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The Study on Financial Performance of Gree Electric

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1. INTRODUCTION

In current rapidly developing Chinese economy, the growth rate of the digital economy is unprecedented. While the economy is rapidly developing, the home appliance industry is also facing the decline of traditional products and the rise of smart homes. The development of China's household appliance industry has been rapid and has become the world's largest industry, with a significant position globally.

With the rapid development of internet marketing and the support of national policies, Chinese household appliance companies have rapidly emerged. Along with this emergence comes increasingly fierce market competition and a saturated Chinese market. Due to the continuous tightening of macroeconomic and real estate policies, the retail market for Chinese household appliances showed a certain downward trend in 2019. The COVID-19 pandemic, which lasted from 2020 to 2022, brought even greater pressure to an already weak market. Therefore, in the current economic situation, companies must adjust the interests of stakeholders, maintain or enhance their competitive advantage, and improve their financial performance. Gree Electric Appliances, as a relatively leading company in the domestic household appliance industry with outstanding achievements in technological innovation, among other areas, is of significant practical significance for financial performance analysis and evaluation.

The main purpose of this study is to evaluate the financial performance of Gree Electric Appliances Inc., a large-scale enterprise in China's household appliance manufacturing industry, identify the financial problems that exist within the company, and respond to these issues to make recommendations. Referring to the selection criteria of financial performance indicators proposed by the State Council and using factor analysis to select 16 representative financial performance indicators and taking 30 listed companies in the household appliance industry as samples, this study evaluates their financial performance from 2017 to 2021 comprehensively. The results identify four factors that affect financial performance: liquidity, profitability, growth ability, and operational capability. Through horizontal comparison with companies in the same industry, it is found that Gree Electric Appliances' overall financial performance from 2017 to 2021 is at the industry median level, and in vertical comparison, its overall performance is declining. Based on these problems, several recommendations have been proposed to optimize its financial performance in light of the company's own environment.

2. LITERATURE REVIEW

2.1. The basic concept

2.1.1. The concept of performance

According to Armstrong and Baron (Armstrong & Baron, 1998), performance can be defined as "the degree of achievement of an organization in relation to its objectives". From a human resource management perspective, performance is regarded as the input and output of organizational and individual abilities and qualities over a certain period of time. In the organizational context, performance is often measured through indicators such as productivity, efficiency, and effectiveness(Demerouti et al., 2001). However, performance can also be influenced by factors such as motivation, job satisfaction, and work engagement(Schaufeli et al., 2002).

According to Borman and Motowidlo (1997), performance can also be divided into different dimensions, such as task performance and contextual performance. Task performance refers to the extent to which an individual performs the core tasks required for their job, while contextual performance refers to behaviors that are not part of the formal job description but contribute to the overall effectiveness of the organization, such as helping colleagues and volunteering for additional tasks.

2.1.2. The concept of financial performance

Financial assessment is the evaluation of a company's profitability, examining whether the company is capable of generating the expected profits and returns for its shareholders(Li, & Chen, 2019). Financial performance can be defined as the company's financial status during a specific timeframe, encompassing the acquisition and allocation of funds as evaluated by various metrics such as capital adequacy ratio, liquidity, leverage, liquidity, and profitability. According to Fatihudin (2018), financial performance is the company's ability to manage and control its resources an it is a comprehensive measure of an enterprise's effectiveness across various areas, including cost control, asset utilization efficiency, and fund allocation. The evaluation of financial performance enables an objective, comprehensive, and accurate assessment of an enterprise's operational status over a certain period of operation(Cai, 2019).

Zhang (2022) argues financial performance is measured by analyzing and comparing financial indicators based on data from financial statements using formulas. Changes in financial indicators can be used to evaluate a company's asset management level, assess its financial risk,

and determine its profitability and investment value.

2.1.3. The concept of financial performance evaluation

Shaverdi (2016) believes as the term of financial performance is considered under various meanings like return, productivity, output, and economic growth, using the financial ratios in the performance evaluation process can be applicable for both companies and related sectors. Financial ratios extracted from the data in income statement and balance sheets are considered as crucial measurement tools in determining performance and financial assets of firms. It enables managers and executives to gain a clear understanding of the overall financial level of a company, identify challenges, and determine future development directions(Borhan et al., 2014). The core of financial performance evaluation is the construction of an evaluation system and the formation of evaluation results.

2.2. Factors affecting financial performance

2.2.1. Corporate Social Responsibility

Since Moskowitz (1972) first empirically studied the relationship between corporate social responsibility and financial performance, there have been no consistent findings. Freeman and Liedtka (1986) argues that implementing responsible behaviors aligns firms with local business practices and legal requirements, which can contribute to the attainment of legal legitimacy and enhanced sales performance from a long term. McPeak and Tooley (2008) also find a significant positive correlation between corporate social responsibility and financial performance. Martinez-Conesa (Martínez-Conesa et al., 2017) shows through empirical research that fulfilling corporate social responsibility can have a positive impact on financial performance, while Maqbool and Zameer (2018) analyze data from 29 Indian listed banks between 2007 and 2016 to conclude that corporate social responsibility significantly enhances financial performance. The study of Sang, Chune and Jason (2019) confirms a partially positive correlation between corporate social responsibility performance, profitability, and firm value. Specifically, only social contribution displays a statistically significant positive correlation with profitability. Additionally, the analysis shows a positive correlation between the growth rate of total assets, corporate soundness, and social contribution.

However, some argue that fulfilling social responsibility does not improve a company's financial performance. Those who hold this view believe that companies should bear social responsibility, which not only increases the company's financial costs but also reduces its

economic benefits, which is not conducive to the company's long-term development. Aupperle et al. (1985) believed that companies that actively undertake social responsibility behaviors would be at a disadvantage in market competition, as evidenced by a decline in stock prices. Hillman and Keim (2001) divided a company's social responsibility into multiple dimensions based on its implementation goals and found that social responsibility has different effects on a company's financial performance under different responsibility subjects. Fulfilling social responsibility for the community and employees can effectively enhance the company's performance and competitiveness, whereas for companies fulfilling environmental obligations, it may reduce the company's financial performance. Ilhannas (Ilhan-Nas et al., 2015) conducted a survey of 63 listed companies in Turkey and found no direct link between a company's social responsibility and its financial performance.

In addition, some scholars suggest that there are additional factors that need to be considered when investigating the impact of corporate social responsibility on financial performance. The research conducted by Pekovic and Vogt (2020) indicated that A firm's financial performance is negatively impacted by the interaction between CSR and ownership concentration. Sandra and Patricia (2014) hypothesize that the absence of consensus in the empirical literature on the CSR–financial performance relationship may be explained by the existence of synergies (complementarity) and trade-offs (substitutability) between the different CSR components. Their results show that responsible behaviors towards employees (human resources dimension) and towards customers and suppliers (business behavior dimension) appear as complementary inputs of financial performance.

2.2.2. Corporate Governance

It is generally believed that high levels of equity concentration will lead to increased conflicts between senior executives and small and medium-sized shareholders. Therefore, Liu and Chen (2017) used 28 manufacturing companies as research data and found through empirical analysis that equity concentration showed a positive relationship with financial performance. Zhang and Xiang (2018) believes that the introduction of strategic investors can simultaneously reduce the conflicts between large shareholders and management and ease the conflicts between large shareholders and other shareholders, thus improving the financial performance of banks.

Most of research has shown a positive correlation between management incentives and financial performance. For instance, Sigler (2011) analyzed CEO compensation and firm performance using a sample of over 200 US companies and found a significant positive

association between the two variables. Rehman (2021) found a positive and significant relationship between executive pay and corporate profitability in a sample of 860 non-financial firms listed on Chinese Stock Exchanges over the 15-year period of 2004-2018 using GMM estimation approach.

2.2.3. Innovation and Research & Development (R&D)

Regarding the impact of research and development (R&D) investment on innovation performance, the majority of domestic and foreign researchers have found that R&D investment can promote the improvement of a firm's innovation performance. However, there are also studies indicating that increasing R&D investment not only fails to enhance a firm's innovation performance, but also raises the firm's production costs.

Hall and colleagues (2013) used data from Italian manufacturing companies as their sample and treated R&D investment and communication technology investment as inputs for innovation. Their findings, obtained by constructing a CDM model, suggest that increasing both types of investment has a positive impact on improvement, with R&D investment having a more prominent promoting effect. By comparing technology firms and non-tech firms, Wu (2021) highlighted the significant impact of innovation investment and equity incentives on the financial performance of technology firms. Similarly, Wang's(2021) study of 53 listed companies in Hubei Province found that R&D investment significantly promoted financial performance. Huang (2020) found that increasing levels of R&D expenditure were associated with lower short-term financial performance but higher long-term financial performance.

Mank (2001) found the level of investment in R&D has gradually declined and has been negatively correlated with the effectiveness of innovation input as the computer industry has developed. As a result, companies may opt to terminate or modify innovation projects that do not meet their expected outcomes. Yuan (2019) studied 91 manufacturing companies and found that the more a company invests in R&D, the worse its innovation performance becomes. Yuan argued that the decline in innovation performance can be attributed to companies using large amounts of capital to purchase core technologies and patents from the market in the short term to improve their technological innovation achievements. This type of innovation performance, which relies solely on external forces and is only temporarily boosted, cannot be sustained for long. Ultimately, the lack of competitiveness leads to a decline in business performance.

2.3. Financial performance evaluation elements

2.3.1. Subject of financial performance evaluation

The subject of financial performance evaluation refers to stakeholders who have an interest in the evaluated entity, and who serve as organizers and drivers of the performance evaluation.

- Investors

Investors in a company require financial performance evaluation to analyze the current state of the company's development and to assess the extent of the management's responsibility and effectiveness in running the company(Hoskin & Macve, 1986).

- Managers

Corporate managers have a responsibility to the company's investors, as their own salary and compensation are directly linked to the company's performance(Hoskin & Macve, 1986). Financial performance evaluation is used to conduct a deeper analysis of the company, assess the performance of various departments and employees, and provide a more comprehensive basis for business decision-making. (BusinessRoundtable, 2016).

- Creditors

Brealey(2018) believes that companies may seek financing from creditors during times of business expansion or financial shortages. Creditors receive a portion of profits through interest and principal payments, but also face the risk of not recovering their investment due to company losses. To assess whether a debtor can repay principal and interest within the agreed upon time frame, creditors must use financial performance evaluation to analyze the company's development.

- Government

The government and other related institutions are responsible for monitoring and supervising the operations of businesses on a daily basis. The research conducted by Albareda and colleagues (2007) indicated that. in order to regulate the economy, the government needs to stay updated on the recent developments of companies. In addition to aiming for profits, businesses have a social responsibility to regularly report their financial status and operational results to the government. Taxes paid by businesses are also a major source of government revenue.

2.3.2. Object of financial performance evaluation

The evaluation object refers to the recipient or target of the evaluation process. Typically, the object of financial performance evaluation is specific indicator data for an industry or a particular company. As the subject of financial performance evaluation varies, the evaluation object also tends to differ. For instance, when evaluating a company's financial performance, the evaluation object refers to financial indicators extracted from the financial information provided by the company. Financial indicators should be selected based on their ability to reflect the organization's performance, their sensitivity to changes in the business environment, and their comparability with industry benchmarks. For example, Spicka (2013) used a sample of 41 construction companies that declared bankruptcy between 2010 and 2014. The authors find that companies that declared bankruptcy had significantly lower liquidity and profitability ratios compared to non-bankrupt companies. Furthermore, the authors identify specific financial ratios that can predict bankruptcy, including the current ratio, debt-to-equity ratio, return on assets, and net profit margin.

2.3.3. Indicators of financial performance evaluation

Performance evaluation indicators refer to the aspects of the evaluation object that are assessed. These indicators include both financial indicators such as sales profit margin, asset turnover ratio, earnings per share, and non-financial indicators such as strategic objectives, customer satisfaction, and new product research and development capabilities. Additionally, different entities place varying degrees of emphasis on the evaluation indicators. For example, creditors are primarily concerned with debt repayment and profitability indicators, while shareholders focus on profitability and development indicators. A study by Li and her colleagues (2021) the importance of using both financial and non-financial indicators when evaluating financial performance to provide a comprehensive view of the organization's performance. The authors suggest that financial indicators such as profitability and liquidity should be used alongside non-financial indicators such as customer satisfaction and innovation capability.

According to the revised "Operating Guidelines for Performance Evaluation of Chinese Enterprises(Commission, n.d.)," the performance evaluation index system is divided into four categories: financial performance, asset management, debt-paying ability, and development capacity. The specific indicators are as follows:

- The efficiency of financial services include: net sales margin, return on net assets, return on total assets, etc.

- Asset operation status includes: total assets turnover, current assets turnover, net assets turnover, inventory turnover, accounts receivable turnover, etc.
- Liquidity status includes: gearing ratio, current ratio, quick ratio, etc.
- Development capability includes: growth rate of operating revenue, growth rate of net profit, growth rate of net assets, etc.
- Supplementary indicators: Supplementary indicators: technology input ratio, capital accumulation rate, inventory turnover ratio, etc.

2.4. Methods of financial performance evaluation

Performance evaluation methods can be broadly divided into two categories: financial evaluation and non-financial evaluation. Among them, the commonly used financial evaluation methods include the DuPont analysis, Economic Value Added (EVA) method, Balanced Scorecard. Non-financial evaluation methods are more diverse, and different companies use different evaluation methods based on their own characteristics, with varying criteria for selecting indicators. This study mainly introduces financial performance evaluation methods and compares their advantages and disadvantages.

2.4.1. The DuPont Model

The DuPont model is a widely used and valuable tool that helps evaluate and comprehend the factors behind profitability(Barry & Ellinger, 2012). This model was first introduced by the DuPont Corporation in the 1920s, and it has since become a widely used method for financial analysis. It is a type of ratio-based analysis that enables managers to observe how the critical variables in the cost volume-profit chain interact with each other(Van & Kenneth, 1981).

According to Melvin(2004), the DuPont model is a financial analysis and planning tool designed to help gain insight into the factors that impact a firm's return on equity (ROE) by utilizing basic accounting relationships. Melvin further argues that the DuPont model enables the assessment of the various components that make up ROE and assists management in analyzing how strategic initiatives may affect the firm's financial performance.

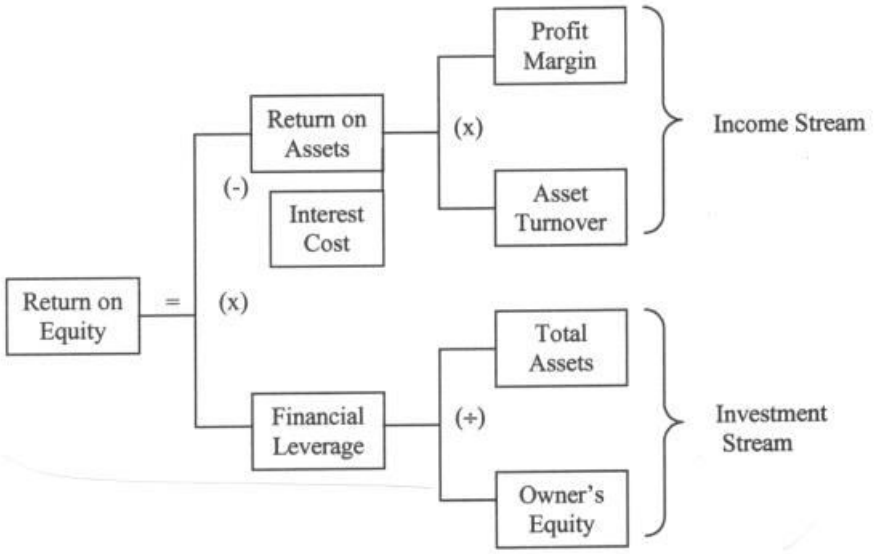

Figure 1 DuPont Financial Analysis Model

Source: Adapted from Van Voorhis (1981)

The return on equity (ROE) in the DuPont analysis is the most important financial indicator in this system. As shown in Figure 1 DuPont Financial Analysis Model, the DuPont formula can ultimately be decomposed into three related ratios multiplied in succession. By using the DuPont system, we can break down the formula into three related ratios that are continuously multiplied.

- Profit Margin (EBIT*Operating Income): This ratio measures how much profit a company earns from each dollar of revenue generated.
- Asset Turnover (Operating Income*Total Assets): This ratio measures how efficiently a company utilizes its assets to generate revenue.
- Financial Leverage: This ratio measures the amount of debt a company uses to finance its operations.

