Development Status and Prospects of China's New Energy Force Based on Xpeng, NIO, and Li

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Abstract. In the current environment of increasing competition in China's new energy vehicle market, this paper selects three of the representative domestic new energy vehicle enterprises for research, through the analysis of their product characteristics and operating conditions, reveals the main problems encountered in the operation process of new energy vehicles, and puts forward suggestions and prospects for the future development. For products, this paper compares the main products of these three companies in detail and analyzes their advantages and disadvantages. Based on the market sales situation, this paper proposes targeted improvement suggestions, such as adjusting the model price to attract more consumers, optimizing the interior space layout to improve comfort, and strengthening the research and development of intelligent driving technology to enhance competitiveness. Secondly, from the financial point of view, this paper analyzes the financial status of these three enterprises. By analyzing key indicators such as income, liquidity level, solvency and cash retention, this paper finds that some enterprises have certain problems in financial management. In response to these problems, this paper puts forward corresponding improvement suggestions, such as optimizing capital management to improve liquidity level, strengthening cost control to improve profitability, and increasing cash retention to enhance solvency. This paper believes that China's new energy vehicle market still has huge development potential in the future. To seize market opportunities and meet challenges, new energy vehicle companies need to continuously optimize product design and improve product quality, while strengthening financial management and risk control.

Keywords: New energy vehicle market, Intelligent driving system, existing policies and changing trends, The fierce market competition.

1. Introduction

China’s new energy vehicle market is developing rapidly, in 2021, only 3.5 million new energy vehicles were made and sold, but in 2022, this figure doubled, and it continued to grow in the next year. First, driven by the policy (a green plate, cheaper and easier to get), many newly registered car companies have emerged in China. Secondly, as consumers' trust and understanding of new energy vehicles become deeper and deeper, more people will choose new energy vehicles. With the support of such a large market and appropriate policies, the entire new energy vehicle industry contains huge business opportunities, some domestic car manufacturers with poor sales are also expected to change the situation through the development of new energy vehicles.

In 2022, China's new energy vehicle sales increased significantly, reaching 814,000 units, an increase of 52%, and thanks to the government's commitment to decarbonization targets in 2030 and 2060 and the abolition of subsidy policies, the future development of domestic new energy vehicle enterprises will be more rapid, promoting industrial development and technological innovation [1]. Chen pointed out that the favorable factors for the development of new energy vehicles in China include but are not limited to: 1. Strong policy support. 2. Vast domestic and foreign markets. 3. China has a complete industrial chain. There are opposite sides too. For example, the safety issues about the batteries and the so-called "range anxiety" still trouble the users [2]. In recent years, the Chinese government has attached great importance to the development of new energy vehicles. From 2009, when China first proposed the development goal of new energy vehicles, to 2014-2015, several incentive policies were intensively introduced, and all signs show that new energy vehicles have been identified as a strategic emerging industry [3].

China's demand for energy, especially crude oil, has grown dramatically over the past few decades. Rapid economic development, especially in the automotive industry, has driven this growth. China has become the world's largest car market, and oil consumption in the transportation sector remains high. At the same time, China is highly dependent on crude oil imports, and its energy security is under pressure. To meet the challenges, China is trying to diversify its energy mix, including developing renewable energy and improving energy efficiency. Factors that influence energy consumption in the automotive industry include existing vehicle technologies, policies, socio-economic developments, energy efficiency standards, road conditions, vehicle types, total cost of ownership, and fossil energy consumption and environmental pollution. As a promising way to reduce oil dependence and reduce pollutant emissions, new energy vehicles have attracted wide attention. In China, new energy vehicles play a crucial role in implementing sustainable development strategies, helping to reduce fossil energy consumption and air pollutant emissions [4].

