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Research on the Comparison of Investment Markets for Chinese and German Traditional Vehicle Enterprises and Development Strategies for German Enterprises under the New ESG Landscape

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Abstract. The automotive industry is undergoing a significant transformation due to the emergence of new power vehicles (NEVs) and the integration of environmental, social, and governance (ESG) considerations. This research conducts a comparative analysis of the NEV and ESG landscapes in China and Germany, two major players in the global automotive market. The analysis reveals similarities and differences between the two countries in terms of market size, regulatory environment, customer preferences, and automaker strategies. Key findings underscore the importance of comparability and standardization in ESG and NEV performance, the impact of trade tensions and protectionism, and the potential negative consequences associated with ESG and NEV practices. To address these challenges, the study recommends the establishment of uniform guidelines and standards, enhanced collaboration and partnerships among stakeholders, and the implementation of holistic policymaking approaches. These insights are valuable for automakers, policymakers, and investors in navigating the complexities of sustainability-driven changes in the automotive industry. Moreover, they contribute to the broader discourse on responsible finance and investing. The findings and recommendations presented in this research can inform future research endeavors and industry practices, facilitating the accelerated adoption and diffusion of NEV and ESG technologies and practices on a global scale.

Keywords: NEVs; ESG; Automobile Industry; Sustainable Financing; China-Germany.

1. Introduction

1.1. Research Background

The substitution of regular gas automobiles with electric-powered vehicles is triggering a changeover in the automobile industry. Also, modern EVs are advancing in self-driving technologies. Besides these changes, even more common acceptance by regular individuals like us of the significance of environmental, social, and governance (ESG) investment factors is altering the future of the industry. This convergence of variables is producing an automotive revolution like absolutely no other. Today, China is the world's largest car market, with passenger automobile sales reaching 21.5 million units by 2022, and also Germany is Europe's top car manufacturer and supplier [1]. Chinese automakers are creating and launching new electrical vehicles. Gleichzeitig invested in German automobile manufacturers in electrification and set ambitious targets - Volkswagen would like 70% of its European sales to be electric by 2030 [2].

Along with ESG investing comes challenges and opportunities for conventional automakers. By 2025, Bloomberg Intelligence projects that ESG assets are going to be worth USD 50 trillion; investors and customers are increasingly taking a look at how companies run on social and environmental grounds [3]. It is a crucial research subject since it examines how the ever-changing ESG landscape influences the dynamics and tactics of automakers in the key Chinese and German markets. Automakers should understand the impact of ESG to preserve competitiveness, secure funding, and meet future regulatory demands.

1.2. Literature Review

Several studies have investigated the growth of China's automotive sector and the approaches employed by multinational manufacturers in the Chinese market. Holweg et al. examined the development of China's automobile industry policies and the expansion of domestic manufacturers through collaborations with foreign partners. The writers assert that government policies are crucial for the advancement of the industry [4]. Oliver et al. outline crucial elements for the success of international automakers in China, which encompass forming local alliances, accommodating local market demands, and making substantial investments in research and development as well as production infrastructure [5].

Migliorelli examines the current frameworks for sustainable finance and highlights policy risks from an ESG standpoint. He emphasized the necessity of establishing a shared definition and classification system in order to regulate the industry [6]. Eccles and Serafeim provided evidence that organizations exhibiting robust environmental, social, and governance (ESG) performance, coupled with innovative business strategies, achieve superior financial performance compared to their industry counterparts [7]. In their 2019 publication, Schoenmaker and Schramade put up a comprehensive model for sustainable finance that centers around the generation of lasting value over an extended period of time. They contended that sustainability risks are investment risks that should be incorporated into financial analysis [8].

Although studies have been conducted on the growth of China's automotive sector and the competitive approaches adopted by foreign automakers, there is a scarcity of research that directly compares the investment climates in China and Germany. Additionally, there is a lack of examination regarding the influence of the rise of Environmental, Social, and Governance (ESG) factors on the strategies of German automakers in both markets. The current body of research on sustainable finance has primarily concentrated on establishing ESG frameworks and determining financial materiality while giving comparatively less consideration to industry-specific effects and company reactions.

