

## COULD INTERNAL CONTROL QUALITY AND NATIONAL AUDIT IMPROVE THE STATED-OWNED ENTERPRISES VALUE?

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**ABSTRACT.** *Following the maturity of the internal control and national audit of Chinese government, the governing system of Chinese stated-owned enterprises shows a crucial role in improving corporate value. This article is based on the data from the 2010-2018 report of national audit announcements of state-owned enterprises and their holding companies, and tries to explore their impacts of inside and outside governing system on corporate value. The results found that high-quality internal control can increase the value of the enterprise, and the value of the enterprise will also be improved in one to three years after being audited by the state. Further analysis found that national audit can have a certain substitution effect on internal control in enhancing corporate value.*

**Keywords:** Internal control, National audit, Substitution effect, State-owned enterprises, Corporate value

**1. Introduction and Literature Review.** Internal control was initially embodied as containment thought. Through high-quality internal control, the company's work process can be clearer, and more standardized. Financial reports are also more accurate and truthful. Since the Committee of Sponsoring Organizations of the Treadway Commission (COSO) issued the "Internal Control-Integrated Framework" in 1992 and China issued the "Basic Norms of Enterprise Internal Control" in 2008, there have been more and more researches on internal control. In recent years, much literature tends to study the relationship between internal control and investment, financing, corporate innovation and other factors. Maijoo [1] pointed out that the related research on internal control can be divided into three aspects: solving business and transaction regulation problems, solving organizational internal rights and responsibilities problems, and studying the impact of market and supervision on corporate control under the social environment. Berlingieri [2] believed that the internal control objectives of the company's organization are to protect the company's assets and shareholder rights, improve the company's operational efficiency, and ensure the authenticity of the company's financial information. Fan and Xiao [3] believed that the internal control is very important to the company's sustainable development. The internal control as a management function can effectively solve the company's principal-agent problem. In general, through internal control, the company's future value-added capabilities can be improved, corporate risks can be reduced, and corporate earnings sustainability can be increased. At the same time, Chinese government emphasizes its attention to the construction of enterprise internal control. It has also begun to gradually conduct national audit on the operating activities of state-owned enterprises and their holding companies.

Regarding national audit, since foreign governments will not conduct such audit intervention on state-owned enterprises, the existing literature on national audit in foreign countries is not popular, most of which are conducted from external independent audit. As shown in the research of Ionescu [4], the independence and compulsiveness of national audit reduces self-interested behavior within the enterprise, and enhances corporate value. In recent years of theoretical research and empirical research, it can be found that national audit can improve investment and innovation efficiency. At the same time, it also played a role in restraining management corruption and earnings management behavior. According to these researches, we think that the national audit has played a similar role in internal control.

In addition, regarding corporate value, Chen and Ma [5] believed that corporate value, is a discount of future earnings expected by shareholders and creditors. That is the result of the combined effect of all subjective and objective factors in the market operating environment where the enterprise is located. Corporate value is related to the future. Therefore, future value-added capabilities, enterprise risks, and enterprise duration are the three basic factors that determine the corporate value. From the perspective of internal control and national audit, the purpose of improving corporate value can be achieved in terms of corporate risk and surplus duration. For this reason, this article first studies the relationship between internal control quality and corporate value. Secondly, we will explore the relationship between national audit and corporate value. Finally, study the relationship between these three variables. It is used to explore whether national audit and internal control have the same impact on corporate value, and whether they can replace each other. National audit and corporate value are based on the relevant financial data of listed enterprises from 2010 to 2018. In addition, in order to better obtain the indicator of "Growth" below, we added the data of 2009 operating incomes to the financial data of 2010-2018.

The research contributions are as follows. 1) This article enriches the data on the impact of internal control quality on corporate value. 2) This article delves into the impact of national audit on corporate value, and explores the regulating role of national audit in the relationship between internal control quality and corporate value.

The remainder of the paper proceeds as follows. We formulate our hypotheses in Section 2. In Section 3, we present our research design and sample selection. In Section 4, we conduct empirical analysis, discuss the main results and propose further analysis. Section 5 gives the conclusions and suggestion.

