Market Competition Analysis and Strategic Research of Ford Motor Company

Yize Yu*

Jiangxi University of Finance and Economics,330013, Nanchang, China

*Corresponding author: sochoa84598@student.napavalley.edu

Abstract. In the trend of global electrification and intelligence of automobiles, many large traditional fuel vehicle companies are facing huge transformation challenges, which may determine the fate of future car companies. This article selects Ford Motor Company, a large multinational enterprise in the United States, and uses methods such as macro analysis of the automotive industry, comparative analysis of indicators, DuPont analysis, strategic analysis, and risk analysis to study the current situation of Ford Motor Company. This article finds that Ford Motor Company's fuel vehicle market has performed well and stably, which can offset the significant research and development and losses of electric vehicles in recent years. Despite Ford's sluggish performance in the Chinese market in recent years and mediocre sales of electric vehicles, Ford has also made sustained strategic adjustments and actively responded. Finally, this article also proposes that Ford Motor Company should seize the hybrid vehicle market, seize the advantages accumulated by traditional popular models for a long time, and continuously promote localization adjustments in various regions.

Keywords: Ford Motor Company; electric vehicle; automobile industry; DuPont analysis.

1. Introduction

In the post pandemic era, the automotive industry is undergoing a major transformation. Global automotive companies are accelerating their research on the transformation of intelligent and electric vehicles. In this trend, this is a huge challenge for many established traditional fuel vehicle companies and is highly likely to have a decisive impact on the company's future development. So now, what are the current development status and difficulties faced by these companies, and have they made any changes? Based on this, this paper conducts a comprehensive research and analysis of Ford Motor Company, one of the world-renowned automakers, with the aim of exploring the challenges and opportunities it faces and providing objective perspectives and suggestions.

This paper will conduct a macro analysis of the automotive industry and select three complete competitors of the same level as Ford Motor Company for multiple ratio comparative analysis. In addition, this paper will also use the DuPont analysis method for financial analysis based on Ford's 2022 annual report. Finally, this paper will conduct a strategic analysis and risk analysis of Ford Motor Company. This paper aims to provide valuable insights and decision-making support for the automotive industry and investors through in-depth research on Ford Motor Company.

2. Ford Motor Company's Information and History

Ford Motor Company was founded in June 1903 by Henry Ford. It was listed on the New York Stock Exchange in 1956 and is controlled by the Ford family now. It is the largest industrial monopoly organization in the United States and one of the world's important multinational corporations. In 2023, Ford Motor Company was ranked 46th on the Fortune Global 500 List. It also has joint ventures in China (Chang'an Ford), Taiwan (Ford Liuhe), Thailand (Thai Automobile Alliance) and Türkiye (Ford Otosan). During its heyday, the company owned eight major automotive brands, including Aston Martin, Ford, Jaguar, Land Rover, Lincoln, Mazda, Mercury, and Volvo. However, due to operation failures and various other reasons, only Ford and Lincoln brands are retained now. Currently, Ford mainly produces cars, SUVs, commercial vehicles, luxury cars, trucks and

automotive parts, tractors, etc. Figure 1 provides a visualization of the global sales distribution of Ford Motor Company in 2022, and Ford's main sales markets are North America, Europe, and China [1].

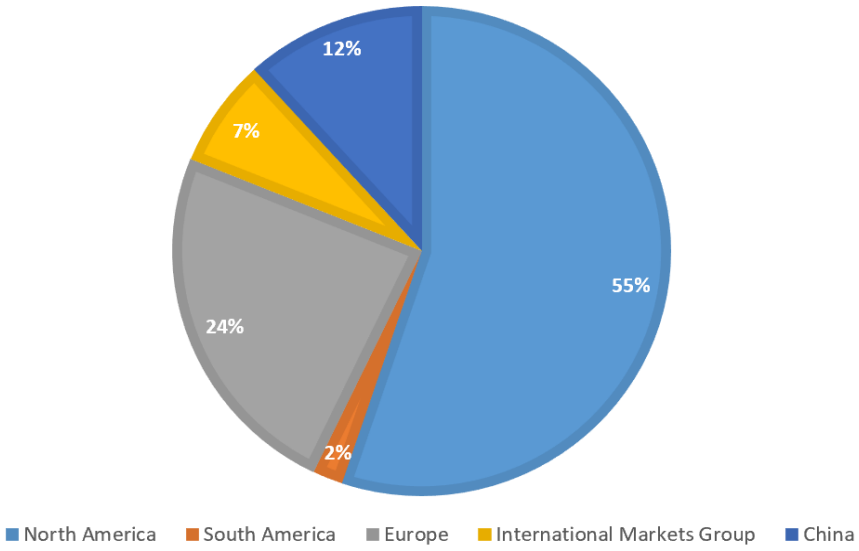

Fig. 1 Global sales distribution (in thousands of units)

