Research on Diversification Strategy of Manufacturing Enterprises Based on Optimized GE Matrix - Taking Gree as an Example

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Abstract: In the current complex and challenging economic environment, both domestically and internationally, China's economy is undergoing a period of transformation with increased downward pressure. Additionally, the rise of external trade protectionism and escalating China-US trade tensions further complicate the situation. Against this backdrop, the manufacturing sector in China is confronted with challenges such as slowed growth and intensified market competition. For manufacturing enterprises, adopting a diversified development strategy can mitigate market risks, explore new opportunities, and enhance competitiveness. However, the criteria for selecting diversified business targets are not clearly defined. This paper takes Gree as a case study, introducing the Industrial Competitive Cycle Model into the GE matrix evaluation indicators. It attempts to construct a comprehensive evaluation system suitable for the diversified development of manufacturing enterprises. Furthermore, building upon the analysis results of the GE matrix, and integrating the three-level theory of McKinsey's business, the paper optimizes the business development strategy within the GE matrix. This optimization aims to assist manufacturing enterprises in selecting appropriate diversified business development targets, optimizing resource allocation, and enhancing overall competitiveness.

Keywords: GE Matrix; Corporate Strategic Planning; Diversification Strategy; Corporate Diversification; Manufacturing Enterprises

1. Introduction

The manufacturing industry is the backbone of the national economy. Since the implementation of reforms and opening up, China's manufacturing industry has continuously strengthened, forming a diverse and complete industrial system. This development has significantly enhanced the country's overall strength, supporting its position on the international stage. In 2015, the government introduced the "Made in China 2025" plan and released the ten-year action outline, aiming to transform China from a major manufacturing country into a manufacturing powerhouse. Guided by the strategy of building a strong manufacturing nation, substantial progress has been made in China's manufacturing industry, gradually solidifying its status as a major manufacturing player.

It is noteworthy that, under the combined influence of various factors such as economic crises, globalization, regional conflicts, technological revolutions, and the wave of the Internet, social instability and regional conflicts have intensified, making market competition fiercer and business survival challenges increasingly severe. In the business world, Procter & Gamble's Chief Operating Officer, Robert McDonald, uses the military term "VUCA" (Volatility, Uncertainty, Complexity, and Ambiguity) to describe the business environment. The VUCA era refers to a time full of volatility, uncertainty, complexity, and ambiguity, placing enterprises under constant pressure to manage change and undergo transformation and upgrading. Therefore, businesses face significant survival pressure and growth challenges [1].Furthermore, the global economy is confronted with multiple risks, impeding substantial growth. The global economic growth rate in 2022 was 3.4%, lower than the average level of 3.8% from 2000 to 2019. The decrease in the overall growth rate in the macroeconomic environment is reflected on the demand side, with insufficient demand for

manufacturing products leading to imbalances between supply and demand, resource misallocation, and structural distortions [2].

In recent years, China's manufacturing industry has experienced a premature and rapid decline in its share, with the proportion of manufacturing value-added to GDP decreasing from 31.53% in 2012 to 27.69% in 2022. According to the Fourth National Economic Census Bulletin, from 2013 to 2018, the proportion of employees in manufacturing corporate units decreased by 7.83%, resulting in a reduction of 20.43 million people. At the same time, the growth rate of the total output value of manufacturing has also declined, dropping from 8.1% in 2012 to 3.0% in 2022. This indicates that China's manufacturing industry is facing developmental challenges and entering a phase of overcoming obstacles.

The decline in the proportion of China's manufacturing industry is the result of multiple factors, in addition to the advent of the "VUCA era," there are several key factors. Firstly, the withdrawal of the "Four Trillion" stimulus policy led to the concentrated outbreak of structural problems, with businesses facing lower risk tolerance, limited investment opportunities, and stricter financing restrictions. This resulted in lower levels of capital investment in the manufacturing industry during economic downturns. Secondly, the high pressure of local government "capacity reduction" policies prompted businesses to upgrade and transform, potentially leading to the closure of some production bases and a temporary slowdown in local manufacturing industry development. Thirdly, the demographic shift in China, with a decrease in the working-age population due to changes in population structure, peaked at 940 million people aged 16-59 in 2011. Over the past decade, this population has been steadily decreasing, reaching 870 million in 2022. The decrease in the working-age population not only causes a shortage of labor but also increases labor costs, significantly reducing the cost advantage of the manufacturing industry [3].

The decline in the proportion of the manufacturing industry may have negative consequences, such as slowing down overall factor productivity, hindering efficient industrial upgrades, potential risks of losing innovation capability in some advantageous industries, severe threats to manufacturing industry decline in certain cities, and the risk of some provinces falling into the "middle-income trap." These risks not only threaten the stability of China's industrial system and industrial supply chain but also pose challenges to enhancing the country's innovation capability, potentially having adverse effects on the process of building socialist modernization [4].

According to the emphasis of the "14th Five-Year Plan" and the "2035 Vision Outline," it is crucial to adhere to the principles of independent controllability, safety, and efficiency. This involves promoting the upgrade of industrial foundations and the modernization of industrial chains to ensure the manufacturing industry's proportion in the national economy remains relatively stable. This holds significant strategic importance for enhancing the competitiveness of the manufacturing industry and promoting its high-quality development. It is a vital task to correctly understand the trend of the decline in the proportion of value-added and employees in the manufacturing industry in China and find practical ways to ensure the stable development of manufacturing enterprises.

As the main producers in the manufacturing industry, manufacturing enterprises adopt diversified development strategies to diversify operations, mitigate business risks, expand consumer demand, stimulate market vitality, and maintain stable profits [5]. However, in the current less optimistic global economic situation, how enterprises can rationally allocate limited resources for diversified business investments and find growth points for their own business income has become a crucial issue that must be addressed in the implementation of diversified strategies.

Building upon this, the paper takes Gree as a case study, employing a combined qualitative and quantitative approach to optimize the GE Matrix and tailor a diversified strategy suitable for the company's development. Firstly, the paper systematically analyzes relevant literature, choosing the GE Matrix as the analytical model and introducing the Industrial Competitiveness Cycle Model. It optimizes the GE Matrix evaluation indicator system, constructing a set of evaluation criteria suitable for the diversified development of manufacturing enterprises. Secondly, using Gree as an example, the paper applies the optimized GE Matrix evaluation indicators to score each diversified business object. Based on the scores, it determines the

high, medium, and low ranges of market attractiveness and corporate competitiveness, marking the positions on the GE Matrix. Finally, integrating McKinsey's Three Horizons of Growth theory, the paper analyzes the positioning of diversified businesses on the GE Matrix, formulates business development strategies, rationalizes the planning of relationships within diversified business groups, optimizes enterprise resource allocation, making the company's diversified strategic planning more operational, procedural, and scientific. This approach aims to assist manufacturing enterprises in achieving better operational benefits in diversified business practices, thereby promoting the high-quality and stable development of China's manufacturing industry.

2. Theoretical Framework and Literature Review

In accordance with the research objectives, this paper comprehensively reviews relevant literature, with a specific focus on the research areas of corporate diversification, the GE Matrix, and industrial competitiveness. Through a systematic review and organization of literature, the paper delves into the theoretical advancements and practical application cases of corporate diversification, the research and practice of the GE Matrix method, and the cyclical model of industrial competitiveness. This process provides a solid theoretical foundation, methodological support, and reference cases for the present study.