**2. Hypothesis Development.** From the perspective of future value-added capabilities, research by Cheng et al. [6] proved that effective internal control or improvement of corporate internal control defects can improve corporate operational efficiency. From the perspective of corporate risk, Hao et al. [7] respectively believed that internal control is an important system for Chinese companies to ensure social responsibility and reduce operating risk. It reduces insider trading and reduces business risks. In the course of business operations, higher internal control quality brings longer earnings duration. The corporate earnings continued to rise after the deficiencies of internal control were rectified. And Gong and Xie [8] researched that the corporate earnings continued to increase after rectification of the defects in internal control. Earnings continuity and earnings quality are both important factors influencing the sustainability of an enterprise, and they also reflect the corporate value.

It can be observed that the implementation of internal control in an organization can produce higher benefits and higher costs. However, we believe that efficient internal control can make the corporate future value-added capabilities stronger, reduce corporate

risks, and continue to strengthen earnings. At the same time, it can also improve the operational efficiency of the enterprise. Under these effects, the compliance cost of SOX 404 can be offset. Therefore, in order to prove the impact of internal control on the value of the enterprise, this article proposes the first hypothesis:

**Hypothesis 2.1.** *Internal control will affect the value of the enterprise, and the implementation of effective internal control means that it will have a high internal control quality, which can enhance the value of the enterprise.*

Discussing the relationship between national audit and corporate value, Tien et al. [9] found that independent auditing improves the credibility of financial information and helps enterprises improve the efficiency of financial management and the overall performance of business activities. From the perspective of healthy economic relationships, Bedard and Graham [10] found that auditors can find more than 75% of the internal control deficiencies that have to be corrected, and most of them are found through control tests. After auditing, the quality of the corporate financial reports has been improved. National audit can effectively suppress the frequency of these situations and increase the value of the enterprise, and due to the late start of national audit, the research on the relationship between national audit and corporate performance and corporate value is not very extensive. However, with the continuous improvement of national audit and audit announcement policies, it will be necessary to conduct more in-depth discussions on related issues. In the current existing research, the analysis results show that national audit can improve the performance of state-owned enterprises and their holding companies and increase the innovation input and output of enterprise. Wang and Bai [11] believed that national audit can effectively control the corporate innovation input and output efficiency. Accordingly, we propose the second hypothesis of this article:

**Hypothesis 2.2.** *National audit will affect the value of enterprise. Within one to three years after the national audit of state-owned enterprises, the value of audited enterprises will increase.*

### 3. Research Design.

**3.1. Sample selection and data sources.** The sample time interval selected in this article is from 2010 to 2018, since the “Basic Norms for Enterprise Internal Control” is issued in 2008. At the same time, the National Audit Office of China began to separately report the audit results of state-owned enterprises in 2010. However, since the data published in the existing annual reports of listed enterprises are relatively complete since 2010, there are many missing data in the years before 2010.

In order to make the research results more robust, this paper will select a matching sample of local state-owned enterprises and private enterprises in the control sample at a ratio of 1 : 1 to confirm the above hypothesis. This article selects the 2010-2018 Shanghai and Shenzhen main board listed companies, and makes the following modification: 1) Exclude ST and \*ST companies with unstable financial conditions; 2) Eliminate enterprises with missing financial data and related variable data; 3) Eliminate financial enterprises. Finally, there are 163 listed enterprises in the experimental group and 326 listed enterprises in the control group. The final total sample is 489 listed enterprises.

The financial data in this article come from the CSMAR database. And we use the internal control data in the DIB (Internal Control and Risk Management) database and take the natural logarithm to measure the internal control level of the enterprise. National audit data are manually collected from the announcement and interpretation section of the official website of the National Audit Office. This article uses Stata15.0 software to

sort and process the collected data. In order to avoid the influence of extreme values on the regression results, the continuous variables in the model are reduced by 1% before and after.

**3.2. Selection and measurement of research variables.** Since the replacement cost of assets is sometimes difficult to obtain, and there is a risk of inaccurate pricing due to the immaturity of the capital market, it is relatively easy to obtain and can also reflect the corporate operating capacity and profitability. Indicators such as Return on Equity (ROE) and Return on Assets (ROA) have also become common indicators for measuring corporate value.

National audit data are manually collected based on the audit results announcement in the National Audit Office's official website. Audit1\_3 is set as an independent variable for national audit. When the dominant enterprise group to which the listed enterprise belongs is audited by the government, it will be 1 and 0 otherwise. ROE = net profit/net assets; ICI = the natural logarithm of the company's internal control index; Audit1\_3 means 1 to 3 years after being audited by the state, otherwise 0.