3. Company Analysis

3.1. Analysis of Market Competition in the Automotive Industry

3.1.1 Performance of the global auto market in recent years

It is undeniable that the transportation restrictions and economic downturn caused by the epidemic have directly hindered the global car sales situation, causing serious damage to the global market. Compared with the global car sales in 2019, the sales in 2020 will drop severely, and the number of new car releases will also decrease significantly. Figure 2 provides a visualization of global vehicles sales in 2022 will be 81,628,533 vehicles, which still has a large space for growth compared with the sales before the global outbreak [2].

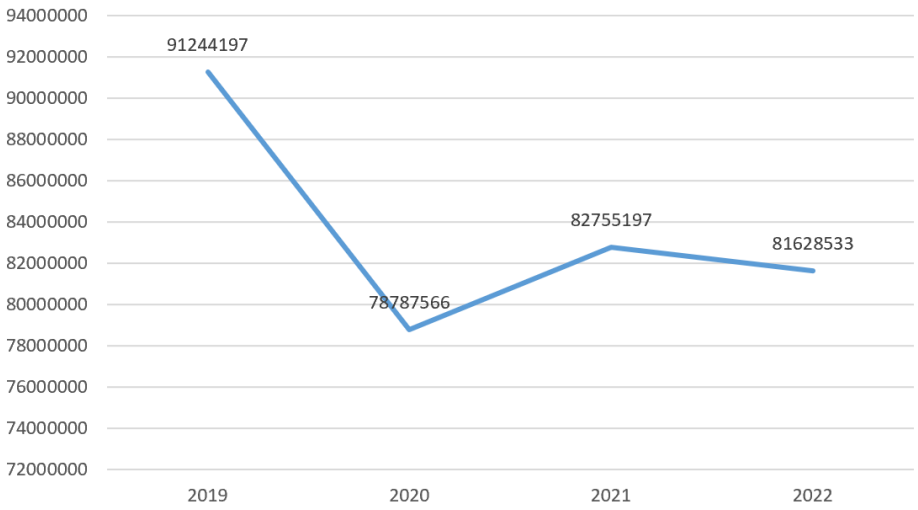

Fig. 2 All vehicles' sales in global

Plus, data shows that the global automobile market size in 2021 is 273.839 million US dollars, and it is expected to reach 3272.60969 billion US dollars by 2028, with a compound annual growth rate

of 3.01% during the forecast period [3]. The increase in compound annual growth rate is attributed to the return of the auto market growth demand to the pre-epidemic level after the end of the epidemic.

3.1.2 Competition pattern and status of various automobile companies

Nowadays, with the advancement of science and technology and the support of a series of environmental protection policies, the rapid development of electric vehicles has disrupted the pace of traditional car companies and changed the pattern of world car companies to a certain extent. In recent years, the market share of the seven major European auto brands has continued to decline [4]. The combined global sales of the three major US automakers including General Motors (GM) in 2019 decreased by 8% compared to 2018. The global market share seems to have fallen below 20% for the first time [5].

Today, Tesla, the leading company among electric car brands, has become the world's most valuable car company and the car company with the highest market value [6]. At the same time, China is a leader in the field of electric vehicles. In recent years, more than 50 electric vehicle brands have emerged in China, which has strongly impacted the global automobile market share. Therefore, in such a general environment, almost all large car companies are working hard to develop new energy vehicles and develop new products of new energy vehicles.

3.1.3 Comparative analysis of various indicators of multiple companies

3.1.3.1 Explain the reasons for selecting companies for comparison and the basis for selecting indicators

This paper selects four representative large-scale automobile companies to analyze and compare their data. These four car companies are all giants in the automotive industry, and they are fully competitor in automotive market, and reasons are as follows:

Product overlap: These four companies all manufacture leisure cars, RVs, business cars, trucks, luxury cars, and component manufacturing; Market share: they vie for the slices of many types of vehicles; Place of sale: Their main competitive areas for sales are China, the United States, and Europe markets; Price battles: Among them, products of the same level are often priced within a similar range; Technology R&D competition: They are all working hard to develop more efficient, powerful and safe new energy vehicles.