Therefore, the DuPont analysis system can be used to gain a more specific understanding of a company's financial situation at a particular moment and the operating performance of a certain stage by exploring the interactions among these data. It can systematically analyze the company's operating performance and identify the underlying causes of problems in order to propose appropriate solutions. The DuPont formula can also help companies identify factors that affect their return on equity, as well as the relationship between net sales and the asset turnover ratio and equity multiplier(Li, 2020).

Although widely used, the DuPont analysis system has certain limitations. Firstly, it emphasizes the financial data of a company over several months or years, lacking long-term considerations. Managers may sacrifice the long-term growth and development of the company in pursuit of immediate profits. Secondly, it overlooks the significant role of intangible assets such as goodwill and brand effects in the highly competitive market. It is suitable for short-term performance analysis, but it may be difficult to conduct industry comparative analysis, and it is better suited for evaluating the performance of the company itself(Gao & Zhao, 2023).

2.4.2. Economic Value Added (EVA)

Economic value added is Joelm Sterm in 1964 found that the use of accounting profit as an indicator for evaluating companies could not fully and accurately reflect the situation of the company, and proposed EVA performance evaluation indicators, and established Stensted to work on EVA for a long time. EVA is a modified version of residual income: the main modifications consist of accounting adjustments designed to convert accounting income and accounting capital to economic income and economic capital, respectively. Thus, the significance of the difference between EVA and residual income is dependent on the impact of these accounting adjustments(Venanzi, 2012). In short terms, it can be stated that EVA measures the profitability net of cost of capital. Furthermore, EVA calculation accounts for both debt capital cost and equity capital cost, which is a crucial factor that is often overlooked in other performance evaluation methods(Feng, 2022).

EVA is determined as adjusted operating income minus a capital charge, and assumes that a manager's actions only add economic value when the resulting profits exceed the cost of capital (Venanzi, 2012).

$$EVA = NOPAT – (TCE \times WACC)$$

Where,

NOPAT = net operating profit after taxes

TCE = Total capital employed

WACC= Weighted average cost of capital

EVA is a dollar amount. If the dollar amount is positive, the company has earned more after-tax operating income than the cost of the assets employed to generate that income. In other words, the company has created wealth. If the EVA dollar amount is negative, the company is consuming capital, rather than generating wealth. A company's goal is to have positive and

increasing EVA(Brewer et al., 1999).

The magnitude of EVA reflects the level of a company's value. In calculating this metric, a wider range of financial data can be considered, leading to a more comprehensive analysis. For example, according to Subedi and Farazmand (2020), considering the cost of capital when using the EVA model to value a company can enhance the accuracy of the EVA approach results. Additionally, external investors can use the EVA figure to assess the necessity of investing in the company. Xiao (2010) found that EVA and shareholder value change in the same direction by constructing an EVA valuation model for listed companies.

Various articles dealing with the theory and applications of EVA have been published over the last few years, but the concept is still under development and debate particularly in developed countries. Bacidore and his colleagues (1997) introduced a new analytical framework called Refined Economic Value Added (REVA) in order to assess a firm's operating performance in relation to shareholder value creation. While Economic Value Added (EVA) has shown a strong correlation with shareholder value creation, REVA is believed to be a theoretically superior measure as it takes into account the compensation of a firm's financiers for the risk associated with their capital. Worthington and West (2001) reviewed the literature on EVA and provided a synoptic survey of EVA's conceptual underpinnings. They concluded that empirical evidences concerning EVA have been mixed. There is strong need for research over a longer time frame to allow greater empirical certainty on the status of EVA as a corporate performance measure. According to Islam (2019) quoted by Shil (2009), EVA may not align with the objectives of firms that prioritize long-term investments, making it difficult to calculate the actual EVA of such investments. Additionally, the cost of equity capital calculation can be inaccurate, resulting in negative EVA despite a profitable long-term outlook. The complexity of adjustments in accounting profit and capital employed can further complicate EVA calculations.

2.4.3. Balanced Scorecard

The Balanced Scorecard (BSC) is a comprehensive evaluation method that involves complex implementation steps. This method suggests that a company should examine its performance from four perspectives in conjunction with its development strategy. Its core content is to combine performance evaluation with financial goals to achieve a more comprehensive and accurate evaluation, thereby helping companies to obtain the driving force for sustainable development.

Integrating the Balanced Scorecard performance management theory with corporate strategy requires decomposing the company's strategy into four dimensions: financial, customer, internal processes, and learning and growth. Corresponding performance indicators should be designed for each dimension:

- How do customers see us? (Customer perspective)

The fundamental aspect of a company's survival is its customers, and constantly focusing on their interests is essential to maintaining a company's healthy development. This is also an important way to maximize profits. Therefore, companies should start by serving their customers and meeting their needs as much as possible. The performance evaluation system based on the balanced scorecard emphasizes the crucial role of the customer dimension. Important indicators in this dimension include customer satisfaction, market share, and customer complaint rate, all of which strongly support the achievement of financial objectives(Kaplan & Norton, 1992).

- What must we excel at? (Internal perspective)

The smooth operation of internal processes is a crucial factor in improving a company's efficiency. There are many processes within a company, and the degree of completion of the production plan is an important indicator in evaluating the internal process dimension. The production plan completion includes a series of processes, mainly involving raw material procurement, order reception, product production, product sales, and after-sales services, among others(Kaplan & Norton, 1992).

- Can we continue to improve and create value? (Innovation and learning perspective)

The dimension of learning and growth is not only a requirement for individual employee progress, but also a criterion for judging whether the company is developing. The development of the company is closely related to the growth of employees, as the company is a platform for employee development, and employees are the soft power of the company. Employee learning and growth can help the company improve its management capabilities. The dimension of learning and growth plays an important role in all dimensions of the balanced scorecard, and the indicators include the completion rate and average duration of employee training(Kaplan & Norton, 1992).

- How do we look to shareholders? (Financial perspective)

Financial indicators reflect the performance of a company's operations, and can be used to

determine whether the company has achieved its established performance goals and whether there have been improvements through the implementation of its business and strategic plans. Financial indicators are the most important assessment content, and may include key performance indicators such as operating capital, sales revenue from major customers, and overall sales revenue(Kaplan & Norton, 1992).

The implementation process of the Balanced Scorecard includes four stages: clarifying the company's vision and strategy, designing and establishing the performance indicator system, internal communication and education, and improving and enhancing the performance indicator system(Sharma & Gadenne, 2011).

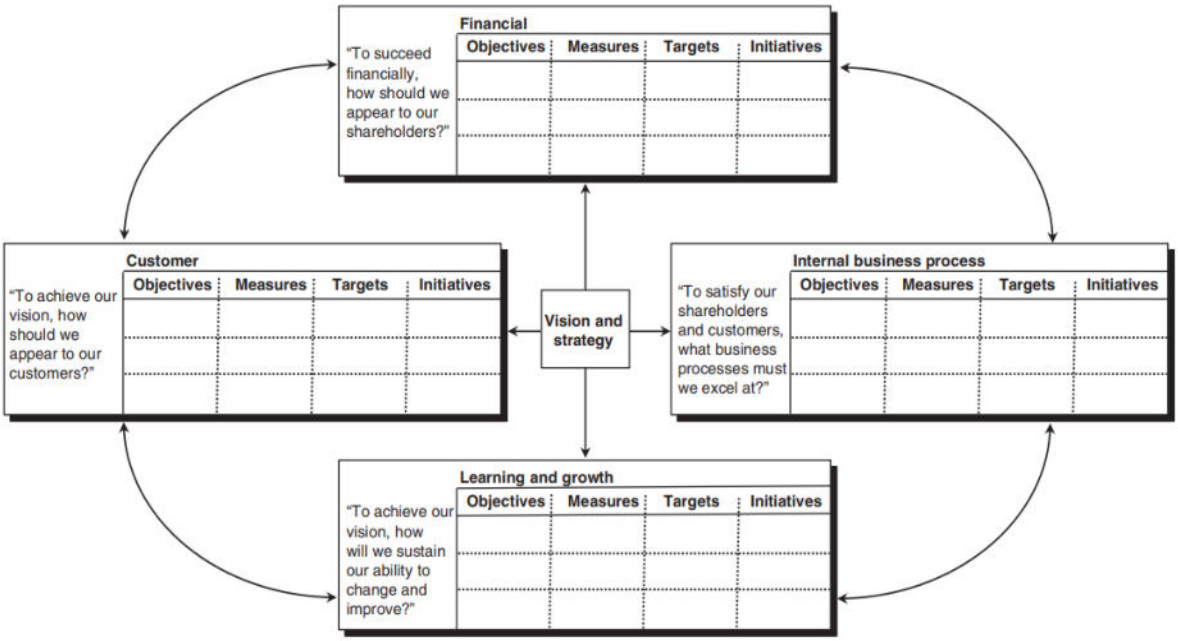

Figure 2 Translating vision and strategy of Balanced Scorecard: four perspectives
Source: Conceptual Foundations of the Balanced Scorecard by Robert S. Kaplan (2009)

According to the balanced scorecard framework (Figure 2), enhancing an enterprise's core competitiveness can trigger development in other areas, leading to sustainable and healthy growth. This can be achieved by utilizing the balanced scorecard performance evaluation system to break down the company's long-term strategy into quantifiable profit indicators. To achieve this overall goal, both financial and non-financial performance indicators must be implemented, which are independent but interrelated.

Epstein and Manzoni (1998) believes that compared with traditional performance evaluation methods, the balanced scorecard performance evaluation system focuses on the future while

not neglecting short-term benefits. By promoting the balanced scorecard performance evaluation system in a reasonable and efficient manner, the enterprise's management processes, and business content can be continuously optimized. This can also help different departments and positions to clarify quantifiable stage work objectives and integrate a reward and punishment mechanism to incentivize individuals to achieve their performance goals (Kaplan, 2009). As a result, the overall objectives of the enterprise can be achieved faster and more effectively.

2.4.4. Factor analysis

Factor analysis is a simple data processing method that reduces numerous interrelated variables into several comprehensive factors based on minimal information loss. The concept of factor analysis was first introduced by Spielman. This algorithm can quickly identify factors that fully reflect the original data, making the conventional evaluation process easier. Factor analysis has several advantages. Firstly, it selects more comprehensive financial indicators. There are no strict criteria for factor analysis, so as long as the selected indicators meet the conditions, they can be subjected to factor analysis. When selecting indicators, it is necessary to fully reflect the contents of the balance sheet, cash flow statement, profit and loss statement, and make the evaluation of the object more objective. Secondly, factor analysis can be used to study both individual companies and industries. This model can divide the overall performance of a company into multiple levels and evaluate it based on different abilities at each level, thereby enabling more in-depth evaluations. Thirdly, it can reduce workload to a certain extent. Evaluating financial performance based on various financial indicators is complex and labor-intensive, which increases the enterprise's manual costs. However, by using factor analysis, the complexity of multiple indicators can be reduced, avoiding excessive investment and waste of manpower costs(Hu, 2022).

Initially developed as a statistical method for studying the relationship between multiple variables, factor analysis has become increasingly widely used over time. However, in the early stages, the use of factor analysis to study corporate performance was not widespread. It was only after the development of financial indicators became more sophisticated that it began to be applied to performance evaluation research in various industries.

For example, Ritchie and Kolodinsky (2003) used factor analytic techniques to analyze financial performance measurement ratios of nonprofit organizations, leading to the identification of three distinct performance factors, each with two financial measurement ratios

associated with it. The performance factors were classified as fundraising efficiency, public support, and fiscal performance.

Emin and his colleagues (2007) applied factor analysis to five years of financial data from Turkish construction companies and identified five independent factors, including liquidity, capital structure and profitability, activity efficiency, profit margin and growth, and assets structure, which are sensitive to economic changes in the country. The outcomes of the factor-based analysis can serve a dual purpose: the government can employ them to scrutinize industry changes over time, and construction companies can utilize them to assess their financial standing in comparison to their competitors.

Choi and Wang (2009) discovered through factor analysis that strong stakeholder relationships not only help companies with excellent financial performance maintain their competitive advantage over a longer period of time, but more importantly, they can also aid struggling companies in recovering from a disadvantageous position more quickly. Therefore, the positive impact of stakeholder relationships on the recovery of struggling companies is more significant than their role in helping successful companies maintain their performance advantage.

George and Michael (2011) used factor analysis to extract 11 factors from 52 indicators, and conducted a study on employees in the sales and service departments of manufacturers. By calculating factor scores and comparing them with the performance of the enterprise, they found a certain correlation between the financial performance of the enterprise and the organizational environment of the enterprise.

Jason M. Tracy (2013) used factor analysis to study the performance of companies from various aspects such as profitability, growth, and risk control. The results showed a strong correlation between the performance of trust institutions and these indicators.

According to Chang and Gan (2010), using the DuPont analysis method can result in the use of redundant indicators when evaluating the capabilities of enterprises, which increases the workload of analysis and affects the scientific validity of the results. In contrast, factor analysis can identify mutually independent common factors, which comprehensively reflect various capabilities and simplify the analysis method. By using score ranking, the analysis results can also be made more concise. Therefore, factor analysis can compensate for the limitations of the DuPont analysis method to some extent.

Guo (2017) utilized factor analysis to evaluate the performance of "Rizhao Communication", a communication equipment manufacturing enterprise, by combining horizontal comparison

within the same industry and vertical comparison within the enterprise itself. A series of effective work recommendations were proposed based on the evaluation.

Hornungová and Milichovský (2019) discuss the financial performance of the automotive industry in Europe, based on factor analysis. The authors collected data from 422 subjects in four parts of Europe and used factor analysis to identify key indicators in the field of financial performance of automotive companies. They found two indexes: Index 1 contains the indicators: Cash flow, Operating revenue, Gross profit and Shareholder funds; Index 2 is made up of P/L for a period (Net income) and Operating P/L (EBIT).

In a study by Dimitriadou (2020), financial indicators related to the job engagement of Greek university students were used as a research basis, and factor analysis was introduced to investigate the correlation between the Job Engagement Scale and the job engagement of university students. Ultimately, the study found a strong correlation between the two.

Shen (2021) used data from 40 food manufacturing listed companies in 2019 as research samples to construct a performance evaluation system for the food manufacturing industry based on debt-paying ability, operating ability, profitability, and growth ability. Factor analysis and vertical comparison of the companies themselves were used to evaluate the performance of the companies, and targeted countermeasures and suggestions were put forward to optimize the financial performance of the companies.

2.5. Current status of the household appliance industry

2.5.1. Household Appliance Industry in Global market

- The global appliance industry is generally on an upward trend.

According to a report by Statista(2022), the global household appliance market was valued at approximately $569 billion in 2022, reflecting a growth of 4.6% compared to the previous year. The market is segmented into large appliances and small appliances, with large appliances accounting for a larger share of the market. The global retail sales of large household appliances were estimated at around $277 billion in 2022, while small household appliances accounted for around $98 billion in sales.

It is worth noting that the COVID-19 pandemic continues to impact the household appliance market, with an increase in demand for certain products such as air purifiers and refrigerators, as well as a shift in consumer behavior towards online purchases. The trend towards smart and energy-efficient appliances is also expected to continue, with the integration of IoT technology

in household appliances becoming increasingly popular.

- Asia Pacific is the world's largest home appliance sales market.

According to a report by Research And Markets (2022), Asia Pacific remains the largest home appliance sales market in the world in 2022, accounting for approximately 45% of the global market share. North America follows closely behind with a market share of 22%, while Europe's market share is estimated at around 20%.

The growth in the Asia Pacific region can be attributed to several factors such as the rapid urbanization and increasing disposable income of consumers in emerging economies like China and India, which has led to an increase in demand for home appliances.

2.5.2. Household Appliance Industry in China

According to data from the annual report of Chinese home appliance industry(C. Institute, 2022), the domestic market of Chinese home appliances performed slightly worse than the international market in 2022, with the size of retail sales in the domestic market at 730.7 billion yuan, up -9.5% year-on-year. The export of household appliances was affected by various factors, including global inflation, the conflict between Russia and Ukraine, and a high base period in the same period. In 2022, the export of household appliances was 336,645 units, showing a year-on-year decline of 13.0%. Additionally, the export value was 568.16 billion yuan, indicating a year-on-year decline of 10.9%. These figures illustrate the impact of multiple factors on the export of household appliances, indicating the need for further investigation into the underlying causes of the observed trends.

