Will the Regulation of Exchange Inquiry Letters Affect the Investment Efficiency of Enterprises?

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Abstract: Exchange inquiry letter is an important and innovative regulatory method, and the efficiency of corporate investment decision-making and theft has not been studied. Theoretically, inquiry letter regulation may have a positive and negative opposite effect on the efficiency of a company's investment. Based on this, this paper adopts the multi-period double difference model used by A-share non-financial listed companies in Shanghai and Shenzhen from 2014 to 2021, and empirical research finds that the inefficient investment of companies receiving inquiry letters from exchanges has significantly improved, and the inquiry letter system of exchanges has reduced the investment efficiency of companies.

Keywords: Inquiry letter supervision, Business investment efficiency, Non-administrative punitive supervision.

1. Introduction

Investment behavior is one of the important decision-making behaviors of modern corporate enterprises, the efficiency of investment behavior reflects the deviation between enterprise investment decision and the optimal investment level, and the study of investment efficiency has a profound impact on enterprise resource allocation and long-term market value. The early research on investment efficiency is based on the theoretical framework of neoclassical economics, ignoring the impact of internal governance structure and external regulatory factors on investment efficiency. With the development of information economics and behavioral finance, more research has been carried out on investment efficiency based on the perspectives of information asymmetry and principal-agent.

Non-administrative punitive supervision is an innovation and exploration in the form of external supervision, and its impact on the investment efficiency of enterprises has not received academic attention. As an innovative form of supervision, the supervision mode of exchange inquiry letter supervision makes use of the advantage of the exchange in the front line of market supervision, and sends letters to listed companies from time to time to inquire about information disclosure issues in the process of operation and requires the company to reply to the letter within the specified time, which has the characteristics of flexibility and flexibility, low cost and easy operation, and plays an important role that cannot be ignored in improving the level of information disclosure and maintaining the order of the capital market.

So, is there a correlation between the regulatory meeting of exchange inquiry letters and the efficiency of corporate investment? If so, what are the effects and mechanisms of action between the two? Based on this, this paper selects the regulatory data of A-share listed companies and inquiry letters on the Shanghai Stock Exchange and Shenzhen Stock Exchange from 2014 to 2020, and uses a multi-period double difference model to study the impact of inquiry letter supervision on the investment efficiency of enterprises. The study shows that the regulation of exchange inquiry letters has a significant negative impact on the investment efficiency of enterprises, and the investment efficiency of companies receiving exchange inquiry letters is significantly reduced.

2. Literature Review

2.1. Regulatory Effect of Exchange Inquiry Letters

Existing studies at home and abroad agree that the inquiry letter supervision system improves the regulatory function of exchanges, and the dynamics of public inquiry letters further strengthen the external supervision mechanism of listed companies, which is a strong regulatory measure for exchanges to listed companies (Yang & Li, 2018[1]). The academic research on the economic impact of exchange inquiry letter supervision is mainly divided into two categories: one is the impact of inquiry letter supervision on the internal governance of the company, and the other is the impact on the external affiliates of the company.

From the perspective of internal governance and economic effects, the supervision of inquiry letters improves the level of information disclosure of listed companies (Huang & Chang, 2021[2]), reduces the level of information asymmetry (Di & Wang, 2019[3]), further improves accounting robustness (Shi et al., 2021[4]), and in terms of executive incentive and management, companies that receive inquiry letters from exchanges have reduced sensitivity to executive compensation performance (He & Fang, 2021[5]), overcompensation is suppressed (Liu & Bai, 2021[6]), and are more prone to executive changes (Deng et al., 2020[7]). Lin et al. (2021)[8] believes that companies receiving inquiry letters will increase the allocation of their financial assets in the short term, resulting in enterprises "turning from real to virtual", Ma (2021)[9] found that inquiry regulatory measures have limited regulatory effects on improving the quality of earnings, and He & Fang (2022)[9] found that inquiry letters increase the company's overall information uncertainty by measuring analysts' forecast periodization and errors.

From the perspective of the impact of external correlation of enterprises, most studies believe that inquiry letters have an early warning effect (Zhang et al., 2018[10]; Fu et al., 2021[11]), and the supervision that attracted media and public attention after public disclosure combined forces, and the order of the capital market was maintained, but the inquiry
letter also reduced the reputation of the receiving company (Di & Han, 2021[12]), making the companies supervised by the exchange inquiry letter face higher audit fees (Chen et al., 2018[13]; Shen & Jing, 2020[14]). Borrowing costs, financing constraints (Di et al., 2020[15]).