In order to ensure the rationality and stability of the research, this article is based on the existing research to choose the control variables: corporate size, growth, asset-liability ratio, cash flow ratio, total asset turnover rate, the proportion of intangible assets to total assets, the quality of the auditors (if the enterprise is audited by the four major international accounting firms, it is 1, otherwise it is 0.), annual and industry variables. SIZE is natural logarithm of total assets at the end of the period; Growth = (Operating income of the current year - Operating income of the previous year)/Operating income of the previous year; Lev = total liabilities/total assets; CFO means net cash flow from operating activities/current liabilities; Turnover = ending balance of operating income/total assets; Intan = year-end intangible assets/total asset; Big4 means when the enterprise is audited by the four major international companies, the value is 1, otherwise it is 0.

**3.3. Research model.** In order to study the relationship between the quality of internal control and the value of the enterprise, the model 1 is constructed to verify Hypothesis 2.1. This model is built on the basis of combining the existing models of Lijun Xia, Hua Xiao and others on corporate value. First, control the variables in the existing literature that will affect the corporate value, such as the corporate size and growth mentioned above. Then add internal control quality factors to determine the relationship between internal control quality and corporate value. In addition, in order to verify Hypothesis 2.2 that the relationship between national audit and corporate value, a dummy variable (Audit1\_3) of the national audit period is added to construct model 2. When the enterprise is subject to national audit for one to three years, the value is 1, otherwise it is 0. At the same time, the same control variables as in model 1 are controlled, and the internal control variables are deleted. Among them,  $\beta_0$  is a fixed intercept term, and  $\varepsilon$  represents a random disturbance term that varies with the enterprise and year.

$$\begin{aligned} \text{ROE}_{i,t} = & \beta_0 + \beta_1 \text{ICI}_{i,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{Growth}_{i,t} + \beta_4 \text{Lev}_{i,t} + \beta_5 \text{CFO}_{i,t} \\ & + \beta_6 \text{Turnover}_{i,t} + \beta_7 \text{Intan}_{i,t} + \beta_8 \text{Big4}_{i,t} + \text{Year} + \text{Industry} + \varepsilon \end{aligned} \quad (1)$$

$$\begin{aligned} \text{ROE}_{i,t} = & \beta_0 + \beta_1 \text{Audit1\_3} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{Growth}_{i,t} + \beta_4 \text{Lev}_{i,t} + \beta_5 \text{CFO}_{i,t} \\ & + \beta_6 \text{Turnover}_{i,t} + \beta_7 \text{Intan}_{i,t} + \beta_8 \text{Big4}_{i,t} + \text{Year} + \text{Industry} + \varepsilon \end{aligned} \quad (2)$$

## 4. Empirical Analysis.

**4.1. Descriptive statistics.** Table 1 shows descriptive statistics of 489 companies from

2010 to 2018, including a series of data such as return on net assets, internal control quality, government audit, and corporate size. It can be seen that the data of the dependent variables, independent variables and control variables have no extreme values, the standard deviations are all small, and the differences between enterprises are small.

TABLE 1. Descriptive statistics for the full sample

| Variables | Number | mean   | sd     | min      | max   |
|-----------|--------|--------|--------|----------|-------|
| ROE       | 4,313  | 0.0777 | 0.0717 | -0.256   | 0.315 |
| Audit1_3  | 4,401  | 0.115  | 0.319  | 0        | 1     |
| ICI       | 4,304  | 6.513  | 0.106  | 5.864    | 6.821 |
| SIZE      | 4,313  | 22.63  | 1.375  | 20.18    | 27.10 |
| Growth    | 4,313  | 0.154  | 0.293  | -0.462   | 2.204 |
| Lev       | 4,313  | 0.492  | 0.186  | 0.0806   | 0.857 |
| CFO       | 4,313  | 0.193  | 0.275  | -0.412   | 1.659 |
| Turnover  | 4,312  | 0.687  | 0.464  | 0.0930   | 3.120 |
| Intan     | 4,313  | 0.0442 | 0.0462 | 2.84e-06 | 0.364 |
| Big4      | 4,401  | 0.0850 | 0.279  | 0        | 1     |

**4.2. Panel model setting test.** Before regression, we first need to choose the fixed effect model or the random effect model. The fixed effect is the assumption that the unobservable individual effect ignored in the model is related to the explanatory variable, meaning that the individual effect is estimated as a certain constant. Random effect assumes that the unobservable individual effects ignored in the model have nothing to do with the explanatory variables, which mean that the individual effects are estimated as random variables. We will perform Hausman test on the model. The resulting statistic is 128.660, and the  $p$  value is 0.0000. It intensely rejects the null hypothesis of random effects; thus the model applies fixed effects. Therefore, this paper finally uses the fixed effects model for data analysis.

