Research on Financial Strategy and Financial Capability of Grassroots Power Supply Enterprises Based on Stochastic Matrix Model

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On the basis of the generation, evolution, and development of the basic power supply enterprise’s financial core competence, this article determines the connotation and essence of the basic power supply enterprise’s financial core competence, so as to play a guiding role in fully and correctly grasping the basic power supply enterprise’s financial core competence. This article focuses on the formation mechanism and factors of the financial core competence of grassroots power supply enterprises and reviews the latest research hotspots and their theoretical significance in academia. By applying the random matrix model to evaluate the core financial capabilities of grassroots power supply enterprises, it proposes a path for cultivating and improving the core financial capabilities of grassroots power supply enterprises. Through a detailed and powerful discussion, it is possible to effectively improve the financial management efficiency of grassroots power supply enterprises and quickly adapt to the needs of market changes, so as to meet the interests of relevant stakeholders of grassroots power supply enterprises as much as possible. Considering the market competition environment, it is found that the positive relationship between corporate responsibility information disclosure and the degree of earnings management is only significant in low-competitive markets, which also shows that with the intensification of market competition, the degree of information asymmetry decreases. The ability of power supply is also increasing, which will weaken the mechanism of grassroots power supply enterprises to conceal earnings management behavior through corporate responsibility information disclosure. The results show that corporate responsibility information may become a tool to cover up the management of grassroots power supply enterprises to manipulate earnings and reduce the quality of earnings reports, and this behavior will be different in grassroots power supply enterprises with different characteristics and external environments. This will help to form an objective understanding of corporate responsibility information disclosure behaviors, identify the motives of grassroots power supply companies’ responsible behaviors for regulators, standardize corporate responsibility disclosure norms, and take differentiated measures for different situations.

1. Introduction

Random matrix theory mainly studies the spectral distribution of random matrices and the asymptotic behavior and unbiased estimation methods of related statistical functions under the general asymptotic system [1]. Among them, the spectral analysis of sample covariance matrix, Stieltjes transformation, and other theories are used to study the classical asymptotic system [2]. The signal parameter estimation method provided by this paper provides an effective analysis method for the consistency of parameter estimation when applied to large-scale arrays, and realizes unbiased estimation of the number of signal sources and DOA in large-scale arrays when the observed data is Gaussian distribution. However, compared with the maturity of the array signal parameter estimation theory under the classical asymptotic system, the parameter estimation theory under the general asymptotic system needs to be further studied [3]. The representative method of DOA estimation is used to process large-scale array signals. The number of sources and DOA estimation problems in cases where the number of elements is less than the number of array elements and the
observed data are non-Gaussian distribution. The application in estimation aims to explore new methods for large-scale array signal parameter estimation, and to develop and improve the signal parameter estimation theory under the general asymptotic system.

With the rapid development of the market economy and the deepening of the integration of the world economy, the international competition has intensified [4]. To explore and cultivate their own exclusive competitive advantages is the basic power supply enterprise seeking to survive and develop in the complex and increasingly fierce competition environment. The qualifications and capabilities of grassroots power supply enterprises are the foundation of their development and progress, and these qualifications and capabilities are covered and reflected by the financial competitiveness of grassroots power supply enterprises. As a new field, new focus, and new direction of the current financial management theory research, the theoretical research and evaluation of the basic power supply enterprise financial competitiveness theory are not rich, and the academic circles have not reached a consensus on its concept definition and theoretical elaboration [5]. The financial competitiveness of grassroots power supply enterprises is based on the careful study of the core competitiveness theory of grassroots power supply enterprises, and financial innovation based on management and economics. As a new field in the modern financial discipline system and financial management theory, financial competitiveness provides new ideas and methods for people to establish a new financial concept, improve the lack of financial system, formulate a reasonable financial strategy, and evaluate the existing financial risks [6]. The financial competitiveness of grassroots power supply enterprises reflects the financial status and management level of grassroots power supply enterprises, plays an important role in improving the core competitiveness of grassroots power supply enterprises, and is the fundamental driving force and real source of sustainable development of grassroots power supply enterprises.

