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The Analysis of Factors Influencing New Energy Vehicle Stocks

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Abstract:

With the global emphasis on environmental protection and the reduction of non-renewable energy sources, the new energy automobile industry is developing rapidly, and its stock performance has become the focus of investors' attention. This paper mainly analyses the influencing factors of new energy automobile stocks. By combing the relevant literature and combining the international background of the new energy industry, this paper investigates that the influencing factors of new energy automobile stocks are multiple and compounded, including the macroeconomic environment, the industry development trend, the policy support as well as the enterprise's factors. Investors should take these factors into account when investing and analyze them in conjunction with actual data to make informed decisions while paying close attention to market dynamics and adjusting their investment strategies on time. In addition, market competition, enterprise market share, and competitiveness will also affect the stock price, this paper takes the top three enterprises in China's new energy vehicle market share in 2023 as an example, they all have strong competitiveness and profitability, and their stock prices are relatively high. This paper shows that the performance of new energy vehicle stocks is affected by a variety of factors, and these factors may change with the development of the industry.

Keywords: new energy vehicle stock; industry development trend; policy support; enterprise own factors.

1. Introduction

With the increasing global emphasis on environmental protection and the continuous reduction of non-renewable energy sources, new energy vehicles, as a sustainable transport solution, are gradually becoming a new trend in the development of the automotive industry. The rapid development of the new energy vehicle industry has also attracted extensive attention from the financial market, and the performance of new energy vehicle stocks has become the focus of investors' attention.

At present, there is still some controversy about the specific factors influencing the price of new energy stocks. There is a lack of research to accurately assess the influencing factors of new energy stocks. To

analyse the influencing factors of new energy automobile stocks, it is necessary to analyse them based on relevant theories, and then combine them with the international background of the new energy industry. The influencing factors of new energy automobile stocks are multiple and complex, including the macroeconomic environment, industry development trends, policy support, and the enterprise's factors. When investing in new energy automobile stocks, investors should consider these factors comprehensively and analyse them in conjunction with actual data to make wise investment decisions.

This paper analyses a variety of factors affecting the performance of new energy vehicle stocks, including macroeconomics, industry trends, policy support, and corporate factors. It aims to provide decision support and risk management advice to investors.

2. Source and Processing of the Data

Given the current trend of China's new energy vehicle market, this paper selected two representative enterprises, —— Ideal Automobile and NiO Automobile, for SWOT analysis. Through the relevant data from the Choice financial terminal, Kaggle database, and SUV automobile website, the sales curve was drawn, and the historical in-depth operation and market performance of the two companies were analyzed, the corresponding models were constructed for comparison, and the influencing factors of the stock were finally obtained.

As an emerging Chinese enterprise, Ideal Automobile has made remarkable achievements in the field of innovation, development, and sales of high-end intelligent electric vehicles. Nio is a relatively well-known automobile manufacturer in China, and it has always maintained the pace of innovation in the user experience of NEV. By analyzing the historical sales data and financial reports of the two companies, we discuss the factors affecting the stock price of NEV.

About the Porter five-force model, this paper refers to the information from the Yahoo Finance and wind database, draws the stock price chart, and conducts an in-depth analysis of BYD Co., Ltd. As one of China's leading NEV companies, BYD is actively engaged in some areas, including batteries, electronics, and automobiles. Exploring BYDs stock performance is of great value for understanding the factors affecting China's NEV market and its related stock prices.

3. Modelling

3.1 SMART Principles

The SMART principle is a framework for setting and managing goals, supporting clear, measurable, practical, relevant, and time-limited goals by analyzing the financial situation, influencing factors, and future development potential of an enterprise.

The SMART principle aims to provide a clear and specific representation of the set goals to track progress and evaluate results. At the same time, ensure the feasibility of the implementation of the target, ensure the correlation between the main goal and the sub-objectives, and clearly set a specific completion time node.

This study focuses on the various factors that affect the neV stock and thus extends the relevant issues to ensure that all objectives are consistent with the main research directions.

3.2 The SWOT Analysis Model

SWOT analysis is a way to synthesize and summarize the internal and external environment of an enterprise to evaluate the advantages and disadvantages of the organization and the opportunities and risks faced with it.

