their strategies and financial needs to survive such a market change. The thesis aims to gain insight into how these businesses accommodate changes in the automotive scenario, especially towards electric cars. Key financial metrics are fully compared in Sec. 2. Sec. 3 discusses the findings and implications. This study's conclusions are summarized in Sec. 4 eventually.

2. Data and Method

The public financial accounts of four selected companies provided the information needed for this research. Financial statements of public companies provide in-depth information on the economic performance of the respective company within the stated period. The data include revenue, net income, operational income, gross profit, and several other financial measures, which will be necessary for this comparative analysis. Context and further data were also supplied from publications about the industry and market analyses. Tesla, Inc. was chosen as the study's main subject because the company's reputation as the world's number one electric vehicle (EV) manufacturer is well known. Tesla is an exciting domain for research on financial performance because of its proactive approach and high leverage in the market [2]. The firms used for comparative benchmarks include other three giants mentioned above since they define a clear market share within the automotive industry and have distinctive ways of embracing the electric vehicle transition.

Due to the different policies, these companies were chosen to provide a range of potential outcomes in the automobile industry. General Motors and Ford are old-fashioned car companies involved in the electric car business. Tesla is the leader in that new class of EVs. Toyota is the leader in commercializing hybrid technology and represents multiple aspects within the niche of environment-friendly transportation solutions. This option allows different strategic postures and their impact on financial performance to be investigated over a similar sector. The data goes from 2019 to 2023, which is five years. Over this period, crucial shifts have occurred in the automobile industry as electric vehicle popularity, technological advancements, and the world economic situation directly influenced the automobile market. The selection period allows analysis of patterns and

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financial results over a sufficiently large amount of time, which could offer insights into the development and strategic orientation of selected businesses.

Several comparison parameters and indicators are utilized as following:

- Revenue Growth. This measures the increase in revenues over the period, which indicates the company's ability to grow its market presence with formula (Revenue, CY - Revenue, PY) / Revenue, PY.
- Net Income. The revenue collected at the end reflects an aggregated outlook of a company's profitability with formula Total Revenue – Total Expenses.
- Gross Margin. The percentage of money from total revenue remaining after subtracting the cost of goods sold, indicating the efficiency of production by a company with formula (Total Revenue - COGS) / Total Revenue.
- Operating Margin. This indicates the percentage of revenue left after subtracting all operating expenses and portrays how a business is efficiently run with formula Operating Income / Total Revenue.
- Market Capitalization. The market value of a company's shares indicates what investors perceive about a company and, at the same time, represents the company's size, with formula Share Price x Total Outstanding Shares.
- Free Cash Flow. Cash that a company generates after considering its capital expenditures, indicative of how much revenue it can develop with formula Operating Cash Flow - Capital Expenditure.
- EBITDA. General measure of a company's financial performance with formula Net Income + Interest + Taxes + Depreciation + Amortization.
- EBITDA Margin. It indicates the efficiency with which a company can generate EBITDA compared to its total revenue with formula EBITDA / Total Revenue.

For calculation and interpretation of ratios:

- Revenue Growth Rate. This shows how well the firm has done in ramping up its sales revenues from the customers or clients over time. High rates could be a result of high demand in the market as well as good business strategies.
- Net Income. This forms one of the essential values in determining a company's profitability; this is the profit that remains after taking all expenses into account. The growth of the company's net income for the year is reasonable and thus portrays sound financial stability.
- Gross Margin. To stay profitable, a company is required to handle well the production costs and the income, which is indicated by a higher gross margin.
- Operating Margin. Higher operating margins indicate efficiency. After non-operational expenses, the operating margin measures the operating profit of a company.
- Market Capitalization. This provides all the necessary information for comparing company sizes and presence among investors; it provides investors with a snapshot of the company's market value.
- Free Cash Flow. This becomes the need of the hour for a business entity, as in this way, management can reinvest in expansion opportunities without considering outside financing options.
- EBITDA. The most frequently applied measure to calculate the profitability of a company is EBITDA. It removes non-operating expenses from the income statement, like interest and taxation, and thus shows operations' profit.
- EBITDA Margin. A measure of operating efficiency and profitability; higher EBITDA margin means better cost control and more profit.

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Table 1: Tesla Income Statement [4].