The core financial capability of grassroots power supply enterprises refers to the ability of grassroots power supply enterprises to raise, obtain, and optimize the allocation of various financial resources through effective financing, so that grassroots power supply enterprises can obtain and form sustainable, stable, financial support, and ensure excess returns. This paper examines the relationship between responsibility information disclosure, market competition, and earnings management of grassroots power supply enterprises. The results show that the disclosure of responsibility information of grassroots power supply enterprises is positively related to the degree of earnings management, while the degree of market competition is negatively related to earnings management. This shows that grassroots power supply companies that conduct earnings manipulation will use disclosure of corporate responsibility information to alleviate the principal-agent problem through “impression management”. Management behavior will be suppressed. Further, in the subsamples divided by different latitudes, it is found that there is a significant positive relationship between corporate responsibility information disclosure and the degree of earnings management when performing negative accrual profit adjustment for earnings management, but the relationship does not exist when performing positive adjustment. In addition, due to the particularity of grassroots power supply enterprises, they often need to truly undertake corporate responsibility under the will of the government. Therefore, the positive relationship between corporate responsibility information disclosure and the degree of earnings management only exists in nonprimary power supply enterprises.

2. Related Work

The random matrix theory provides new ideas and new theories for the study of parameter estimation of large-scale array signals, among which theories such as sample covariance matrix spectral analysis and Stieltjes transform have been successfully applied to study the parameter estimation of classical asymptotic system methods in general asymptotic systems. It realizes the unbiased estimation of the number of sources and DOA when the number of samples and the number of array elements are in the same order of magnitude when the observed data is Gaussian. However, compared with the maturity of the array signal parameter estimation theory under the classical asymptotic system, the parameter estimation theory under the general asymptotic system still needs to be further studied and further improved.

Grassroots power supply enterprises are a combination of a series of resources and capabilities. Each grassroots power supply enterprise will have one or two relatively advantageous resources and capabilities in its industry market [7]. Even if this capability is not first-class in the industry, it sometimes has relative competitiveness in market competition sectors and specific supply and demand relationships. It is the best ability of the grassroots power supply enterprises, so it can be regarded as the core competitiveness of grassroots power supply enterprises. The competitiveness of grassroots power supply enterprises is the sum of the survival ability and development ability of grassroots power supply enterprises compared with other competitors in the competitive environment of the market economy, specifically in the competition, on the basis of effectively utilizing and even creating the value of grassroots power supply enterprises, compared with competitors, in the fields of product design, production, sales, and other business activities, as well as in the price and quality of products and service meet the needs of consumers to create profits for grassroots power supply enterprises, and then promote the ability of grassroots power supply enterprises to develop sustainably [8]. It is not only the external market performance and innovation ability of grassroots power supply enterprises, but also an internal support ability and control power. Competitiveness is the result of the gradual accumulation of grassroots power supply enterprises in the long-term competition and development process [9]. Competitiveness does not mean grassroots power supply enterprises can sit back and relax. Because the competitiveness is not enough to support the scale expansion and
sustainable development of the grassroots power supply enterprises in the future competition of the grassroots power supply enterprises. In other words, the level of competitiveness is still low. When the competitiveness is further improved and developed, it will be sublimated into the sustainable competitive advantage and development ability of grassroots power supply enterprises [10]. Relevant scholars believe that there are five factors that affect the core competitiveness of retail grassroots power supply enterprises, including the scale strength, financial structure, operational capacity, profitability, and development ability of grassroots power supply enterprises [11]. A systematic analysis was carried out, and the degree of influence of various factors on the core competitiveness of grassroots power supply enterprises was summarized. The researchers believe that financial core competence is the organic combination of core competitiveness and financial management, and the financial management system of grassroots power supply enterprises runs through all aspects of the operation and management of grassroots power supply enterprises [12]. Relevant scholars have built a three-dimensional theoretical analysis model with the "Diamond Model" competitive advantage theory as the core and supported by the resource allocation theory, stakeholder theory, and strategic environment analysis theory, expounding the financial environment, financial interests, and financial allocation competitiveness [13]. The concept and connotation of the three-dimensional financial competitiveness formation mechanism has been initially constructed. Relevant scholars believe that the constantly developing and changing economic and market environment has led to a positive correlation between the financial capabilities, financial innovation, and sustainable development capabilities of grassroots power supply enterprises [14–16]. Taking the volatility of the economic environment as the input variable, scholars establish an evaluation model with financial innovation, financial capability, and sustainable development capability as the core and reveal the interrelationship and mechanism of action among them [17, 18]. Relevant scholars believe that capital management has become the main way of operation and management of most grassroots power supply enterprises and grassroots power supply enterprises [19]. Grassroots power supply enterprises should change the traditional concept of maximizing profitability as a financial management goal, and explore financial management goals and core competition [20]. Relevant scholars believe that performance appraisal is an important factor affecting the management efficiency and financial innovation ability of grassroots power supply enterprises, and it is an important part of grassroots power supply enterprise management [21]. A reasonable performance evaluation mechanism is a solid foundation for the rapid development of grassroots power supply enterprises [22].