This paper selected some specific data, including stock price, TTM EPS, NTM EPS, Gross profit, Total asset, for calculation and analysis.

The analysis below mainly focuses on the following calculated indicators, namely: EPS growth rate (reflects the growth rate of the profit that can be shared by each company's equity); Revenue growth rate (shows how well a company is able to grow its sales revenue over a given time period); P/E ratio (The ratio of stock price and earning per share is used as an indicator to compare whether stocks with different prices are overvalued or undervalued); PEG ratio (A metric for estimating whether growth stocks are expensive or cheap); Gross Profitability Ratio which is Abbreviated as GP/A (It is an indicator to measure the profitability of a company). Based on the above indicators, this paper can make a reasonable evaluation of the stock prices and operating conditions of the four automobile companies. Gross margin (It is a measure of profitability and financial health).

3.1.3.1 Comparative analysis based on index results

Table 1. Comparison of four company ratio

2023/8/9	HONDA	TSLA	GM	FORD
Share price	31.9	242.19	36.26	12.73
TTM EPS	3.88	4.00	8.49	2.16
NTM EPS	3.90	3.78	7.12	1.81
EPS growth rate	0.52%	-5.60%	-16.14%	-16.20%
Revenue growth rate	8.41%	20.92%	0.64%	7.53%
TTM P/E	8.22	60.55	4.27	5.89
NTM P/E	8.18	64.07	5.09	7.03
PEG	15.95	11.1	-0.26	-0.36
GP/A (based on the most recent fiscal year)	13.50%	25.33%	7.95%	6.71%

As shown in Table 1, this article conducts data analysis on these four automobile companies.

(1) Honda Motor Company

Honda Motor Company’ s stock price is not expensive currently because it has a low NTM P/E (8.18). It has a positive PEG ratio (15.95%), but it may be too high, which is mainly because of its low EPS growth rate, so the stocks may be overvalued. Also, it has a good revenue growth rate (8.41%), which means that the its revenue capacity is good. Moreover, it has a relatively high GP/A among them (13.50%) -Profitability is good. Plus, Figure 3 shows that its gross margin has the trend to increase massively in quarter, which means it may have a weaker profitability in future.

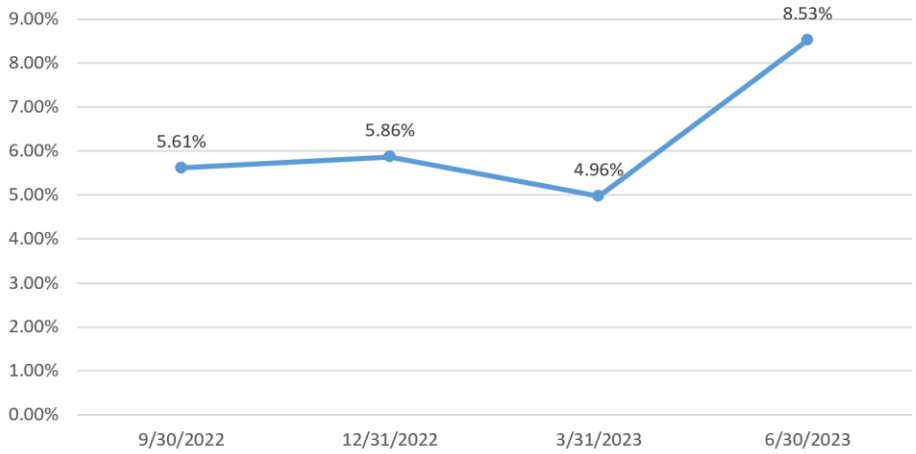

Fig. 3 Honda Motor Company’s gross margin quarterly

(2) Tesla Company

Tesla Company’s stock price is expensive because it has the highest NTM P/E among them (64.07). It has a high PEG ratio (11.11), main because of its high P/E, so the stocks may be overvalued currently. Moreover, it has the highest revenue growth rate (20.92%) which means that the its revenue capacity is quite good. Also, it has a relatively high GP/A among them (25.33%) -Profitability is also quite good. Besides, the Figure 4 shows that its gross margin has the trend to decline quarterly, which means it may have a weaker profitability in future.