The analysis of internal strengths and weaknesses focuses on the company's capabilities and its comparison with other competitors, while the assessment of opportunities and threats focuses on changes in the external environment and their potential impact on the company. In the process of analysis, all internal factors are brought together, and then they are evaluated using information from the external environment.

This study focuses on the analysis of the influencing factors of stocks related to NEV, compares an enterprise and other competitors, and reveals the comparative advantages and disadvantages of the research objects through the environmental assessment of the external market. Extension to the last factor

3.3 The Porter Five-force Model

Porter's five-force model is a microscopic tool for the analysis of the external environment. The main purpose of the model is to evaluate the competitiveness of the enterprise in the industry where it belongs and the level of capital income that the industry may bring. At the same time, consider their own investment expectations, in order to clarify the future development direction.

In the current market environment, the bargaining power of suppliers is particularly important. Many automobile manufacturers are accelerating their strategic layout in the

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Chinese market, and in the future, they will continue to increase their investment and cooperation efforts, striving to increase their market share and achieve local production of more models.

(1) Influence of customers in price negotiation: customers can exert influence on the profitability of existing companies in the industry by lowering prices and requiring the improvement of the quality of goods or services.

(2) Threats of new competitors entering the market: subsequent enterprises are usually eager to narrow the gap with their competitors and accelerate their development, so they show positive competitive intention in pricing strategy. The remaining established car companies will enhance their market operation capabilities.

(3) Competitive risks brought by substitutes: When the products produced by two companies from different fields have a substitution relationship, they may form a competitive relationship. This competition caused by alternatives can have a profound impact on the competitive strategies of existing enterprises in the industry in various ways.

(4) Competition among competitors within the industry: As part of the overall strategy of the auto industry, each company's competitive strategy is designed to gain its own advantage over its rivals. Therefore, this implementation process will naturally lead to conflict and confrontation, which form a competitive situation between the existing enterprises.

By combining Porters five-force analysis model and SWOT analysis, this study deeply discusses the various external factors faced by NEV, in order to achieve the goal of optimizing and improving their influencing factors.

4. Analysis of the Model

4.1 Based on the SWOT Analysis

Tables 1 and Table 2 are part of the operating data of Ideal Auto and NIO from 2021 to 2024.

Table 1. Operating Data of Ideal Automobile (2021-2024)

Time	Sales volume (vehicles)	Market share	Brand sales Ranking
Apr-21	5539	0.32%	47
Aug-21	9433	0.64%	30
Dec-21	14087	0.59%	34
Apr-22	4167	0.44%	40
Aug-22	4571	0.21%	54
Dec-22	21233	0.97%	25
Apr-23	25681	1.57%	18
Aug-23	34912	1.82%	17
Dec-23	50354	2.13%	14
Apr-24	25787	1.67%	17
Aug-24	48122	2.52%	11

Table 2. Operating Data of NIO Automobile (2021-2024)

Time	Sales volume(vehicles)	Market share	Brand salesRanking
Apr-21	8155	0.47%	38
Aug-21	4365	0.29%	47
Dec-21	10352	0.44%	42
Apr-22	5074	0.54%	36
Aug-22	10677	0.48%	37
Dec-22	15815	0.72%	31
Apr-23	6564	0.40%	42
Aug-23	19329	1.01%	21
Dec-23	18012	0.76%	29

Apr-24	15620	1.01%	25
Aug-24	20176	1.05%	24

As can be seen from the above table 1,2, the operating conditions of both enterprises are on the rise. Among them, the sales volume of Ideal Automobile has achieved a leap growth from 5,539 units in April 2021 to 48,122 units in August 2024 within four years of time span. The brand sales ranking has achieved a significant increase, and the market share has also been significantly increased. As can be seen from the data in April 2023, Ideal Automobile began to make significant efforts in this year, and its market share increased significantly compared with before. By the end of 2023, it reached the annual sales peak in 2023, which further consolidated its market position. The sales volume of NIO fluctuated in different periods of time, but the overall upward trend. Since the second half of 2022, it has gained more recognized by consumers in the market, and the sales volume has increased significantly. Nio's market share has gradually increased from 0.47% in April 2021 to 1.05% in August 2024, indicating that its competitiveness in China's new energy vehicle market is constantly improving. Although Nio's market share is relatively low for ideal cars, it has achieved excellent market share in the high-end market by constantly improving its innovation and developing better quality products.