China's rapid economic growth is accompanied by problems of energy security and environmental pollution. The foreign dependence on oil is as high as 54.8%, and it is mainly imported through the Strait of Malacca, which has strategic risks. By 2015, oil imports are expected to reach 76%. At the same time, China has become the world's largest emitter of carbon dioxide, and energy consumption and greenhouse gas emissions are key concerns of the government [5]. Over the past two decades, emerging economies have become a key force in the international economy, with their share of global trade rising from 30 percent to 45 percent, led by economies such as China and India. While Europe and the United States have faced slower growth and high unemployment in the wake of the 2008 financial crisis, economic growth in China and India has remained around 10 percent. The environmental costs of this growth cannot be ignored: China already emits more carbon dioxide than the United States and Canada combined and has several cities with poor air quality [6]. New energy vehicles are the key to the transformation of the global automotive industry. The Chinese government strongly supports the industry, but it still faces challenges in technology, infrastructure, prices, standards, research and development and talent [7].

China's NEV market is expected to witness a steady increase in sales performance and market penetration in 2024, driven by the country's decarbonization agenda and shifting consumer preferences. At the same time, the significant expansion of production capacity within the industry and the influx of emerging car companies, although it is expected to strengthen the market competition pattern, but also indicates the potential risk of supply and demand imbalance, especially in the field of key raw materials for batteries, price volatility may increase [8]. New energy vehicle marketing is an important means to deliver products to consumers, and it is necessary to change marketing ideas and highlight the dual selling points of hard-core technology and soft emotion to cope with market competition and the upgrading of consumption experience [9]. Most of the research on China's new energy forces has focused on comparing new energy vehicles with traditional models, and some studies have focused on China's new energy resource reserves and policies. Few studies have focused on the product comparison of the three private new energy vehicle companies.

In the context of such fierce competition in the domestic new energy vehicle market, this paper starts with the three most representative companies, from their product characteristics and operating conditions, to analyze their future development trend, and put forward suggestions for the management of the three companies.

2. Product

Among China's private new energy forces, there are three with the largest development scale and the most advanced technology level, namely NiO, Xpeng and Li auto. Of these three companies, the best-selling figure and the best profitability can be found in Li Auto.

Based on the feedback from the consumers and the data found on the official website, astonishing information can be found: Li's cars are no match for the other two in terms of mechanical quality and exterior design. Most people who have commented on Li’s cars will say that the advantages of Li’s

cars are large space, equipped with TV, refrigerator and other equipment, and the whole car's seats can be flat, making a comfortable and spacious double bed. This may sound contrary to the idea of building a car, but it is in line with Chinese consumers' car-buying concept to some extent, since many years ago, Chinese consumers have preferred longer back rows, for example, the Audi A6 became A6L in China.

Among the three, focused on the high-end market, the highest overall pricing can be found in NiO, Even the entry-level midsize sedan starts at ¥295,000, compared with Li's larger SUV with almost the same price, there is no price advantage. However, the unique strategy of NIO is the battery replacement program, this means that there is no need for hours of charging, if there is a place with equipment, any NIO'car can change a new battery in as little as half an hour. However, from the selling data, this program has not achieved the expected effect. This may be because there are safety issues and high costs associated with promoting complex power change equipment.

Table 1. The basic data of flagship products of each company

Compnay	XPeng	Li	NIO
SUV (Flagship)	G9, 5 seats, pure electric ¥250,000–¥350,000 570Km, 702Km	L9, 7 seats, hybrid ¥430,000–¥460,000	ES8, 6 seats, pure electric ¥498,000–¥598,000 465Km, 605Km
MPV (Flagship)	X9, 7 seats, pure electric ¥350,000–¥410,000 610Km, 702Km	Mega, 7 seats, pure electric ¥560,000 710Km	Not yet available
Saloon (Flagship)	P7, 5 seats, pure electric ¥220,000–¥340,000 550Km, 702Km	Not yet available	ET7, 5 seats, pure electric ¥430,000–¥500,000 530Km, 675Km

As shown in Table 1, the most advanced intelligent-driving software technology in these three companies is in Xpeng's hands. But Xpeng's sales figure is the lowest among all three companies. Based on product experience and related literature review, some obvious reasons can be found. First, Intelligent driving technology has not yet received policy support in China. Secondly, to compromise the exterior design, Xpeng sacrificed part of the interior space in the process of building the cars. For example, P7, the flagship sedan of Xpeng, has a beautiful fastback, at the expense of a tight rear headroom, which is simply unacceptable to some space-conscious consumers. Another example is the G9, the flagship SUV of Xpeng. The exterior of this car would make Li's L9 look like a minivan, but as a large SUV priced at 400,000, it only has 5 seats, and the interior space is also small. This may be the core reason why Xpeng has been neglected in China.