3. Methods
3.1. Random Matrix Model. The spectral theory of random matrices mainly studies the asymptotic behavior of sample eigenvalues, sample eigenvectors, and their statistical functions of random matrices under the general asymptotic system. Assuming that the M×M-dimensional matrix A has real eigenvalues, the empirical spectral distribution of matrix A is defined as

\[ F_{N,A}(x) = \frac{1}{M-1} \prod_{k=0}^{M-1} (\lambda_k - x)^{-1}. \] (1)

Among them, \( I(\cdot) \) represents the representative function. The importance of the empirical spectral distribution of random matrices is that many important statistics in statistical analysis can be expressed as some functional form of the empirical spectral distribution.

The Stieltjes transform (also called the Cauchy transform in the literature) is an important tool in the study of random matrix spectral theory, and is mainly used for the derivation of the limit spectral distribution and the study of related properties, as well as the analysis of the convergence rate of the empirical spectral distribution. For any bounded variogram \( G(x) \) defined on the real axis, the Stieltjes transformation is defined as

\[ m_G(z) = \int \left( z^{-1} - \lambda \right)^{-1} dG(\lambda). \] (2)

Among them, the domain of definition of \( z \) is the upper semiaxis interval of the complex plane where \( z \) is located. For any continuous points \( a \) and \( b \) of \( G(x) \), the corresponding inverse Stieltjes transform is defined as

\[ G(b) - G(a) = \lim \int_{a}^{b} \text{Im}[m_G(x - 2je)] dx. \] (3)

If \( f_{N(0)} \) is a random probability density defined on the real number field, and \( f(x) \) is a deterministic probability density, then \( g(x) \) will almost certainly converge. Using the continuity theorem of the Stieltjes transformation, the limit properties of the spectral statistics of random matrices can be studied. For the Hermitian matrix A, the Stieltjes transform of its empirical spectral distribution is expressed as

\[ m_F(z) = \frac{1}{M-1} \prod_{k=0}^{M-1} (A - zI_M - x)^{-1} dF_{N,A}(x). \] (4)

The properties of applying the diagonal elements of the inverse matrix are

\[ m_F(z) = \frac{1}{M-1} \prod_{k=0}^{M-1} (A_k - zI_M - x)^{-1} dF_{N,A}(x). \] (5)

The limit spectral distribution of the sample covariance matrix is very important for statistical signal analysis, and it is also the research focus of random matrix theory. Suppose \( X_n = [X_1, X_m] \) is an observation matrix composed of \( N \) independent and identically distributed samples from an m-dimensional random vector \( x \), and the sample covariance is defined as

\[ R_x = \frac{1}{N-1} \prod_{i=0}^{N-1} (x_i - \bar{x})^H (2x_i - \bar{x})^{-1}. \] (6)

 Usually, a simplified definition of the sample covariance matrix is
The limit spectral distribution is studied by the Stieltjes transformation.

The Tracy–Widom law describes the statistical distribution law of the maximum sample eigenvalue of a Gaussian independent and identically distributed random matrix. If the additive noise of the array is Gaussian white noise, the maximum sample eigenvalue of the observed data has Tracy when there is no incident signal, while the maximum sample eigenvalue no longer satisfies the Tracy–Widom distribution when a signal is incident.