Although the two car companies have seasonal fluctuations, the overall sales gap in different months is gradually narrowed, showing strong market stability and good ability to resist risks.

Figures 1 and 2 show the vehicle sales curves of Ideal Auto and NIO from 2021 to 2024. The abscissa represents the month, and the ordinate indicates the car sales volume (in units).

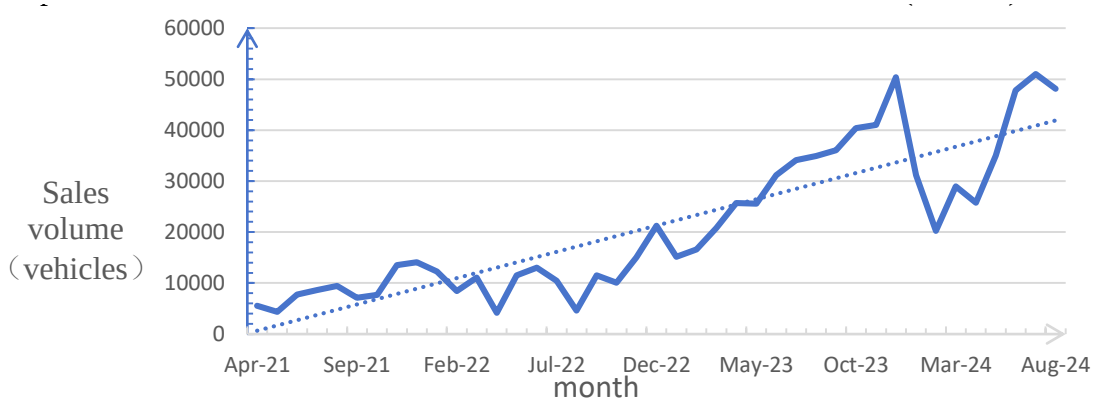

Fig. 1 Plot of the vehicle sales volume of Ideal Auto from 2021 to 2024 (Photo/Picture credit: Original).

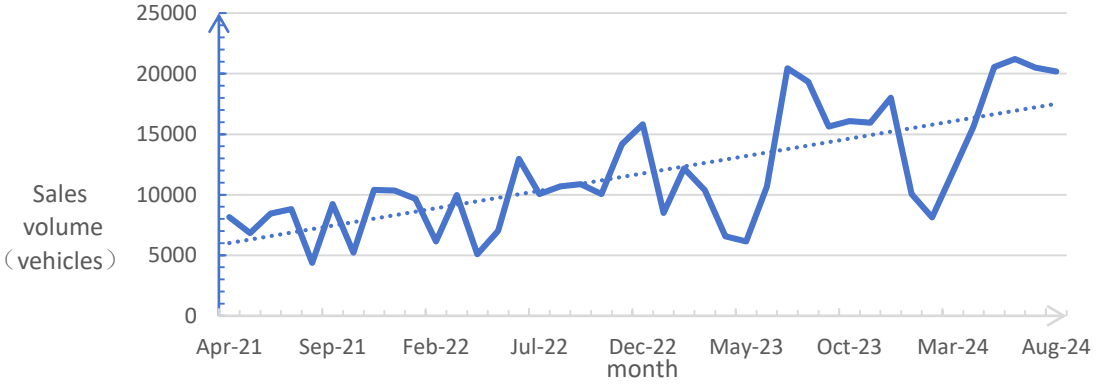

Fig. 2 Plot of the vehicle sales volume of NIO from 2021 to 2024 (Photo/Picture credit: Original).

Through Figure 1 and Figure 2, this paper further analyzes the historical sales data of Ideal and NIO enterprises.