2.1 Corporate Diversification

The concept of corporate diversification was first introduced by the renowned American strategic management scholar Ansoff in 1957 in "Strategies for Diversification." He considered selling new products in new markets as a form of diversification and defined diversification strategy as a strategic business behavior adopted by enterprises in the course of operational development to pursue sustained growth and greater profits. Corporate diversification is conceptually opposed to specialized business operations. In a broad sense, corporate diversification encompasses diversification in products, markets, and investment areas [6]. In a narrow sense, it specifically refers to the diversification of product production, expanding the business scope by extending the product line [7].Corporate diversification development strategies generally include three types: integration development strategy, related diversification development strategy, and unrelated diversification development strategy. Integration development strategy involves the expansion of enterprises upstream and downstream in the current main industry chain. Related diversification development strategy refers to enterprises entering new areas related to their existing industries, while unrelated diversification development strategy involves entering industries with no apparent connection or commonality with existing business [8].In a general sense, corporate diversification development strategy refers to a proactive, expansive management and operational activity adopted by company management for various reasons such as expanding market space, increasing market share, and reducing operational management risks. Currently, diversification development strategies are widely adopted by companies worldwide. However, there are pros and cons to diversification strategies. In practical business operations, companies need to combine external market conditions with internal operational situations and reasonably plan diversification development strategies based on different stages of development.

Many scholars in China have conducted research on corporate diversification. Dai Mengting applied the core competitiveness theory to analyze the reasons for corporate diversification and the fundamental conditions for success [9]. Wang Yuan conducted a thorough analysis of diversification operations, exploring the development goals and necessary conditions for enterprises to implement diversification operations. In the end, relevant strategies to improve the current status of corporate diversification strategies in China were proposed [10]. Li Lin analyzed the main reasons and development status of small and medium-sized enterprises choosing diversification development. The analysis revealed issues such as insufficient backup resources, excessive diversification span, and imprecise timing in the diversification process. It was suggested that small and medium-sized enterprises should carefully consider multiple factors such as entry methods, products, and markets when choosing a diversification development strategy [11].Yin Jianfeng, starting from the perspective of entrepreneur cognition, used a case study

method to analyze the overall process of enterprises shifting from specialized operations to diversified operations. The study found that changes in entrepreneur cognition are a key factor driving the diversification of enterprises [12]. Jiang Zhaopeng analyzed the concepts of diversification and specialization in operations and, combined with specific examples, discovered that diversification and specialization are not a matter of superiority or inferiority but a complementary and mutually beneficial coexistence process [13].Ren Jiasong and Wang Nianxuan studied the motives for corporate diversification and the problems faced by electrical appliance enterprises in diversification strategies. The suggestion was made that companies should choose diversification development strategies based on their core competitiveness. Additionally, at an appropriate diversification timing, priority should be given to the development of related industries, and a scientific management system should be established [14]. Cai Gaoyang believed that while diversification opens up the business ceiling for enterprises, it also brings many challenges to the efficiency of business management. The coordinated development of strategic management and financial management will directly affect the success or failure of diversification development strategies [15].

Overall, theoretical research on corporate diversification primarily focuses on the relationship between diversification and corporate operational performance, which can be broadly summarized into five viewpoints:

The first viewpoint posits that corporate diversification is positively correlated with performance, meaning that diversification contributes to the improvement of corporate performance. Rumelt first proposed a classification of diversification strategies and the relatedness hypothesis, demonstrating the initial positive impact of limited related diversification strategies on operational performance [16]. Luo Binyuan and Chen Yanxia believe that diversification strategies provide advantages in resisting external company entry, known as the "shield effect," and in preventing the "bamboo pole extortion" in the supply chain, known as the "deterrent effect." These are considered highly favorable for the long-term development of enterprises [17]. Chen Huanhua conducted an empirical analysis of the interaction between diversification and financial performance in China's retail enterprises through the least squares method. The results indicate a positive correlation between the degree of diversification and financial performance [18].

The second viewpoint is that corporate diversification is negatively correlated with corporate performance, suggesting that diversification strategies are not conducive to performance improvement. Scholars like Le H argue that diversification has a significant negative impact on corporate performance, and there is a "discount effect" on performance: the higher the degree of diversification, the less favorable it is for the improvement of corporate performance [19]. To mitigate the negative impact of diversification on enterprises, many scholars have conducted research. For example, Yang Jun and others believe that companies should control the number of diversified industries and the proportion of capital investment. In financing, they should use equity as much as possible instead of bonds to reduce financial risks [20].

The third viewpoint suggests that there is no clear correlation between corporate diversification and operational performance, meaning that the degree of diversification does not impact operational effectiveness. Kahloul and Hallara selected 69 French companies and measured the degree of corporate diversification by analyzing their Herfindahl index and Gini index. They evaluated the operational performance of companies using indicators such as Tobin's Q value and return on net assets, finding no correlation between diversification and performance [21].

The fourth viewpoint posits a non-linear U-shaped relationship between corporate diversification and performance. Sun Tao and Luan Xiangru, based on data from the Shanghai and Shenzhen A-share markets from 2013 to 2018, constructed a diversification index. They discovered a significant U-shaped relationship between diversification strategy and corporate performance. The suggestion is that companies with weaker integrated elements should focus on their core business, while those with stronger overall capabilities can integrate resources through diversification to obtain diversification benefits after overcoming potential pitfalls [22].

The fifth viewpoint suggests a non-linear inverted U-shaped relationship between corporate diversification and performance, gaining higher acceptance. Yi Chengzhou and

Wang Liwei, using a sample of 155 manufacturing companies listed on the Shenzhen A-share market and the ChiNext board from 2018 to 2019, conducted empirical analysis and testing through multiple regression analysis. The research indicates an inverted "U" shaped relationship between the degree of diversification and the performance of listed companies [23].

In addition, many scholars, employing interdisciplinary research methods, guide the practical development of corporate diversification. Raximov D utilized Porter's Five Forces model to analyze the standards of diversification in industrial enterprises [24]. Hao Kainan, through competitive environment and SWOT analysis, explored the issues in Haier Group's diversification development [25]. Wei Zhuoying used financial data to analyze the financial difficulties faced by the Renhe Bird company due to diversification development [26]. Xu Binyi conducted research on the background and issues of China Resources Group, analyzing the gains and losses of the company in the path of diversified transformation and development [27].

2.2 GE Matrix

The GE Matrix analysis method, also known as the McKinsey Matrix, the Electric Company Law, or the Nine-Box Analysis, is a new investment portfolio analysis method developed by General Electric (GE) based on the BCG Matrix. It was created to address the issues identified in the BCG Matrix and is valuable for business investment selection and positioning. Using this method, General Electric successfully divested lower-priority businesses from the overall company, optimizing resource allocation [28].

While the BCG Matrix considers both external and internal factors, using dimensions such as sales growth rate and market share to create a matrix, it has limitations. The BCG Matrix only considers a few factors, focusing solely on sales growth rate and market share without taking into account various factors like research and development, management, and employees that can influence a product. As a result, the BCG Matrix may not comprehensively assess the internal and external environment of a business, leading to some inaccuracies in its evaluation results.