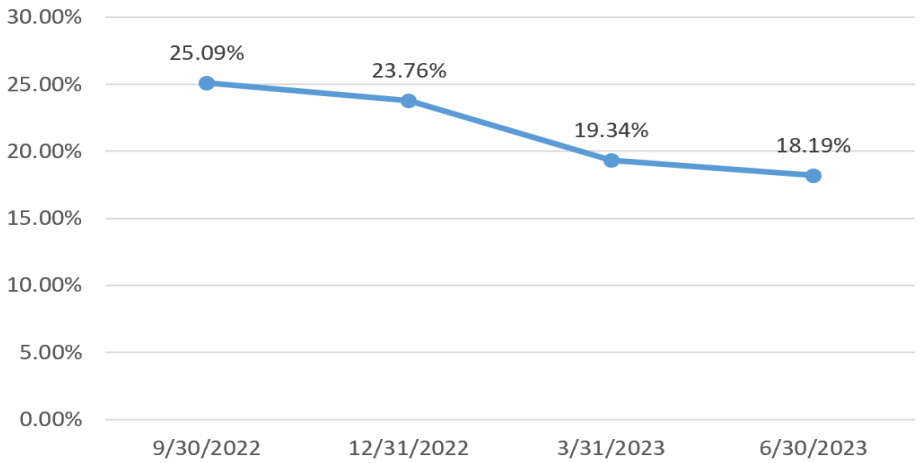

Fig. 4 Tesla Company's Gross margin quarterly

(3) General Motors Company

General Motors Company's stock price is not expensive because it has the lowest NTM P/E among them (5.09). It has a negative PEG ratio (-26.47%), main because of its negative EPS growth rate. (-16.14%). Also, it has a very low revenue growth rate (0.64%), which means that the its revenue capacity is not good. Moreover, it has a low GP/A among them (7.95%) -Profitability is not good. Plus, Figure 5 provides a visualization that the gross margin of GM has the trend to decline continuously in quarter.

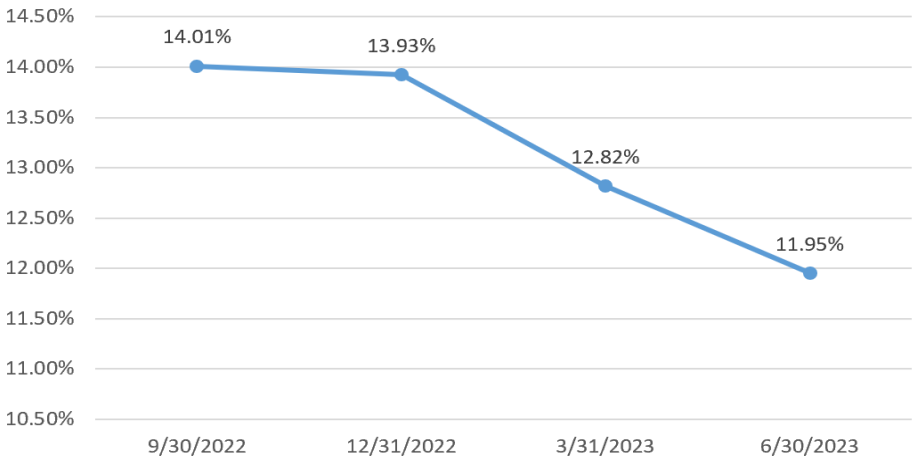

Fig. 5 General Motor's Gross margin quarterly

(4) Ford Motor Company

Ford Motor Company's stock price is not expensive because it has a relatively low NTM P/E among them (7.03). It has the lowest PEG ratio (-36.37%), main because of its negative EPS growth rate (-16.20%). However, it has a relatively high revenue growth rate among them. (7.53%), which means that the its revenue capacity is good. Also, it has a low GP/A among them (6.71%) -Profitability is no good. Plus, Figure 6 provides a visualization that its gross margin has the trend to increase continuously in quarter.