The PEST analysis method is based on four aspects: Political, Economic, Social and Technological(Janina & Paweł, 2021). The use of PEST analysis method to analyze the macro environment of the home appliance industry is conducive to strengthening the understanding of the development environment of the home appliance industry, finding out the opportunities and difficulties faced by the industry, and thus better grasping the future development of the whole home appliance industry and the impact on the future development of Gree.

- Political

A series of macro policies promulgated by the Chinese government in recent years have put forward new requirements for the development of the traditional manufacturing industry. The traditional high energy consumption, high pollution manufacturing industry is no longer adapted to the development of today's society and should be transformed for development and

optimization of industrial structure(Li, 2018).

Therefore, the traditional manufacturing-based home appliance industry should seek transformation, which brings challenges to the home appliance industry. But these policies also increase consumer demand for home appliances, opening a broader consumer market for the development of the home appliance industry.

- Economic

Chinese economy has continued to grow at a steady pace, reaching $18.7 trillion in 2022, which accounts for over 17% of the world's GDP. This positive macroeconomic environment provides a favorable backdrop for the development of the home appliance industry in China. In addition, the growing urbanization of the country and rising income of Chinese consumers are contributing to the expansion of the home appliance market. With the increase in consumer purchasing power, there has been a growing demand for high-quality and innovative home appliances. As a result, companies in the home appliance industry are expected to continue to benefit from China's economic growth in the years to come(NBS, 2022).

In recent years, the rapid development of e-commerce has promoted the change of traditional sales methods in Chinese home appliance industry. With the rapid development of urban e-commerce market gradually saturated, the future development of space is limited. But the rural e-commerce market has more room for development.

- Social

In recent years, there has been a significant shift in the consumption concept of Chinese consumers, with an emphasis on improving quality of life. In addition, consumers are placing greater importance on the performance and quality of products, rather than solely considering price(Information, 2021). Home appliances have become a necessity for modern households, and consumers' preferences are increasingly moving towards high-end and intelligent products, with health and green environmental protection becoming key considerations. As a result, the competition among product brands is becoming more concentrated.

- Technological

Smart home appliances have become the mainstream of the home appliance industry, driven by the rapid development of IoT (Internet of Things) technology and the integration of hardware and software in China. The sales of smart home appliances have been on the rise and have gained widespread use in households, with applications ranging from bedroom appliances to

kitchen and bathroom products, as well as living room appliances(Hou, 2018). These products are equipped with voice-activated wake-up functions, which allow consumers to control them by voice commands, thereby enhancing their convenience and user experience.

3. MY RESEARCH

3.1. Gree Electric

Gree Electric Appliances Inc. of Zhuhai, founded in 1989 in Guangdong province, is a major Chinese manufacturer of household and commercial appliances. With its headquarters in Zhuhai, the company is recognized as the world's largest producer of residential air-conditioners (Wikipedia, 2022). In addition to air-conditioners, Gree also manufactures a range of products including electric fans, water dispensers, heaters, rice cookers, air purifiers, water kettles, humidifiers, and induction cookers, among others. Its products are marketed under the brand name GREE and are distributed in China and internationally.

While initially focused on the assembly and production of household air conditioners, the company has since diversified its business interests to include other industries such as high-end equipment, lifestyle products, communication equipment, among others.

In 2021, Gree Electric Appliance was once again ranked 252nd on the Forbes Global 2000 and 488th on the Fortune 500 list, thanks to its outstanding overall strength.

- ***GREE in Global Market***

In 2022, Gree Electric continued to maintain its position as one of the world's leading manufacturers of air conditioners and other home appliances. According to the company's 2021 financial report, Gree achieved a total revenue of 188 billion yuan (approximately 29 billion US dollars) in 2021, representing a year-on-year increase of 11.69%(Gree Electric, 2022).

In terms of global market share, Gree remained a dominant player in the air conditioner market. According to the data from Euromonitor International, Gree ranked as the world's largest air conditioner manufacturer in 2022, with a market share of 17.8%. This marks the 20th consecutive year that Gree has held this position. Currently, its products are exported to over 160 countries, making Gree Electric Appliances Inc. of Zhuhai a leading player in the global home appliance market.

- ***GREE in China***

According to the data released by the "HVAC Information" in 2021, Gree Central Air Conditioner is the only brand in the Chinese central air conditioning industry with a sales scale exceeding 20 billion yuan, achieving the "Ten Consecutive Championships" in the central air

conditioning market (Gree Electric, 2022). According to the data on the domestic sales of household air conditioners in 2021 released by "Industry Online", Gree air conditioner ranked first in the industry with a market share of 37.4%, leading the industry for 27 years.

3.2. Research objectives, hypothesis and research method

3.2.1. Research objectives

This paper evaluates the financial performance of Gree Electric Appliances by analyzing its ranking in various capabilities within the same industry and the trend of its comprehensive performance in recent years, in order to accurately and comprehensively reflect the company's financial performance. Based on the ranking, specific financial indicators are analyzed to identify the unfavorable factors that affect the company's development. Then, suggestions are proposed in combination with the current status of industry development, to provide theoretical support for the company's future development strategy.

Due to the limitations of traditional financial performance evaluation methods (Faello, 2015), such as a relatively narrow evaluation perspective and difficulty in making industry comparisons, this paper demonstrates the effectiveness and simplicity of factor analysis as a statistical method applied to evaluating corporate financial performance.

3.2.2. Hypothesis

H1: Gree Electric Appliances ranks relatively high in the overall financial performance within its industry and demonstrates a strong profitability and outstanding liquidity.

H2: Gree Electric Appliances' overall financial performance has been increasing year by year.

3.2.3. Sample Selection

In 2022, the Chinese Securities and Exchange Commission reported a total of 87 companies listed in the household appliances sector in China based on their classification criteria of the household appliances industry. In order to ensure comparability of the sample industries used in this study, I screened sample companies that met specific criteria as outlined (Mengjie Li, 2017):

Firstly, companies with financial risks were excluded from our sample. The SEC marks listed companies with ST or *ST to indicate that their financial data may be of a suspicious and risky financial status, resulting in inaccurate analysis. Secondly, I excluded companies in the home appliance manufacturing enterprise segment that only produce simple living devices, which have little relevance to the target companies of our study and are not comparable.

After applying these two criteria, I selected 30 companies including Gree Electric from the household appliance industry for comparison in this paper. I obtained the necessary data for comparison from financial statements required for performance evaluations found in the Wind Information database, Shanghai Stock Exchange and Shenzhen Stock Exchange, as well as the companies' official websites.

In this paper, I carefully selected financial performance evaluation indices that were highly relevant to the characteristics of the home appliance manufacturing industry. To this end, I referred to the "China Enterprise Performance Evaluation Criteria Values (Commission, n.d.)" and I selected 16 financial indicators from the above 30 sample companies in the household appliance industry for the years 2017-2021 as variables. The specific financial indicators are listed in Table 1.

Table 1 Financial ratios

Ratio Name	Variable
Net profit margin	X1
Gross Profit Margin	X2
Return on Equity	X3
Return on Total Assets	X4
Debt-to-assets Ratio	X5
Current Ratio	X6
Quick Ratio	X7
Cash Asset Ratio	X8
Inventory Turnover	X9
Accounts Receivable Turnover	X10
Current Asset Turnover	X11
Total Asset Turnover	X12
Net Asset Growth Rate	X13
Sales Revenue Growth Rate	X14
Net Profit Growth Rate	X15
Total Asset Growth Rate	X16

- The net profit margin, also called the profit margin on sales or just the profit margin, is calculated by dividing net income by sales. It gives the profit per dollar of sales:

  Net profit margin= Net income available to common stockholders / Sales

- The gross profit margin identifies the gross profit per dollar of sales before any other expenses are deducted. The gross profit margin is defined as:

Gross profit margin= (Sales -Cost of goods sold)/Sales

- The ratio of net income to common equity measures the return on common equity (ROE), which is often called just the return on equity. Stockholders invest to earn a return on their money, and this ratio tells how well they are doing in an accounting sense.

Return on common equity= ROE= Net income available to common stockholders/ common equity

- The ratio of net income to total assets measures the return on total assets (ROA) after interest and taxes. Measures how much net income is generated per dollar of assets. This ratio is also called the return on assets and is defined as follows:

Return on total assets= ROA= Net income available to common stockholders/ Total assets.

- The ratio of total debt to total assets is called the debt-to-assets ratio. It is sometimes shortened to debt ratio. Total debt is the sum of all short-term debt and long-term debt; it does not include other liabilities.

Debt-to-assets ratio= Debt ratio= Total debt/ Total assets

The lower this ratio (below 50%), the better the liquidity of the company.

- Calculate the current ratio by dividing current assets by current liabilities:

Current ratio= Current assets/ Current liabilities

Current assets normally include cash, marketable securities, accounts receivable, and inventories. Current liabilities consist of accounts payable, short-term notes payable, current maturities of long-term debt, accrued taxes, and other accrued expenses. In general, creditors like to see a high current ratio. A high current ratio could mean that the company has a lot of money tied up in nonproductive assets, such as excess cash or marketable securities. The current ratio provides the best single indicator of the extent to which the claims of short-term creditors are covered by assets that are expected to be converted to cash quickly, it is the commonly used to measure short-term liquidity.

- The quick ratio, also called the acid test ratio, is calculated by deducting inventories from current assets and then dividing the remainder by current liabilities:

Quick ratio= (Current assets – Inventories)/ Current liabilities

A current asset is one that trades in an active market, so it can be converted quickly to

cash at the going market price. Inventories are typically the least liquid of a firm's current assets; hence, they are the current assets on which losses are most likely to occur in a bankruptcy. Therefore, a measure of the firm's ability to pay off short-term obligations without relying on the sale of inventories is important.

- The cash asset ratio is the ratio of a company's cash-based assets to its current liabilities. Cash-based assets include cash on hand, deposits readily available for payment and cash equivalents, i.e., cash and cash equivalents as reflected in the statement of cash flows. The cash, which refers to cash and cash equivalents. It is an indicator of determining a company's liquidity by assessing its ability to pay off its short-term obligations.

Cash Asset Ratio = (Cash + Cash Equivalents) / Current Liabilities

- The inventory turnover ratio is the ratio of main operating cost to the average inventory balance. It is used to reflect the speed of inventory turnover, which is the liquidity of inventory and the reasonableness of the amount of capital employed in inventory.

Inventory Turnover ratio= Costs of Goods Sold / Inventories

- The accounts receivable turnover ratio, also called the debtor's turnover ratio, is an indicator used to measure the degree of liquidity of a company's accounts receivable. It refers to the number of times average accounts receivable are converted into cash within a certain period.

Accounts Receivable Turnover Ratio = Net Credit Sales / Average Accounts Receivable

- Current asset turnover ratio is the ratio of sales revenue to the average balance of current assets, which reflects the efficiency of utilization of all current assets. Current asset turnover ratio is a comprehensive indicator to analyze the turnover of current assets. A fast turnover of current assets can save money and improve the efficiency of capital utilization.

Current Asset Turnover = Net Sales/ Average Current Assets

- The total assets turnover ratio measures the dollars in sales that are generated for each dollar that is tied up in assets:

Total Assets Turnover Ratio =Sales/ Average Total assets

The total asset turnover ratio is an important indicator to comprehensively evaluate the operating quality and utilization efficiency of all the assets of an enterprise. The larger the turnover ratio is, the faster the total assets turnover is, reflecting the stronger sales capacity.

- Net asset growth rate is the ratio of total net assets of an enterprise in the current period to total net assets in the previous period. The growth rate of net assets reflects the expansion rate of the enterprise's capital scale and is an important indicator of the change and growth of the enterprise's total scale.

*Net Asset Growth Rate = (Current Period Total Net Assets - Prior Period Total Net Assets) / Prior Period Total Net Assets * 100%*

- The sales revenues growth rate refers to the percentage increase of sales revenues achieved by an enterprise in a certain period and its sales revenues in the same period of the previous year, reflects the growth or decline of the enterprise's sales revenues during the period.

*Sales Revenue Growth Rate = (Current Period Revenue – Prior Period Sales Revenue) / Prior Period Sales Revenue) * 100%*

- Net profit growth rate is the ratio of the amount of net profit of a company in the current period to the amount of net profit in the previous period. Net profit growth rate reflects the expansion rate of the enterprise to maximize value and is an important indicator for the comprehensive measurement of the enterprise's asset operation and management performance, as well as its growth status and development capability.

*Net Profit Growth Rate = (Current Period Net Profit -Prior Period Net Profit)/Prior Period Net Profit*100%*

- Total asset growth rate reflects the growth of the enterprise's asset size in the current period. The higher of total asset growth rate, the faster the expansion of asset operation scale of the enterprise in a certain period.

*Total Asset Growth Rate = (Current Period Total Asset -Prior Period Total Asset)/Prior Period Total Asset *100%*

3.2.4. Research Method

This paper used factor analysis method to analyze the data by SPSS (Statistical Package for Social Sciences). To compare Gree Electric Appliances' financial performance within its industry and examine its performance changes in recent years, data on 16 financial indicators from 30 sample companies over 2017-2019 the past five years were collected. The analysis will be divided into following steps.

- **Step1:** Standardize the raw data

Before conducting factor analysis, it is necessary to standardize the data to make sure that the

variables have the same units and express the same meaning. This enhances the objectivity and reliability of the results(DeVellis, 2016).

- **Step2:** Test the data for suitability for factor analysis

In factor analysis, factors that are independent of each other cannot extract common factors. Therefore, the selected variables for factor analysis must have a certain degree of correlation. Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) statistic are used to determine whether the selected data has adequate correlation. The Bartlett's Sphericity test value is less than 0.05, which indicates that the correlation between variables is very close. The KMO value reflects the number of common factors among the selected variables. This value is greater than 0.5, then the common factors that can be selected, based on the above selected data can be studied using factor analysis model(Kaiser & Michael, 1977)

- **Step 3** : Extract common factors

If the selected data samples have strong correlations, SPSS software can be used to extract principal components and obtain the variance contribution rate, initial eigenvalues, and cumulative contribution rate of each factor(Tabachnick & Fidell, 2019).

- **Step 4:** Rotate the factors to identify common factors

After extracting common factors, they need to be classified and named based on their characteristics. However, sometimes the information contained in the common factors may not be very relevant to the original data. In this case, a rotation can be performed to represent most of the original information in the common factors, making it easier to name them. There are several methods for factor rotation, with varimax rotation being the most commonly used(Costello & Osborne, 2005).

- **Step 5:** Calculate factor scores

After the above steps are completed, the common factors are determined, and factor scores can be calculated through the linear combination of the original variables, which can be represented as

$$Fi = a_{j1}Xi + a_{j2}X_2 + ... + a_{jn}X_n \ (j = 1, 2, ..., m).$$

In this paper, the sample data consists of financial data from 30 companies over the past five years. For horizontal comparative analysis, I calculated the weighted average of the factor scores for each company from 2017 to 2021 to obtain the average factor scores for the 30 sampled companies over the five-year period. For example, by adding up Gree Electric

Appliances' F1 factor scores over five years and dividing by 5, I can obtain the overall F1 score for Gree Electric Appliances over the five-year period.

For vertical comparative, I categorized the factor score table from 2017 to 2021 by year and obtained the factor scores and total scores for each factor for the 30 companies over the five years of 2017, 2018, 2019, 2020, and 2021. Selecting Gree Electric Appliances' factor scores and total scores for each factor from the table, and sorting them by year, we can observe the fluctuations in Gree Electric Appliances' financial performance.

3.3. Results

3.3.1. Standardized processing

Since many financial indicators are represented differently, the first step in doing factor analysis is to standardize the units of these financial indicators.

The "min-max standardization" and "Z-score standardization" methods are the most basic methods for standardizing data. The data processed by two methods are the raw data to be analyzed. In this paper, the data were standardized by SPSS using "Z-score standardization ".

3.3.2. Sample Validity Test

A Bartlett's sphericity test value of less than 0.05 indicates a strong correlation between the variables and is suitable for factor analysis.