2.2. Enterprise Investment Efficiency

The early research on enterprise investment efficiency at home and abroad is based on neoclassical investment theory, which believes that investment efficiency is the adjustment problem of optimal capital stock, which depends on the marginal cost and marginal value of enterprise investment. With the deepening of research, the existing literature analyzes the important factors affecting the investment efficiency of enterprises based on the perspectives of information asymmetry, financing constraints, agency problems and irrational behavior.

From the perspective of information asymmetry and financing constraints, information asymmetry will increase the financing cost of enterprises, and when the financing cost is too high, there may be insufficient investment and affect investment efficiency (Myers, 1977[16]). Shao & Hu (2022)[17] found that fintech can improve the investment efficiency of enterprises by alleviating the financing constraints generated by information asymmetry. Zhang & Li (2021)[18] studies the impact of heterogeneity of different financing constraints on the investment efficiency of enterprises. Ye et al. (2020)[19] believes that information sharing improves corporate debt financing and improves corporate investment efficiency.

From the perspective of principal-agent and internal governance, due to the separation of ownership and control, the interests of investors and managers are inconsistent in modern corporate enterprises, and managers' investment decisions may be based on maximizing self-returns rather than maximizing corporate returns, resulting in inefficient investment of enterprises. Gu & Zhang(2021)[20] believes that the quality of internal control can alleviate the agency cost of enterprises and promote the improvement of enterprise investment efficiency. Gu & Di (2021)[21] found that executive pay stickiness has a negative impact on corporate investment efficiency. Yao & Zhang (2021)[22] found that salary controls discourage overinvestment.

From the perspective of behavioral finance, the existing literature mainly focuses on the background of policy makers and the influence of behavior on the investment efficiency of enterprises. Fan & Liu (2022)[23] found that managers' overconfidence leads to overinvestment and makes investment efficiency lower, Liao & Liu (2022)[24] based on "imprint theory" found that executives' reform and opening up experience improves corporate investment efficiency, and He & Li (2021)[25] found that the existence of social relationships between corporate CEOs and CFOs is conducive to decision-making communication and improves investment efficiency.

Reviewing the existing literature, it can be seen that the research on the investment efficiency of enterprises focuses on factors such as corporate governance and external correlation, and financing constraints, agency costs, and management behaviors will all affect the investment efficiency of enterprises. As an important non-administrative punitive regulatory measure, there are few literature on the relationship between the innovative "flexible supervision" method of inquiry letter supervision and investment efficiency.

3. Theoretical Analysis and Research Hypotheses

3.1. Institutional Background

The widespread regulatory adoption of inquiry letters began with the adoption of opinion letters by the SEC after the Sarbanes-Oxley Act of 2002. China's first inquiry letter was released in 2007 (Chen et al., 2018[26]), and under the background of the implementation of the information disclosure through train reform in 2013, Shenzhen and Shanghai began to disclose the issuance of inquiry letters and enterprise reply letters to the public in 2014 and 2015 respectively.

3.2. Theoretical Analysis

Inquiry letter supervision is a non-administrative penalty supervision method for exchanges to perform front-line regulatory duties, aiming to improve the level of information disclosure of listed companies and maintain the order of the capital market. The investment efficiency of enterprises is affected by many internal and external factors, so will the supervision of exchange inquiry letters affect the investment efficiency of enterprises? This paper will theorize the positive and negative impact effects.

On the one hand, the regulation of exchange inquiry letters may have a positive impact on the investment efficiency of enterprises. The inquiry letter supervision of the exchange enquires and supervises the potential problems existing in the financial statements, annual reports and announcements of enterprises (Chen et al, 2018[26]), and the inquiry matters include matters that do not comply with regulatory standards and norms in the company's operation and corporate governance, which may directly involve the company's investment, and the company may adjust its investment decisions to improve investment efficiency after receiving the inquiry letter. Based on the principal-agent problem, the company's management may invest the company's cash flow in personal income maximization projects when making investment decisions, resulting in inefficient investment of the company. The purpose of regulatory inquiries is to improve the level of information disclosure of listed companies, enhance information transparency, reduce the asymmetry of internal and external information of the company, and protect the interests of investors. Stimulate external stakeholders to supervise the company's internal operating conditions, restrain management's opportunistic behavior, alleviate agency problems, and optimize management's investment decisions. From the perspective of the company's internal governance, after receiving the inquiry letter, the company needs to reply to the questions involved in the inquiry letter within a certain period of time, and the reply explanation exists in the company's information disclosure, and the company can self-check and correct itself in this process, which can improve the company's comprehensive governance ability and reduce inefficient investment caused by irrational behavior and cognitive bias.