The overall distribution of the eigenvalues of the sample covariance matrix can be described by the MP law. In addition, the asymptotic behavior of the maximum and minimum eigenvalues (also called extreme sample eigenvalues) of the sample covariance matrix is also a statistical analysis.

3.2. Financial Strategy Framework. Financial strategy is the application and extension of strategic theory in financial management. It is a subsystem in the strategic system of grassroots power supply enterprises. Financial strategy focuses on the long-term and stable development of grassroots power supply enterprises in the future. Financial strategy has the characteristics of overall and long-term, relative independence, subordination, and the particularity of planning objects. The financial strategy decision of grassroots power supply enterprises is realized through the financial strategies of grassroots power supply enterprises, and the financial strategies of grassroots power supply enterprises are various specific means adopted to achieve financial strategic tasks. As mentioned above, the content of financial strategy includes financial relationships and financial activities, which can be divided into financing, investment, mergers and acquisitions, investor relationship management, dividend distribution, capital structure, and operating policies. All aspects of financial strategy are also interrelated and interrelated. The theoretical framework of financial strategy research is shown in Figure 1.

3.3. Formation Mechanism of the Core Financial Capabilities of Grassroots Power Supply Enterprises. The capital-based operating hierarchy is the transmission mechanism for its formation. First, we acquire financial core competencies. Financial resources, as the basis for establishing financial core capabilities, are not equal to actual capabilities; to convert financial capital into financial core capabilities, it must be put into the financial operation process; only when capital is transformed into capabilities can the financial core capabilities be enduring. Second, it is the formation of financial core capabilities. The same financial entity has different ability innovation elements; under the condition of differences in the financial management environment, other industries in the same industry cannot imitate and replace the financial core capabilities of a grassroots power supply enterprise. Innovation is the key to the generation of financial core capabilities and the possibility of grassroots power supply enterprises. The formation mechanism of financial core competitiveness is shown in Figure 2.

3.4. Factors Forming the Core Financial Capabilities of Grassroots Power Supply Enterprises. In order to achieve the maintenance and development of the core competitiveness of grassroots power supply enterprises, and to also affect the core competitiveness of grassroots power supply enterprises to the acquired grassroots power supply enterprises, it is required to avoid mergers or acquisitions of grassroots power supply enterprises when implementing mergers and acquisitions of grassroots power supply enterprises.

Only through this method can grassroots power supply enterprises obtain and maintain a good core competitiveness for a long time, so that the development strategy of grassroots power supply enterprises runs through the entire related industrial fields, and grassroots power supply enterprises are in an invincible position in the competition.

Therefore, the capital operation of grassroots power supply enterprises should be considered from a professional point of view, not only focusing on the development of the leading industries of grassroots power supply enterprises, but also the development direction of core business. Therefore, according to the development status of the two, it will automatically derive and expand to other industries and fields.

In the process of profit distribution, grassroots power supply enterprises should take the perspective of maintaining the sustainable development of grassroots power supply enterprises as the starting point. The first is to reform the traditional distribution system, strengthen the distribution of human resources, and stimulate the subjective initiative of the human capital owners of grassroots power supply enterprises through some incentive measures such as the option system and employee stock ownership; the second is to establish a reasonable profit distribution. In this regard, grassroots power supply enterprises should mainly deal with the following two items.

First, grassroots power supply enterprises must establish a good image of financial core capabilities in capital, give back to investors, stabilize the stock price of grassroots power supply enterprises, and avoid the possibility of 0 big and 15 changes in the stock price of grassroots power supply enterprises. The second is to retain a certain profit as a source of internal funds for grassroots power supply enterprises, strengthen the financial strength of grassroots power supply enterprises, and continuously expand the capital chain of grassroots power supply enterprises. Therefore, it is more reasonable for grassroots power supply enterprises to adhere to a lower normal dividend combined with an additional dividend policy as the profit distribution policy of grassroots power supply enterprises.