Table 2 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.709
Bartlett's Test of Sphericity	Approx. Chi-Square	2627.676
	df	120
	Sig.	.000

Source: Collated from SPSS.27 software

As can be seen from Table 2, the KMO value is 0.709>0.5, which indicates that the 16 financial indicators selected are sufficiently correlated to be able to generate a common factor subsequently, and the original variables are suitable for constructing a factor analysis model. In addition, the result of significance in Bartlett's sphericity test is 0.000, which is less than 0.05. It indicates that there is a strong correlation between the data and the subsequent factor analysis can be conducted.

3.3.3. Extracting and Rotating the Factors

Table 3 Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.501	34.381	34.381	5.501	34.381	34.381	3.563	22.268	22.268
2	3.807	23.792	58.172	3.807	23.792	58.172	3.408	21.302	43.57
3	1.397	8.733	66.906	1.397	8.733	66.906	2.708	16.927	60.497
4	1.168	7.3	74.205	1.168	7.3	74.205	2.193	13.708	74.205
5	0.982	6.138	80.343						
6	0.819	5.12	85.463						
7	0.667	4.166	89.63						
8	0.573	3.581	93.21						
9	0.516	3.225	96.436						
10	0.186	1.161	97.597						
11	0.164	1.028	98.625						
12	0.098	0.612	99.236						
13	0.046	0.285	99.522						
14	0.033	0.209	99.731						
15	0.029	0.179	99.91						
16	0.014	0.09	100						

Source: Collated from SPSS.27 software

Table 3 presents the results of the total variance explanation in the factor analysis, which reflects the proportion of variance explained by each factor and the cumulative proportion of variance explained. With the exception of the component column, the table is divided into three main columns. The "Total" in each column represents the eigenvalue of the factor. The "Percentage of Variance" represents the proportion of variance contributed by the factor, and the "Cumulative %" represents the cumulative proportion of variance explained.

In Table 3, the first factor has an eigenvalue of 5.501 and a percentage of variance of 34.381%, indicating that it accounts for 34.381% of the total information of the selected 16 financial indicators. The second, third and fourth factors have eigenvalues of 3.807, 1.397 and 1.168 respectively, which are both greater than 1. Before rotation, the percentage of variance contributed by factor two, three and four are 23.792% 8.733%, and 7.3% respectively, indicating that they can explain 23.792%, 8.733% and 7.3% of the original variables, respectively. The cumulative percentage of variance contribution by these three factors is

74.205%, indicating that they can explain 74.205% of the original variables, which is greater than 70%. After rotation, the variances explained by the first three factors are 22.268%, 21.302%, 16.927%, and 13.708%, respectively. However, the cumulative percentage of variance contribution by these four factors remains 74.205%, indicating that the information contained in these four factors has not been greatly lost. Therefore, extracting the first four factors as common factors can better explain and interpret the information and problems of the selected 16 financial indicators.

Next, this study conducted an analysis of the communalities table in Table 4 to identify which financial performance indicators may be underrepresented by the 4 common factors we selected, as these factors were found to account for a substantial proportion of the missing information, approximately 25%.

Table 4 Communalities

	Initial	Extraction
Accounts Receivable Turnover	1.000	.767
Total Asset Turnover	1.000	.928
Net profit margin	1.000	.898
Gross Profit Margin	1.000	.917
Return on Equity	1.000	.954
Return on Total Assets	1.000	.708
Debt-to-assets Ratio	1.000	.891
Current Ratio	1.000	.883
Quick Ratio	1.000	.518
Cash Asset Ratio	1.000	.667
Inventory Turnover	1.000	.541
Current Asset Turnover	1.000	.776
Net Asset Growth Rate	1.000	.696
Sales Revenue Growth Rate	1.000	.518
Net Profit Growth Rate	1.000	.376
Total Asset Growth Rate	1.000	.834

Source: Collated from SPSS.27 software

In the above Table 4, the second column shows values of 1, indicating that if principal component analysis is used to extract all factors from the original variables, the information of

the original variables can be fully explained without loss.

However, the purpose of factor analysis is to reduce the number of variables analyzed. Therefore, the third column provides the communalities obtained when extracting eigenvalues based on the extraction criteria, which indicates the degree to which the original variables are explained.

Most of the communalities are above 0.5, indicating that little information is lost after the extraction of factors. Thus, the overall effect of this factor extraction can be accepted. Next, the extraction of principal factors will be examined.

3.3.4. Naming the factors

Based on the above analysis, the selected data and indicators have passed the fitness test, indicating that subsequent operations can be carried out.

To make the four extracted common factors have clearer meanings and to maximize their correlations with the original indicators, this study employs the maximum variance method to obtain the rotated factor component matrix, which is used as the standard for naming the common factors.

The factor Component Matrix after rotation is shown in Table 5:

Table 5 Rotated Component Matrix

	Component			
	1	2	3	4
Current Ratio	.920			
Debt-to-assets Ratio	.892			
Return on Total Assets	-.761			
Quick Ratio	.699			
Return on Equity		.854		
Total Asset Turnover		.835		
Gross Profit Margin		.820		
Net profit margin		.818		
Total Asset Growth Rate			.889	
Net Asset Growth Rate			.777	
Sales Revenue Growth Rate			.705	
Net Profit Growth Rate			.431	
Cash Asset Ratio				.754

Inventory Turnover	.713
Current Asset Turnover	.675
Accounts Receivable Turnover	.606

Source: Collated from SPSS.27 software

The rotated factor loading matrix obtained from the factor analysis is presented in the table above. The matrix shows the loadings of each variable on the four extracted common factors, which were obtained by rotating the original factor solution to improve interpretability. According to Table 5, the four factors can be named as follows:

- Factor 1, named Liquidity factor, has high loadings on Current Ratio (X6), Debt-to-assets Ratio (X5), and Quick Ratio (X7), with values exceeding 0.69. These financial indicators reflect a company's ability to meet its financial obligations.
- Factor 2, named Profitability factor, has high loadings on Return on Equity (X3), Net profit margin(X2) and Net Profit Margin (X1), with absolute values greater than 0.8. These indicators represent a company's profitability, and thus Factor 2 can be interpreted as a measure of the company's overall profitability.
- Factor 3, named factor, has high loadings on Total Asset Growth Rate (X16), Net Asset Growth Rate (X15), and Sales Revenue Growth Rate (X14), with values exceeding 0.7. Four of these indicators reflect a company's growth potential, Thus, Factor 3 can be interpreted as a measure of the company's growth potential.
- Factor 4, named Operation Capacity factor, has high loadings on Inventory Turnover (X9), Current Asset Turnover (X11), Accounts Receivable Turnover (X10), while the third indicator (Cash Asset Ratio (X8)) is closely related to liquidity. These financial indicators reflect a company's operating efficiency and liquidity, and thus Factor 4 can be interpreted as a measure of the company's overall operating efficiency.

3.3.5. Factor score

Table 6 Score Coefficient Matrix

	Component			
	1	2	3	4
Accounts Receivable Turnover	-.119	.076	.050	.203
Total Asset Turnover	-.019	.302	-.094	-.080

Net profit margin	-.008	.286	-.089	-.058
Gross Profit Margin	-.109	.292	-.023	.063
Return on Equity	-.034	.276	-.053	.070
Return on Total Assets	-.217	-.007	.068	-.025
Debt-to-assets Ratio	.290	-.070	.027	.042
Current Ratio	.341	-.127	.001	.133
Quick Ratio	.281	-.174	.117	.042
Cash Asset Ratio	.127	-.180	-.080	.455
Inventory Turnover	.097	-.005	-.139	.412
Current Asset Turnover	-.025	.017	.073	.267
Net Asset Growth Rate	.114	-.145	.349	.008
Sales Revenue Growth Rate	-.025	-.072	.331	-.107
Net Profit Growth Rate	-.137	.155	.157	-.203
Total Asset Growth Rate	.088	-.155	.425	-.077

Source: Collated from SPSS.27 software

Based on the score coefficient matrix in Table 6 **Score Coefficient Matrix**, score functions for F1 (Liquidity factor), F2 (Profitability factor), F3 (Growth factor), and F4 (Operating Efficiency factor) can be obtained.

*F1=−0.119*X1−0.019*X2−0.008)*X3−0.109*X4−0.034*X5−0.217*X6+0.290*X7+0.341*X8+0.281*X9+0.127*X10+0.097*X11−0.025*X12+0.114*X13−0.025*X14−0.137*X15+0.088*X16*

*F2=0.76*X1+0.302*X2+0.286*X3+0.292*X4+0.276*X5−0.007*X6−0.070*X7−0.127*X8−0.174*X9−0.180*X10−0.005*X11+0.017*X12−0.145*X13−0.072*X14+0.155*X15−0.155*X16*

*F3=0.050*X1−0.094*X2−0.089*X3−0.023*X4−0.053*X5+0.068*X6+0.027*X7+0.001*X8+0.117*X9−0.080*X10−0.139*X11+0.073*X12+0.349*X13+0.331*X14+0.157*X15+0.425*X16*

*F4=0.203*X1−0.080*X2−0.058*X3+0.063*X4+0.070*X5−0.025*X6+0.042*X7+0.133*X8+0.042*X9+0.455*X10+0.267*X11+0.008*X12−0.008*X13−0.107*X14−0.203*X15−0.077*X16*

Each of the 16 indicators for the financial performance evaluation of the selected companies is substituted into the above regression formula to find the four common factor scores for each company.

The total financial performance score for each company is calculated as the contribution of the variance of each factor to arrive at the overall ranking of the sample companies. This is calculated using the following formula:

*F=22.268%/74.205%*FAC1_1+21.302%/74.205%*FAC2_1+16.927%/74.205%*FAC3_1+ 13.708%/74.205%*FAC4_1*

3.3.6. Horizontal comparative analysis

Using the formulas from the preceding section, the SPSS software computed individual scores for each factor and the total score for the 30 sample companies for the period of five years (2017-2021).

By averaging the scores of each company over the five years, a weighted average was obtained, resulting in an overall factor score for each company for the years 2017-2021, as displayed in Table 7.

A higher score on each public factor (FI, F2, F3, F4) indicates a stronger capability of the company corresponding to that public factor, and a higher overall score F indicates a stronger overall financial capability of the company.

Table 7 Weighted average financial performance scores in 2017-2021 for Chinese household appliance industry

Code	F	Factor 1	Factor 2	Factor 3	Factor 4
000333.SZ	-0.053	-0.673	0.349	0.006	0.253
000521.SZ	-0.437	-0.212	-1.486	-0.294	0.651
000651.SZ	-0.052	-0.639	0.986	-0.628	-0.002
000810.SZ	-0.290	-0.162	-0.581	0.184	-0.629
000921.SZ	-0.073	-1.136	-0.181	0.480	1.138
002032.SZ	0.423	-0.006	0.985	-0.138	0.941
002035.SZ	0.075	0.013	0.414	-0.281	0.090
002045.SZ	-0.419	-0.663	-0.775	-0.032	0.056
002050.SZ	0.259	0.856	0.347	0.214	-0.791
002242.SZ	0.476	0.512	0.202	-0.981	2.644
002403.SZ	-0.660	-0.876	-0.401	-0.152	-1.336

002429.SZ	-0.166	0.227	-0.777	0.288	-0.417
002508.SZ	0.675	1.826	0.985	-0.214	-0.581
002543.SZ	-0.311	-0.998	0.566	-0.269	-0.610
002614.SZ	-0.083	0.111	-0.127	0.228	-0.711
002705.SZ	0.074	-0.182	-0.029	0.406	0.241
002959.SZ	0.977	0.020	0.681	2.165	1.527
003023.SZ	0.050	0.744	0.269	0.068	-1.438
300342.SZ	0.107	1.242	0.636	-0.583	-1.707
600060.SH	0.074	0.745	-1.021	-0.384	1.251
600336.SH	-0.418	-0.982	-0.421	0.326	-0.417
600690.SH	-0.179	-1.046	0.147	0.188	0.268
600839.SH	-0.573	-1.156	-0.696	-0.072	-0.053
600983.SH	-0.735	0.120	-1.911	-0.860	-0.143
603355.SH	0.139	0.767	-0.418	0.031	0.116
603366.SH	-0.644	-0.624	-0.959	-0.794	-0.002
603486.SH	0.494	-0.133	0.583	1.939	-0.411
603551.SH	0.614	1.638	0.147	-0.015	0.454
603726.SH	-0.127	-0.511	0.461	0.051	-0.638
603868.SH	0.783	1.179	2.026	-0.878	0.259

Source: Collated from SPSS27.0 software

Subsequently, using EXCEL, the scores for each common factor and the overall score for the 30 sample companies were sorted. The higher the ranking for each factor (FI, F2, F3, F4), the stronger the corresponding ability of the enterprise. The higher the ranking of the overall score (F), the stronger the overall financial capability of the enterprise. The ranking of financial performance scores for sample companies from 2019 to 2021 is shown in Table 8.

Table 8 Weighted average of 2017-2021 financial performance ranks for Chinese household appliance industry

Code	F	Factor 1	Factor 2	Factor 3	Factor 4
000333.SZ	16	24	11	14	10
000521.SZ	26	19	29	23	6
000651.SZ	**15**	**22**	**2**	**26**	**15**
000810.SZ	22	17	23	10	24
000921.SZ	17	29	19	3	4
002032.SZ	7	15	4	18	5
002035.SZ	11	14	10	22	13
002045.SZ	25	23	25	16	14
002050.SZ	8	5	12	8	27
002242.SZ	6	9	14	30	1

002403.SZ	29	25	20	19	28
002429.SZ	20	10	26	6	20
002508.SZ	3	1	3	20	22
002543.SZ	23	27	8	21	23
002614.SZ	18	12	18	7	26
002705.SZ	12	18	17	4	11
002959.SZ	1	13	5	1	2
003023.SZ	14	8	13	11	29
300342.SZ	10	3	6	25	30
600060.SH	13	7	28	24	3
600336.SH	24	26	22	5	21
600690.SH	21	28	16	9	8
600839.SH	27	30	24	17	17
600983.SH	30	11	30	28	18
603355.SH	9	6	21	13	12
603366.SH	28	21	27	27	16
603486.SH	5	16	7	2	19
603551.SH	4	2	15	15	7
603726.SH	19	20	9	12	25
603868.SH	2	4	1	29	9

Source: Collated by SPSS 27.0 and Excel

Based on Table 7 and Table 8, Gree Electric Appliances (000651.SZ) ranked 15 overall among the 30 sample companies, which is a medium ranking in the electrical appliance manufacturing industry. And the following can be summarized:

- Firstly, in terms of the comprehensive factor score (F) and ranking, the sampled enterprises did not achieve high scores, but rather received low scores with uneven distribution, indicating fierce competition in China's home appliance industry.
- Secondly, from the perspective of the scores and rankings of the liquidity factor (F1), 002508.SZ, 603551.SH and 300342.SZ rank among the top three companies in the industry. This indicates that these three companies have a strong liquidity ability from 2017 to 2021. Furthermore, according to the data in the tables, most of the liquidity factors for the 40 sample companies are negative, which indicates that the liquidity of most companies in the Chinese household appliance industry is poor from 2017 to 2021. However, Gree Electric Appliances (000651.SZ) ranks 22nd from the bottom in the liquidity ranking for this year, which requires further investigation.
- Thirdly, from the profitability factor (F2), it can be observed that 12 out of the 30 sample

companies have a positive profitability factor, indicating that the overall profitability of the household appliance industry from 2019 to 2021 is relatively strong. Gree Electric Appliances (000651.SZ), the case company, ranks second in terms of profitability factor among all sample companies and is one of the top-ranked factors among the four factors. This indicates that Gree Electric Appliances had good profitability from 2017 to 2021 and had the best profitability in financial performance.

- Fourthly, in the growth factor (F3), it can be observed that 16 out of the 30 sample companies have negative scores, indicating that the growth ability of the household appliance industry in China did not develop rapidly from 2017 to 2021. The top three companies in terms of this factor are 002959.SZ, 603486.SH, and 000921.SZ. However, Gree Electric Appliances (000651.SZ), the case company, ranks 26th in this factor, which is at the bottom of the list. This indicates that Gree Electric Appliances had poor development ability compared to other household appliance companies in the industry from 2017 to 2021.
- Finally, from the scores and rankings of the operating efficiency factor (F4), it can be observed that the top three performing companies in the sample are 002242.SZ, 002959.SZ, and 600060.SH, with relatively high scores. However, in terms of the operating capacity factor, most of the 40 sample companies have negative scores, indicating that the overall operational capacity of the household appliance industry in 2019-2021 is relatively poor. In addition, the case company Gree Electric Appliance (000651.SZ) ranks 15 and scores negative in terms of operating capacity factor, indicating insufficient emphasis on operational capacity in the current year. Therefore, it is necessary to provide improvement suggestions for enhancing operational capacity.