**4.3. Regression analysis.** Table 2 reports the regression results for model 1. After all control variables are controlled, the regression coefficient of the internal control quality of the enterprise that this article focuses on is 0.159, which is significant at the 1% level. There is a significant positive correlation between the quality of corporate internal control and corporate value. Enterprises can achieve the purpose of improving corporate value by improving their own internal control quality. Hypothesis 2.1 is verified.

Column (2) of Table 2 reports the regression results for model 2. According to the results, the variable of state-owned enterprises and their holding companies is significantly positively correlated with corporate value at the level of 5% within one to three years after being audited by the state. State-owned enterprises and their controlled listed enterprises will increase their corporate value within one to three years after being audited by the state. Hypothesis 2.2 is verified.

In response to the results of column (3) of Table 2, we believe that this may be due to the fact that the national audit has not yet played its role in repairing, but only played a deterrent effect on the disclosure of the corporate situation. As a corporate audit interval is long, it can only ensure that the enterprise is forced to carry out short-term rectification under government supervision. For example, the management has reduced the level of earnings management, made prudent investment decisions, and improved the transparency of accounting information, which can improve corporate value to a certain extent. However, as the last national audit year gets longer and longer, enterprises may

TABLE 2. The impact of internal control quality and national audit on corporate value

| Variables        | Dependent variable ROE |                      |                      |                       |                       |
|------------------|------------------------|----------------------|----------------------|-----------------------|-----------------------|
|                  | (1)                    | (2)                  | (3)                  | (4)                   | (5)                   |
| ICI              | 0.159***<br>(12.088)   |                      |                      | 0.159***<br>(12.141)  | 0.167***<br>(11.913)  |
| Audit1_3         |                        | 0.008**<br>(2.132)   |                      | 0.009**<br>(2.477)    | 0.008**<br>(2.293)    |
| Audit1           |                        |                      | 0.009**<br>(2.375)   |                       |                       |
| Audit2           |                        |                      | 0.010*<br>(1.886)    |                       |                       |
| Audit3           |                        |                      | 0.003<br>(0.568)     |                       |                       |
| Audit1_3_ICI     |                        |                      |                      |                       | -0.056*<br>(-1.854)   |
| Control variable | control                | control              | control              | control               | control               |
| Industry/Year    | control                | control              | control              | control               | control               |
| Constant         | -1.139***<br>(-8.706)  | -0.223**<br>(-2.153) | -0.221**<br>(-2.135) | -1.142***<br>(-8.736) | -1.202***<br>(-8.705) |
| Observations     | 3,794                  | 3,877                | 3,875                | 3,794                 | 3,794                 |
| R-squared        | 0.245                  | 0.187                | 0.188                | 0.246                 | 0.248                 |

\*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$

slack off and reappear in previous operations and management. The positive impact of national audit on corporate value gradually disappears.

**4.4. Robustness test.** To test the robustness of this article, this article will replace ROE with ROA indicators to reflect corporate value. At the same time, the central enterprises and their holding listed companies that were not subject to national audit and that were not subject to audit announcements issued by the National Audit Office between 2010 and 2018 were added to the data, and the same fixed model effect analysis was performed again. Internal control and national audit are the main variables, and the significance of the results is consistent with the above, which confirms the robustness of this article.

**4.5. Further analysis.** As mentioned in Hypothesis 2.1 and Hypothesis 2.2, both internal control and national audit can improve corporate value. What is the relationship among internal control, national audit and corporate value? We want to know whether the national audit can replace the internal control of enterprises to a certain extent. This article attempts to establish a model of the relationship among the three and explore it. The model is as follows:

$$\begin{aligned}
 ROE_{i,t} = & \beta_0 + \beta_1 ICI_{i,t} + \beta_2 Audit1\_3 + \beta_3 Audit1\_3 * ICI + \beta_4 SIZE_{i,t} + \beta_5 Growth_{i,t} \\
 & + \beta_6 Lev_{i,t} + \beta_7 CFO_{i,t} + \beta_8 Turnover_{i,t} + \beta_9 Intan_{i,t} + \beta_{10} Big4_{i,t} + Year \\
 & + Industry + \varepsilon
 \end{aligned} \tag{3}$$