Year	2023	2022	2021	2020	2019
Revenue	96,773	81,462	53,823	31,536	24,578
Cost of Revenue	79,113	60,609	40,217	24,906	20,509
Gross Profit	17,660	20,853	13,606	6,630	4,069
Operating Income	8,891	13,656	6,523	1,994	-69
Pretax Income	9,996	13,688	6,218	1,013	-752
Net Income	14,997	12,556	5,519	721	-862
Shares Outstanding (Diluted)	3,174	3,130	2,959	2,798	2,661
EPS (Diluted)	4.30	3.62	1.63	0.21	-0.33
Free Cash Flow	4,357	7,561	4,983	2,711	973
Gross Margin	18.25%	25.60%	25.28%	21.02%	16.56%
Operating Margin	9.19%	16.76%	12.12%	6.32%	-0.28%
EBITDA	14,819	17,626	9,500	4,083	2,087
EBIT	10,152	13,879	6,589	1,761	-67

Table 2: Ford Motor Company Income Statement [10].

Year	2023	2022	2021	2020	2019
Revenue	176,191	158,057	136,341	127,144	155,900
Cost of Revenue	160,031	140,893	119,903	121,359	144,165
Gross Profit	16,160	17,164	16,438	5,785	11,735
Operating Expenses	10,702	10,888	11,915	10,193	11,161
Operating Income	5,458	6,276	4,523	-4,408	574
Interest Expense / Income	1,302	1,259	1,803	1,649	1,020
Other Expenses / Income	171	7,862	-15,087	-4,938	231
Pretax Income	3,985	-2,845	17,807	-1,119	-677
Income Tax	-362	-864	-130	160	-724
Net Income	4,347	-1,981	17,937	-1,279	47
Shares Outstanding (Diluted)	4,041	4,014	4,034	3,973	4,004
Shares Change	0.67%	-0.50%	1.54%	-0.77%	0.15%
EPS (Basic)	1.09	-0.49	4.49	-0.32	0.01
EPS (Diluted)	1.08	-0.49	4.45	-0.32	0.01
EPS Growth	-	-	-	-	-98.91%
Free Cash Flow	6,682	-13	9,560	18,527	10,007
Free Cash Flow Per Share	1.67	-0.00	2.40	4.66	2.52
Dividend Per Share	1.250	0.500	0.100	0.150	0.600
Dividend Growth	150.00%	400.00%	-33.33%	-75.00%	-17.81%
Gross Margin	9.17%	10.86%	12.06%	4.55%	7.53%
Operating Margin	3.10%	3.97%	3.32%	-3.47%	0.37%
Free Cash Flow Margin	3.79%	-0.01%	7.01%	14.57%	6.42%
Effective Tax Rate	-9.08%	-	-0.73%	-	-
EBITDA	12,977	6,056	26,928	9,281	10,032
EBITDA Margin	7.37%	3.83%	19.75%	7.30%	6.43%
Depreciation & Amortization	7,690	7,642	7,318	8,751	9,689
EBIT	5,287	-1,586	19,610	530	343
EBIT Margin	3.00%	-1.00%	14.38%	0.42%	0.22%

DOI: 10.54254/2754-1169/105/20241967

3. Results and Discussion

3.1. Comparison Analysis

This section compares the financial performance from 2019 to 2023 between the four selected companies. Some vital financial indicators analyzed are revenue growth, net income, growth in gross and operating margins, market capitalization, free cash flow, and EBITDA margin. Seen from Table 1, the amount of money that Tesla has been able to generate in revenues over the five years is immense; the $24.58 billion earned in 2019 has grown to $96.77 billion in the year 2023. This means an increase of 18.80% in 2023 over the year prior, coming after enormous growth rates in the previous years. In comparison (given in Table 2 [10]), GM experienced far more tepid revenue growth, rising from $137.24 billion last year to $171.84 billion in 2023, or up 9.64% in 2023 compared to 2022. Ford's revenue increased by 11.47% year over year in 2023, from $155.90 billion in 2019 to $176.19 billion. For consistency, Toyota's net income increases and shows a notable jump, showing a solid performance in the Japanese yen environment. The company's revenue growth data is shown in JPY.

Table 3: General Motors Income Statement [11]

Year	2023	2022	2021	2020	2019
Revenue	171,842	156,735	127,004	122,485	137,237
Cost of Revenue	152,704	135,754	109,126	108,813	123,265
Gross Profit	19,138	20,981	17,878	13,672	13,972
Operating Expenses	9,840	10,667	8,554	7,038	8,491
Operating Income	9,298	10,314	9,324	6,634	5,481
Other Expenses / Income	-2,303	-2,495	-4,416	-2,665	-2,802
Pretax Income	10,690	11,822	12,790	8,201	7,501
Income Tax	563	1,888	2,771	1,774	769
Net Income	10,127	9,934	10,019	6,427	6,732
Net Income Common	10,022	8,915	9,837	6,247	6,581
EPS (Basic)	7.35	6.17	6.78	4.36	4.62
EPS (Diluted)	7.32	6.13	6.70	4.33	4.57
EPS Growth	19.41%	-8.51%	54.73%	-5.25%	-17.36%
Free Cash Flow	9,353	9,090	7,470	9,536	4,327
Dividend Per Share	0.360	0.180	-	0.380	1.520
Dividend Growth	100.00%	-	-	-75.00%	0%
Gross Margin	11.14%	13.39%	14.08%	11.16%	10.18%
Operating Margin	5.41%	6.58%	7.34%	5.42%	3.99%
EBITDA	23,489	24,099	25,791	22,114	22,401
EBITDA Margin	13.67%	15.38%	20.31%	18.05%	16.32%
Depreciation & Amortization	11,888	11,290	12,051	12,815	14,118
EBIT	11,601	12,809	13,740	9,299	8,283
EBIT Margin	6.75%	8.17%	10.82%	7.59%	6.04%