From the perspective of irrational behavior of management, inquiry letters may correct the behavior of overconfident executives that lead to overinvestment, and improve the efficiency of corporate investment.

On the other hand, the regulation of exchange inquiry letters may have a negative impact on the investment efficiency of enterprises. First, the inquiry letter is an innovative regulatory system, and the regulatory means are
soft and gentle compared with the regulatory letter, warning letter, disciplinary action, etc., but still have the role of risk early warning (Fu et al., 2021[11]). Convey to the market that the company receiving the inquiry letter has deficiencies in corporate governance and information disclosure, and that there are certain problems in the company's fundamentals. External investors receive early warning signs to reduce or not invest in the company; Banks face more stringent lending conditions for companies that receive inquiry letters, rising corporate borrowing costs, and enterprises facing multi-party financing constraints, resulting in lower investment efficiency due to insufficient investment. The number of media coverage of companies receiving inquiry letters has increased, and the negative image of the company has spread among external affiliates, worsening the credit risk of the company (He & Fang, 2022[27]; Di & Han, 2021[12]), further reducing investment efficiency. Second, receiving an inquiry letter will increase the company's operating costs and management expenses, reduce the proportion of investment cash flow, and reduce investment efficiency. In terms of internal costs, companies that receive inquiry letters significantly improve the quality of internal control (Nie Ping, 2021[28]) and accounting robustness (Shi et al., 2021[4]), and changes in the scale of organizational management and operation may increase the cost expenditure of enterprises. In terms of external costs, the supervision of inquiry letters significantly increases the audit fees of enterprises (Shen & Jing, 2020[14]) and the cost of debt (Hu et al., 2020[29]), and under certain circumstances of total funds, the available funds for investment are further compressed, resulting in a decline in investment efficiency. Third, from the perspective of behavioral finance, inquiry letter regulation may lead to mood swings in management or investment decision-makers, resulting in cognitive biases that make corporate investment less efficient. In the face of sudden inquiry letter supervision, management may tend to make irrational conservative decisions, miss investment opportunities, and reduce the investment efficiency of enterprises.

Based on the theoretical analysis of the above diametrically opposed effects, the following competitive hypotheses are proposed:

H0: Under other conditions, companies that receive inquiry letters from exchanges have significantly higher investment efficiency than companies that do not.

H1: Under other conditions, companies that receive inquiry letters from exchanges have significantly lower investment efficiency than companies that do not.

4. Research Design

4.1. Model design

Since not all companies receive inquiry letters from exchanges, and the timing of receiving inquiry letters varies among companies, in order to study the causal relationship between the inquiry regulatory system and the investment efficiency of enterprises, this paper adopts a multi-period double difference model, controls both the fixed effect of the year and the fixed effect of the industry, draws on He & Fang (2021)[5], and establishes a model (1) to verify the hypothesis:

\[
\text{Ineffinv}_{it} = \alpha_0 + \alpha_1\text{Post}_{it} + \alpha_2\text{Control}_{it} + \text{YearFE} + \text{FirmFE} + \varepsilon_{it} \quad (1)
\]

where the subscript \( i \) represents the company and \( t \) represents the year. Ineffinv is the explanatory variable that indicates the efficiency of the company's investment. Post is an explanatory variable that represents whether it is being treated or not. Control represents a series of control variables, and YearFE and FirmFE represent the year and firm fixed effects, respectively. This paper focuses on the coefficient of Post, which reflects the impact of inquiry supervision on the investment efficiency of enterprises by judging the size, direction and significance of \( \alpha_1 \) in this model.

4.2. Variable Definition

4.2.1. Variable to be explained: Ineffinv

In this paper, the variable is explained as enterprise investment efficiency, and the model is constructed by drawing on the practices of Richardson (2006)[30], Liu & Ye (2013)[31], Gu & Di (2021)[21], and the absolute value of the residual term is regressed as a measure of enterprise investment efficiency:

\[
\ln \text{Inv}_{it} = \beta_0 + \beta_1\text{TQ}_{it-1} + \beta_2\text{Lev}_{it-1} + \beta_3\text{Cash}_{it-1} + \beta_4\text{Age}_{it-1} + \beta_5\text{Size}_{it-1} + \beta_6\text{Inv}_{it-1} + \sum \text{Year} + \sum \text{Industry} + \delta_{it} \quad (2)
\]

where the subscript \( i \) represents the company and \( t \) represents the year; The subscript \( t \) is for the current year's index, and the subscript \( t-1 \) for the previous year's index; Inv is the scale of new capital investment in the \( i \) year of the \( i \) enterprise, which is equal to the ratio of the difference between the average asset balance of the current year, and the cash assets of the enterprise to the total assets; TQ stands for enterprise growth and is measured by Tobin's q-value; Lev represents the level of corporate leverage, measured by the gearing ratio; Cash represents the cash holding rate of the enterprise, measured by the ratio of the cash assets of the enterprise to the total assets; Age indicates the number of years the company has been listed; Size represents the size of the enterprise, measured by the logarithm of the total assets of the enterprise; YearFE and IndustryFE represent the year of control and the fixed effect of the industry.