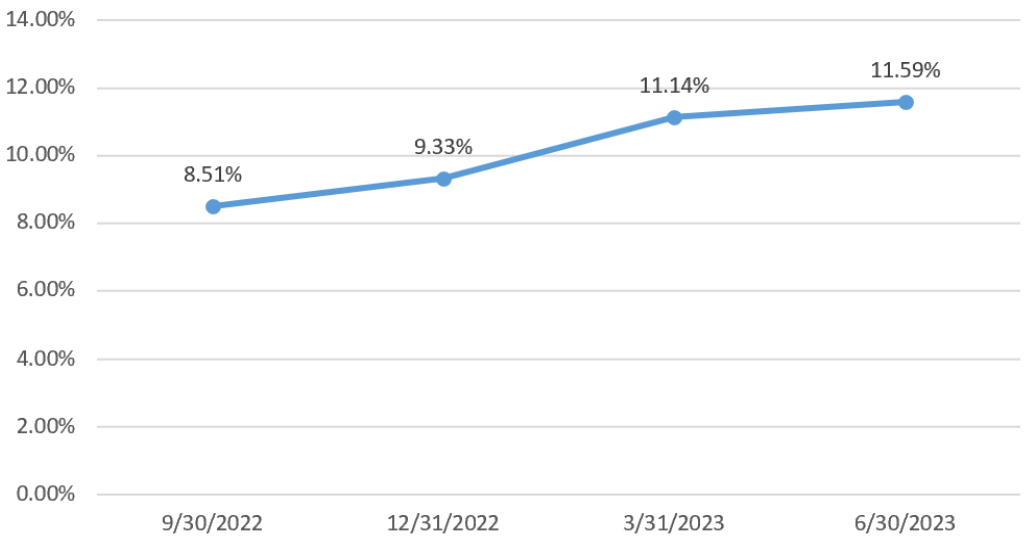

Fig. 6 Ford Motor Company' s gross margin quarterly

Overall, most of these four companies have decent profitability and profitability; Except for Tesla, the stock prices of other car companies are generally not high; However, the EPS growth rate is all very low and 3 stocks are showing a downward gross margin trend, indicating that the future stock price rise situation of these stocks is worrying.

3.2. Ford Financial Analysis

3.2.1 Analysis of financial indicators

This article uses the DuPont analysis method to conduct a comprehensive financial analysis of Ford Company's 2022 annual financial report, which helps to conduct in-depth analysis and comparison of business performance [1]. And subsequent financial indicator analyses in this article are all based on Table 2, which is calculated from Ford Motor Company's 2022 financial report.

Table 2. Comparison of Ford Motor's ratio

	2021	2022
Tax Burden Ratio	100.73%	69.63%
Interest Burden Ratio	100.15%	94.33%
Operating Profit Margin	13.04%	-1.91%
Total Asset Turnover	53.04%	61.77%
Leverage Ratio	528.64%	592.78%
ROE	36.89%	-4.59%

(1) Tax Burden Ratio

For Ford Motor Company the Tax Burden Ratio is 100.73% in 2021, so the tax rate is very low and the tax burden for this company is light. But by 2022, the tax rate has increased, putting greater pressure on the company's tax burden, which is unfavorable for the company.

(2) Interest Burden Ratio

For Ford Motor Company the Interest Burden Ratio is 100.15% in 2021, so the interest burden for this company is light. But by 2022, the Interest Burden Ratio becomes 94.33%, so the putting greater interest pressure on the company', which is also bad for the company.

(3) Operating Profit Margin

In 2021, the Ford Motor Company's Operating Profit Margin is 13.04%. However, in 2022, it becomes to be negative, which means that the company is facing profitability difficulties.

(4) Total Asset Turnover

The total asset turnover rate increases from 53.04% to 61.77%, which means that the Ford Motor Company's operation is good, and the ability of using its assets to generate revenue becomes better.

(5) Leverage Ratio

The Ford Motor Company's leverage ratio is over 500%, and this number is still growing to be larger, which will undoubtedly further expand the company's leverage risk, which is in a very dangerous situation.

(6) ROE

The ROE of Ford Motor Company decreased from 36.89% in 2021 to -4.59% in 2023, undoubtedly reflecting a significant decrease in the efficiency of the company's use of its own capital and a decrease in the company's ability to obtain net income from its own capital, which means that the company has encountered massive problems.

3.2.2 Analysis of financial indicators

(1) The Automotive segment

The Automotive segment consists primarily of the global sales of Ford and Lincoln vehicles, service parts and accessories and the costs associated with developing, manufacturing, distributing and servicing our vehicles, parts and accessories. This segment also includes revenue and costs for electric vehicle projects. This department is the main contributor to Ford Motor Company's profits and has performed quite well. In 2022, this division contributed the vast majority of Ford Group's profits, up to US$9.7 billion. Also, compared to 2022, the overall sales volume remained stable, and the market share in North America increased by 0.7% [1].

(2) The Mobility segment

The Mobility segment mainly includes the development costs of Ford's autonomous vehicle and related businesses, Ford's equity in Argo AI, and other mobile businesses and investments. Ford Motor Company's main losses were caused by investment losses in Rivian (which is an electric vehicle manufacturer in the United States, manufacturing electric pickup trucks and electric SUVs) and Argo AI. Specifically, the investment in Rivian alone resulted in a net loss at market value of $7.4 billion [1].