GE Matrix, also known as the McKinsey Matrix, combines both internal and external considerations by using the dimensions of market attractiveness and business competitiveness to create a matrix. Market attractiveness is composed of external factors that influence a company's survival, categorized into high, medium, and low levels. Business competitiveness is composed of internal factors that impact a company's survival and development, also categorized into high, medium, and low levels [29]. Companies can customize more specific evaluation criteria under the dimensions of market attractiveness and business competitiveness based on their unique characteristics. For example, under market attractiveness, criteria such as market size, market growth rate, profit margin, and technological barriers can be set, while under business competitiveness, criteria such as technological level, product quality, and management level can be considered.Compared to the BCG Matrix's four quadrants, the GE Matrix sets up nine different quadrant areas, incorporating more evaluation criteria. By assigning weights to evaluation criteria to change the importance of evaluating businesses, the GE Matrix combines subjective judgments with objective data, comprehensively considering various internal and external factors. This approach enhances the precision of evaluation results, improving the scientificity and completeness of the matrix [30]. The GE Matrix is adaptable to market trends and the specific needs of individual companies, making it targeted and flexible.

In the research on the GE Matrix, scholars both domestically and internationally have often integrated relevant competitive intelligence content to guide strategic planning for businesses. M. Iqbal Alamsyah utilized the GE Matrix as a decision-making tool to evaluate the feasibility of locating new business networks based on market attractiveness and financial forecasting indices [31]. Rolik used the GE Matrix to analyze the risks of wind energy projects and devised corresponding measures [32]. T.V. Bilorus applied the GE Matrix to the enterprise's human resources system, creating a human resources strategy suitable for the company's development by measuring the attractiveness of public personnel policies and the competitiveness index of the enterprise's personnel management system [33]. Liang Xiaoming and Wang Jianle used the GE Matrix

to analyze the aerospace technology application industry, identifying key businesses, expanding advantageous areas, and supporting the company's transformation and upgrading [34]. Zhao Sidong, using DK company as a prototype, constructed a quantitative identification and evaluation system for influencing factors that combines theory and practice with the GE Matrix. This system created a new framework that combines strategic selection with the analysis of decision-making processes, providing a basis for the sustainable development and strategic management of smart building enterprises [35].

In addition, some scholars have endeavored to enhance the research methods of the GE Matrix to increase the scientific rigor of the analysis. Liu Bo, using the entropy weighting method, normalized data collected from various countries worldwide. They determined weights for three aspects—input, environment, and output—assigned scores to the health and sustainability of Health, Environment, and Safety (HES), and established an HES health status system based on the GE Matrix [36]. Haluk Unaldi combined the Analytic Hierarchy Process (AHP) with the GE Matrix, clarifying the weights of subjective and objective variables to achieve a balance between different elements. This approach helped identify the optimal export market and implement different export policies for various foreign markets, thereby optimizing export benefits [37]. Yong Zhang integrated the GE Matrix with the Fuzzy Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS). Using the Fuzzy TOPSIS method, they assessed the attractiveness of international container hinterland units and the relative competitiveness of ports in each hinterland unit. The GE Matrix was then employed to determine the hinterland strategy for container ports in each unit. This led to the development of a decision-making method for container ports, demonstrated through a case study of the Lianyungang Port in China. The study proved that this method effectively supports the formulation of international container hinterland strategies for container ports [38]. Guo Jingjing, addressing the selection of new products during the strategic transformation period of manufacturing enterprises, integrated Fuzzy Analytic Hierarchy Process (FAHP) with the GE Matrix. This combination facilitated a comprehensive evaluation of new products and the prioritization of investment sequences. The method made indicators more closely aligned with practical production, reflecting the unity of product structure and corporate strategy [39].

2.3 Industrial Competitiveness Cycle Model

Industrial competitiveness refers to the ability of a country, region, or specific industry within that region to efficiently allocate and transform production factors and resources, continuously producing more wealth than competitors through stable and effective means. This ability is manifested in various market aspects such as product prices, costs, quality, services, brand, and differentiation, surpassing the differentiating capabilities of competitors [40]. In essence, industrial competitiveness involves a comparison between different industries, encompassing two key aspects: the scope of comparison and the content of comparison.

The theoretical foundation of industrial competitiveness revolves around two core concepts: the principle of comparative advantage and the theory of competitive advantage. The principle of comparative advantage, originating from David Ricardo's trade theory, emphasizes that international trade is based on the relative differences in production technology and costs between different countries or regions. It encourages each country to focus on producing and exporting products with a comparative advantage, which is reflected in the relative price differences of goods. On the other hand, the theory of competitive advantage, proposed by Michael E. Porter, asserts that competitive advantage is the market competitiveness difference exhibited by related industries in different countries or regions under the same competitive environment. While the principle of comparative advantage focuses on comparisons between different industries, the theory of competitive advantage emphasizes comparisons of the same industry across different countries or regions. It underscores that countries or regions with a comparative advantage are more likely to develop a competitive advantage.

Scholars from both domestic and international perspectives have refined the theoretical foundation of industrial competitiveness. Michael E. Porter introduced the "Diamond Model" to analyze the reasons why related industries in a country or region achieve strong competitiveness internationally. He identified four factors determining industrial

competitiveness: factor conditions, demand conditions, related and supporting industries, and firm strategy, structure, and rivalry. These four factors interact and collectively determine the level of industrial competitiveness. Alexander Gerschenkron conducted an in-depth analysis of economically successful catching-up strategies in countries like Germany and Italy, introducing the concept of "late development advantage." Liu Xiaotie proposed the "Five-Factor Theory" through extensive empirical analysis, highlighting the significant roles played by resources, enterprise quality, technological innovation, industrial organizational structure, and government intervention in the formation of industrial competitiveness [41].

Ai Li believes that competitiveness is a dynamic process of continuous cycling and improvement. Based on this, she proposes the Industrial Competitiveness Cycle Model, which consists of four parts: macro-object, micro-subject, implementation means, and the realization results of competitiveness. The macro-object is the foundation for the survival and development of enterprises, the matrix on which industries depend, the soil where competitiveness arises. It mainly includes external factors, opportunities, and national policies. The micro-subject mainly includes consumer behavior, products, and the internal environment of enterprises. Implementation means and methods mainly include technology, advertising and packaging, after-sales service, innovation, brand, and other factors. The results of competitiveness are quantifiable and can be measured in terms of market share, consumer satisfaction, net profit margin, and other aspects. The transition from market share to profit margin is the manifestation of the implementation means to the realization results of competitiveness. This can be used to assess the level of competitiveness in an industry. At the same time, these results also feed back to the macro-object and micro-subject to achieve the goal of continuously improving competitiveness [42]. The Industrial Competitiveness Cycle Model is shown in Figure 1.

2.4 Literature Review

Through the collection, organization, and analysis of domestic and international literature on corporate diversification, it is evident that theoretical research on the development of corporate diversification primarily focuses on the relationship between corporate diversification and performance. Many scholars also combine methods from fields such as management, information science, and economics to guide the practical implementation of corporate diversification. However, there is relatively less research on the evaluation criteria for the development targets of diversified business and the allocation of resources for diversified business. Therefore, this paper, using Gree as an example, introduces the Industrial Competitiveness Cycle Model into the enterprise competitiveness evaluation system, constructs the GE Matrix model, refines the evaluation indicators under the two dimensions of corporate competitiveness and market competitiveness, and helps manufacturing enterprises clarify their business positioning, allocate resources reasonably, and guide the practical development of diversified business.