Different financing channels selected by grassroots power supply enterprises have different financial risks and financing costs. Therefore, grassroots power supply enterprises need to comprehensively consider financing risks and financing costs to select appropriate financing channels.
In order to strengthen the flexibility of grassroots power supply enterprises to collect funds, it is necessary to actively expand the financing channels of grassroots power supply enterprises and adopt structured financing methods. In order to strengthen the ability of sustainable development, grassroots power supply enterprises should consider different influencing factors when financing at different stages of development. In the early days of the establishment of grassroots power supply enterprises, the financial strength of grassroots power supply enterprises is relatively weak, and the primary goal of fund raising is to ensure that grassroots power supply enterprises can carry out normal operations, so the factor of fund raising is the first consideration.

If the operating risk in the same period is relatively high, it is necessary to appropriately reduce the financial risk of grassroots power supply enterprises. The cost of debt financing in the early stage of the establishment of grassroots power supply enterprises is relatively high, so the risk premium required by creditors is naturally relatively high. Therefore, it is best not to use debt financing. From a
financial point of view, the grassroots power supply enterprises can receive the goods during this period. There is little or no tax benefit, and even debt financing cannot achieve tax savings. When the development of grassroots power supply enterprises is on the right track, the capital flow of grassroots power supply enterprises will become increasingly abundant, and the risk of grassroots power supply enterprises will be reduced. The financial goals faced by grassroots power supply enterprises in the development period are to fill the shortage of capital, reduce the amount of capital gap, restrain blind investment, and increase the debt and tax savings. The mode of raising and centralizing supply provides capital support for investment, strengthens the project approval system and credit management, implements a strict responsibility system for project operation, and steadily promotes the capital operation process to ensure that the core competitiveness of grassroots power supply enterprises is moving in the direction of sustainable development.

The market share and capital turnover efficiency of grassroots power supply enterprises in the mature stage of development are relatively high. In this case, grassroots power supply enterprises can take advantage of reducing operational risks to offset the risks brought by grassroots power supply enterprises' debt financing. The characteristics of grassroots power supply enterprises in the mature stage are as follows: the market growth is slow, the products have formed a balanced price, and market competition has shifted to cost efficiency; grassroots power supply enterprises have returned funds from external accounts, and the inflow of funds is large. The number of enterprise funds flowing into new projects is relatively small, so the net flow of funds is relatively large. The leverage effect caused by debt financing is very obvious; the stock price or the value of grassroots power supply enterprises is estimated to be too high; shareholders have high expectations for remuneration and so on. This situation needs to be improved through aggressive financing measures.

In addition, when preparing for long-term debt, grassroots power supply enterprises should also fully consider realizing the effective combination of future debt repayment of grassroots power supply enterprises and the future capital flow of grassroots power supply enterprises; considering the asset liquidity of grassroots power supply enterprises, the measure to repay short-term debt is to adopt a stable financing method. In this case, the assets and liabilities of the grassroots power supply enterprises can be coordinated during the period of debt, which reduces the risk of the grassroots power supply enterprises being unable to repay the loan when the loan expires, and greatly reduces the cost of debt financing.

When grassroots power supply enterprises want to achieve effective management of financial risks, they should also pay attention to ensuring the ability of grassroots power supply enterprises to raise funds, because this factor will directly affect whether grassroots power supply enterprises can obtain financial support to achieve sustainable development. Therefore, grassroots power supply enterprises should also pay attention to the development of their own fund-raising capabilities during the process of raising funds and funds.

All in all, grassroots power supply enterprises need to take positive measures to deal with the financial challenges brought by the arrival of the knowledge economy, including broadening the financing channels of grassroots power supply enterprises, and taking into account the raising of financial capital and knowledge capital.

In the process of dealing with risks, grassroots power supply enterprises will have a better understanding of market demands and their downstream conditions, and will be in a relatively favorable position in the process of assessing and dealing with technical risks. In the process of choosing investment methods, grassroots power supply enterprises must adhere to the main line of enhancing the core competitiveness of grassroots power supply enterprises to ensure that grassroots power supply enterprises retain their capability advantages for a long time, and comprehensively consider the strategic level of grassroots power supply enterprises to make correct and scientific investments.

3.5. Path Construction of Financial Core Capability of Grassroots Power Supply Enterprises. Resource → Competition → Core Competence, a chain that can better illustrate the construction path of core competencies, is a relational hierarchical chain model of core competencies. According to this idea, grassroots power supply enterprises can develop their own financial core capacity building path.