(3) The Ford Credit segment

The Ford Credit segment consists of the merged Ford Credit business, mainly engaged in financing and leasing activities related to vehicles. Ford Credit's pre interest and tax profit for 2021 increased by $2.109 billion compared to 2020, mainly due to the good residual performance of operating leases [1].

3.3. Company Strategy Analysis and Risk Analysis

3.3.1 Four Big Strategic adjustment of the company

(1) In March 2022, Ford announced the restructuring of the company's three departments into five, namely: Ford Blue Segment, Ford Model e Segment, Ford Pro Segment, Ford Next Segment, and Ford Credit Segment [7]. The Automotive segment is divided into three independent departments. Ford Model E will focus on developing electric vehicles; Ford Blue will focus on producing and manufacturing internal combustion engine vehicles; Ford Pro is responsible for vehicle service and distribution. In addition, the original 'The Mobility segment' will be renamed 'The Ford Next segment'.

Especially for the split of The Automotive segment, it is particularly important to help Ford more clearly synchronize the development of traditional fuel vehicles and electric vehicles, and help it vigorously develop electric vehicles while maintaining the advantages accumulated by previous fuel vehicles.

(2) Ford announced 3800 layoffs in Europe in February 2023 and revealed that it will launch a new round of layoffs in the future. Among them, the main focus is on layoffs for the company's engineers, which not only reduces the company's burden, but also facilitates the transformation to electric and software intensive vehicles, forming a more refined team [8].

(3) Based on its sales performance in 2022, Ford Motor has become increasingly focused on the Chinese market. According to reports, the annual sales in China in 2022 were 496000 vehicles, a year-on-year decrease of 33.5%, and sales were less than half of 2016 [9]. Moreover, the sales of Ford's Changan Ford, Jiangling Ford, Lincoln, and Ford electric horses have all declined. In order to turn losses into profits, Ford has decided to reduce its business expenses in China and focus its resources on those businesses that can generate the highest returns. As Farley said, Ford has shifted its strategic focus to commercial vehicles, electric vehicles, and export business [9].

(4) In May 2023, Ford announced a partnership with Tesla in charging facilities, allowing Ford owners to also use 12000 fast charging stations on the Tesla network, accounting for approximately 60% of the total number of fast charging stations in the United States [10]. This transaction is equivalent to doubling the number of fast charging stations in Ford's North American charging network, making Ford's layout in the tram charging network more comprehensive, increasing its versatility, and enhancing market competitiveness. In addition, Ford also announced cooperation with the world's leading battery manufacturer, Ningde Times, to help improve its battery technology level and research and development speed, improve reliability [11].

3.3.2 Risks and challenges that the company will face

(1) Ford recalled 41555 pickup trucks in the United States due to the risk of rear axle half axle breakage [12]. Also, Ford Motor Company issued a recall for 125,322 model year 2020-2023 Ford Escape, 2022-2023 Ford Maverick and 2021-2023 Lincoln Corsair vehicles for a risk of fire due to the risk of engine failure [13]. Ford's axle breakage and fire incidents have occurred repeatedly, and if not handled correctly, it may continue to have a significant impact on Ford's reputation.

(2) Due to long-standing issues with labor unions regarding wages, pensions, and benefits, a strike would disrupt the production activities of Detroit's three major American car brands - General Motors, Ford, and Stellantis. Analysts at Anderson Economic Group (AEG) pointed out that a strike would result in approximately $5 billion in economic losses within 10 days [14]. If this issue is not handled properly, there may be another strike in the future, which will bring huge losses to Ford.

(3) Nowadays, people are more and more demanding about safety, pollution, fuel economy, autonomous vehicle and other requirements. Moreover, the legal and regulatory landscape to address environmental issues and vehicle safety has been constantly changing. Ford may need to make significant changes to its product plan, which is a significant risk.

4. Evaluation and Suggestions

4.1. Comprehensive Evaluation of Ford Company

Although according to data analysis, Ford's financial situation and market performance in recent years may not be considered good, in the context of the entire post pandemic era, other automotive companies are also facing similar problems, so this can be understood. Also, Ford is actively seeking change. Compared to other companies, Ford has always had a clear advantage, which is that its traditional fuel vehicle business has considerable and stable revenue, which can continuously provide funding for the development of electric vehicles and offset the losses caused by the electric vehicle department, buying time for Ford's transformation towards electric vehicles.

In the second quarter of 2023, Ford Pro and Ford Blue's performance are really good. Ford Pro’s wholesales increased 8%, revenue increased 22%. Ford Blue's wholesales increased 7%, revenue increased 5%. However, Ford Model E’s second quarter 2023 EBIT loss was $1.1 billion, with an EBIT margin of negative 58.9% [15].