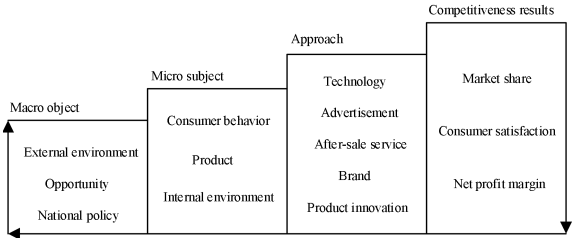

Figure 1. Industrial Competitiveness Cycle Model

3. Research Design

3.1 Research Object

The research focuses on Gree Electric Appliances Inc. of Zhuhai, abbreviated as Gree. Established in 1991, Gree is a comprehensive home appliance manufacturing company involved in research and development, production, sales, and services. As one of China's largest air conditioner manufacturers, Gree went public on the Shenzhen Stock Exchange in 1996. It owns multiple subsidiary brands, including TOSOT, Jinghong, Lingda, Kaibang, Lianyun Technology, and Gree Titanium. The main product line encompasses air conditioners, water heaters, washing machines, refrigerators, household appliances, motors, compressors, smart equipment, and new energy vehicle components. Despite entering the Fortune Global 500 list for the first time in 2019, Gree's ranking gradually declined, reaching 487th in 2022 and falling out of the list in 2023. In contrast, competitors such as Midea and Haier

consistently improved their rankings. A comparative analysis of annual reports reveals that competitors have achieved significant success in diversifying their businesses, with secondary economic pillars yielding substantial benefits. In contrast, Gree's primary revenue still relies heavily on the air conditioning sector, with other business segments exhibiting relatively weaker performance.

In fact, Gree embarked on the path of diversification over a decade ago. In its 2012 annual report, Gree introduced the concept of diversified development, defined as "adhering to the path of professional development and gradually achieving diversification within specialization." The initial exploration into diversified business focused on small household appliances. However, the contribution of small household appliances to revenue was minimal, accounting for only 1.2% of the total revenue. In 2014, Gree repositioned its diversification strategy, aiming to "transform from a specialized air conditioning manufacturer into a diversified group enterprise." Diversification expanded from small household appliances to water purifiers, water heaters, and other home appliances. Additionally, Gree entered the industrial product sector, developing products such as motors and automation equipment. By 2016, Gree officially declared the onset of the era of diversification. Its main business areas revolved around two major segments: smart home appliances and intelligent manufacturing. The company initiated 346 home appliance development projects. In 2017, Gree extended its reach beyond industries such as smart equipment and smart homes, venturing into the new energy sector with products like photovoltaic air conditioners. In 2018, Gree categorized its main products into four domains: air conditioning, home appliances, high-end equipment, and communication equipment. In 2019, Gree expanded into the new energy sector, developing products such as new energy vehicle motors and controllers. In 2020, Gree established its product system as two major segments: household consumption and industrial equipment. It added emerging industries like precision molds, new energy vehicle components, and semiconductors. In 2021, Gree aimed to enhance the market awareness of its industrial products by continuously elevating the status of industrial sub-brands such as Lingda, Kaibang, and Xinyuan. However, according to the 2022 annual report, Gree's air conditioning business dominated with a revenue of 1348.59 billion yuan, accounting for 71.36% of the total revenue. In contrast, the revenue from diversified businesses such as green energy, home appliances, and industrial products were 47.01 billion yuan, 45.68 billion yuan, and 4.32 billion yuan, respectively. These segments constituted 2.49%, 2.42%, and 0.23% of the total revenue. Therefore, it is evident that Gree's second economic engine was not successfully established, and the path of diversification did not yield the desired benefits. Consequently, this paper selects Gree as the research subject for the study of diversification strategies.

To ensure the depth of research conclusions and the universality of the research object, this paper adopts a single case study method for theoretical refinement, method exploration, and empirical research. The case selection is based on the representativeness and accessibility principles proposed by Eisenhardt [43].

(1) Representativeness Principle: Gree is a typical manufacturing enterprise that has transitioned from specialization to diversification. It has repeatedly been listed in the Fortune Global 500, playing a leading role in the development of the manufacturing industry in China. As a research subject, Gree is highly representative.

(2) Accessibility Principle: This paper employs a single case for research, and having ample information is a prerequisite for conducting the study and analysis. Gree has a long history since its establishment, providing access to abundant firsthand data. The second author of this paper works at Gree and is familiar with its business operations. Additionally, Gree receives high attention from the public and media, making it a subject of interest for many scholars. Therefore, ample secondary information and data can be obtained. These channels ensure the accessibility of information.

Based on these considerations, this paper selects Gree as the case study subject to explore and study the strategy of diversified development.

3.2 Data Source

This study employed the triangulation method for data collection and validation, utilizing multiple diverse sources of information to enhance the accuracy and reliability of the data. This approach aims to increase the credibility and validity of both the research materials and

findings [44]. The specific methods included participatory observation, in-depth interviews, and secondary data collection.

(1) Participatory Observation: The second author of this paper is actively involved in technical and strategic planning at Gree, providing a profound understanding of the company's operations. This first-hand experience not only validates the authenticity of interview data and secondary data but also contributes to exploring the diversified business models and development directions of the company.

(2) In-depth Interviews: Mainly conducted with employees at Gree involved in technical planning and research and development. The interviews followed a semi-structured format to gather detailed insights into the company's activities.

(3) Secondary Data Collection: Relevant information regarding Gree' business development and strategic planning was collected from various sources, including corporate annual reports, company reports, leadership speeches, meeting records, work summaries, media coverage, industry reports, promotional materials, and academic literature from databases such as CNKI (China National Knowledge Infrastructure).

This comprehensive approach to data collection ensures a robust foundation for the study, validating the findings through multiple perspectives and sources.

3.3 Research Methodology

The essence of corporate diversification is to develop new capabilities through the rational allocation of corporate resources, thereby enhancing the core competitiveness of the enterprise. First, in conjunction with the internal development of the enterprise and the external market environment, the business objects are selected. Then, the Industrial Competitiveness Cycle Model is introduced to determine the influencing factors under the two dimensions of market attractiveness and enterprise competitiveness. These influencing factors are used as evaluation indicators, constructing an indicator evaluation system. Based on the actual business situation of the company, methods such as brainstorming and expert consultation are employed to determine the weight of each evaluation indicator. Each business is evaluated based on scoring each indicator, determining the total score for market attractiveness and enterprise competitiveness for each business, and finding the positioning point in the GE matrix. Finally, in conjunction with the McKinsey Three Horizons Model, different business strategies are adopted for businesses in different quadrants.

(1) Establishing the Indicator System for Market Competitiveness and Enterprise Competitiveness Based on the Industrial Competitiveness Cycle Model, the GE matrix is optimized for indicators. First, starting from the two dimensions of market attractiveness and enterprise competitiveness, where market attractiveness is used to assess whether entering a new industry is attractive and enterprise competitiveness is used to evaluate whether the company has the strength to enter a new market. Then, according to the Industrial Competitiveness Cycle Model, four criteria layers are set: macro-environment, micro-subject, realization approach, and competitiveness realization results. Finally, based on the actual situation of manufacturing enterprises and consulting expert opinions, 20 evaluation indicators are set. The macro-environment criteria layer includes six indicators: market size, industry profitability, competitors, entry barriers, market capacity, and national policies. The micro-subject layer includes two indicators: user demand and user recognition. The realization approach for enterprise competitiveness includes seven indicators: production technology, product quality, price competitiveness, management system, personnel level, marketing capabilities, and industry experience. The realization results of enterprise competitiveness are reflected in four indicators: market share, net profit margin, brand recognition, and financial assets. The evaluation indicators are shown in Table 1.