Although it has experienced significant fluctuations, Tesla's net income has generally increased in 2023. This volatility reflects Tesla's substantial R&D expenditures and rapid growth. According to Table 3, GM's net income grew steadily, rising from $6.732 billion in 2019 to $10.127 billion in 2023 [11]. Ford's net income showed a significant upturn from a meager $47 million profit in 2019 to a hefty $4.347 billion profit in 2023. Toyota's net income increased dramatically due to its steady performance, preserving its sound financial position [1].

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Table 4: Toyota Motor Corporation Income Statement [4]

Year	2023	2022	2021	2020	2019
Net Income	4,944,933	2,451,318	2,850,110	2,245,261	2,036,140
Depreciation & Amortization	2,087,066	2,039,904	1,821,880	1,644,290	1,595,347
Other Operating Activities	-2,825,626	-1,536,146	-949,375	-1,162,389	-1,232,991
Operating Cash Flow	4,206,373	2,955,076	3,722,615	2,727,162	2,398,496
Operating Cash Flow Growth	42.34%	-20.62%	36.50%	13.70%	-36.32%
Capital Expenditures	-2,550,488	-1,641,955	-1,904,278	-2,077,257	-2,002,442
Change in Investments	-2,113,976	391,344	1,672,869	-2,328,471	182,784
Other Investing Activities	-334,287	-348,279	-346,087	-278,447	-304,992
Investing Cash Flow	-4,998,751	-1,598,890	-577,496	-4,684,175	-2,124,650
Dividends Paid	-880,197	-727,980	-709,872	-625,514	-618,801
Share Issuance / Repurchase	-231,069	-431,099	-404,718	199,884	-476,128
Debt Issued / Paid	3,706,760	1,163,574	-1,300,203	3,201,402	1,512,689
Other Financing Activities	-97,936	-60,675	-51,723	-36,598	-54,955
Financing Cash Flow	2,497,558	-56,180	-2,466,516	2,739,174	362,805
Exchange Rate Effect	189,914	103,305	334,195	220,245	-141,007
Net Cash Flow	1,895,094	1,403,311	1,012,798	1,002,406	495,645
Free Cash Flow	1,655,885	1,313,121	1,818,337	649,905	396,054
Free Cash Flow Growth	26.10%	-27.78%	179.79%	64.10%	-73.21%
Free Cash Flow Margin	3.67%	3.53%	5.79%	2.39%	1.33%
Free Cash Flow Per Share	1227.87	964.40	1315.85	464.89	275.08

Although it varied, Tesla's gross margin stayed strong, rising to 18.25% in 2023 [2]. Additionally, it improved its operating margin over time, going from -0.28% in 2019 to 9.19% in 2023, indicating increased operational efficiency. With an operating margin of 5.41% in 2023, GM's gross margin stayed steady at 11.14%. According to Table 2, in 2023, Ford's operating margin was 3.10%, and its gross margin was 9.17%. Toyota demonstrated good operational efficiency, as seen by its sizeable free cash flow and steady net income growth. However, its margin percentages are not directly comparable because of different accounting rules.

Due to its dominant position in the EV market, Tesla's market value has increased dramatically, showing high levels of investor trust and market expectations. Although significant, GM and Ford have dramatically risen differently than Tesla. According to Table 4, Toyota is still a formidable competitor, largely thanks to its diverse approach to sustainable transportation, robust market presence, and investor trust [4].

Tesla's free cash flow increased dramatically from $973 million in 2019 to $4.357 billion in 2023, demonstrating improved cash management and operational effectiveness [2]. General Motors' free

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cash flow increased from $4.327 billion in 2019 to $9.353 billion in 2023. Ford's free cash flow in 2023 was $6.682 billion, but it fluctuated significantly due to the recent difficulties the company has faced [3]. Its continuously high free cash flow margin demonstrates Toyota's strong cash generation capabilities.