The results are shown in Table 2. In column (4), when the interaction item between the national audit period and internal control is not added, internal control coefficient is 0.159, which is significantly positively correlated with the value of the enterprise at the 1% level. The coefficient of one to three years after the audit is 0.009, which is significantly

positively correlated with corporate value at the level of 5%. Therefore, it can be seen that internal control and national audit can simultaneously have a significant positive impact on corporate value. In column (5), after adding the interaction item, it is found that the internal control coefficient and one to three years after being audited by the state are significantly positively correlated with the corporate value at the level of 1% and 5%. At the same time, the coefficient of the interaction term is  $-0.056$  which is significantly negatively correlated at the level of 10%, indicating that the positive influence of internal control on the value of the enterprise has declined one to three years after the state audit. It proves that national audit can replace the influence of internal control on an enterprise value to a certain extent.

**5. Conclusion and Suggestion.** This article is based on state-owned enterprises and their holding companies as the research object. On the basis of the audit announcements published in 2010-2018, the fixed effects model was used to verify the relationship between internal control quality and corporate value, as well as national audit and corporate value. It further explores the role of national audit in the relationship between internal control quality and corporate value. The results are as follows. 1) High-quality internal control can enhance corporate value. Enterprises can achieve the purpose of enhancing corporate value by improving the quality of internal control. This result is quite similar to the research about financial reporting quality and investment efficiency of enterprises [12]. 2) National audit can improve corporate value, and the impact of national audit on corporate value is the most significant within one to two years after being audited. 3) Within one to three years after the national audit, it can have a positive impact on the corporate value. However, it will have a substitution effect on internal control and reduce the degree of positive influence of internal control on the internal value of the enterprise. In order to make enterprises operate more standardized and create more economic and social value, government departments need to conduct shorter time intervals for enterprises. For example, conduct a national audit activity every two to three years to ensure that its effects can continue to be exerted, and carry out continuous supervision. Since there are many enterprises that have been audited and announced in recent years, the lag time affected by the audit in this article is only behind the third year; otherwise more data will be lost. This problem cannot be avoided temporarily. After the national auditing development time is longer, more lag years can be studied.

## REFERENCES

- [1] S. Maijoor, The internal control explosion, *International Journal of Auditing*, vol.4, pp.101-109, 2000.
- [2] C. Berlingieri, Employee benefit plans require strong internal controls, *Compensation & Benefits Review*, vol.47, no.3, pp.134-139, 2015.
- [3] X. Fan and G. Xiao, Theoretical reflection on the essence and concept of enterprise internal control, *Accounting Research*, vol.2, pp.4-11+94, 2014.
- [4] L. Ionescu, Errors and fraud in accounting. The role of external audit in fighting corruption, *Social Science Electronic Publishing*, vol.17, no.4, pp.29-36, 2017.
- [5] X. Chen and L. Ma, Research on the relationship between corporate governance, corporate growth and corporate value: The perspective of internal control, *Forecasting*, vol.6, pp.28-32, 2013.
- [6] Q. Cheng, B. W. Goh and J. B. Kim, Internal control and operational efficiency, *Contemporary Accounting Research*, pp.1102-1139, 2018.
- [7] D. Hao, G. Qi and J. Wang, Corporate social responsibility, internal controls, and stock price crash risk: The Chinese stock market, *Sustainability*, vol.10, no.5, p.1675, 2018.
- [8] Y. Gong and Y. Xie, Research on the impact of internal control defects and rectification on the sustainability of earnings – Empirical evidence from A-share listed companies, *Accounting Research*, vol.5, pp.75-82, 2018.

- [9] N. H. Tien, T. M. Thuong, L. D. M. Duc and N. T. H. Yen, Enhancing independence of local auditing services by profiting from experiences of the Big4 group (KPMG, Deloitte, PWC E&Y) operating in Vietnam market, *Cogent Business & Management*, vol.6, no.1, pp.1-21, 2019.
- [10] J. C. Bedard and L. Graham, Detection and severity classifications of Sarbanes-Oxley Section 404 internal control deficiencies, *The Accounting Review*, vol.86, no.3, pp.825-855, 2011.
- [11] R. Wang and N. Bai, Research on the impact of government auditing on the innovation performance of central enterprises, *Finance and Accounting for International Commerce*, vol.10, pp.61-66, 2019.
- [12] S. Zhou and H. Zhang, Could financial reporting quality improve the capital investment efficiency of Chinese listed companies?, *ICIC Express Letters, Part B: Applications*, vol.10, no.1, pp.71-80, 2019.