Table 1. Optimized GE Matrix Evaluation Indicators

Target layer	Criterion layer	Indicator layer
Market attractiveness	Macro object	Market size(X_1)
		Industry profitability(X_2)
		Competitors(X_3)
		Industry barrier(X_4)
		Market capacity(X_5)
		National policy(X_6)
	Micro subject	User requirements(X_7)
Enterprise	Micro	User recognition(Y_1)

Competitiveness	subject	
	Approach	Production capacity(Y_2)
		Research capacity(Y_3)
		Product quality(Y_4)
		Price competitiveness(Y_5)
		Management system(Y_6)
		Personnel ability(Y_7)
		Marketing capability(Y_8)
		Industry experience(Y_9)
	Result	Market share(Y_{10})
		Net profit margin(Y_{11})
		Popularity(Y_{12})
		Enterprise assets(Y_{13})

(2) Determination of Weight for Each Evaluation Criterion

To establish the weights of evaluation criteria, this paper primarily employed the Delphi method, expert opinion method, and brainstorming. Through the application of these methods, a successful determination was made regarding the weight range of evaluation criteria influencing market attractiveness and corporate competitiveness. Specifically, weights ranging from a_1 to a_7 were assigned to the evaluation criteria related to market attractiveness, covering various crucial aspects. Similarly, for the evaluation criteria impacting corporate competitiveness, weights from b_1 to b_{13} were allocated to comprehensively consider key factors. This systematic approach ensures a well-rounded and thorough assessment of criteria, providing a robust foundation for the ultimate business evaluation.ensuring that:

$$\sum_{i=1}^{7} a_i = 1, \quad \sum_{j=1}^{13} b_j = 1 \tag{1}$$

(3) Score each evaluation criterion to determine the overall scores for market attractiveness and corporate competitiveness.

Adopting the Likert five-level scoring system, assign scores to the importance of each criterion. For example, very small market size = 1, small market size = 2, moderate market size = 3, large market size = 4, very large market size = 5. Assuming the scores for each criterion in market attractiveness evaluation are denoted as x_i and for each criterion in corporate competitiveness evaluation as y_i, the total scores for market attractiveness (X) and corporate competitiveness (Y) are calculated as follows:

$$X = \sum_{i=1}^{7} a_i x_i, \quad Y = \sum_{j=1}^{13} b_j y_j \tag{2}$$

(4) Determine the position in the GE matrix based on the scoring results.

The horizontal axis of the GE matrix represents corporate competitiveness, while the vertical axis represents market attractiveness. Both corporate competitiveness and market attractiveness are divided into three levels: high, medium, and low. This classification results in a matrix with nine quadrants. According to the scoring results, determine the position of each business in the corresponding quadrant of the GE matrix, as shown in Figure 2.

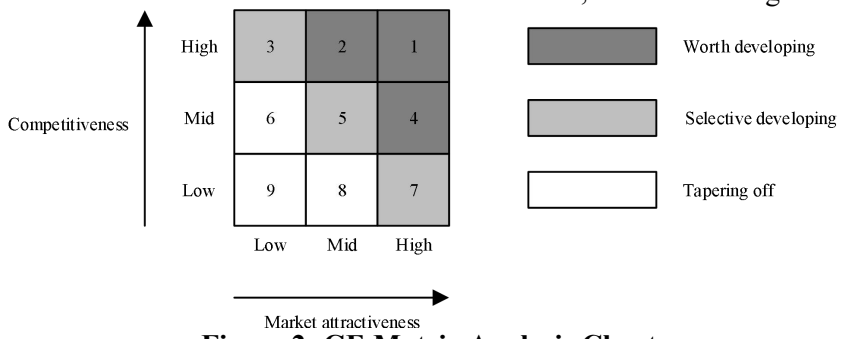

Figure 2: GE Matrix Analysis Chart

(5) Strategic choices based on GE matrix evaluation results.

According to the characteristics of the GE matrix's nine quadrants, we can roughly categorize them into three types.

Firstly, the first category includes the first, second, and fourth quadrants, where the overall market attractiveness and competitive strength are relatively high. Faced with these favorable market conditions, companies should adopt proactive development strategies, increase capital investment, and prioritize resource allocation to strengthen their competitive position in these areas.

Secondly, the second category encompasses the third, fifth, and seventh quadrants, where the market attractiveness and competitive strength are relatively moderate. In such cases, companies should implement a moderate development policy, focusing on enhancing their competitive strength while maintaining existing market share. Selective development strategies may also be considered to ensure the stability of the scale.

Finally, the third category comprises the sixth, eighth, and ninth quadrants, where both market attractiveness and competitive strength are relatively low. In dealing with these less favorable market conditions, companies should adopt a contraction strategy, reducing investment, considering the sale of some business units, and seeking more promising directions for development. Through such strategic adjustments, companies can more effectively address the challenges of different markets and achieve sustainable growth.

4. Case Analysis

4.1 Diversification Business Selection

Gree operates in six major segments: the air conditioning segment, home appliances segment, industrial products segment, intelligent equipment segment, green energy and emerging business segment. These segments encompass roughly five business categories, further divided into 19 specific businesses. The air conditioning segment includes household air conditioners and HVAC equipment. The home appliances segment includes environmental appliances, kitchen appliances, cleaning appliances, and refrigerators and washing care. The industrial products segment includes compressors, motors, and refrigeration components. The intelligent equipment segment includes precision molds, CNC machine tools, precision robots, and logistics warehousing. The green energy segment includes photovoltaic (storage) air conditioners and new energy. The emerging business segment includes semiconductors, renewable resources, medical health, and prefabricated vegetable equipment. Therefore, this analysis focuses on these 19 businesses as objects for examining Gree' diversification development strategy, labeled sequentially as M_1, M_2, ..., M_{19}.

4.2 Evaluation Criteria and Scoring Results

Analyzing Gree's current business framework, a diverse panel of 27 experts, comprised of both internal team members and external consultants, undertook a thorough assessment utilizing the Likert scaling method. The initial phase involved intricate calculations to determine the weights assigned to each evaluation criterion for market attractiveness and corporate competitiveness. Following this, taking into account industry trends and the company's recent developments, a meticulous scoring process was applied to the chosen 19 business segments.

Ultimately, through the amalgamation of the calculated weights from the evaluation criteria with the individual business scores, a comprehensive evaluation was conducted, unveiling the overall performance of Gree's diversified ventures. The GE matrix market attractiveness composite scores for Gree's diversified businesses have been detailed in Table 2, while the composite scores for corporate competitiveness are delineated in Table 3.