To summarize, Gree Electric Appliances' overall financial performance received a low score primarily due to the low ratings of its liquidity and growth ability factors. However, it should be noted that Gree Electric Appliances has a strong level of profitability.

3.3.7. Vertical comparative analysis

I categorized the factor score table from 2017 to 2021 by year, and obtained the each factor scores and total scores and ranks for each factor for the 30 companies over the five years. Selecting Gree Electric Appliances' factor scores and ranks by year, I obtained Table 9.

Table 9 Gree's Financial Performance Factor Scores and Ranks from 2017 to 2021

Year	F	Rank of F	F1	Rank of F1	F2	Rank of F2	F3	Rank of F3	F4	Rank of F4
2017	0.1934	15	-0.76163	23	1.2685	6	-0.17937	23	0.53428	10
2018	0.2476	9	-0.43867	19	0.869	7	0.0885	10	0.59312	9
2019	-0.0403	15	-0.45037	21	0.82444	6	-0.81261	25	0.23567	12
2020	-0.28	21	-0.47696	20	0.99993	2	-1.53626	30	-0.39765	16
2021	-0.3817	22	-1.06878	25	0.97012	3	-0.69842	28	-0.97512	26

Source: Collated by SPSS27.0 and Excel

Based on Table 9, trend charts for the scores of each factor and the total score from 2019 to 2021 can be plotted.

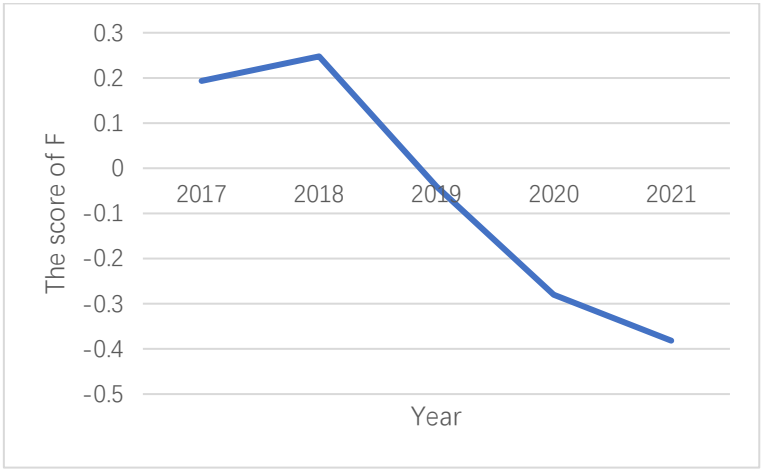

Figure 3 The trend chart for the overall factor score of Gree Electric Appliances from 2019 to 2021

Source: Collated by Excel

From Figure 3 and Table 9, it can be observed that the overall financial performance of Gree Electric Appliances has been declining over the years. The company's overall financial performance factor score was positive in 2017 and 2018, indicating good financial situation comparing with 29 sample companies. However, the score turned negative in 2019, indicating deteriorating financial situation. The score continued to decline in 2020 and 2021, indicating that the company's financial health has been worsening. Similarly, we can see that Gree Electric Appliances had a relatively high F score in 2018 (ranked 9th) compared to other years. However, its F score started to decline in 2019 (ranked 15th) and continued to worsen in 2020 (ranked 21st) and 2021 (ranked 22nd).

Figure 4 The trend chart for the liquidity of Gree Electric Appliances from 2019 to 2021
Source: Collated by Excel

From the Figure 4 and Table 9, it can be observed that Gree Electric Appliances' liquidity has been consistently declining over the years. The liquidity factor score was negative in all three years, indicating that the company's ability to meet its long-term financial obligations was weak. The score decreased from -0.76 in 2019 to -1.06 in 2021, which indicates a decline in the company's liquidity.

Furthermore, Gree Electric Appliances' rank in terms of liquidity has also been consistently low. In 2019, the company was ranked 23rd in terms of liquidity among its peers, which deteriorated further to 25th in 2021. This indicates that the company's liquidity was worse than that of most of its peers.

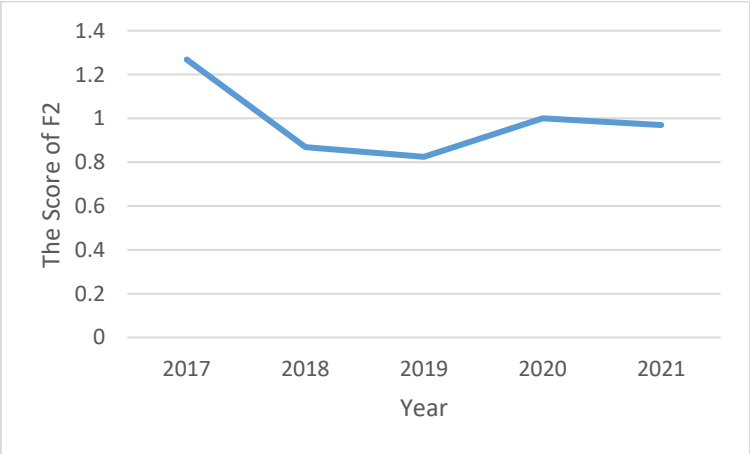

Figure 5 The trend chart for profitability of Gree Electric Appliances from 2019 to 2021
Source: Collated by Excel

From Figure 5 and Table 9, it can be observed that Gree Electric Appliances' profitability has been relatively stable and high over the years. The F2 factor score was positive in all five years, indicating that the company has been consistently profitable. Furthermore, the company's rank in terms of profitability has also been consistently high. In 2017, the company was ranked 6th in terms of profitability among its peers, which improved to 2nd in 2020, and then slightly dropped to 3rd in 2021. This indicates that the company's profitability was better than most of its peers.

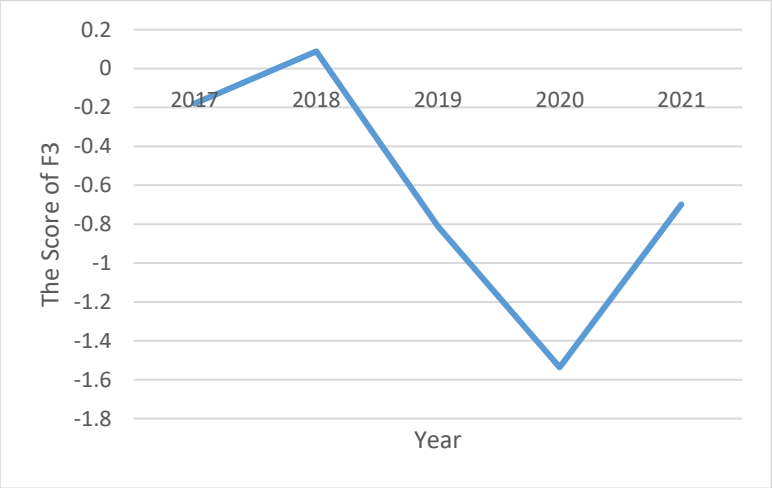

Figure 6 The trend chart for the growth capacity of Gree Electric Appliances from 2019 to 2021

Source: Collated by Excel

Based on Figure 6 and Table 9, it can be seen that the growth capacity of Gree Electric Appliances has been fluctuating over the years. Then F3 factor score was negative in all five years, indicating that the company has been struggling to grow its revenues, profits, and market share. In 2020, the company experienced a significant decline in growth capacity, with growth capacity score dropping to -1.53, the lowest value in the observed period.

The ranking of the company's growth capacity indicates that Gree Electric Appliances was among the top-performing companies in terms of growth capacity in 2018, with a rank of 10 out of 30. However, in the following years, the company's rank dropped to 25 in 2019, 30 in 2020, and 28 in 2021, suggesting a relative decline in its growth capacity compared to other companies in the industry.

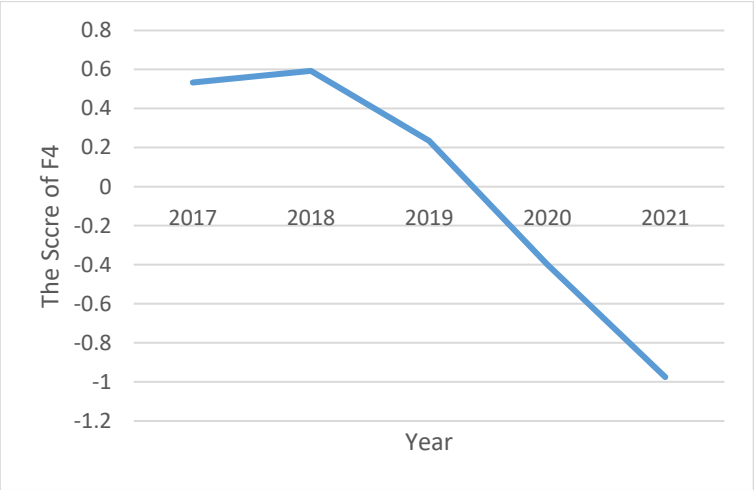

Figure 7 The trend chart for the operation capacity of Gree Electric Appliances from 2019 to 2021

Source: Collated by Excel

According to Figure 7 and Table 9, the operation capacity score for Gree Electric Appliances decreased from 0.53 in 2017 to -0.97 in 2021, indicating a decline in operational capacity. The rank also decreased from 10th in 2017 to 26th in 2021, further confirming the downward trend in operational performance.

The negative values in 2020 and 2021 suggest that Gree Electric Appliances is facing operational challenges that need to be addressed. Further analysis is needed to identify the specific factors contributing to the decline in operational capacity, such as changes in market conditions, internal management issues, or external factors beyond the company's control.

The primary aim of the data analysis in this paper is to verify the two hypotheses proposed earlier. Based on the data analysis, it was found that Gree Electric Appliances' overall financial performance is average, ranking in the middle level of the industry. And Gree Electric Appliances scored high in profitability, its liquidity is bad. Therefore, only the profitability part of hypothesis H2 is supported, while the others are not. In terms of hypothesis H2, the trend of overall financial performance is declining, so H2 is not accepted.

4. CONCLUSIONS AND RECOMMENDATIONS

The main purpose of this study is to evaluate the financial performance of Gree Electric Appliances Inc., a large-scale home appliance manufacturing enterprise in China, and identify the financial problems that exist within the company. Based on the company's current situation, recommendations for future development and strategy are provided. Using 16 financial indicators as research variables and 30 listed companies in the home appliance industry as samples, this paper employs factor analysis to classify the selected financial indicators into four factors: debt-paying ability, profitability, growth ability, and operational ability. Furthermore, the financial performance scores and rankings of the 30 sample companies are calculated.

Ultimately, it was found that Gree Electric Appliances' financial performance was at a moderate level in the horizontal comparison with its peers from 2017 to 2021. The company's liquidity and growth ability were relatively poor within the industry, while its operational ability was average, and its profitability was strong. In the vertical comparison over the past five years, Gree Electric Appliances' relevant financial performance has generally shown a declining trend, with only profitability remaining stable, while its liquidity ability, operational ability, and growth ability have all been in an overall downward trend.

Based on the previous data analysis and comparisons, I will make some suggestions below based on these results in conjunction with Gree Electric’s actual financial situation.

Based on the analysis of the ranking of factor scores mentioned earlier, it can be concluded that Gree Electric Appliances lags behind in terms of liquidity. It was found that the asset-to-debt ratio was above 60% for most years by finding the original data, which was much higher than the industry median at that time. Hence, company's financing is mainly through debt financing, while equity financing is relatively less used. This result will lead to an increase in the company's financial risk, even threatening the survival of the company.

By consulting the company's balance sheet, it can be seen that short-term loans accounted for a large proportion of current liabilities from 2017 to 2021, indicating that the company preferred to maintain the required funding for normal operations through short-term borrowing. If Gree Electric Appliances wants to reduce its asset-to-debt ratio and increase its ability to resist financial risks, it should reduce its reliance on the current short-term debt financing method and formulate a diversified financing strategy as a guiding policy.

Hence, optimizing the company's debt structure is its top priority, aiming to reduce its reliance

on short-term borrowings. According to Annual Reports, Gree Electric Appliances has had almost no long-term loans from 2017 to 2019, and only a small amount of long-term loans in recent two years. This debt structure is not balanced. It is recommended that Gree Electric Appliances achieve a balanced debt structure by issuing long-term bonds and loans, alleviate short-term debt pressure, and also raise funds through stock issuance. Financing through multiple channels can reduce financial risk, ease loan pressure, and promote the company's long-term development.

In addition, Gree Electric Appliances should establish a financial risk prevention system and formulate prevention methods from both internal and external perspectives. For internal factors, Gree Electric Appliances should regularly assess the company's financial risks, set risk points based on specific indicators, and take measures when the value approaches the risk point. For external factors, Gree Electric Appliances should regularly hold meetings to discuss the industry situation and economic environment, and take measures to counter financial risks caused by external reasons.

Based on the above factor score analysis, it was found that Gree Electric Appliances' operating capacity was at a medium level compared to its peers, and its operating capacity has been declining year by year. Further analysis reveals that one of the reasons for the declining operating performance of Gree Electric Appliances is accounts receivable turnover rates. Gree Electric Appliances' accounts receivable turnover rate has been steadily declining from 2017 to 2021. This is mainly due to the annual increase in accounts receivable and Gree Electric Appliances adopting a relatively loose credit policy to further increase market share and engage in large-scale credit sales. The increase in accounts receivable slowed down the company's fund recovery speed, which may be due to the management's focus on sales and profits while neglecting the recovery of sales receivables, as well as the intense competition in Chinese home appliance industry. This may lead to economic pressure for the company if it persists.

To effectively manage accounts receivable and reduce the company's capital outflow, Gree Electric Appliances can establish a specialized customer credit management department. The department can conduct continuous investigation and analysis based on customer credit status, funding status, repayment capacity, etc. and determine whether the accounts receivable can be recovered on time based on the customer's credit and funding status, thus safeguarding the company's economic interests. The company should implement the entire process of accounts receivable from occurrence to collection to reduce unnecessary bad debt losses. At the same

time, Gree Electric Appliances should maintain contact with customers, understand the whereabouts of accounts payable at any time, and regularly check accounts with customers to ensure the authenticity and reliability of the company's claims and prevent unclear accounts receivable flow during transactions, which may cause problems in account reconciliation.

Another reason for the decline in Gree's operating capacity is the decline in inventory turnover. The performance of Gree Electric's current asset turnover in financial performance is poor. In 2019 Gree Electric conducted a large-scale production expansion to occupy the market. Under the huge impact of the COVID-19 pandemic in 2020, the first-quarter sales declined significantly, leading to further inventory backlog. In 2021, inventory increased by nearly 15 billion yuan. This situation was caused by product stagnation and an accelerated shift in channels, actively deploying new retail channels, resulting in inventory backlog and a decrease in inventory turnover.

Gree Electric Appliances needs to establish and improve its own inventory management to improve the efficiency of inventory turnover. Currently, under the consumer demand-oriented business model, the problem of Gree Electric Appliances' multi-level distribution channel model is highlighted. Due to the lack of direct contact with consumers or the inability to adjust product structure in a timely manner according to needs, the markup ratio in the pricing system delivered at each level is too high, resulting in a large price difference between the end customer and the competitors. Gree Electric Appliances should transform its channels, starting from the following two aspects: streamlining channel levels and reducing channel markups; promoting new retail models and valuing online retail. In addition, Gree Electric Appliances should combine relevant market research to find the balance point of market supply and demand, make policies closely related to market demand, and the management should not overly focus on targets, but consider factors such as economy, law, and nature comprehensively, and make corresponding adjustments in a timely manner to avoid cyclic inventory backlog in sales channels, leading to problems in the company's daily operations.

Through the analysis of the above factor scores and rankings, the overall growth ability of Gree Electric Appliances is ranked low and shows a downward trend. An important reason is the decline in sales revenue. Gree Electric Appliances' main sales product is air conditioning, and air conditioning revenue accounts for about 70% of the company's sales revenue. Therefore, to analyze and explain the growth rate of the company's main business income, it is necessary to analyze the relevant data of the company's air conditioning product revenue. By checking

annual report, Gree Electric Appliances' air conditioner revenue began to decline in 2019 and only showed a slight recovery in 2020. Meanwhile, Midea Group, Gree Electric Appliances' main competitor, surpassed the latter's air conditioning revenue in 2020 and consistently glowed air conditioning revenue. As a giant in the air conditioning industry, Gree Electric Appliances has gradually been challenged by emerging companies in the industry.