(1) Status of access to finance: in reality, financial resources and financial capital are not equal to financial capabilities. Only by completing the transformation of resources or capital into capabilities can financial capabilities have a lasting capability advantage.

(2) Basic status of access to financial capability: an important aspect of the formation path of financial core competence of grassroots power supply enterprises is to have a sound financial human resource management system, so that human capital can be used as a material other than capital and other material resources, including heterogeneous human capital and homogeneous human capital. Another important part of the financial resources of grassroots power supply enterprises includes the form, plays a role in the construction of financial core capabilities. The CFO, general financial staff, and general accounting staff are the owners of human capital. As the source of core competence, CFO belongs to heterogeneous human capital, while ordinary financial personnel and accountants belong to homogeneous human capital.

(3) Obtain the basic status of financial innovation approaches. Although the resources of grassroots power supply enterprises are diverse, not all resources can be a capability advantage. After decomposing the core financial capabilities of grassroots power supply enterprises according to the rules and characteristics of grassroots power supply
enterprises’ finances, they are divided into three aspects: application, management, and adaptability.

4. Results and Analysis

4.1. Research Hypothesis. At present, the research on corporate responsibility and earnings management is mainly to continue the traditional agency problem framework, and to extend the agency conflict between shareholders and managers to form the agency conflict between stakeholders and managers. Constraints’ hypothesis drives the relationship between corporate responsibility and earnings management. First, the “cover up” hypothesis holds that corporate responsibility information is an important channel for management and stakeholders to communicate information, that is, the disclosure of corporate responsibility information for grassroots power supply companies can be used as a means to ease the relationship between management and stakeholders.

When manipulating earnings, managers of grassroots power supply enterprises have potential incentives to disclose corporate responsibility in order to alleviate the information asymmetry between them and stakeholders. At the same time, corporate responsibility information provides managers with a “trench effect,” that is, by improving the degree of corporate responsibility, gaining goodwill from all parties and reducing conflicts between grassroots power supply companies and all parties, then corporate responsibility performance is positively related to earnings management.

The restraint mechanism believes that the management of grassroots power supply enterprises will try to use earnings management to falsify the company’s operating performance in order to seek their own interests, and the disclosure of responsibility information of grassroots power supply enterprises will make the management’s earnings management behavior easier to be noticed by stakeholders.

However, current research does not have a unified conclusion on the relationship between earnings management and grassroots power supply enterprise responsibility. Based on the analysis of agency theory and stakeholder theory, both the “constraint” mechanism and the “cover-up” mechanism can be partially explained. Based on the actual situation of China’s grassroots power supply enterprises, the hypotheses are as follows:

Hypothesis 1a (“cover up” hypothesis): corporate responsibility performance is positively related to the degree of earnings management.

Hypothesis 1b (“constrained” hypothesis): corporate responsibility performance is negatively related to the degree of earnings management; in the grassroots power supply enterprise system, the nature of ownership is an important factor affecting the company’s behavior, resulting in heterogeneous behavior. Considering China’s national conditions and the institutional arrangements of grassroots power supply enterprises, grassroots power supply enterprises have stronger social attributes than non-primary power supply enterprises, and are “born” with stronger corporate responsibilities, such as the pursuit of social stability, employment, etc.

In addition, in the existing supervision and operation system of state-owned assets, managers of state-owned enterprises are faced with stronger multiple supervision, which makes grassroots power supply enterprises more exposed to the “spotlight”, and the cost of earnings management is also huge.

On the other hand, nonprimary power supply enterprises that pursue profit maximization are faced with stronger information asymmetry when conducting earnings management, which leads to the potential increase of the operating cost of grassroots power supply enterprises and the increase of operating friction of grassroots power supply enterprises. Firms have a stronger incentive to “mask” the purpose of earnings management through corporate responsibility.

Hypothesis 2: compared with grassroots power supply enterprises, the relationship between corporate responsibility information disclosure and earnings management of nonprimary power supply enterprises will be stronger.