Table 2. Comprehensive Market Attractiveness Scores

Id	X_1	X_2	X_3	X_4	X_5	X_6	X_7	Total
W*	0.18	0.16	0.13	0.1	0.16	0.12	0.15	1
M_1	5	5	5	5	4	5	5	4.84
M_2	4	4	4	5	4	4	4	4.1
M_3	4	4	4	5	4	4	4	4.1
M_4	3	3	2	3	3	2	3	2.75
M_5	4	2	2	5	3	3	3	3.09
M_6	4	5	3	4	4	4	4	4.03
M_7	4	3	3	3	3	3	3	3.18
M_8	4	3	3	3	3	3	4	3.33
M_9	3	3	4	5	3	4	4	3.6
M_{10}	2	2	3	3	3	2	2	2.39
M_{11}	2	3	2	2	2	2	2	2.16

M_{12}	4	4	1	2	3	4	3	3.1
M_{13}	4	4	4	4	4	5	4	4.12
M_{14}	5	4	4	4	4	5	4	4.3
M_{15}	5	4	2	3	4	5	5	4.09
M_{16}	5	5	2	3	4	5	5	4.25
M_{17}	3	3	2	2	2	3	2	2.46
M_{18}	5	5	4	4	5	5	5	4.77
M_{19}	4	4	4	4	5	5	5	4.43

* means wights of each indicators.

Table 3. Comprehensive Corporate Competitiveness Scores

Id	Y_1	Y_2	Y_3	Y_4	Y_5	Y_6	Y_7	Y_8	Y_9	Y_{10}	Y_{11}	Y_{12}	Y_{13}	Total
W*	0.1	0.07	0.07	0.08	0.09	0.06	0.06	0.08	0.07	0.08	0.08	0.09	0.07	1
M_1	5	5	5	5	5	5	5	4	5	5	5	5	5	4.92
M_2	5	5	5	5	4	5	4	3	5	5	5	5	5	4.69
M_3	4	4	4	4	3	3	3	3	4	3	4	3	4	3.54
M_4	2	4	3	4	1	3	3	1	4	2	3	2	3	2.61
M_5	3	4	2	2	1	3	3	2	5	2	3	3	4	2.79
M_6	1	3	1	2	1	2	2	1	1	1	3	1	2	1.57
M_7	4	4	3	4	2	3	3	2	4	2	4	3	3	3.15
M_8	4	4	3	4	3	3	3	2	4	2	4	3	4	3.31
M_9	5	5	4	5	4	5	5	4	5	5	5	5	5	4.76
M_{10}	2	2	1	3	1	2	2	2	2	1	2	2	1	1.77
M_{11}	1	2	1	3	1	2	2	1	3	1	2	1	1	1.57
M_{12}	1	3	1	3	2	2	2	1	2	2	2	1	1	1.74
M_{13}	2	3	2	3	2	2	3	2	2	2	3	2	2	2.29
M_{14}	4	4	4	4	2	4	4	1	4	3	5	5	5	3.74
M_{15}	1	3	1	3	2	2	2	1	2	1	1	2	2	1.74
M_{16}	1	2	1	2	2	2	1	1	1	1	1	1	1	1.3
M_{17}	2	1	1	2	1	1	2	1	2	1	1	1	1	1.31
M_{18}	2	3	2	4	2	3	3	1	1	1	4	2	3	2.35
M_{19}	4	5	3	4	2	3	3	2	2	2	4	2	3	2.99

* means wights of each indicators.

4.3 GE Matrix Analysis and Strategic Planning

Based on the expert panel's scoring results, the determination of market attractiveness and corporate competitiveness for each business was obtained. The positions of each business in the GE matrix analysis results are then determined, as illustrated in Figure 3

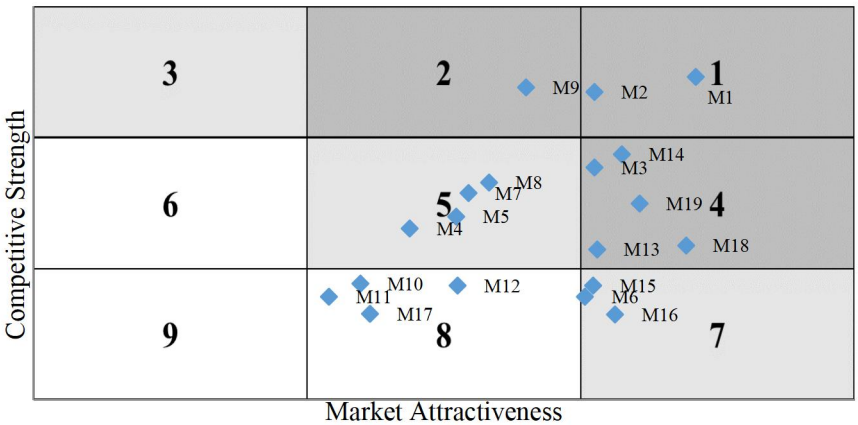

Figure 3. GE Matrix Analysis Results

(1) From the perspective of external market attractiveness: Strong market attractiveness (Quadrants 1, 4, 7) involves five segments, namely the air conditioning segment, home appliances segment, green energy segment, intelligent equipment segment, and emerging business segment. Among them, the air conditioning segment and emerging business segment are the most attractive. Businesses with strong market attractiveness include household air conditioners, HVAC equipment, home appliances, environmental appliances, photovoltaic (storage) air conditioners, new energy, logistics warehousing, semiconductor segment, medical health segment, prefabricated vegetable equipment, totaling 10 major businesses.

Businesses with moderate market attractiveness (Quadrants 2, 5, 8) involve four segments: the industrial products segment, intelligent equipment segment, home appliances segment, and emerging business segment. Among them, the industrial products segment and intelligent equipment segment have relatively lower market attractiveness. Businesses with moderate market attractiveness include refrigeration components, motors, compressors, refrigerators and washing care, kitchen appliances, precision molds, CNC machine tools, renewable resources, industrial robots, totaling 9 major businesses.

(2) From the perspective of internal corporate competitiveness:

Strong corporate competitiveness (Quadrants 1, 2, 3) involves two segments: the air conditioning segment and the industrial products segment. Businesses with strong corporate competitiveness include household air conditioners, HVAC equipment, and refrigeration components, totaling 3 major businesses.

Moderate corporate competitiveness (Quadrants 4, 5, 6) involves five segments: home appliances, industrial products, green energy, intelligent equipment, and emerging business. Businesses with moderate corporate competitiveness include kitchen appliances, refrigerators and washing care, environmental appliances, compressors, motors, photovoltaic (storage) air conditioners, logistics warehousing, prefabricated vegetable equipment, medical health, totaling 9 major businesses.

Weak corporate competitiveness (Quadrants 7, 8, 9) involves businesses in the intelligent equipment, emerging business, green energy, and home appliances segments. Businesses with weak corporate competitiveness include precision molds, CNC machine tools, renewable resources, industrial robots, new energy, cleaning appliances, semiconductors, totaling 7 major businesses.

(3) Combining market attractiveness and corporate competitiveness, the GE matrix can be roughly categorized into three types:

The first category (Quadrants 1, 2, 4) is the focus business area. Businesses in this category have high market attractiveness and corporate competitiveness, including household air conditioners, HVAC equipment, refrigeration components, photovoltaic air conditioners, environmental appliances, prefabricated vegetable equipment, logistics warehousing, medical health, totaling 8 major businesses. These businesses, being the key focus, should adopt a strategy of growth and development with prioritized resource allocation

The second category (Quadrants 3, 5, 7) is the core business segment. Businesses in this category exhibit strong market attractiveness and corporate competitiveness, including motors, compressors, refrigerators and washing care, kitchen appliances, new energy, cleaning appliances, semiconductors, totaling 7 major businesses. A strategy of maintaining or selective development can be adopted in this category, with emphasis on cost control, enhancing business expansion capabilities, and protecting existing market share.