Although Gree Electric Appliances has continuously explored the lines of household appliances and smart appliances in recent years, there has not been high output, and the air conditioning business still dominates the company's revenue. Therefore, it is necessary to deepen the diversification of product development and promote the development of new products in household appliances and smart appliances. In the process, Gree Electric should focus on market research and consumer demand, design products that meet the needs of consumers, improve product quality, and enhance competitiveness.

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APPENDIXES

Appendix 1: 16 financial indicators values for 30 sample companies for 2017-2021

Company code	Year	Netprfrt	Ope PrfRt	ROE	ROTA	Deb AssRt	Currt	Qckrt	CashRt	Invtrtrrat	ARTrat	Curassrat	Totassrat	Netassgrrt	Salerevgrrt	Netprfgrrt	Totassgrrt
000333.SZ	2017	7.74	7.50	25.63	10.35	66.58	1.43	1.18	0.18	8.01	15.54	1.67	1.16	20.63	51.35	17.33	45.43
000333.SZ	2018	8.32	8.59	25.80	9.50	64.94	1.40	1.18	0.14	6.37	14.07	1.49	1.02	12.66	8.23	16.33	6.29
000333.SZ	2019	9.10	9.19	26.21	9.55	64.40	1.50	1.28	0.21	6.38	14.62	1.40	0.99	22.39	6.71	16.75	14.51
000333.SZ	2020	9.68	7.97	24.84	8.85	65.53	1.31	1.14	0.13	6.70	13.65	1.25	0.86	15.59	2.27	8.82	19.35
000333.SZ	2021	8.49	7.27	23.58	7.99	65.25	1.12	0.91	0.18	6.87	14.33	1.40	0.92	6.26	20.18	5.49	7.65
000521.SZ	2017	0.22	-0.82	0.64	-0.18	67.69	1.31	1.02	0.50	5.64	11.59	1.43	1.18	-0.87	34.09	-83.61	27.61
000521.SZ	2018	0.20	-0.25	0.77	0.05	67.00	1.22	1.00	0.45	5.59	10.14	1.38	1.11	-0.70	4.12	-3.38	-2.50
000521.SZ	2019	0.27	-0.37	1.13	0.20	64.01	1.25	1.08	0.65	7.40	10.82	1.47	1.11	-0.22	-5.36	24.76	-8.74
000521.SZ	2020	-0.52	-2.59	-1.74	-0.91	69.19	1.11	0.95	0.60	8.09	12.22	1.38	1.02	-3.01	-7.04	-281.84	13.39
000521.SZ	2021	0.49	-1.00	1.07	0.13	67.12	1.11	0.97	0.60	10.33	14.03	1.59	1.15	-0.35	17.19	-210.07	-5.67
000651.SZ	2017	15.16	17.37	37.51	12.70	68.91	1.16	1.05	0.14	7.78	33.80	0.95	0.76	21.53	36.24	44.99	17.87
000651.SZ	2018	13.30	14.90	33.40	12.85	63.10	1.27	1.14	0.18	7.56	29.32	1.08	0.86	39.19	33.33	17.20	16.87
000651.SZ	2019	12.48	13.72	24.52	10.20	60.40	1.26	1.12	0.16	6.51	24.44	0.97	0.75	20.61	0.24	-5.88	12.63
000651.SZ	2020	13.14	12.72	19.68	8.43	58.14	1.35	1.17	0.15	4.78	19.50	0.80	0.61	4.57	-14.97	-10.26	-1.33
000651.SZ	2021	12.11	11.94	21.08	8.12	66.23	1.15	0.93	0.15	4.03	16.64	0.86	0.63	-10.02	11.24	2.48	14.46
000810.SZ	2017	1.32	1.06	3.53	2.04	63.55	1.43	1.13	0.14	5.48	2.52	1.22	1.02	1.29	22.40	-81.93	15.12
000810.SZ	2018	4.08	3.45	11.43	4.16	62.82	1.38	1.11	0.17	4.85	2.07	1.16	0.97	13.23	7.00	231.95	10.19
000810.SZ	2019	6.96	7.22	18.56	7.33	62.93	1.62	1.39	0.32	5.33	2.03	1.12	0.94	18.51	14.60	94.95	26.26
000810.SZ	2020	4.17	2.79	9.63	3.51	57.97	1.80	1.54	0.66	5.55	2.19	0.96	0.82	11.64	-4.36	-42.55	-2.76
000810.SZ	2021	3.83	0.95	9.66	3.42	59.29	1.73	1.34	0.60	5.35	3.43	1.18	1.01	7.72	27.49	17.15	9.24
000921.SZ	2017	6.19	1.03	35.26	10.94	67.20	1.05	0.81	0.07	8.90	12.05	2.40	1.65	35.16	25.28	81.48	13.39
000921.SZ	2018	3.99	1.16	19.78	7.06	63.86	1.06	0.84	0.08	9.18	12.15	2.47	1.66	11.75	7.56	-31.31	1.02
000921.SZ	2019	5.24	1.73	22.32	7.40	63.28	1.18	1.01	0.10	9.12	10.60	1.93	1.34	18.63	3.98	37.06	55.72
000921.SZ	2020	5.92	5.15	17.07	8.67	65.54	1.13	0.97	0.06	9.43	9.16	1.77	1.28	12.13	29.21	45.92	23.01
000921.SZ	2021	3.49	2.82	9.67	5.88	72.13	1.04	0.82	0.08	8.52	8.80	1.93	1.38	5.76	39.61	-17.68	33.81
002032.SZ	2017	9.28	10.07	26.86	18.29	43.32	1.95	1.40	0.19	5.15	11.11	2.00	1.67	14.44	18.75	15.33	16.77
002032.SZ	2018	9.41	10.09	30.07	19.96	44.45	1.91	1.41	0.30	5.43	11.43	2.14	1.80	9.25	25.83	27.60	15.93
002032.SZ	2019	9.71	10.23	30.13	19.84	42.23	1.98	1.52	0.25	5.93	11.27	2.11	1.77	15.73	11.22	14.79	11.42
002032.SZ	2020	9.96	10.15	26.30	17.98	41.13	2.01	1.53	0.33	5.88	9.24	1.86	1.54	5.33	-6.33	-3.81	3.75
002032.SZ	2021	9.03	9.75	26.23	18.05	44.90	1.84	1.33	0.40	6.04	8.73	2.03	1.65	5.86	16.07	5.36	13.07
002035.SZ	2017	9.27	9.89	25.98	14.87	46.28	1.63	1.39	0.32	7.53	17.42	2.02	1.47	25.93	30.39	54.19	17.18
002035.SZ	2018	11.48	11.77	28.34	16.06	49.47	1.58	1.39	0.56	6.80	10.56	1.69	1.28	18.47	6.36	31.74	25.73
002035.SZ	2019	13.31	14.06	26.72	14.81	47.85	1.62	1.42	0.31	5.68	7.34	1.33	1.02	16.11	-5.69	9.64	12.88
002035.SZ	2020	9.58	8.55	13.22	7.84	44.66	1.67	1.41	0.28	4.04	5.77	0.99	0.74	5.11	-24.14	-45.36	-2.22
002035.SZ	2021	3.87	2.07	6.47	3.77	48.92	1.48	1.19	0.21	4.18	5.92	1.25	0.90	2.58	28.15	-48.25	11.79
002045.SZ	2017	3.18	3.94	9.40	4.85	64.05	1.22	0.87	0.04	7.47	3.75	2.20	1.13	7.12	57.61	131.39	38.63
002045.SZ	2018	-5.49	-2.25	-14.15	-4.90	64.34	1.05	0.82	0.15	6.26	3.58	1.81	0.90	15.07	-0.17	-272.39	15.39
002045.SZ	2019	7.91	6.95	19.70	9.49	54.45	1.41	1.14	0.23	6.98	3.98	1.77	0.98	16.45	9.99	-258.51	-11.82
002045.SZ	2020	4.42	3.64	9.41	5.10	54.50	1.30	1.00	0.24	5.98	3.60	1.50	0.98	5.67	-4.31	-46.47	5.81

Company code	Year	Netprfrt	Ope PrfRt	ROE	ROTA	Deb AssRt	Currt	Qckrt	CashRt	Invtrtrrat	ARTrat	Curassrat	Totassrat	Netassgrrt	Salerevgrrt	Netprfgrrt	Totassgrrt
002045.SZ	2021	0.84	-1.33	1.99	1.19	58.93	1.29	0.95	0.26	5.62	3.85	1.55	1.03	-2.42	13.20	-78.52	8.11
002050.SZ	2017	13.17	15.81	18.73	14.45	35.82	2.34	1.84	0.36	4.31	6.86	1.34	0.92	33.77	41.54	45.14	47.02
002050.SZ	2018	12.20	13.07	15.67	11.97	37.55	2.02	1.60	0.24	3.99	6.23	1.17	0.82	9.39	13.10	4.83	12.83
002050.SZ	2019	12.81	13.44	15.87	11.75	36.68	2.13	1.67	0.54	3.78	6.07	1.14	0.79	7.86	4.17	9.34	6.16
002050.SZ	2020	12.25	12.47	15.11	10.71	40.39	2.45	1.96	0.72	3.79	5.73	1.12	0.76	8.32	7.29	2.76	15.16
002050.SZ	2021	10.70	11.93	15.88	9.64	52.36	1.98	1.55	0.32	4.01	5.46	1.14	0.79	10.79	32.30	15.71	38.68
002242.SZ	2017	9.88	9.36	19.63	14.80	33.05	2.04	1.74	0.38	10.50	67.80	1.96	1.32	3.79	-0.92	-3.20	-4.32
002242.SZ	2018	9.13	7.16	20.43	14.38	42.50	1.70	1.44	0.32	8.77	54.66	1.94	1.36	6.59	12.71	4.47	24.47
002242.SZ	2019	8.66	8.56	21.79	12.95	49.77	1.49	1.20	0.31	6.88	49.74	1.81	1.32	-1.50	14.48	8.64	12.13
002242.SZ	2020	8.21	8.08	23.39	12.44	53.12	1.52	1.32	0.36	7.51	53.68	1.75	1.35	14.14	20.02	13.72	22.32
002242.SZ	2021	6.68	5.67	17.45	8.59	50.19	1.56	1.31	0.40	7.64	26.27	1.53	1.19	-0.47	-6.09	-23.46	-6.77
002403.SZ	2017	5.33	6.73	8.01	5.48	48.30	1.52	1.06	0.32	2.85	5.64	1.52	0.79	4.88	20.57	20.57	25.21
002403.SZ	2018	4.13	5.28	6.71	4.14	51.83	1.54	1.02	0.31	2.67	4.59	1.36	0.72	0.54	6.06	-17.71	7.59
002403.SZ	2019	3.61	3.00	5.90	3.50	58.43	1.13	0.73	0.17	2.59	4.16	1.41	0.72	-3.20	8.73	-4.72	11.91
002403.SZ	2020	3.65	-7.70	4.67	3.03	58.81	1.08	0.71	0.23	2.26	3.56	1.09	0.54	4.52	-18.33	-17.40	5.56
002403.SZ	2021	-2.87	-4.26	-4.01	-0.70	62.98	0.85	0.55	0.16	2.77	4.36	1.29	0.62	-3.62	21.27	-195.38	6.71
002429.SZ	2017	5.93	3.71	7.55	5.37	50.27	2.03	1.75	0.62	6.16	3.80	0.90	0.71	6.65	36.80	70.56	35.16
002429.SZ	2018	3.24	2.07	5.24	2.32	53.60	1.72	1.54	0.40	7.30	4.41	0.98	0.73	5.79	25.83	-31.35	12.58
002429.SZ	2019	8.77	7.04	12.14	5.09	55.59	1.46	1.27	0.32	6.54	3.68	0.91	0.65	11.66	3.35	179.71	17.39
002429.SZ	2020	8.78	6.95	16.69	8.15	55.76	1.44	1.26	0.23	7.59	4.50	1.13	0.83	17.01	51.75	51.95	20.90
002429.SZ	2021	1.80	0.10	2.79	2.57	49.36	1.45	1.22	0.13	7.78	4.18	1.28	0.86	9.58	11.65	-77.10	-3.62
002508.SZ	2017	21.02	22.10	31.12	22.30	33.67	2.58	2.15	0.99	3.21	19.97	1.16	0.98	27.42	21.10	21.08	23.56
002508.SZ	2018	20.18	19.21	26.07	18.43	35.16	2.47	2.05	0.67	2.81	18.16	1.01	0.85	14.91	5.81	1.55	19.29
002508.SZ	2019	20.98	21.10	24.63	17.78	34.53	2.54	2.17	1.13	2.64	13.24	0.91	0.77	13.55	4.52	8.79	12.65
002508.SZ	2020	20.92	20.43	22.27	15.54	34.23	2.59	2.25	0.95	2.61	9.38	0.83	0.70	17.28	4.74	4.53	16.95
002508.SZ	2021	13.40	11.69	15.97	10.55	36.96	2.33	1.97	0.75	3.06	7.79	0.91	0.77	7.16	24.84	-20.06	11.63
002543.SZ	2017	6.48	6.92	13.92	8.44	51.22	1.11	0.66	0.15	4.04	10.60	1.84	1.13	3.16	31.71	-2.32	27.89
002543.SZ	2018	7.21	8.12	15.52	9.37	49.31	1.18	0.76	0.21	3.44	11.25	1.85	1.04	8.92	5.85	17.72	4.44
002543.SZ	2019	9.87	9.50	17.05	10.86	43.85	1.24	0.81	0.23	3.10	8.91	1.65	0.90	13.62	-10.04	23.02	2.41
002543.SZ	2020	9.82	6.76	15.68	9.84	47.85	1.13	0.77	0.29	3.45	7.51	1.61	0.85	8.90	0.80	0.52	12.09
002543.SZ	2021	4.77	3.45	8.88	5.24	50.65	1.21	0.81	0.29	4.09	8.61	1.73	0.94	-1.37	20.05	-41.67	4.14
002614.SZ	2017	8.33	8.64	12.79	8.84	39.73	2.08	1.64	0.31	4.08	6.99	1.28	0.93	13.90	24.41	33.84	9.79
002614.SZ	2018	8.18	7.01	14.40	9.81	44.74	1.65	1.31	0.26	4.31	7.19	1.40	1.01	11.53	26.86	24.57	23.07
002614.SZ	2019	5.34	4.53	8.59	5.57	44.74	1.28	0.91	0.26	3.56	5.71	1.37	0.87	2.46	-3.13	-36.74	3.36
002614.SZ	2020	6.31	7.84	11.75	7.28	47.16	1.89	1.52	0.42	4.09	6.39	1.41	0.93	32.54	33.60	58.01	45.91
002614.SZ	2021	5.95	2.33	9.84	6.25	45.06	1.79	1.33	0.32	3.83	6.39	1.23	0.87	8.00	12.45	6.14	3.38
002705.SZ	2017	5.02	6.20	12.77	7.67	43.77	1.49	1.14	0.66	6.70	10.93	2.10	1.36	40.37	17.71	-5.36	22.40
002705.SZ	2018	6.02	7.11	13.17	8.14	45.07	1.37	1.01	0.52	6.10	8.79	1.93	1.23	4.62	2.70	22.93	7.19
002705.SZ	2019	7.60	8.18	16.76	10.31	46.90	1.45	1.04	0.46	5.26	8.73	1.91	1.19	10.16	8.06	36.72	14.30
002705.SZ	2020	8.82	10.54	21.64	13.12	51.15	1.41	1.08	0.63	5.65	9.57	1.87	1.28	40.43	44.57	67.86	53.30
002705.SZ	2021	5.56	5.90	13.08	7.59	51.25	1.31	0.89	0.52	5.15	9.15	1.72	1.19	0.75	13.05	-28.58	1.06
002959.SZ	2017	8.96	12.21	74.18	34.85	62.38	1.20	0.60	0.32	5.29	38.88	4.19	2.84	126.74	56.17	104.88	68.73
002959.SZ	2018	9.16	11.50	50.55	26.87	56.59	1.17	0.63	0.31	4.89	39.53	3.45	2.28	67.65	23.96	26.57	45.30