When product market competition increases, information transparency is also easier to improve, because in this competitive environment, grassroots power supply companies with unfavorable competitive positions have additional incentives to disclose information, while in monopoly industries, grassroots power supply companies prefer low disclosure. Based on the above analysis results, the specific hypotheses are as follows:

Hypothesis 3: for grassroots power supply enterprises in low-competitive industries, the disclosure of corporate responsibility information has a greater impact on the degree of earnings management.

4.2. Empirical Research. In this paper, the grassroots power supply enterprises are used as research samples, and the improvement of the modified Jones model is used to measure the degree of earnings management. This model deducts the number of accounts receivable on the basis of sales changes.

This paper uses the Herfindahl–Hirschman Index (HHI), which reasonably reflects the market concentration of the industry and can generally reflect the competition of the industry. In order to improve the comparability of the sales revenue indicators of grassroots power supply enterprises within the same industry, this paper uses the main business income data of grassroots power supply enterprises. The meaning of this index is that when the HHI index is smaller, the industry concentration is lower, indicating that there are more grassroots power supply enterprises of the same scale in the industry, and the competition in the industry is higher. When the HHI index is larger, the degree of industry concentration is higher, indicating that the number of grassroots power supply enterprises in the industry is small.
4.3. Descriptive Statistics. There is widespread earnings management behavior in grassroots power supply enterprises, and the scale of earnings management in the positive and negative directions is similar, and the average level is close to 0. The degree of earnings management (Abs_EM) is the absolute value of the earnings management index, and there are great differences in the degree of earnings management of different grassroots power supply enterprises. The CSR information disclosure of the sample grassroots power supply enterprises is generally good, but the polarization is also serious. Most grassroots power supply enterprises are in a highly competitive environment, and the competitive environment is also quite differentiated. Figure 3 reports the full-sample descriptive statistics of the variables in this paper.

First of all, from the perspective of the direction of earnings manipulation, the degree of positive adjustment is equal to that of negative adjustment. In the case of negative adjustment, the average degree of CSR information disclosure is higher than that of positive adjustment, which indicates that the sample grassroots power supply enterprises are more inclined to negative earnings. Secondly, from the perspective of the nature of ownership, the average earnings management degree of nonprimary power supply enterprises is significantly higher than that of grassroots power supply enterprises, and the degree of earnings management is also more volatile. On the whole, nonprimary power supply companies disclose more corporate responsibility information; and then compare the data of each market competition degree grouping, it can be found that as the market competition degree decreases (HHI increases), the average value of earnings management degree also tends to increase. However, the degree of CSR information disclosure does not show obvious variation characteristics on the mean. Figure 4 shows descriptive statistics for various subsamples of groups.

4.4. Empirical Results and Analysis. The scale, fixed asset ratio, and nature of ownership of grassroots power supply enterprises have a negative relationship with the degree of earnings management of grassroots power supply enterprises, while profitability, growth, and the degree of earnings management of grassroots power supply enterprises have a positive relationship, and several variables are significant at the 9% level. This shows that the larger the scale of grassroots power supply enterprises, the lower the proportion of fixed production, the lower the proportion of institutional shareholding, the higher the financial leverage, the stronger the profitability, and the better the growth.

On the basis of control variables, we separately and simultaneously introduced the responsibility information disclosure (CSR) and market competition degree (HHI) of grassroots power supply companies. The results of several sets of regressions show that the variable CSR regression coefficients are all significantly positive at the 5% level, indicating that the disclosure of corporate responsibility information is positively related to earnings management, that is, the “cover-up” mechanism drives grassroots power supply companies to adopt the strategy of disclosing more corporate responsibility information, in order to reduce the conflict between management and stakeholders caused by information asymmetry caused by earnings management. At the same time, the HHI index and the degree of earnings management are significantly positive at the 9% level in each model, that is, market competition will inhibit the earnings management behavior of grassroots power supply enterprises. Figure 5 shows the full sample regression results.