Sales of Ideal cars have been fluctuating since April 2021. In mid-2021, sales fluctuated slightly around the level of 50,000 units. In 2022, the sales volume of Ideal Auto began to increase significantly, and in the second half of

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2022, the sales volume continued to climb to more than 20,000 units. Since then, it has maintained a relatively strong growth trend. Nio's sales also fluctuated from April 2021 to August 2024, with more dramatic fluctuations than Ideal. Between 2021 and 2022, NIO's overall sales were relatively low and had significant monthly fluctuations. In 2023, NIO's sales have up, but they still showed instability in some months. It also saw significant sales growth in 2023 and early 2024, showing its huge market potential. From the perspective of the overall sales trend, Ideal Automobile shows a more stable and strong growth momentum. Although NIO has also achieved sales growth, its sales volume fluctuates greatly, which has higher market instability compared with Ideal Automobile.

Through the above data and charts, this paper conducts SWOT analysis from the following aspects.

The advantage analysis shows that it can be seen from the data in Figure 1 that ideal NEV enjoy a high degree of recognition among consumers and the market. Continued rising sales data prove that Ideal Auto has shown a strong competitive advantage in the NEV market. Ideal Automobile regards research and development as one of its core strategies, attaches importance to and continues to invest in the development and innovation of new technologies in the field of electric vehicles. According to the published fund allocation information, the investment in electric vehicle research and development accounts for more than 30% of the total capital of the enterprise [1]. Due to its early entry into the new energy vehicle market and its continuous research and development efforts in autonomous driving and battery technology, NIO has launched a number of new energy vehicles, whose Internet characteristics make them significantly different from traditional automobile manufacturers. NIO puts users at the core of its corporate strategy, believing that cars are not only a product, but also a link between communication and service with consumers. After the purchase of vehicles, the relationship between the owner and the brand becomes increasingly close, forming a strong centripetal force community, aiming to provide excellent user experience [2]. These factors have undoubtedly boosted the markets confidence, thus driving the stock up.

Cons: The ideal car has to take on the risks associated with its supply chain. In addition, with the intensification of competition in the new energy vehicle market, consumer preferences have gradually become a key influencing factor. In the case of NIO, the year-on-year sales figures showed significant volatility during the study period, which may weaken investor confidence and have some impact on the stability of the share price. In addition, Figure 2 shows that NIO has also encountered significant profit challenges in the process of promoting technological innovation and brand building.

With the enhancement of public awareness of environmental protection and the active promotion of policies, the field of NEV has shown good development potential, and the expansion of the industry has brought common development opportunities for the two companies. Consumers concept of buying cars is gradually evolving, and their willingness to buy NEV is constantly enhanced. The upgrading of consumption has injected new vitality into the growth of this industry. Major automakers are also trying to gain more consumer attention and brand awareness by developing unique marketing strategies to seek growth opportunities in the highly competitive market [3].

Threat: The competition in the NEV market has become a common challenge for all manufacturers. Although Ideal has taken a certain market share, there is increasing pressure from traditional automakers and new entrants to the technology industry, who are actively competing for consumers by launching cost-effective and premium products. At the same time, the fluctuations of the global economy will also affect the consumption ability of consumers to some extent, thus weakening their intention to buy cars, which may hurt the market sales of NEV and related stock prices. The production of NEV is also highly dependent on essential raw materials such as lithium and cobalt, and the stability of their supply and price fluctuations play a vital role in the cost and profitability of enterprises. At the same time, the upgrading speed of technology in the field of NEV is very fast, which requires enterprises to continuously improve their technological innovation ability [4].

4.2 Based on Porter's Five Forces Model

This article uses data from Yahoo Finance's open-source stock data and wind database. The data of BYD Hong Kong Stock (01211), an enterprise of new energy vehicles, was analyzed from October 30, 2020 to September 03, 2024. Figure 3 Porter's Five Forces diagram of the price influencing factors of BYD Hong Kong stock (01211).

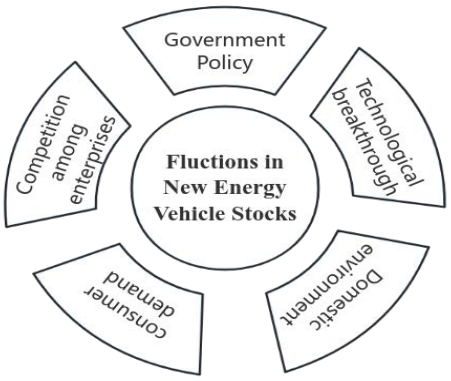

Fig. 3 is based on the schematic diagram of BYD Hong Kong stock Porter Five Forces (Photo/Picture credit: Original).