On the other hand, Ford has also made some new achievements in the field of new energy, such as: First, Ford continues to expand its market share in the electric vehicle market in the United States. In the first quarter of 2023, Ford held 5.2% of the electric vehicle market share, ranking third [16]. Second, the sales of the Mustang Mach-E increased by approximately 110% in June 2023 compared

to 2022 [17]. Third, more than 10% of F-150 pickup truck customers have chosen hybrid models, and this proportion is still increasing [18].

Of course, Ford is also actively seeking change continuously. For example, actively restructuring departments to clarify division of labor; Continuously downsizing, transforming into a more streamlined team, changing the team's main focus, and striving to develop electrification; A clearer understanding of the difficulties in the Chinese market, reducing competitive investment, and alleviating losses [19]; Continuously strengthening cooperation in various fields to enhance enterprise competitiveness.

Overall, for large traditional fuel vehicle manufacturing companies like Ford, they require time and trial and error costs in the electrification process. This paper believes that some losses in the early stages are relatively normal and common. As long as Ford continues to listen to market voices and actively make changes based on its own reality, Ford's future is still worth looking forward to.

4.2. Suggestions for the Company

Ford has not been successful in its electric vehicle transformation in recent years, especially as its electric department continues to suffer severe losses.

Fortunately, this article argues that despite the extremely fierce competition on pure electric vehicle tracks, there is a relative lack of hybrid vehicle tracks, and consumers have a strong desire for hybrid vehicles. In the second quarter report of 2023, Ford's hybrid vehicle sales were approximately 1.55 times that of electric vehicles [15]. Also, the data also shows that a considerable number of pickup truck owners have firmly chosen Ford's hybrid pickup truck [18]. Therefore, this paper believes that Ford should increase its research and development efforts and investment in hybrid vehicles, opening up a new track that combines performance, power, and environmental protection. In today's fiercely competitive electric sedan market, shifting the focus of electrification research and development to trucks, pickup trucks, and other models is also a good choice to seize as much market share as possible in these markets.

Secondly, this paper believes that Ford should seize the existing advantageous models, accelerate research and development, and strive to achieve success and profitability as soon as possible in the electrification transformation of these models. For example, the Ford Mustang has been the world's top selling coupe for seven consecutive years [20]. Therefore, this article believes that Ford should attach importance to the promotion and research and development of the Ford Mustang E, and not lose Ford's long-term advantages in some traditional models.

Thirdly, this paper believes that Ford should listen more to the voice of the market, and the Chinese market is the best lesson: Ford has blindly and confidently released the modified Ford in China in recent years, but it has suffered repeated roast and lost a large number of buyers [19]. Therefore, this paper believes that Ford should conduct localization research and further promote the localization process of Ford in various regions.

5. Conclusion

Through research, this paper believes that Ford Motor Company has a good foundation and advantages in fields such as automotive manufacturing, relying on its historical accumulation, and the profits of its traditional fuel vehicle business are sufficient to support its significant losses in research and investment towards electrification. This paper believes that this is a normal phenomenon for most traditional fuel vehicle companies, and investors do not need to worry excessively. At present, Ford has actively made many adjustments to the market and its own situation, and has achieved success in some models. Ford needs time, and investors also need patience. Through these studies, this paper provides a comprehensive understanding of Ford Motor Company, hoping to provide valuable insights and decision-making support for industry practitioners and investors.

References

[1] Ford Motor Company. 10-K: Annual report for year ending December 31, 2022. Retrieved from https://www.sec.gov/Archives/edgar/data/37996/000003799623000012/f-20221231.htm#ie50adb6d899d4f6ebcb5e73f7bd915e7_22, 2023.

[2] OICA. Global sales statistics 2019 - 2022, 2023. Retrieved from: https://www.oica.net/category/sales-statistics/, 2023.

[3] Business research insights, automotive market size, share, growth, and global industry analysis, by type (passenger vehicle and commercial vehicle), by application (personal use, municipal use, and business use), Covid-19 impact, l latest trends, segmentation, driving factors, restraining factors, key industry players, regional insights, and forecast 2022 to 2030. Retrieved from: https://www.businessresearchinsights.com/market-reports/automotive-market-102183, 2023.

[4] Juan Felipe Munoz, Europe's seven big car brands in free fall over last 20 Years, except one, August 11, 2023.Retrievedfrom: https://www.motor1.com/news/681350/europe-seven-big-car-brands-free-fall-20-years-except-one/, 2023.