Company code	Year	Netprfrt	Ope PrfRt	ROE	ROTA	Deb AssRt	Currt	Qckrt	CashRt	Invtrtrrat	ARTrat	Curassrat	Totassrat	Netassgrrt	Salerevgrrt	Netprfgrrt	Totassgrrt
002959.SZ	2019	10.03	12.42	25.25	18.41	34.26	2.30	1.80	0.55	4.74	31.03	2.01	1.50	262.12	31.70	44.57	139.09
002959.SZ	2020	11.77	12.05	23.54	16.01	46.56	1.72	1.41	0.36	5.13	32.70	1.48	1.18	18.51	36.16	59.64	45.79
002959.SZ	2021	7.89	6.89	14.03	8.54	42.80	1.69	1.29	0.30	4.22	29.37	1.30	0.99	4.85	-1.46	-33.81	-2.02
003023.SZ	2017	10.14	9.88	14.00	8.78	43.75	1.56	0.82	0.45	1.34	8.80	1.12	0.76	9.59	2.06	9.37	1.24
003023.SZ	2018	13.59	14.40	21.67	13.46	44.24	1.63	0.97	0.58	1.54	8.39	1.26	0.88	19.09	27.99	71.79	19.36
003023.SZ	2019	9.03	9.23	11.61	7.65	39.25	1.81	0.88	0.52	1.29	7.52	1.07	0.77	7.79	-6.10	-37.44	-1.23
003023.SZ	2020	11.23	10.69	11.20	8.34	30.75	2.59	1.83	1.46	1.22	7.60	0.88	0.67	67.04	5.88	31.58	44.16
003023.SZ	2021	10.18	9.37	8.51	6.16	28.17	2.82	1.80	0.87	1.30	8.57	0.76	0.60	7.12	7.47	-2.46	2.05
300342.SZ	2017	24.86	27.95	14.80	13.54	22.71	2.79	2.36	0.84	3.41	2.76	0.78	0.48	10.59	18.10	15.10	20.05
300342.SZ	2018	13.18	15.82	7.26	6.69	29.80	2.10	1.66	0.68	2.49	2.34	0.67	0.41	-1.88	-3.52	-48.85	8.08
300342.SZ	2019	15.44	18.81	10.30	9.08	22.71	2.71	2.01	0.33	2.28	2.92	0.83	0.50	7.22	26.76	45.49	-2.65
300342.SZ	2020	14.34	16.81	8.73	7.53	27.24	2.32	1.57	0.20	1.70	2.37	0.75	0.46	5.49	-4.97	-9.83	12.04
300342.SZ	2021	9.66	10.96	6.56	5.51	31.55	2.09	1.32	0.14	1.52	2.31	0.76	0.48	2.28	15.67	-22.03	8.61
600060.SH	2017	3.14	2.46	7.18	5.25	42.09	2.17	1.85	0.11	8.14	14.06	1.54	1.39	4.34	3.26	-42.60	8.84
600060.SH	2018	1.57	0.43	2.82	2.40	47.76	2.06	1.77	0.18	8.87	14.24	1.49	1.30	2.43	6.87	-46.76	19.03
600060.SH	2019	2.38	0.71	3.88	2.70	44.43	2.09	1.83	0.15	8.49	13.40	1.38	1.16	3.46	-2.91	47.58	-0.42
600060.SH	2020	3.89	2.25	7.93	5.39	44.45	2.05	1.70	0.09	8.48	13.54	1.55	1.29	6.81	15.28	89.07	7.45
600060.SH	2021	3.42	2.12	7.19	5.08	45.35	1.95	1.59	0.14	8.14	12.34	1.73	1.45	3.31	19.04	4.57	5.74
600336.SH	2017	0.69	0.79	1.84	1.41	60.17	1.24	0.94	0.47	5.29	13.10	1.56	1.03	1.86	24.30	41.36	17.75
600336.SH	2018	1.34	1.26	3.84	2.14	60.60	1.18	0.86	0.35	5.56	11.02	1.78	1.13	2.66	21.09	135.90	4.42
600336.SH	2019	3.14	1.85	9.99	4.08	67.14	1.07	0.80	0.33	5.15	7.90	1.73	1.09	9.56	13.96	167.50	30.92
600336.SH	2020	6.37	1.66	14.41	8.07	66.29	1.29	0.94	0.21	4.31	6.03	1.42	0.98	13.33	9.73	122.27	15.15
600336.SH	2021	2.58	2.32	7.71	2.97	65.22	1.04	0.76	0.23	5.04	7.18	1.62	1.13	4.40	22.19	-50.84	-1.67
600690.SH	2017	5.76	5.36	23.65	8.10	69.13	1.15	0.87	0.45	5.98	12.90	2.02	1.13	21.85	33.75	35.27	15.40
600690.SH	2018	5.42	5.17	20.78	7.93	66.93	1.18	0.90	0.45	5.93	16.02	2.01	1.15	18.33	15.11	7.94	10.06
600690.SH	2019	5.31	3.90	18.80	8.94	65.33	1.05	0.76	0.37	5.57	18.72	2.06	1.13	20.50	9.52	26.24	12.45
600690.SH	2020	5.40	4.49	15.48	7.37	66.52	1.04	0.78	0.42	5.11	15.57	1.95	1.07	39.53	4.46	-8.20	8.54
600690.SH	2021	5.80	5.65	17.82	7.63	62.71	0.99	0.67	0.36	4.52	14.89	1.91	1.08	19.41	8.50	16.73	6.88
600839.SH	2017	0.86	0.83	2.80	1.72	68.12	1.16	0.80	0.34	5.03	9.79	1.71	1.24	2.25	15.57	-42.96	9.29
600839.SH	2018	0.80	0.87	2.49	1.59	70.04	1.05	0.76	0.32	5.04	10.11	1.69	1.22	-9.82	7.41	-0.09	9.30
600839.SH	2019	0.38	0.51	0.46	1.44	71.43	1.06	0.73	0.36	5.23	10.55	1.73	1.22	-0.26	6.49	-49.40	3.47
600839.SH	2020	0.25	-0.32	0.35	0.67	73.03	1.03	0.71	0.35	5.05	11.07	1.74	1.24	-0.06	6.37	-29.70	6.21
600839.SH	2021	0.68	0.23	2.16	1.06	72.49	1.04	0.72	0.36	5.13	10.97	1.77	1.26	2.32	5.49	187.39	1.03
600983.SH	2017	-1.54	-7.51	-2.44	-1.03	54.09	1.19	1.01	0.55	5.89	4.79	1.01	0.73	-4.36	-6.05	-134.24	-5.59
600983.SH	2018	4.19	-0.76	6.54	3.74	50.38	1.27	1.09	0.54	6.40	4.50	1.20	0.75	5.74	-1.23	-370.01	-2.16
600983.SH	2019	-6.16	-5.19	-8.20	-3.73	50.49	1.48	1.25	0.32	5.30	3.77	0.99	0.67	-8.77	-15.97	-223.30	-8.58
600983.SH	2020	-3.05	-6.80	-4.10	-2.18	49.36	1.46	1.27	0.14	5.62	3.47	0.95	0.68	-5.42	-6.39	-53.63	-7.51
600983.SH	2021	-12.01	-21.63	-18.08	-9.64	50.24	1.42	1.25	0.38	7.93	3.07	1.10	0.76	-16.60	-0.26	293.41	-15.12
603355.SH	2017	6.45	9.21	11.76	7.75	37.28	2.10	1.72	1.02	7.01	5.93	1.41	1.11	8.84	30.46	-26.99	1.42
603355.SH	2018	7.27	7.57	14.05	8.93	37.82	1.93	1.52	0.73	6.15	5.39	1.62	1.22	-14.12	2.70	15.68	-13.43
603355.SH	2019	8.88	8.86	16.80	11.15	40.50	2.04	1.73	0.99	6.35	5.61	1.57	1.16	15.00	-2.74	18.79	20.19
603355.SH	2020	5.22	9.78	9.87	5.37	51.62	1.74	1.47	0.78	6.12	5.45	1.27	1.00	7.75	10.13	-35.06	32.55

Company code	Year	Netprfrt	Ope PrfRt	ROE	ROTA	Deb AssRt	Currt	Qckrt	CashRt	Invtrtrrat	ARTrat	Curassrat	Totassrat	Netassgrrt	Salerevgrrt	Netprfgrrt	Totassgrrt
603355.SH	2021	6.36	5.67	15.03	6.60	63.60	1.30	0.98	0.61	5.07	5.32	1.30	0.99	-5.93	26.51	54.20	25.05
603366.SH	2017	2.11	0.74	1.47	2.01	40.07	0.93	0.75	0.10	4.88	48.70	1.00	0.48	-2.36	18.38	-76.16	21.06
603366.SH	2018	-16.06	-4.38	-14.57	-8.40	45.94	0.76	0.53	0.04	4.11	24.71	1.52	0.52	-17.14	14.11	-967.50	-8.12
603366.SH	2019	2.67	1.16	2.64	1.82	48.41	0.89	0.71	0.17	4.02	15.35	1.49	0.56	4.27	5.96	-117.61	8.18
603366.SH	2020	4.94	-0.05	5.21	3.29	45.17	0.88	0.68	0.30	4.71	14.11	1.45	0.57	4.84	5.25	94.79	-1.20
603366.SH	2021	5.14	-0.06	6.12	3.40	41.31	0.86	0.57	0.27	4.81	16.44	1.91	0.67	7.55	18.71	23.93	1.10
603486.SH	2017	8.31	9.87	35.19	18.67	53.22	1.46	1.02	0.50	4.76	8.60	2.49	1.88	42.81	38.89	609.07	26.48
603486.SH	2018	8.57	9.00	25.91	15.97	40.66	1.98	1.29	0.67	3.92	7.86	2.09	1.65	98.14	25.11	29.44	55.78
603486.SH	2019	2.30	2.42	4.86	3.31	42.63	1.73	1.18	0.59	3.02	5.87	1.63	1.24	-0.49	-6.70	-75.01	2.95
603486.SH	2020	8.97	8.03	22.99	13.89	49.48	1.64	1.21	0.65	3.62	6.53	1.78	1.38	25.23	36.17	431.07	42.25
603486.SH	2021	15.47	15.22	49.06	26.54	52.36	1.95	1.43	0.77	3.44	8.52	1.86	1.55	64.27	80.90	212.67	73.96
603551.SH	2017	18.29	18.83	36.48	23.79	48.05	1.53	1.29	0.92	6.10	23.47	1.83	1.15	1.37	26.76	35.14	31.94
603551.SH	2018	18.05	18.49	34.23	20.97	37.18	1.78	1.50	0.94	5.04	22.39	1.58	1.05	27.34	6.33	5.69	4.69
603551.SH	2019	16.60	16.23	24.59	17.05	33.62	1.97	1.69	1.08	5.09	18.95	1.49	0.95	20.17	-2.05	-9.87	13.34
603551.SH	2020	12.24	10.49	12.74	8.93	29.34	2.67	2.37	1.75	4.58	16.38	1.03	0.72	49.55	-3.44	-28.67	38.86
603551.SH	2021	1.81	-0.24	1.83	0.82	36.13	2.05	1.70	1.31	4.64	19.38	1.10	0.80	-9.34	29.19	-80.85	0.87
603726.SH	2017	8.74	10.09	14.52	12.64	36.11	1.94	1.29	0.25	4.29	5.83	1.77	1.10	9.89	68.57	68.83	15.56
603726.SH	2018	7.16	8.73	13.12	10.83	37.47	1.80	1.20	0.24	4.22	5.42	1.86	1.17	7.85	20.04	-1.66	10.18
603726.SH	2019	6.68	8.19	11.68	8.62	43.38	1.34	0.93	0.13	4.21	5.10	1.79	1.05	4.96	1.48	-5.35	15.93
603726.SH	2020	8.02	9.89	11.50	8.37	42.81	1.35	0.90	0.18	3.55	4.59	1.50	0.82	9.58	-12.04	5.65	8.48
603726.SH	2021	8.09	7.86	13.97	8.78	47.02	1.28	0.86	0.14	4.16	5.26	1.74	0.95	7.30	29.86	31.02	16.79
603868.SH	2017	21.90	27.24	37.79	36.46	25.97	2.99	2.57	0.77	6.67	19.82	1.73	1.28	19.88	14.55	36.22	16.93
603868.SH	2018	21.39	25.81	33.72	31.97	29.58	2.44	1.90	0.93	5.42	9.92	1.60	1.14	7.95	3.20	0.99	13.56
603868.SH	2019	18.31	22.18	26.22	24.56	28.81	2.38	1.65	0.24	3.67	6.72	1.55	1.02	1.08	-5.46	-18.98	-0.08
603868.SH	2020	18.01	22.70	23.38	22.62	27.16	2.28	1.75	0.43	3.52	6.57	1.60	0.94	7.64	-5.09	-6.82	5.28
603868.SH	2021	16.08	18.79	21.82	20.63	27.03	2.31	1.69	0.34	3.74	8.80	1.76	0.99	7.48	12.26	0.22	7.15

Appendix 2: The financial performance scores of Chinese household appliance industry in 2017-2021

Code	Year	Weight	Factor	Factor 1	Factor 2	Factor 3	Factor 4
000333.SZ	2017	20%	0.21	-0.50	-0.15	1.37	0.51
000333.SZ	2018	20%	-0.11	-0.75	0.59	-0.47	0.29
000333.SZ	2019	20%	0.00	-0.43	0.45	-0.20	0.27
000333.SZ	2020	20%	-0.14	-0.66	0.43	-0.34	0.08
000333.SZ	2021	20%	-0.24	-1.03	0.43	-0.32	0.12
000521.SZ	2017	20%	-0.35	-0.28	-1.56	0.83	-0.02
000521.SZ	2018	20%	-0.55	-0.57	-1.01	-0.38	0.00
000521.SZ	2019	20%	-0.44	-0.19	-1.17	-0.68	0.60
000521.SZ	2020	20%	-0.50	0.02	-1.93	-0.64	1.03
000521.SZ	2021	20%	-0.35	-0.05	-1.76	-0.60	1.64
000651.SZ	2017	20%	0.19	-0.76	1.27	-0.18	0.53
000651.SZ	2018	20%	0.25	-0.44	0.87	0.09	0.59
000651.SZ	2019	20%	-0.04	-0.45	0.82	-0.81	0.24
000651.SZ	2020	20%	-0.28	-0.48	1.00	-1.54	-0.40
000651.SZ	2021	20%	-0.38	-1.07	0.97	-0.70	-0.98
000810.SZ	2017	20%	-0.48	-0.51	-0.99	0.19	-0.48
000810.SZ	2018	20%	-0.43	-0.90	-0.04	0.22	-1.08
000810.SZ	2019	20%	-0.10	-0.21	-0.08	0.56	-0.78
000810.SZ	2020	20%	-0.24	0.61	-0.87	-0.52	-0.32
000810.SZ	2021	20%	-0.19	0.20	-0.94	0.47	-0.48
000921.SZ	2017	20%	0.07	-1.52	0.43	0.60	1.44
000921.SZ	2018	20%	-0.15	-1.27	-0.04	-0.39	1.81
000921.SZ	2019	20%	0.04	-0.71	-0.45	0.83	1.02
000921.SZ	2020	20%	-0.10	-0.98	-0.17	0.43	0.80
000921.SZ	2021	20%	-0.22	-1.20	-0.67	0.93	0.63
002032.SZ	2017	20%	0.40	-0.10	0.96	0.11	0.72
002032.SZ	2018	20%	0.49	-0.15	1.07	0.23	0.95
002032.SZ	2019	20%	0.51	0.05	1.07	-0.15	1.18
002032.SZ	2020	20%	0.35	0.23	1.00	-0.82	0.97
002032.SZ	2021	20%	0.37	-0.06	0.82	-0.06	0.88
002035.SZ	2017	20%	0.45	0.00	0.48	0.40	1.20
002035.SZ	2018	20%	0.38	0.17	0.68	0.09	0.64
002035.SZ	2019	20%	0.16	-0.01	1.10	-0.65	-0.02
002035.SZ	2020	20%	-0.26	0.16	0.41	-1.40	-0.60
002035.SZ	2021	20%	-0.35	-0.25	-0.59	0.15	-0.76
002045.SZ	2017	20%	-0.20	-1.26	-0.52	1.63	-0.22
002045.SZ	2018	20%	-0.78	-0.55	-2.18	-0.10	0.17
002045.SZ	2019	20%	-0.18	-0.35	0.11	-0.99	0.65
002045.SZ	2020	20%	-0.40	-0.55	-0.28	-0.59	-0.11
002045.SZ	2021	20%	-0.54	-0.61	-1.01	-0.12	-0.21
002050.SZ	2017	20%	0.59	1.12	0.29	1.35	-0.75
002050.SZ	2018	20%	0.11	0.48	0.64	-0.34	-0.75
002050.SZ	2019	20%	0.17	0.87	0.58	-0.57	-0.71
002050.SZ	2020	20%	0.31	1.46	0.12	-0.18	-0.65