The third category (Quadrants 6, 8, 9) is the contraction business segment. Businesses in this category have relatively low market attractiveness and corporate competitiveness, including CNC machine tools, precision molds, industrial robots, renewable resources, totaling 4 major businesses. A strategy of stopping, transferring, or withdrawing can be considered in this category, with a focus on market utilization and cost control.

4）Combining McKinsey's three-level theory of business composition, further subdivision of the first category (Quadrants 1, 2, 4) - the focus business area from the GE matrix analysis conclusion:

Household air conditioners and HVAC equipment, due to both strong market attractiveness and corporate competitiveness, have been Gree' flagship businesses for many years. They can be classified as the first-level business. In addition, although refrigeration

components have moderate market attractiveness, they can be produced and used internally for the company's products, also falling into the first-level category. Therefore, the core businesses in the first level include household air conditioners, HVAC equipment, and refrigeration components.

Environmental appliances and photovoltaic air conditioners, with strong market attractiveness and relatively strong corporate competitiveness, fall into the second-level business category. Gree has deeply cultivated environmental appliances for many years, achieving a leading position in certain subcategories. Despite moderate overall revenue, it has factors such as strong consumer recognition. Therefore, environmental appliances can be considered as the second-level business. Photovoltaic air conditioners are currently in the emerging stage and, due to government policy support and the company's deep technological accumulation, can be considered a strategic business in the second level. Thus, the second-level strategic businesses include environmental appliances and photovoltaic (storage) air conditioners.

Prefab vegetable equipment, medical health, and logistics warehousing, with strong market attractiveness and moderate corporate competitiveness, can be considered as the third-level businesses. Prefab vegetable equipment and logistics warehousing, due to factors such as broad market prospects and government policy support, are in the early stages of development, making them suitable as third-level businesses. Medical health, with the arrival of an aging population and increasing health consciousness, has a vast future market. However, the industry has limited experience, placing it as a third-level business. Therefore, the future businesses in the third level include prefab vegetable equipment, medical health, and logistics warehousing.

5. Conclusion

5.1 Analysis Results

With the advent of the era of material abundance, market competition has become more intense. In order to meet the trends in consumer demand, businesses need to maintain competitiveness and explore new markets. Diversifying operations can assist enterprises in entering new markets and industries. By engaging in different business sectors, a company can reach a broader customer base and benefit from growth opportunities in various markets. Resources form the foundation of business operations, yet they are limited. Therefore, it is essential for enterprises to strategically diversify their operations to maximize the efficiency of their limited resources.

This paper takes Gree as a case study, delving into the business targets of diversified development for manufacturing enterprises. The paper enhances the evaluation criteria of the GE matrix through the industrial competitiveness cycle model. It establishes a comprehensive evaluation system for the diversified development of manufacturing enterprises and combines it with the three-dimensional theory of McKinsey's business to optimize detailed business planning in key diversified business areas. This research provides valuable insights for enterprises undergoing diversified transformation.

5.2 Theoretical Contributions

(1) From a management perspective, this paper enriches the theory of corporate diversification. Previous research predominantly focused on the relationship between corporate diversification and performance, with limited attention given to the methods and frameworks of corporate diversification. This paper primarily concentrates on the methods of corporate diversification, enhancing the criteria of the GE matrix. The composition elements of the industrial competitiveness cycle model serve as evaluation indicators for the GE matrix, creating an evaluation system suitable for manufacturing enterprises to select diversified business targets. Additionally, the paper optimizes the strategic planning phase of the GE matrix, employing McKinsey's three-dimensional business theory to further refine the planning of key development businesses in the GE matrix, providing clearer resource allocation for diversified business.

(2) From an economic perspective, this paper enriches the theory of industrial competitiveness. Traditional competitiveness research is divided into four levels: national competitiveness, industrial competitiveness, corporate competitiveness, and product competitiveness. While these levels share similarities, they also exhibit differences. This paper applies the theoretical model of industrial competitiveness to the level of corporate competitiveness. The industrial competitiveness cycle model reflects a

dynamic process of continuous cycling and improvement, and corporate competitiveness is also a dynamic result in the market environment. By applying the four parts and dynamic process of the industrial competitiveness cycle model to corporate diversification business indicators, the paper ensures comprehensive and non-omissive indicators for corporate competitiveness, facilitating the transformation of competitiveness theory systems at different levels.

(3) From an information science perspective, this paper enriches the theory of competitive intelligence. The GE matrix reflects the internal development status of enterprises by analyzing factors such as technological level, product quality, and management level. Simultaneously, it reflects the external environment of enterprises through factors like industry scale, competitors, and national policies. Competitive intelligence is both a process and a product, and the optimized GE matrix not only embodies the standardization and scientific process of corporate diversification but also represents the outcome of the corporate diversification strategy.

In summary, this paper not only applies the industrial competitiveness model to corporate competitiveness but also enhances the evaluation system and development strategy of diversified manufacturing enterprises based on the industrial competitiveness cycle model.

5.3 Practical Contributions

(1) Construction of a Diversification Evaluation Indicator System for Manufacturing Enterprises: Through in-depth research and analysis of Gree' diversified business development, this paper identifies limitations in the GE matrix evaluation indicators for diversification in manufacturing enterprises. Based on this, the paper introduces the industrial competitiveness cycle model, improves the secondary evaluation indicators of the GE matrix, and constructs a business diversification evaluation indicator system suitable for the development of manufacturing enterprises. This indicator system not only integrates the unique market environment and internal development of manufacturing enterprises but also considers the perspective of industrial competitiveness. From a comprehensive and dynamic standpoint, it ensures the integrity and practicality of evaluation indicators. The evaluation indicator system provides targeted guidance and decision support for manufacturing enterprises in the development of diversified business.

(2) Optimization of the Strategic Planning Mechanism for Corporate Diversification: This paper introduces and optimizes McKinsey's three-dimensional theory of business composition in the strategic planning process. The optimization enhances the accuracy and operability of the GE matrix's strategic planning, making it adaptable to the needs of diversified business development in manufacturing enterprises. This optimization provides manufacturing enterprises with more refined and specific strategic directions, promoting the scientific nature of strategic decision-making.

(3) Guidance for the Diversified Development of Manufacturing Enterprises: Using Gree, a leading manufacturing company, as an example, this paper establishes a GE matrix. Analyzing the development potential and strength of its diversified business objects from the dimensions of market attractiveness and corporate competitiveness, it helps the company choose suitable diversified business targets. This guidance assists in finding a second economic engine, achieving positive outcomes, and can serve as a reference for other manufacturing enterprises in their diversified development, contributing to the stable and high-quality development of China's manufacturing industry.

5.4 Limitations and Prospects

This paper takes Gree as a case study for diversified research. However, due to the limited sample size, the applicability of the findings to the strategic planning of diversified business in manufacturing enterprises may be constrained. Further research could enhance the reliability and applicability of the results by expanding the sample size to include a more diverse range of manufacturing companies.

Additionally, this paper primarily focuses on the evaluation indicator system and business methods for diversified operations. Future research could take a more comprehensive perspective, considering aspects such as internal organizational structure, external resource allocation, financial management, and human resources. Exploring the entire process of strategic decision-making for diversified development in manufacturing enterprises from multiple angles could lead to a more holistic and coordinated understanding of diversified development.

References

[1] Chen Chunhua. Reconstruction and Improvement of Core Competence of Chinese Enterprises in the Wuka Era[J]. People's Forum, 2021(26):32-35.