(1) Government policy

By 2024, for the next two years, the State Council has promulgated relevant policies. Among them, the Ministry of Finance and the Tax Bureau issued a purchase of new energy vehicles are car purchase tax exemption. The halved tax on car purchases from January 1, 2025, to December 31, 2027, will not exceed $15,000 [5]. The General Office of the State Council pointed out that by 2030, the charging infrastructure system will be established and facilitate the development of new energy vehicles [6, 7]. It can be seen that the Chinese government not only actively gives preferential policies to users who buy new energy vehicles, but also Provide opportunities for new energy vehicles to advance.

(2) Enterprise competition and technological breakthrough

Take BYD's stock market as a proxy for discussion, in the first half of 2024, BYD has sold 1.613 million new energy vehicles (including Equation Leopard, look Up, and other brands), occupied 32.6% share of the domestic new energy vehicle market, far more than Geely, Changan, NIO, Tesla, Chery and other new energy vehicle companies, ranking first [8]. To seize the opportunity, some companies specializing in the Internet have also begun to focus on the new energy vehicles market, such as Baidu's development of driverless electric vehicles and Xiaomi's new energy vehicles [8]. BYD broke the DM technology in just a few months, achieving a thermal efficiency of 46.6% and a comprehensive work efficiency of 92%. To research new energy vehicles with better performance and quality, Tesla has produced its first 100,000 vehicles in more than 10 years. It can be seen that the competition in the new energy vehicle industry is fierce, and it can also drive the progress of technology [4].

(3) The impact of consumer demand and domestic circumstances

China is rich in natural resources and has a lot of cheap labor. The Chinese government is also actively promoting a sustainable development strategy, and vigorously developing the real economy and manpower in emerging industries [9]. Therefore, China's market environment can promote the root and sprout of new energy vehicles.

With the promotion of the traditional petroleum automobile industry, owning a mobility scooter has become the first choice of most domestic families [1]. However, due to the impact of the pandemic, oil prices continue to rise. According to Xinhua News Agency, the price of gasoline No. 92 and No. 95 in megacities such as Beijing and Tianjin has been rising since 2023 [10]. As a result, consumers are turning their attention to new energy vehicles(4)Stock market performance

Table 3 shows the data of BYD Hong Kong stock (01211) for specific years from October 30, 2020 to September 03, 2024.

Table 3. The opening and closing data of BYD Hong Kong stock in a specific year

	Opening Price	Maximum Price	Minimum Price	Closing Price	Increase in price
2020-10-30	117.830	159.030	113.030	149.130	28.09%
2021-02-26	234.430	267.030	190.330	192.230	-17.30%
2021-06-30	176.030	235.210	174.530	227.410	29.93%
2021-12-31	304.410	307.010	242.210	261.810	-13.20%
2022-04-29	216.410	239.610	207.210	231.010	5.19%
2022-08-31	283.334	294.134	224.334	237.534	-15.45%
2022-12-30	194.134	213.534	184.334	187.934	0.59%
2023-10-31	236.994	257.394	225.794	233.994	-1.93%
2024-03-28	189.594	215.594	183.194	198.194	4.37%
2024-09-03	239.800	240.400	233.000	235.600	-2.32%

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In the secondary stock market, the Hong Kong stock of BYD Company (01211), mainly represented by new energy vehicles, is from October 30, 2020, to September 3, 2024, despite the slight fluctuation in the data, the opening price rose 103.514%. At the same time, BYD's Hong Kong shares (01211) also rose from hundreds of thousands of daily turnover on October 31, 2020, to 3.119,900 on September 3, 2024, with a total market value of 685.4 billion. It can be seen that the influence of government decisions on the promotion of the stock market.

5. Results and Analyses

By modelling the influencing factors of new energy vehicle stocks, it can be seen that the influencing factors of new energy vehicles are mainly policy support, technological innovation and progress, and market demand.