3.2. Explanation and Implications

The financial analysis's findings shed light on several important aspects of the chosen organization's economic health and strategic posture. Tesla's strong brand presence and innovative EV technology drive the company's rapid revenue growth and rising market value. However, the substantial risk involved in its ambitious expansion plan is reflected in its operating margins and net profit volatility. As Tesla expands its business and makes significant investments in cutting-edge technology, investors should be prepared for the possibility of substantial swings in profitability.

Although the sales growth in these companies is smaller than in Tesla, General Motors and Ford have demonstrated better financial performance stability; in other words, they have been able to balance their acts in maintaining the profitability of their traditional automobile business versus investing in new technologies as shown through sustained growth of net income, gross, and operating margins. On the other hand, Ford has been modernizing its product portfolio and catching up with EV technologies, leading to considerable increases in revenue and returning to net profitability. Both firms have lower risk profiles than Tesla, are less aspirational growth markets, and have sturdier finances.

Toyota showed extreme operational efficiency and a diversified approach to mobility and sustainability in the market through sustained financial performance and sizeable free cash flow. It has a great potential to adapt to changing market requirements and regulatory environments since it focuses on hybrid technology apart from electric vehicles and hydrogen fuel cells. From an investor's perspective, Toyota can be visualized as a safe investment concerning the heterogeneity of risk in the automobile sector.

3.3. Limitations and Prospects

This study's several limitations should be considered while interpreting the results. The information is pulled from public records in financial documents, which are only sometimes representative of the subtleties in strategic objectives and business's economic standing. In addition, the automotive industry is significantly exposed to rapid changes in technology, changes in regulations, and fluctuations in market dynamics, all of which can highly determine changes in financial performance. These elements introduce uncertainty that could affect the future performance of the companies under study. However, one can hope that further research will be conducted. Subsequent research may include a broader set of financial indicators considering environmental, social, and governance issues to represent the company's performance more fully. Additionally, incorporating qualitative data related to expert interviews and market studies may provide more transparency about competition dynamics and strategic positioning.

4. Conclusion

To sum up, this research work has detailed comparative results of the finances of four selected companies from vehicle industry. Based on the data, Tesla has massive growth in revenues and significant improvements in market capitalization due to its innovative electric vehicle technology. This paper also finds that Tesla experiences higher earnings volatility than its well-established competitors. Ford and General Motors have shown consistent financial performances, with revenue growth and stability in profitability over time—very indicative of these companies being well-

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rounded in their approaches to the regular automobile business and innovation. Financially, Toyota is a significant force, solid in operations and diversified in approach toward sustainable mobility. Sustainable technology and electric vehicles will shape the coming competitive landscape in the automobile industry. This stresses the importance of strategic innovation and agility in maintaining financial stability and market position in a quickly evolving sector.

References

[1] *Rahman, A., and Acharya, P. (2020) A comparative study on the financial performance of Tata Motors and Toyota Motor Corporation cars. SRRN 4173857.*

[2] *Johnson, A.E. (2020). Tesla financial ratios for analysis 2009-2024. Retrieved from: https://www.macrotrends.net/stocks/charts/TSLA/tesla/financial-ratios#google_vignette*

[3] *Sanci, E., Daskin, M.S., Hong, Y.C., Roesch, S., and Zhang, D. (2021). Mitigation strategies against supply disruption risk: A case study at the Ford Motor Company. International Journal of Production Research, 60(19), 1–21.*

[4] *Toyota Motor (TM) Cash Flow Statement 2024. Retrieved from: https://stockanalysis.com/stocks/tm/financials/cash-flow-statement/*

[5] *Ackerman, R.P. (2018). Regulating Autonomous Vehicles in the United States. Jscholarship.library.jhu.edu, 3(7).*

[6] *Ritchie, H., and Roser, M. (2020). Fossil Fuels. Our World in Data, 3(6).*

[7] *Gryta, T., and Mann, T. (2020). Lights out: Pride, delusion, and the fall of general electric. In Google Books. Houghton Mifflin Harcourt.*

[8] *Bloomberg. (2020). Bloomberg - Are you a robot? Retrieved from: https://www.bloomberg.com/opinion/articles/2021-01-06/tesla-kept-busy-in-2020*

[9] *Bhattacharya, S. (2021). Multinational working capital management: A study on Toyota Motor Company. International Journal of Finance & Economics, 28(1).*

[10] *Ford Motor Company (F) Financial Statements: Income 2024. Retrieved from: https://stockanalysis.com/stocks/f/financials/*

[11] *General Motors Company (GM) Financial Statements: Income 2024. Retrieved from: https://stockanalysis.com/stocks/gm/financials/*