1.3. Research Framework

This paper seeks to fill these research voids by (1) contrasting the fundamental attributes and patterns influencing the automotive investment environments in China and Germany; (2) scrutinizing the ESG factors that hold the utmost significance in the automotive sector, and exploring how German automakers are incorporating ESG into their strategies; (3) Examining case studies of German automakers' strategies in China and their domestic market; (4) Exploring the consequences for the future competitiveness and growth of German automotive brands.

This study will analyze and compare the Chinese and German markets from an Environmental, Social, and Governance (ESG) perspective. The aim is to provide industry leaders, investors, and policymakers with key insights to help them understand and navigate the sustainability-driven changes taking place in the automotive industry.

2. NEV and ESG Landscape in China and Germany

Countries like China and Germany play big roles in the global auto industry, but they are at different stages of growth when it comes to using new energy vehicles (NEVs) and incorporating environmental, social, and governance (ESG) principles. China has grown quickly to become the world's biggest market for New Energy Vehicles (NEVs). This is mostly due to strong government support, big goals, and the rapid growth of charging infrastructure. According to the International Energy Agency, China sold 3.5 million New Energy Vehicles (NEVs) in 2021, which was 53% of all the vehicles sold around the world [1]. As a goal, the Chinese government wants New Energy Vehicles (NEVs) to make up 20% of all new cars sold by 2025 and 50% by 2035. In 2022, the China Association of Automobile Manufacturers (CAAM) said that this goal would be reached through tax breaks, grants, and rules that all vehicles must follow. China is home to well-known companies that

make new energy vehicles, like BYD and Nachi. Their new business models and ways of doing things are shaking up standard automakers.

In contrast, Germany has been more hesitant to adopt NEVs, but it is now intensifying its endeavors to close the gap. Germany recorded a total of 681,900 units in NEV sales in 2021, accounting for 26% of the European market, according to the International Energy Agency [1]. The German government has established a goal of having 15 million electric vehicles in use by 2030. To achieve this, they are making significant investments in charging infrastructure and research and development [9]. German automakers such as Volkswagen and BMW have declared ambitious ambitions to transition to electric vehicles and are utilizing their expertise in high-end market sectors to set themselves apart. Nevertheless, they have obstacles associated with exorbitant expenses, restricted battery resources, and rivalry from emerging competitors.

Even though China and Germany have made progress in environmental, social, and governance (ESG) areas, there is still a lot of room for improvement. The Environmental Protection Law, the CSR Reporting Guidelines, and the Green Bond Endorsed Project Catalogue are some of the laws and rules that China has put in place to promote corporate social responsibility (CSR) and green finance. Still, there is a big difference between Chinese companies in how much they disclose about ESG issues and how well they do in those areas. This has led to concerns about greenwashing and a lack of openness. Compared to Chinese companies, German companies usually have better ESG scores and give more information about their activities. This difference comes from the fact that German companies have been reporting on sustainability and working with partners for longer [10]. Still, German automakers have been closely watched because they contributed to the diesel emissions problem and took too long to respond to climate change.

When it comes to environmental, social, and business governance (ESG), both countries are changing quickly. This change is happening because investors, lawmakers, and customers want companies to deal with social and environmental problems more and more. The Chinese government has enforced a compulsory environmental disclosure system for companies listed on the stock exchange and is presently striving to build a nationwide carbon trading program [11]. The EU Classification Standard and the German Supply Chain Due Diligence Act impose strict standards for sustainable finance and ethical sourcing [10]. Automakers in both countries are responding to these advances by setting targets for achieving carbon neutrality, allocating resources for renewable energy, and actively engaging stakeholders in discussions about environmental, social, and governance (ESG) issues.

3. Comparison Analysis of ESG and NEV Landscapes in Germany and China

3.1. Comparisons between Germany and China

The Chinese government sets ambitious objectives for the sales of NEVs and invests heavily in charging infrastructure and battery supply chains of The NEVs [12]. Likewise, in Germany, the federal government created a “National Platform for Electric Mobility” and it is allocating money for R & D and NEV manufacturing [9].

3.1.1. Boosting ESG awareness and transparency.

Investors and stakeholders expect even more from Chinese and German businesses regarding their ESG performance and transparency. Based on Tian and Slocum, over 1,000 companies in China have released company social responsibility (CSR) reports since 2020 [11]. In comparison, the EU Taxonomy and also the CSR Directive in Germany have since that time provided new requirements for the disclosure of ESG information and sustainable finance [10]. Both nations’ automakers set sustainability objectives, and the governments allow the public to regulate the NEV marketplace in transparency.