Code	Year	Weight	Factor	Factor 1	Factor 2	Factor 3	Factor 4
002050.SZ	2021	20%	0.12	0.35	0.11	0.81	-1.09
002242.SZ	2017	20%	0.84	1.45	0.19	-1.87	4.18
002242.SZ	2018	20%	0.64	0.68	0.10	-0.61	2.96
002242.SZ	2019	20%	0.36	-0.01	0.51	-0.81	2.15
002242.SZ	2020	20%	0.51	0.27	0.17	-0.29	2.42
002242.SZ	2021	20%	0.04	0.16	0.03	-1.31	1.52
002403.SZ	2017	20%	-0.28	-0.38	-0.12	0.43	-1.22
002403.SZ	2018	20%	-0.47	-0.47	-0.13	-0.30	-1.21
002403.SZ	2019	20%	-0.68	-1.21	-0.06	-0.17	-1.43
002403.SZ	2020	20%	-0.88	-1.06	-0.46	-0.65	-1.51
002403.SZ	2021	20%	-0.99	-1.26	-1.23	-0.08	-1.31
002429.SZ	2017	20%	0.08	1.07	-1.20	1.05	-0.75
002429.SZ	2018	20%	-0.21	0.56	-1.29	0.15	-0.21
002429.SZ	2019	20%	-0.25	-0.19	-0.07	-0.05	-0.88
002429.SZ	2020	20%	-0.04	-0.24	-0.26	0.83	-0.46
002429.SZ	2021	20%	-0.41	-0.05	-1.07	-0.55	0.22
002508.SZ	2017	20%	1.00	1.97	1.36	0.16	-0.10
002508.SZ	2018	20%	0.67	1.54	1.33	-0.46	-0.39
002508.SZ	2019	20%	0.73	2.08	1.14	-0.45	-0.63
002508.SZ	2020	20%	0.66	2.06	0.98	-0.32	-0.90
002508.SZ	2021	20%	0.31	1.47	0.12	0.01	-0.89
002543.SZ	2017	20%	-0.24	-1.20	0.34	0.53	-0.56
002543.SZ	2018	20%	-0.30	-1.11	0.77	-0.43	-0.46
002543.SZ	2019	20%	-0.28	-0.91	1.08	-0.82	-0.71
002543.SZ	2020	20%	-0.32	-0.93	0.71	-0.40	-0.82
002543.SZ	2021	20%	-0.42	-0.85	-0.07	-0.21	-0.51
002614.SZ	2017	20%	0.09	0.57	0.03	0.11	-0.61
002614.SZ	2018	20%	-0.01	-0.06	0.10	0.43	-0.61
002614.SZ	2019	20%	-0.46	-0.59	0.07	-0.69	-0.77
002614.SZ	2020	20%	0.18	0.53	-0.58	1.52	-0.85
002614.SZ	2021	20%	-0.23	0.10	-0.26	-0.23	-0.71
002705.SZ	2017	20%	0.24	0.29	-0.61	0.79	0.78
002705.SZ	2018	20%	-0.07	-0.28	0.08	-0.36	0.39
002705.SZ	2019	20%	0.00	-0.36	0.36	-0.04	0.09
002705.SZ	2020	20%	0.41	-0.06	-0.02	1.98	-0.13
002705.SZ	2021	20%	-0.21	-0.51	0.04	-0.34	0.06
002959.SZ	2017	20%	1.55	-1.70	2.33	3.56	3.12
002959.SZ	2018	20%	0.93	-1.38	1.90	1.44	2.55
002959.SZ	2019	20%	1.89	2.65	-1.64	6.14	0.89
002959.SZ	2020	20%	0.54	0.33	0.54	0.81	0.56
002959.SZ	2021	20%	-0.02	0.21	0.28	-1.13	0.51
003023.SZ	2017	20%	-0.31	-0.46	0.81	-0.57	-1.49
003023.SZ	2018	20%	0.06	-0.30	1.15	0.49	-1.57
003023.SZ	2019	20%	-0.30	-0.06	0.55	-0.80	-1.38
003023.SZ	2020	20%	0.63	2.63	-0.91	1.59	-1.42
003023.SZ	2021	20%	0.17	1.90	-0.24	-0.37	-1.34

Code	Year	Weight	Factor	Factor 1	Factor 2	Factor 3	Factor 4
300342.SZ	2017	20%	0.72	2.40	1.10	-0.28	-1.38
300342.SZ	2018	20%	-0.04	1.26	0.26	-0.87	-1.60
300342.SZ	2019	20%	0.22	1.42	0.75	-0.49	-1.67
300342.SZ	2020	20%	-0.07	0.81	0.78	-0.85	-1.86
300342.SZ	2021	20%	-0.29	0.33	0.29	-0.42	-2.02
600060.SH	2017	20%	0.15	0.94	-0.95	-0.55	1.42
600060.SH	2018	20%	0.07	0.94	-1.49	-0.20	1.40
600060.SH	2019	20%	-0.02	0.87	-1.09	-0.77	1.15
600060.SH	2020	20%	0.10	0.54	-0.75	-0.20	1.07
600060.SH	2021	20%	0.07	0.43	-0.82	-0.19	1.22
600336.SH	2017	20%	-0.37	-0.49	-1.03	0.48	-0.22
600336.SH	2018	20%	-0.43	-0.95	-0.55	0.22	-0.18
600336.SH	2019	20%	-0.37	-1.17	-0.34	0.81	-0.58
600336.SH	2020	20%	-0.38	-1.09	0.17	0.24	-0.83
600336.SH	2021	20%	-0.54	-1.21	-0.36	-0.12	-0.27
600690.SH	2017	20%	-0.09	-1.03	0.09	0.71	0.19
600690.SH	2018	20%	-0.12	-0.88	0.09	0.12	0.50
600690.SH	2019	20%	-0.18	-1.11	0.19	0.06	0.47
600690.SH	2020	20%	-0.22	-0.96	-0.02	0.14	0.23
600690.SH	2021	20%	-0.30	-1.25	0.37	-0.09	-0.05
600839.SH	2017	20%	-0.49	-0.95	-0.79	0.11	-0.04
600839.SH	2018	20%	-0.59	-1.17	-0.62	-0.17	-0.10
600839.SH	2019	20%	-0.59	-1.08	-0.79	-0.22	0.08
600839.SH	2020	20%	-0.61	-1.17	-0.83	-0.11	0.02
600839.SH	2021	20%	-0.59	-1.41	-0.45	0.03	-0.23
600983.SH	2017	20%	-0.72	0.01	-1.72	-0.82	-0.20
600983.SH	2018	20%	-0.43	0.31	-1.20	-1.04	0.32
600983.SH	2019	20%	-0.80	0.32	-2.03	-1.25	-0.16
600983.SH	2020	20%	-0.76	-0.03	-1.58	-0.93	-0.45
600983.SH	2021	20%	-0.97	0.00	-3.02	-0.27	-0.23
603355.SH	2017	20%	0.34	1.52	-0.80	0.15	0.46
603355.SH	2018	20%	0.07	0.66	0.06	-1.02	0.47
603355.SH	2019	20%	0.42	1.37	-0.33	0.05	0.47
603355.SH	2020	20%	0.09	0.82	-0.83	0.43	-0.09
603355.SH	2021	20%	-0.23	-0.54	-0.19	0.54	-0.73
603366.SH	2017	20%	-0.37	-0.24	-0.82	-0.67	0.47
603366.SH	2018	20%	-1.12	-0.08	-3.11	-1.83	1.15
603366.SH	2019	20%	-0.64	-0.84	-0.53	-0.59	-0.56
603366.SH	2020	20%	-0.59	-0.94	-0.16	-0.57	-0.72
603366.SH	2021	20%	-0.49	-1.03	-0.18	-0.31	-0.35
603486.SH	2017	20%	0.50	-1.33	1.63	2.09	-0.25
603486.SH	2018	20%	0.79	0.73	-0.13	2.53	0.17
603486.SH	2019	20%	-0.25	0.22	-0.58	-0.48	-0.23
603486.SH	2020	20%	0.33	-0.42	0.69	1.97	-1.05
603486.SH	2021	20%	1.11	0.14	1.31	3.59	-0.70
603551.SH	2017	20%	0.72	0.27	1.62	0.14	0.74

Code	Year	Weight	Factor	Factor 1	Factor 2	Factor 3	Factor 4
603551.SH	2018	20%	0.68	0.86	1.53	-0.58	0.64
603551.SH	2019	20%	0.65	1.46	0.79	-0.50	0.50
603551.SH	2020	20%	0.94	3.64	-1.35	0.86	0.20
603551.SH	2021	20%	0.09	1.97	-1.86	0.00	0.18
603726.SH	2017	20%	0.20	-0.05	0.35	1.08	-0.73
603726.SH	2018	20%	0.01	-0.13	0.37	-0.02	-0.27
603726.SH	2019	20%	-0.26	-0.74	0.45	-0.33	-0.47
603726.SH	2020	20%	-0.35	-0.67	0.66	-0.76	-0.88
603726.SH	2021	20%	-0.24	-0.96	0.48	0.29	-0.85
603868.SH	2017	20%	1.48	2.34	2.16	-0.51	1.49
603868.SH	2018	20%	1.00	1.49	2.19	-0.75	0.52
603868.SH	2019	20%	0.45	0.53	2.26	-1.39	-0.21
603868.SH	2020	20%	0.50	0.83	1.94	-1.08	-0.31
603868.SH	2021	20%	0.48	0.70	1.58	-0.65	-0.19

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Appendix 3– Declaration

STUDENT DECLARATION

Signed below, **Chen Wenqing**, student of the Szent István Campus of the Hungarian University of Agriculture and Life Science, at the BSc/MSc Course of **Management and leadership** declare that the present Thesis is my own work and I have used the cited and quoted literature in accordance with the relevant legal and ethical rules. I understand that the one-page-summary of my thesis will be uploaded on the website of the Campus/Institute/Course and my Thesis will be available at the Host Department/Institute and in the repository of the University in accordance with the relevant legal and ethical rules.

Confidential data are presented in the thesis: yes no *

Date: 2023 year 5 month 3 day

Chen Wenqing

Signature

SUPERVISOR'S DECLARATION

As primary supervisor of the author of this thesis, I hereby declare that review of the thesis was done thoroughly; student was informed and guided on the method of citing literature sources in the dissertation, attention was drawn on the importance of using literature data in accordance with the relevant legal and ethical rules.

Confidential data are presented in the thesis: yes no *

Approval of thesis for oral defense on Final Examination: approved not approved *

Date: 2023 year 5 month 3 day

signature

***Please, underline the correct choice!**

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Appendix 4 – Abstract

ABSTRACT OF THESIS

Thesis title: The Study on Financial Performance of Gree Electric
Author name: Chen Wenqing

Course, level of education: Management and Leadership, MSc.
Host Department/Institute: Institute of Agricultural and Food Economics, Finance and Accounting, Department of Agricultural Management and Leadership Sciences.

Primary thesis advisor: Dr. Bringye Bernadett, Associate professor, Institute for Rural Development and Sustainable Economy, Department of Investment, Finance and Accounting.

Key Words: Financial Performance Evaluation, Financial Ratios, Household Appliance Industry, Gree Electric Appliances, Factor Analysis

Abstract:
Chinese household appliance industry has become the world's largest, but faced a downward trend due to policy tightening and COVID-19. Companies must maintain their competitive advantages and improve their financial performance. Gree Electric Appliances is a leading company in the industry with significant practical significance for financial performance analysis and evaluation.
This study aims to evaluate the financial performance of Gree Electric Appliances and identify existing financial problems within the company to make recommendations. Using factor analysis, the study evaluates the financial performance of 30 listed companies in the industry from 2017 to 2021. Horizontal comparison shows that Gree Electric Appliances' overall financial performance is at the industry median level, while vertical comparison reveals a declining trend. Based on these results, several recommendations have been proposed to optimize its financial performance in conjunction with Gree Electric's situation.

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Appendix 5– Thesis Review Report

DIPLOMADOLGOZAT/SZAKDOLGOZAT BÍRÁLATI LAP
THESIS REVIEW REPORT

A dolgozat készítőjének neve, Neptun kód / Candidate's name, neptun code:

_____

A dolgozat készítőjének szakja, tagozata, képzési helye / Candidate's department, training place:

_____

A dolgozat címe / Title of the thesis:

_____

A bíráló neve, beosztása, szervezeti egység / Thesis evaluator's name, title, department:

_____

A diplomadolgozat nem fogadható el/ The thesis cannot be evaluated if:

- súlyos szakmai tévedéseket tartalmaz / it contains major technical errors,
- szegényes a felhasznált forrásmunkák köre, / the amount of sources used is not efficient,
- súlyosan megsérti a tartalmi formai követelményeket / or it severly violates the formal requirements.

Plágium, hivatkozás nélküli jelentős szövegfelhasználás esetén a dolgozat összpontszáma: 0! / In case of plagiarism, when the sources of quotations are not indicated, the total score of the thesis is 0. Kérjük jelölje az értékelésének megfelelő pontszámokat az 1-től 5-ig terjedő pontskálán. Please, evaluate the reviewing aspects below on scale 1 to 5.

I. <u>Témaválasztás / Choice of topic</u>

1. Célkitűzések, logikai ív, koherens gondolatmenet / Objectives, logical and coherent train of thoughts:

1 2 3 4 5

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II. Szakirodalmi feldolgozás / Use of literature

2. Az elméletek, fogalmak, modellek ismerete, alkalmazása / The knowledge and application of theories, concepts and models:

1 2 3 4 5

3. Elemző, értékelő, összehasonlító, kritikai észrevételek / Analytic, evaluative, comparative and critical observations:

1 2 3 4 5

4. Szakirodalmi hivatkozások / Literature references:

1 2 3 4 5

III. Egyéni vizsgálat (amennyiben a dolgozat szakirodalmi áttekintés témájú, az itt szereplő kérdéseket a szakirodalom feldolgozásának színvonala alapján szükséges értékelni) / Individual research (if the thesis is a literature review, these questions should be evaluated according to the quality of reviewing)

5. A kutatási kérdések/hipotézisek / Stating research questions/hypotheses:

1 2 3 4 5

6. Az adatgyűjtés és adatfeldolgozás módszertana/ The method of data collection and processing:

1 2 3 4 5

7. Elemzőkészség / Analytical skills:

1 2 3 4 5

8. Következtetések és javaslatok / Conclusions and suggestions:

1 2 3 4 5

IV. Formai követelmények / Formal requirements

9. A dolgozat stílusa / The style of the thesis:

1 2 3 4 5

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10. A dolgozat struktúrája / The structure of the thesis:

1 2 3 4 5

A DOLGOZAT ÖSSZPONTSZÁMA / TOTAL SCORE OF THESIS: _____

Plágium / Plagiarism: Elfogadható színvonalú forráskezelés / Acceptable use of literature*

Érdemjegy /Final grade:
0-25 pont: elégtelen/insufficient (1)
26-31 pont: elégséges/sufficient (2)
32-38 pont: közepes/satisfactory (3)
39-44 pont: jó/good (4)
45-50 pont: jeles/excellent (5)

Védésre javaslom / I recommend it for final examination*: igen nem

ÉRDEMJEGY / GRADE: _____

Általános összefoglaló vélemény a dolgozatról / General, summarizing opinion about the thesis:

_____
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A bíráló szakmai kérdései / Questions of the thesis referee:

_____
_____
_____
_____
_____

Kelt: _____ év _____ hó _____ nap

_____
Bíráló neve és beosztása/Referee name and position
Bíráló munkahelye/Referee place of work