3. Financial Analysis

As shown in Table 2, overall analysis in FY 2023: Li's 2023 automotive gross margin increased by 2.4 percentage points from 2022 to 21.5%, and the company's overall gross margin also increased from 19.4% to 22.2%. Since Li is already profitable, we can see that its net interest rate is as high as 9.53%, which is also a relatively explosive number.

NIO 2023 automotive gross margin decreased by 4.2 percentage points, only 9.5%, the company's overall gross margin also dropped from 10.4% to 5.5%. However, from the perspective of quarterly trend, the second half of the year improved, the fourth quarter of the automotive gross margin reached 11.9%, the company's overall gross margin also reached 7.5%, but the first and second quarters were too pulled down, only 1.5% and 1% respectively, pulling down the gross margin level for the year.

Xiaopeng's also poor performance in the second and third quarters dragged down the whole year, the automotive gross margin became negative, and the company's overall gross margin was only 1.47%. Xiaopeng said that the increase in promotional activities, the expiration of new energy vehicle subsidies, the inventory provision related to model upgrades and the loss of procurement commitments, etc., hurt gross margin. Xiaopeng also slowed down in the fourth quarter, Xiaopeng

G6, and G9 sales rose, gross margin improved significantly to 6.2%, an increase of 9 percentage points, and automotive gross margin increased by more than 10 percentage points, reaching 4.1%.

Table 2. Financial performance of three companies

Item	Profit in FY 2023:	Cash reserves	Net profit
NiO	55.6 billion	38.4 billion	-22.1 billion
Xpeng	30.6 billion	24.3 billion	-10.3 billion
Li	123.9 billion	91.3 billion	11.7 billion

For cost control: The cost of sales of NIO was controlled a lot last year, and the cost of each car they produced was reduced by 42,000, which was not easy, but its cost of sales rate was still at a high of 94.51%, which slightly increased 5% in 2022. Xpeng was even higher, 98.53%, which experienced an increase of 10 percentage points over 2022. A high cost of sales rate leads to poor profitability.

Li Xiang once said that "there are almost abnormal cost and efficiency requirements for themselves", Li's cost of sales rate in 2022 was 80.59%, which is already the lowest of the three companies, and Li Xiang further controlled it to 77.8% in 2023, the direct result is that the gross profit rate reached a high value of 22.2%.

In addition, in terms of sales, general and administrative expenses, Li is also the most cost-effective, which generally includes store rent, human resources, marketing, logistics and transportation expenses. In the case of revenue of more than 100-billion-yuan, Li's cost is less than 10-billion-yuan, accounting for less than 8% from 12.51% in the previous year. In contrast, Weilai and Xiaopeng both exceeded 20% [10].

Compared with 2022, Xpeng's proportion of this part of the cost decreased by 3.6%, thanks to Wang Fengying's reforms, eliminating inefficient stores, consolidating sales zones, and optimizing procurement strategies. However, NIO rose from 21.39% to 23.17%, spending as much as 12.9 billion yuan.

NIO is the most ideal of the three cars. However, in the case of new energy vehicles that have begun to emphasize the cost performance and the price war, this will undoubtedly make NIO forward heavier load.

Debt-paying ability: NiO's debt ratio is 74.79%, which is the highest of the three companies, Xpeng's debt ratio is 56.84% and Li's debt ratio is 57.78, both are reasonable. The current ratio can also be evidence that NIO's short-term solvency is also weaker than the other two, which are 1.22, 1.51 and 1.17 respectively [11].

4. Basic Factors of Products

Nio's product strength lies in high-end market positioning, unique power-changing technology and high-quality user service experience. Li's car solves the problem of endurance with extended range technology, and pays attention to the needs of family users by using the rich life configuration in the car; Xpeng Automobile attracts consumers with its mechanical quality, sports orientation, and intelligent driving technology. The three companies are striving to enhance their product capabilities through technological innovation and service model innovation to meet the needs of different user groups.