The residual obtained by regression to model (2) is the degree of deviation between the investment scale of the enterprise and the optimal investment scale. When \( \delta < 0 \), it means that the investment is insufficient in the year, and when \( \delta > 0 \), it means that the investment is overinvested in the year. Take the absolute value for the regression residuals, expressed as Ineffinv. Ineffinv is the inverse of investment efficiency. When Ineffinv is larger, it means that the scale of inefficient investment is larger, and the investment efficiency of enterprises is lower.

4.2.2. Explanatory Variable: Post

Drawing on the practice of Chen YunSen (2019)[32], this paper sets the explanatory variable Post according to the exchange inquiry letters received by different listed companies in different years, and if it is the observed value of the company in the year and subsequent years when the inquiry letter is first received, Post is 1, otherwise it is 0.

4.2.3. Control Variables

Referring to Zhuang & Duan (2022)[33], Gu & Zhang(2021)[20], etc., this paper sets a series of variables that
will affect the investment efficiency of enterprises from the three levels of enterprise basic situation, enterprise financial status, and enterprise decision-making independence, as follows: the basic situation of the enterprise includes the size of the enterprise (Size) and the listing age of the enterprise (Age); The financial status of the enterprise includes the asset-liability ratio (Lev), cash holding ratio (Cash), and corporate growth (TQ); The independence of corporate decision-making includes the proportion of independent directors (Inde), the shareholding ratio of the largest shareholder (Top1), the virtual variable chairman and general manager in one (Direco, when the chairman is also the general manager, the value is 1, otherwise it is 0), in addition to setting the year and industry dummy variables.

Table 1 describes the definitions of the main variables in this topic.

<table>
<thead>
<tr>
<th>Variable Category</th>
<th>Variable Symbol</th>
<th>Variable Name</th>
<th>Variable Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The being explained variable</td>
<td>Ineffinv</td>
<td>Investment efficiency</td>
<td>The absolute value of its residuals is calculated according to model (2).</td>
</tr>
<tr>
<td>Explanatory variables</td>
<td>Post</td>
<td>Letter of inquiry</td>
<td>The value of the year in which the company receives the exchange inquiry letter and subsequent years is 1, otherwise it is 0</td>
</tr>
<tr>
<td>Control variables</td>
<td>Size</td>
<td>Enterprise size</td>
<td>The logarithm of the company's total assets at the end of the year</td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>The age at which the company is listed</td>
<td>Year of observation - the year the company was founded</td>
</tr>
<tr>
<td></td>
<td>Industry</td>
<td>The industry in which the business is located</td>
<td>Industry dummy variables, set according to the SFC's 2012 industry classification code</td>
</tr>
<tr>
<td></td>
<td>Lev</td>
<td>Gearing ratio</td>
<td>Total liabilities/total assets</td>
</tr>
<tr>
<td></td>
<td>Cash</td>
<td>Cash holding ratio</td>
<td>Company cash assets/total assets</td>
</tr>
<tr>
<td></td>
<td>TQ</td>
<td>Ability to grow</td>
<td>Tobin Q value</td>
</tr>
<tr>
<td></td>
<td>Inde</td>
<td>Percentage of independent directors</td>
<td>Number of independent directors/total number of board members</td>
</tr>
<tr>
<td></td>
<td>Top1</td>
<td>The shareholding ratio of the largest shareholder</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Direco</td>
<td>Two powers in one</td>
<td>Whether the chairman concurrently serves as the general manager, 1 is taken concurrently, and 0 is taken if he does not concurrently serve as the general manager</td>
</tr>
</tbody>
</table>

4.3. Data

This paper selects the data of A-share listed companies in Shanghai and Shenzhen from 2014 to 2021 as a research sample. At the same time, the following processing was carried out: companies in the financial sector, ST and ST* companies were excluded, and companies with missing data were excluded, resulting in 2615 valid observations. The annual reports, financial statements, and basic information of listed companies are all derived from CSMAR database. The Shanghai Stock Exchange and Shenzhen Stock Exchange have issued public inquiry letters on their official websites since 2014, and this article manually collates the relevant data of listed companies receiving inquiry letters from exchanges to obtain inquiry letters and regulatory data. This article is processed using Stata 15.0 software.