3.1.2. Collaboration among Chinese and German automakers.

Chinese and German manufacturers have had long records of cooperation ranging from joint ventures to partnerships. For instance, Volkswagen has long-term partnerships with SAIC Motor and FAW Group in China, and BMW has a partnership with Brilliance Auto [10]. These partnerships allowed German automakers to enter the Chinese market with local assembly lines and advantageous supply chains while Chinese automobile producers learned by technology transfer.

3.2. Differences between Germany and China

3.2.1. NEV market size and development.

China has a much larger and faster-growing NEV market than Germany. In 2021, NEV sales in China were more than five times higher than in Germany, and they also made up over half of the global market [12]. Additionally, China has a more diverse range of NEV models and brands, including many domestic players such as BYD and new NEV-focus players like NIO and Xpeng [12]. In contrast, the German NEV market is still dominated by traditional brands such as Volkswagen, BMW, and Mercedes-Benz, which have had to introduce EVs in addition to their traditional gasoline vehicles lineup, which adds up the cost [9].

3.2.2. ESG Regulatory Environment.

In China, ESG is a fairly new idea for nominal investors; therefore, the government sets ESG standards in addition to guidelines such as the Environmental Protection Law and CSR Reporting guidelines [11]. Nevertheless, because of greenwashing and insufficient transparency across regions, their implementation and enforcement are inconsistent [13]. In Germany, ESG regulation is mostly regulated by the European Union through a number of directives and requirements, such as the EU Taxonomy and the Non-Financial Reporting Directive [10]. German companies generally have greater ESG requirements and oversight than their Chinese counterparts.

3.2.3. Consumer preferences and behavior.

Chinese and German consumers have distinct preferences and behaviors regarding brand selection with respect to NEVs and sustainability. In China, consumers are more price-sensitive and function over brand reputation [12]. They're also more open to exploring new technologies and business models, such as rechargeable battery swapping and automobile sharing [1]. Nevertheless, in Germany, customers tend to be much more brand-loyal and put a premium on quality, safety, and efficiency [9]. Additionally, they have a greater environmental awareness and are ready to pay more for environmentally friendly services and products [10].

3.3. Issues and Difficulties

3.3.1. No comparability and standardization between companies.

A significant hurdle in comparing the ESG and NEV complacent in Germany and China is the Absence of standardization and comparability between companies, as Countries and organizations frequently use different standards and methods for performance benchmarking and reporting [1, 10].

3.3.2. Trade tensions protectionism.

Another issue is the escalating trade tensions and protectionism between China and the West, as well as several worries concerning the security and privacy of Chinese investments in international high-tech businesses, which could delay the speed of development and collaboration of NEVs [11]. These tensions could create additional hurdles and restrictions on cross-border partnerships, which will be crucial for developing and promoting ESG and NEV technologies in the future.

3.3.3. Unintended consequences and rebound effects.

The third challenge is The possible impacts of ESG and NEV strategies and initiatives, like battery waste, social inequality, and resource depletion, while The subsidies For NEVs have produced market

distortions and overcapacity, box-ticking, and greenwashing in certain market segments [1, 13]. In the same way, the emphasis on ESG investing and the untransparency have raised numerous questions about the efficacy and also the effect on real-life outcomes [10].

4. Suggestions

4.1. Establishing Consistent Standards and Guidelines for NEV and ESG

In order to address the inconsistency and incomparability of NEV and ESG performance, it is important to develop a uniform standard at the local and global levels. This can be achieved by adopting the following strategies:

4.1.1. Develop a comprehensive global environmental, social, and governance (ESG) framework.

International organizations such as the United Nations, the World Bank, and the International Organization for Standardization (ISO) should work with governments, industry groups, and NGOs to develop a universal framework. This includes uniform definitions, indicators, and rules for assessing and revealing ESG performance across different industrial sectors and domains. It should also be aligned with the existing reporting standards, such as those of the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB), to make it coherent and comparable with previous data [14, 15].

4.1.2. Regulatory convergence and mutual recognition.

Governments and regulators in China and Germany, along with other big automotive markets, must promote better Regulatory Convergence and mutual recognition of ESG and NEV standards. It may be accomplished via bilateral and multilateral dialogues, technical cooperation, and trade agreements. For instance, China and the EU can develop a working group on NEV requirements and laws to facilitate market entry and the transfer of technology. Germany and China could also mutually recognize ESG disclosure requirements for listed companies to reduce compliance costs and promote transparency.