[2] Guo Kexia, Peng Jizong. The Strategic Position and Role of Manufacturing Industry in the New Development Stage of China[J]. China Social Sciences, 2021(5):23.

[3] Lian Lishuai, Chen Chao. Research on the Formation Reasons of Capital Investment Decline: A Perspective of the Long-Term Impact of the "Four Trillion" Economic Stimulus Policy[J]. Management Review, 2021, 033(004):47-58.

[4] Ye Zhenyu. Exploration and Countermeasures of the Trend of Decreasing Proportion of China's Manufacturing Industry[J]. China Soft Science, 2021(5):12-25.

[5] Wu Haiyan. On the Development Strategy of Enterprise Diversification[J]. China Management Informatization, 2015, 18(09):140-142.

[6] Ansoff, H. Strategies for Diversification[J], Harvard Business Review, 1957(35):113-124.

[7] Yang Binhong. On the Development Strategy of Enterprise Diversification[J]. Modern Economic Information, 2014(05):126.

[8] Liu Gongyin. Analysis of Diversified Industrial Development Strategy and Group Control Model: A Perspective of Expressway Enterprises[J]. Modern Economic Information, 2019(24):124.

[9] Dai Mengting. Analysis of Enterprise Diversification Strategy from the Perspective of Core Competitiveness[J]. Knowledge Economy, 2017(14):2.

[10] Wang Yuan. Reflections on the Management of Enterprise Diversified Operations[J]. China Management Informatization, 2017(16):2.

[11] Li Lin. Research on the Implementation Path of Diversification Strategy for Small and Medium-sized Enterprises[J]. China Management Informatization, 2018, 21(5):2.

[12] Yin Jianfeng. The Intrinsic Mechanism of Enterprise Diversification Development: A Theoretical Perspective Based on Entrepreneurial Cognition[J]. Technological Economy, 2018, 37(7):11.

[13] Jiang Zhaopeng. Analysis of the Advantages and Disadvantages of Enterprise Diversification and Specialized Management[J]. Technology and Market, 2020, 27(10):2.

[14] Ren Jiasong, Wang Nianxuan. Research on Diversification Strategy Selection of Electrical Appliance Enterprises[J]. Economic Research Guide, 2021(13):4.

[15] Cai Gaoyang. Coordination of Strategic Management and Financial Management in the Development of Enterprise Diversification[J]. China Market, 2021(27):2.

[16] Rumelt, R. P. Strategy, Structure, and Economic Performance[M]. Cambridge, MA: Harvard University Press, 1974.

[17] Luo Binyuan, Chen Yanxia. The Impact of Diversification Strategy on Enterprises: Insights from Sequential Game Theory[J]. Contemporary Accounting, 2020(08):30-32.

[18] Chen Hanhua. Analysis of the Impact of Diversification on the Financial Performance of Retail Enterprises[J]. Business Economic Research, 2020(23):4

[19] Le H. Literature Review on Diversification Strategy, Enterprise Core Competence, and Enterprise Performance[J]. American Journal of Industrial and Business Management, 2019, 09(1):91-108.

[20] Yang Jun, Zhao Jixin, Li Yuhang. Research on the Impact of Diversified Business Strategy on Enterprise Financial Risk[J]. Finance and Accounting Communication, 2020(14):78-81.

[21] Kahloul, I., Hallara, S. The impact of diversification on firm performance and risk: An empirical evidence[J]. International Research Journal of Finance & Economics, 2010, 35.

[22] Sun Taoluan, Xiang Ru. "Double-edged Sword" Effect of Diversification Strategy on the Development of Enterprise Groups[J]. Modern Economic Discussion, 2022(10):85-95.

[23] Yi Chengzhou, Wang Liwei. Research on the Impact of Diversified Operation Strategy and Enterprise Size on the Performance of Listed Companies[J]. Modern Management, 2021, 11(7):10.

[24] Raximov, D. Determined criteria for diversification in industrial enterprises[C]. The 2021 International Scientific and Current Research Conference, Hawaii, USA,

2021(11); 1(01), 60--64.
[25] Gao Kainan. Analysis of Haier Group's Diversified Development Strategy[J]. Modern Marketing (Late), 2022(05):92-94.
[26] Wei Zhuoying. Financial Difficulties Arising from Diversified Development: A Case Study of GRL Corporation[J]. National Circulation Economy, 2020(25):92-95.
[27] Xu Binyi. Analysis of the Transformation and Development Path of Large State-owned Holding Groups in the New Situation: A Case Study of China Resources Group's Diversification Strategy[J]. SME Management and Technology, 2022(07):152-154.
[28] Lei Zhenyu. Discussion on Business Strategy Tools - Boston Matrix and GE Matrix[J]. New Materials Industry, 2013(06):65-67.
[29] Lin Zhenjin. Application of GE Matrix in Strategic Formulation[J]. China Petroleum Enterprise, 2005(04):44-46.
[30] Tetiana S, Sergii V. Application of management matrix models for strategic planning of enterprise activities[J]. Technium Social Sciences Journal, 2020, 8.
[31] Alamsyah M.I. A Feasibility study of site Selection through GE-Matrix mapping with market attractiveness parameters and financial projection parameters in small and medium enterprises[C]. GCBME 2020, 2021(09); 690--694.
[32] Rolik. Risk Management in implementing wind energy project.[M]. Procedia Engineering. 2017.178:278-288.
[33] Bilorus T.V. Development strategy formation of the personnel management system of the enterprise based on portfolio analysis[J]. Marketing and Management of Innovations, 2018, 13(06): 184--195.
[34] Liang Xiaoming, Wang Jianle. Research on Business Strategy Selection of Aerospace Technology Application Industry Based on GE Matrix[J]. Aerospace Industry Management, 2021(05):3-8.
[35] Zhao S, Zhang P, Li W. A Study on evaluation of influencing factors for sustainable development of smart construction enterprises: case study from China[J]. Buildings, 2021(6).
[36] Liu B, Li Z. Health evaluation system of national higher education based on improved entropy weight method combined with GE matrix[C]//Proceedings of the 5th International Conference on Computer Science and Application Engineering. 2021: 1-7.
[37] Unaldi H, Soydemir H. Selecting target market using The 'Analytic Hierarchy Process (AHP)' Model: TarMAR[J]. American Journal of Management, 2021, 21(3).
[38] Zhang Y, Ma C, Li X, et al. Methodology of hinterland strategy selection for container port based on GE matrix and fuzzy TOPSIS: Case of Lianyungang port in China[J]. Transportation Research Record, 2008, 2066(1): 50-59.
[39] Guo Jingjing, Yang Yu, Bao Beifang. Research on the Selection of New Products of Manufacturing Enterprises Based on FAHP and GE Matrix[J]. Machinery, 2012, 39(9):5.
[40] Guo Jinfu. Research on Industrial Competitiveness[J]. Economic Forum, 2004(14):32-33.
[41] Liu Xiaotie, Ouyang Kang. Overview of Industrial Competitiveness Research[J]. Contemporary Finance & Economics, 2003(11):4.
[42] Ai Li, Du Liping. Review of Industrial Competitiveness Theory[J]. Business Times, 2010(35):99-100+36.
[43] Eisenhardt, K. M. Building theories from case study research[J]. Academy of Management Review, 1989, 14(4):532-550.
[44] Eisenhardt, K. M., Graebner, M. E. Theory building from cases: opportunities and challenges[J]. Academy of Management Journal, 2007, 50(1):25-32.