5. Analysis of Empirical Results

5.1. Descriptive statistics

Table 2 reports the full sample of major variables and descriptive statistics grouped by inquiry letter received. The mean value of Post is 0.1995, indicating that 19.95% of the observations in the whole sample have received an inquiry letter, and the mean of investment inefficiency is higher and the standard deviation is larger than that of the unquestioned sample.

5.2. Baseline Regression

Table 3 reports the regression of exchange inquiry letter regulation on corporate investment efficiency using the multi-period double difference model. The coefficient for handling inquiries (Post) is 0.0118, which is significantly positive at a significance level of 1%, indicating that the company's inefficient investment and investment efficiency of the company receiving the inquiry letter processing has increased. The regression results support the hypothesis that Hs, inquiry letter regulation has a negative impact on corporate investment efficiency.
5.3. Parallel Trend Test

The premise of the double difference model is that each sample has the same change trend before processing, so the model (3) is constructed for parallel trend testing:

\[
\text{Ineffinv}_{it} = \alpha + \beta \sum_{n=-2}^{2} \text{Post}(n)_{it} + \gamma \text{Control}_{it} + \gamma \text{Year}FE + \gamma \text{Firm}FE + \epsilon_{it} \tag{3}
\]

Among them, Post(n) is the dummy variable divided by the parallel trend test time window, and this paper sets 5 time windows, which are 2 years before the first receipt of the inquiry letter, 1 year, current year, next year, and 2 years after receiving the inquiry letter, and the value of the company is 1 in n years before the first receipt of the inquiry letter, otherwise it is 0. The remaining variable settings are the same as for model (1). By examining the coefficient changes of Post(n) in different years before and after receiving the inquiry letter, it is judged whether the parallel trend test is passed.

![Figure 1. Parallel trend test](image)

Figure 1 shows the change of Post coefficient in different time windows, it can be seen that the regression coefficient in the 2 years before receiving the inquiry letter and the first 1 year is positive but not significant, the size of the coefficient increases in the year of receiving the inquiry letter, the coefficient size and statistical significance in the year after receiving the inquiry letter increase significantly, and the company's investment inefficiency is significantly improved. It shows that the company's investment efficiency changes significantly before and after receiving the inquiry letter, and through the parallel trend test, the double difference model of benchmark regression is effective, and the supervision of the inquiry letter does inhibit the company's investment efficiency.

### Table 3. Baseline regression results

<table>
<thead>
<tr>
<th>Variable</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ineffinv</td>
<td>0.0112***</td>
<td>0.0118***</td>
</tr>
<tr>
<td>Post</td>
<td>(0.00126)</td>
<td>(0.00127)</td>
</tr>
<tr>
<td>Controls</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Fixed Effect</td>
<td>Year/Firm</td>
<td>Year/Firm</td>
</tr>
<tr>
<td>Observations</td>
<td>2615</td>
<td>2615</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.074</td>
<td>0.100</td>
</tr>
</tbody>
</table>

6. Conclusion

This paper examines the impact of the innovative flexible regulatory system of exchange inquiry letter supervision on the investment efficiency of enterprises. Based on the 2014-2021 non-financial A-share listed companies in Shanghai and Shenzhen across the country, the multi-period double difference model is used to find that the inefficient investment of companies receiving exchange inquiry letters has significantly improved, and the exchange inquiry letter system has reduced the investment efficiency of companies.

The conclusion of this paper has the following theoretical value. On the one hand, it enriches the research on the perspective of underinvestment from the perspective of investment inefficiency. For a long time, academia has focused on the impact of overinvestment and ignored the inefficiency of investment caused by underinvestment. This paper finds that under the current downward pressure of the economy and the difficulties in enterprise investment and financing, the majority of investment inefficient enterprises caused by insufficient investment are located, so it is urgent to study the influencing factors of insufficient investment of enterprises and alleviate insufficient investment. This paper focuses on underinvestment, studies the impact of inquiry supervision on enterprise investment efficiency, and expands the relevant research on enterprise investment efficiency. On the other hand, it provides new perspectives and conclusions for the economic consequences of inquiry letter regulation. The effectiveness of regulatory inquiries remains questionable in academia, and the results of this paper show that for underinvested firms, the regulation of inquiry letters exacerbates underinvestment and reduces investment efficiency. However, due to time and space constraints, the specific mechanism of action of this negative effect has not been studied, and subsequent studies can be based on this.

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