It is worth noting that two companies are starting to develop their own sub-brand products, such as NiO has talked about for many years, focusing on the 200,000-300,000 market of "Ledao" and "Firefly"; Xiaopeng is also starting to develop its own "Mona" targeting the low-end market of 100,000 to 150,000

4.1. Financial Situation

4.1.1. Nio

Revenue: NIO's revenue continues to grow as deliveries increase, but the growth rate may fluctuate due to market competition and macroeconomic factors.

Losses: NIO has been losing money for a long time, mainly due to high research and development expenses, sales and marketing expenses, and administrative expenses.

Research and development spending: NIO has invested heavily in research and development in autonomous driving and battery technology, which is part of the company's long-term strategy but also weighs on its financials.

Capital market: NIO raises funds in the capital market through public offerings and bond issuance to support its expansion plans and operations.

4.1.2. Li

Revenue: Li's revenue grew at a faster pace, especially with strong sales of its flagship product, Ideal L9.

Profit margin: Ideal Auto's gross and net margins are relatively high, thanks to its direct sales model and cost control strategy.

Financial status: Compared with NIO, Li has a more stable financial status and strong cash flow.

Research and development and expansion: Li also continues to invest in research and development, while also making moves in market expansion, but relatively more focused on financial efficiency.

4.1.3. Xpeng

Revenue: The revenue of Xpeng also showed a rapid growth trend, especially with the introduction of intelligent models, and its market acceptance gradually improved.

Loss: Xpeng is also in a state of loss, and research and development costs, especially investment in autonomous driving technology, are one of the main reasons.

Technology investment: XPeng has made large investments in intelligent and autonomous driving technology, and is committed to establishing a competitive advantage in the field of intelligent electric vehicles.

Capital operation: Xpeng also raises funds through the capital markets to support its research and development and market expansion plans. Among them, the $700 million that Volkswagen has invested in it is noteworthy.

4.2. Competitive Context

With more and more new brands releasing their product, regularly, one of the existing businesses will declare bankruptcy, like Weltmeister. It can be predicted that the competition in China's new energy vehicle market in 2024 will certainly be very fierce. Mi, one of the largest smartphone manufacturers in China, recently released its first car, the SU7, It is obvious that its side shape, which is very similar to the Porsche Paramera has attracted attention. At the launch event, Lei Jun made a detailed comparison between all aspects of the SU7 and the Tesla Model 3, which without a doubt, is the best-selling electric car in China, and nearly 10,000 Mi cars were pre-ordered in the first ten minutes after the launch. What we can learn from the sale of the Mi cars is, that excellent product quality, clear product positioning and unique marketing skills are the three major means of new energy vehicle manufacturers to seize the market.

5. Conclusion

China's new energy vehicle market is huge and is developing rapidly under the promotion of policies, which can be seen from the growing production and sales of new energy vehicles in China. Whether it is the newly born car companies, or the traditional fuel car companies that are trying to develop new energy models are trying to get a share of the pie. In the research focus of this paper, among the three companies of NIO, Xpeng and Li, the best developed is Li, which fully indicates that the most popular model in the Chinese market is the seven-seater large SUV equipped with luxurious interior and spacious space.What’s more, creating a wide discussion by advertising a new car well in advance of its launch is also a key factor in boosting sales

Suggestions: Domestic new energy vehicle companies should do more market research in advance when developing new vehicle models, fully understand consumer tastes, and develop models suitable for consumer tastes. At the same time, safety should be put in the first place when applying new technologies, because unlike traditional cars, the battery of new energy vehicles is very dangerous to some extent, especially for the center of gravity, the vast majority of new energy vehicles place the battery on the chassis of the car, resulting in a bottom-to-top eruption flame after a serious impact, which will bring a higher risk to the occupants of the car. Meanwhile, from a financial point of view, automakers need to ensure adequate cash flow while operating operations, because too low solvency could undermine consumer and investor confidence.

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