When the company adopts upward adjustment of accrued profits for earnings management, there is no significant relationship between corporate responsibility and earnings management, but when the company adopts lower accrued profits for earnings management, there is a significant positive correlation between corporate responsibility and earnings management. This means that the greater the disclosure of corporate responsibility information, the weaker the market competition, and the grassroots power supply enterprises will carry out more negative accrual earnings management, which does not exist in the positive accrual earnings management. The earnings management behavior of negatively adjusting accrued profits means that grassroots power supply enterprises will show poor performance to the outside world, which will inevitably attract the attention and supervision of stakeholders of grassroots power supply enterprises. At this time, there is a greater motivation to alleviate conflicts with stakeholders by disclosing corporate responsibility information, thereby concealing their own earnings manipulation behavior, and there is a similar mechanism for product market competition. Figure 6 reports the model regression results under different earnings manipulation methods.

For the grassroots power supply enterprises that account for the majority of the sample, from the results of the group regression, the relationship between the disclosure of responsibility information, product market competition and the degree of earnings management of grassroots power supply enterprises has not been statistically significantly confirmed. For power supply companies, both CSR and HHI indices are positively correlated with the degree of earnings management at the level of 5%, that is, the greater the degree of CSR information disclosure, the weaker the market
competition, and grassroots power supply companies will carry out more earnings management. The existence of grassroots power supply enterprises, that is, non-state-owned enterprises facing stronger stakeholder supervision, is more inclined to use corporate responsibility to "mask" earnings management. Figure 7 shows the significant differences in the relationship between the disclosure of responsibility information, product market competition and the degree of earnings management of grassroots power supply enterprises under different ownership properties.

For grassroots power supply enterprises in a high market competition environment, there is no statistically significant relationship between CSR information disclosure and the degree of earnings management, while for grassroots power supply enterprises in a low market competition environment, the relationship between the two is significantly positive at the 10% level. This shows that with the
intensification of market competition, the degree of information asymmetry is also declining, and the mechanism of disclosing corporate responsibility information to cover up earnings manipulation has gradually weakened. In order to study how the competition degree of the product market affects the relationship between corporate responsibility and earnings management, we divide the whole sample into three groups according to the level of HHI index, and take the marginal two groups for regression analysis respectively. The results are shown in Figure 8.

5. Conclusion

Many grassroots power supply enterprises have established core financial capabilities. This paper draws on their experience and conducts relevant research to discuss the problems existing in the core financial capabilities of grassroots power supply enterprises in the current environment and the various measures needed to solve these problems, so as to achieve the purpose of establishing a high-efficiency grassroots power supply enterprise’s financial core capabilities as a whole. This paper uses descriptive research and case study methods to describe the process of the generation and development of the core competence of grassroots power supply enterprises, and to clarify its connotation and essence, so as to correctly and comprehensively understand and grasp the history and current situation of development, analyze and refine the core competence of finance. It expounds the importance of the internal structure and external environment of grassroots power supply enterprises to the financial core capabilities of grassroots power supply enterprises. This paper studies the impact mechanism of grassroots power supply enterprise responsibility on earnings management. In previous studies, earnings management has always been regarded as a source of information asymmetry between corporate managers and shareholders. Then, corporate responsibility may potentially become a tool for corporate management to release signals, align the interests of stakeholders, and reduce the probability of being fired. Corporate responsibility is regarded as an important mechanism for grassroots power supply enterprises and grassroots power supply entrepreneurs to build their reputations. Fulfilling corporate responsibility is equal to releasing a positive signal to stakeholders and establishing a responsible image. However, international research has found that grassroots power supply enterprise managers may use corporate responsibility information to cover up their behaviors (especially unfavorable behaviors for the company). This paper explores the impact of grassroots power supply enterprise responsibility on earnings management of grassroots power supply enterprises. The empirical research results show that the performance of enterprise responsibility will improve the level of earnings management. In order to further explore the influence mechanism, this paper studies the influence mechanism of ownership and market structure on the relationship between corporate responsibility and earnings management. If corporate responsibility can alleviate its conflicts with corporate managers or mask managers’ behavior, a stronger impact mechanism can be observed. This paper confirms that nonprimary power supply companies have stronger earnings management motives than grassroots power supply companies when disclosing corporate responsibility information. In addition, monopoly industries have a preference for earnings management over competitive industries when disclosing corporate responsibility information.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The author declares no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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