[5] NIKKEI. The global total share of the three major American car companies will fall below 20%, February 10, 2020. Retrieved from: https://cn.nikkei.com/industry/icar/39288-2020-02-07-09-20-21.html, 2023.

[6] Brand Finance, Tesla overtakes Mercedes-Benz and Toyota to take pole position as the world's most valuable automobiles brand, April 4, 2023. Retrieved from: https://brandfinance.com/press-releases/tesla-overtakes-mercedes-benz-and-toyota-to-take-pole-position-as-the-worlds-most-valuable-automobiles-brand, 2023.

[7] Dearborn, 'Refounded' Ford to show how customer-focused segments will drive value and growth, changes in financial reporting, March 23, 2023. Retrieved from: https://media.ford.com/content/fordmedia/fna/us/en/news/2023/03/23/_refounded_-ford-to-show-how-customer-focused-segments-will-driv.html, 2023.

[8] Michael Wayland, Ford conducts engineering layoffs in U.S. and Canada, June 26, 2023. Retrieved from: https://www.cnbc.com/2023/06/26/ford-engineering-layoffs-us-canada.html, 2023.

[9] Wang Shuaiguo, Ford's strategic adjustment in China: layoffs, streamlining operations, and expanding exports, May 13, 2023. Retrieved from: http://www.eeo.com.cn/2023/0513/591645.shtml, 2023.

[10] Dearborn, Ford EV Customers to gain access to 12,000 Tesla superchargers; Company to add North American charging standard port in future EVs, May 25, 2023. Retrieved from: https://media.ford.com/content/fordmedia/fna/us/en/news/2023/05/25/ford-ev-customers-to-gain-access-to-12-000-tesla-superchargers--.html, 2023.

[11] Liu Yang, Ford confirms Ningde Times as a battery supplier, who will collaborate with BYD and others to help Ford achieve electric transformation, December 7, 2021. Retrieved from: https://www.cls.cn/detail/889999, 2021.

[12] Peng Xin, Ford Recalls 41555 Pickups in the United States due to risk of rear axle half axle rupture, August 31, 2023. Retrieved from: https://auto.caijing.com.cn/2023/0831/4956895.shtml, 2023.

[13] NHTSA. Consumer alert: important Ford and Lincoln fire risk recall, June 6, 2023. Retrieved from: https://www.nhtsa.gov/press-releases/consumer-alert-important-ford-and-lincoln-fire-risk-recall, 2023.

[14] AEG, 10-day UAW strike against Big Three could cause economic losses exceeding $5 billion, August 17,Retrievedfrom: https://www.andersoneconomicgroup.com/10-day-uaw-strike-against-big-three-could-cause-economic-losses-exceeding-5-billion/?highlight=strike, 2023.

[15] Ford Motor Company, 10-Q: Quarterly report for quarter ending June 30, 2023open document, July 28, 2023.Retrievedfrom: https://s201.q4cdn.com/693218008/files/doc_financials/2023/q2/Ford-Q2-2023-10-Q-Report.pdf, 2023.

[16] Colin Velez, U.S. EV sales take second place worldwide thanks to "crucial" tax credits, June 19, 2023. Retrievedfrom: https://www.cbtnews.com/u-s-ev-sales-take-second-place-worldwide-thanks-to-crucial-tax-credits/, 2023.

[17] Peter Johnson, Ford Mustang Mach-E EV recall fix is being investigated by the NHSTA, Aug 21 2023. Retrieved from: https://electrek.co/2023/08/21/ford-mustang-mach-e-ev-recall-fix-under-investigation/, 2023.

[18] John Rosevear, As Ford loses billions on EVs, the company embraces hybrids, July 28, 2023. Retrieved from: https://www.cnbc.com/2023/07/28/ford-embraces-hybrids-as-it-loses-billions-on-evs.html, 2023.

[19] Sun Wanqiu, Wu Di, Ford, why can't we sell it anymore, May 29, 2023. Retrieved from: https://epaper.ifnews.com/img/papers/gjjrb/paper/images/2023-05/29/13/gjjrb2023052913.pdf, 2023.

[20] Dearborn, Mich, Ford Mustang continues as world's best-selling sports coupe, capturing title seventh year in a row, April 14, 2022. Retrieved from: https://media.ford.com/content/fordmedia/fna/us/en/news/2022/04/14/ford-mustang-best-selling-sports-coupe-seven-years.html, 2022.