4.2. Enhancing Collaboration and Partnerships for ESG and NEV Development

To stop trade tensions and protectionism, partnerships, and cooperation between Chinese and German automakers vendors, along with other actors in the NEV and ESG ecosystem, are needed. This is done by utilizing the strategies below:

4.2.1. Establishing a Sino-German NEV Alliance.

Chinese and German automobile manufacturers, combined with their industry associations and government agencies, could form a Sino-German NEV Alliance for joint development and research, technology sharing, and market expansion. This particular alliance could concentrate on battery technology, charging infrastructure, autonomous driving, and intelligent mobility solutions. It can even be a place for discussion and collaboration in trade and investment matters relating to NEVs [16, 17].

4.2.2. Multi-Stakeholder partnerships for ESG implementation.

Chinese and German businesses must work with stakeholders like investors, NGOs, local communities, and academia in ESG methods. They might form multi-stakeholder alliances to deal with particular ESG issues like responsible raw material sourcing, workforce development, and community engagement. For instance, Volkswagen partnered with the German development agency GIZ to promote sustainable mobility and green manufacturing in China. Such partnerships may help companies become legitimized, access resources, and produce common value for society.

4.3. Addressing Unintended Consequences and Rebound Effects

With holistic policies, policymakers should consider the complete lifecycle of products and the interconnectedness of various sustainability dimensions to address the possible unintended consequences and rebound effects of ESG and NEV policies. This is done through the following strategies:

4.3.1. Developing circular economy policies for NEVs.

Governments must create policies and laws that encourage the circular economy concepts of reducing, reusing, and recycling in the NEV business. This might include establishing goals and incentives for battery recycling, developing requirements for second-life applications of EV batteries, and supporting the establishment of a strong recycling infrastructure. China, for example, has just recently required NEV producers to set up battery recycling channels and disclose battery recycling information. Germany might learn from China and apply it to its current situation.

4.3.2. ESG integration and communication.

Companies must incorporate ESG considerations into their core business Strategy and Risk Management processes instead of treating them as an isolated compliance or communication problem. This means assessing the financial materiality of ESG factors, establishing science-based targets, and matching executive compensation to ESG performance. Additionally, it calls for a proactive approach to identifying and addressing ESG risks and opportunities throughout the value chain. For instance, BMW has embedded sustainability in its corporate governance and strategy and clearly defined responsibilities and targets among various business units and functions [18]. Such a holistic approach might help businesses stay away from greenwashing, improve resilience, and create long-term value for all stakeholders.

5. Conclusion

This study compared new energy vehicles and the environmental, social, and governance landscapes of China and Germany - two global automotive leaders. The analysis showed that government policies, industry demand, and business initiatives have helped both countries promote NEVs and ESC practices. However, they differ considerably in their market size, their regulation environment, and customer tastes. Additionally, it identified challenges as being a lack of normalization and comparability, trade tensions & protectionism, and possible unintended effects of the ESG and NEV practice.

To meet these challenges, the research made three recommendations: First, consistent standards and guidelines for NEV and ESG performance assessment reporting at the national and global levels. Second, encouraging collaboration and partnerships between Chinese and German automakers, vendors, and other stakeholders to get rid of trade barriers and accelerate technology developments. Third, a holistic approach to policy making which considers the whole lifecycle of products and the interconnectedness of sustainability dimensions to limit rebound effects.

Results and recommendations from this study affect the automotive industry, sustainability finance, and responsible investing. It offers a comparative analysis of the ESD and NEV landscapes in China and Germany that could help automakers, policymakers, and investors navigate these sustainability-driven transformations. The study also contributes to the debate on how ESG factors contribute to business value and social benefit and calls for greater accountability and cooperation among all stakeholders.

However, the research does have limitations that future studies might deal with. For starters, the analysis utilized secondary data, including industry reports, academic literature, and government documents. Future research might include primary data collection methods like surveys and interviews with industry practitioners and consumers. Secondly, the research was a comparative study between Germany and China, and that restricts the generalisability. Future studies could possibly

include analysis of various other key automotive markets, including the United States, Japan, and South Korea, to give a broader global picture of the ESGS and NEV landscapes.

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