In terms of policy support, the introduction and implementation of government subsidies, tax incentives, vehicle purchase restrictions and a series of encouraging policies have greatly facilitated the development of the new energy vehicle industry, which has resulted in a change in the sales volume and market share of new energy vehicles, and a fluctuation in the performance and share price of related companies. In addition, as a result of the government's publicity and citizens' increased awareness of environmental protection, the popularity of new energy vehicles has increased, which has further enhanced the market valuation and profitability of some companies, thus giving investors more confidence in the new energy vehicle market and positively affecting their stock prices. At the same time, in view of the relevant environmental regulations and various prescribed emission targets, automobile manufacturers have invested more in the field of new energy vehicles. On the technology front, many key technological breakthroughs have been made, with qualitative leaps in battery technology, drive systems, intelligent driving and other technologies, which have greatly enhanced the competitiveness of new energy vehicles, attracting more consumer attention and a rise in the share prices of related companies. At the same time, due to the good prospects for the development of new energy vehicles, its R & D investment has also increased significantly, some well-known companies have also gained the long-term competitive advantage of technological innovation, with a good share price performance. In terms of market demand, as consumer demand continues to improve, the market competition is also becoming more intense, these factors directly or indirectly affect the market expectations, and thus the new energy vehicle stock price fluctuations.

In addition, there are some other factors that directly or indirectly affect the share price of new energy vehicles. For example, the macroeconomic impact of the general environment, specifically the psychological expectations of consumers, purchasing power, inflation or austerity rates, etc., which will affect the market share and share price of the relevant new energy vehicle enterprises. The more complete industrial chain also provides a good market environment for the development of new energy vehicles, which will have a positive impact on its share price. It is suggested that the future development of the new energy vehicle industry requires the joint efforts of technological innovation, infrastructure construction, policy support, industry chain synergy, green development, international cooperation, and consumer awareness enhancement.

6. Conclusion

Based on the short-term stock data of Ideo, NIO, and BYD, three leading enterprises in new energy vehicles, this paper studies the factors affecting the change of new energy vehicle stocks. The advantages and disadvantages of new energy enterprises and the challenges they face are analyzed by the SMART principle and swot, and the influencing factors are further analyzed. By comparing the stock data changes of Ideal Automobile and NIO Automobile in the same period, the advantages and disadvantages of the two in enterprise development are obtained. New energy vehicles slowly enter the public eye, and their sales continue to rise, but at the same time, they are facing the threat of technological innovation and brand expansion. To further verify and improve the above-influencing factors, this paper continues to use Porter's five forces for cross-analysis of the above-influencing factors, and divides them into five parts: government policy support, enterprise competition, technological breakthrough, consumer demand, and domestic environment. Through these five parts to further analyze the influencing factors, combined with BYD auto Hong Kong stocks in the past four years of opening, closing, and trading volume before and after comparison.It is concluded that with the policy support of new energy vehicles, the market has been developed, consumer consumption has increased, and the corresponding stock turnover has also risen. At the same time, it will face competition among enterprises, compete for the consumer market and the involvement of Internet companies, and stock prices will also fluctuate.

Following on previous research and experience, this paper further analyzes and studies the factors affecting stock prices in the new energy automobile industry, and there are certain shortcomings: First, the research and influencing factors in this paper are only common influencing factors. In the individual study of the new energy

vehicle company stock, and the social environment, macro-economy and consumer expectations are not covered. Second, the research methods used in this paper, such as swot analysis and Porter's Five Forces, are mainly based on qualitative analysis, and the analysis of the research results of this paper are easily affected by the subjective judgment of researchers. Third, the data cited in this study include Ideal Automobile, NIO Automobile stock data, and other data only in a short time. Moreover, it is difficult to remove outliers, and there may be a certain amount of gap between the measured results in this paper and the real values.

The future research direction can be carried out in the following aspects: First, it is possible to do deep research and analysis on the other influencing factors not specifically developed in this paper and introduce more influencing factor indicators. Second, long-term continuous data may be used to provide the processing capacity and a large number of accurate data, to meet the requirements of further research and provide more accurate reference data.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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