

Empirical Research on Correlation Between Internal Control and Enterprise Value*

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Abstract: Internal control plays an important role in modern enterprise management, involves each domain to enterprise management, produces great interest to enterprise stakeholders and adds the value of whole enterprise value. Based on the correlation of theoretical analysis between internal control and enterprise value, the article choice Tobin Q to measure the value of company, randomly selected 75 companies in Shanghai and Shenzhen Stock Exchange as sample, used company's annual data in 2009 and borrow Chen Hanwen's research in internal control index. The article used empirical method to construct the model to examine the relationship between internal control and enterprise value. Finally, the model proves positive correlation between internal control and enterprise value.

Key words: Internal control; Enterprise value; Internal control index; Tobin's Q

1 Introduction

With the development of economic globalization and the market integration, sustainable management of enterprise in competitive market, it have been attracted an increasing number of people's attention about the phenomenon. In 21st century, many large companies occurred financial scandals at home or abroad. It could be attributed to the failure of internal control, led to enterprise value plummeted and made it difficult to continue operating. This fully embodies that internal control plays an important role in production and management activity. The quality of execution of internal control will directly influences the goal of maximizing enterprise value.

Internal control is carried out by board of directors, supervisors, managers and staff. The main goal is to achieve the process of enterprise internal control^[1]. The value of a enterprise can be defined as the capacity to obey the law of value and make all the stakeholders, including shareholders, creditors, managers, employees, as well as the authorities to get satisfying return by means of value-focused management^[2]. The researches between internal control and enterprise value are very few in abroad. Steven Root believes that internal control can improve corporate governance in, "Beyond COSO: Internal Control to Enhance Corporate Governance". In order to effectively participate in key decisions of corporate governance, the directors should enhance the knowledge of internal control concepts and methods and effectively supervise enterprise internal control. Through that way, enterprise value can be strengthened. Doyle Ge and Mcvay (2006) selected 779 sample companies which are disclosed that they have substantial defects of internal control from August 2002 to August 2005. Through investigate the relationship between earnings quality and internal control, they find that there has correlation between substantial defects of internal control and a small amount of cash flow surplus^[3]. Domestic research including that Zhao Baoqing (2005) thinks that the goal of internal control is to achieve the maximization of enterprise value. He stresses that sound internal control helps to achieve the appreciation of enterprise value, while the appreciation of enterprise value also benefit to the improvement of internal control. By measuring enterprise value, Li Bin (2005), Song Liangrong (2006) research focuses on internal control how to affect operation cash flow, flow velocity, flow direction, flow path, discount rate and the purpose of enterprise value.

Base on correlation of theoretical analysis between internal control and enterprise value, the article choice Tobin Q to measure the value of a company, selected listed companies in Shanghai and Shenzhen Stock Exchange as sample and used company's annual data in 2009. The article borrowed Chen Hanwen research in internal control index and used empirical method to construct the model. The purpose of the paper is wanted to examine correlation between internal control and enterprise value.

2 Theoretical Analyses Between Internal Control and Enterprise Value

2.1 Internal control promoting the development of enterprise value theory

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There are five stages in internal control. The scope of internal has been expanded larger from the stage of internal check to the stage of internal control system. With the establishment of modern enterprise system and the development of the property rights market, the concept of enterprise value is produced. With the expanding scope of internal control and gradual improvement of control methods and means, internal control plays an important role to help people to understand and promote the theory of enterprise value. At the stage of internal control structure, people in growing numbers have understood the concept of the whole value of enterprise. Thus, it allow the concept of enterprise overall control to promote the concept of overall value of enterprise. At present, internal control gradually becoming mature and the theory of enterprise value also become increasingly perfect. Therefore, achievements of each internal control stage are closely related to the forms of business organization, the environment of management and the goals of enterprise value. With the changing of social economy environment and enterprise internal management mode, the theory of internal control and enterprise value will certainly to obtain the new development. The relationship between internal control and enterprise value is shown in figure 1^[4].

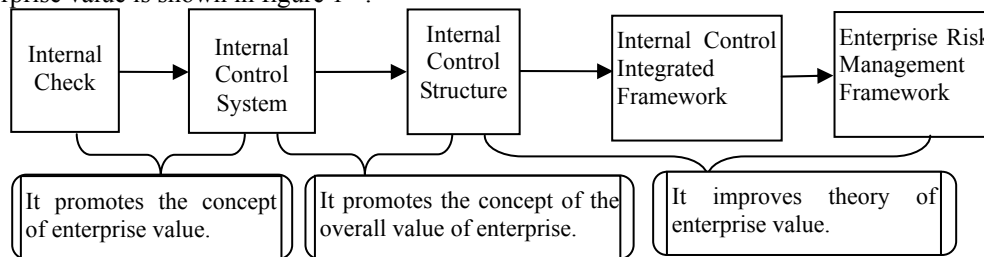


Figure 1 Relationship Between Internal Control and Enterprise Value

2.2 Internal control promoting enterprise value

Internal control refers to a kind of independent business forms of organization and a system of responsibility assignments founded in some economic activities among economic units and organizations. According to COSO report in 1992, the objectives of internal control are as follows: first, to make the financial reports more reliable; second, to make the operating activities more efficient; third, and to make sure that the behavior of this enterprise is not against relevant laws and regulations. Internal control can be defined as a forced behavior, which can help the enterprise to achieve strategic goals. With the changing organization of enterprise and the expanding scope of economic business, internal control targets also are expanded. “Enterprise risk management - integrated framework” believes that enterprise risk management means “providing reasonable assurance of the process for enterprise goals”, while the target of enterprise is to achieve the maximization of the overall enterprise value. Therefore, internal control is “to provide reasonable assurance of the process” for maximizing enterprise value.

3 Empirical Models Between Internal Control and Enterprise Value

3.1 Design of internal control index

Internal control index can reflect comprehensive evaluation system of internal control level and risk control ability in listed companies. As a consequence, people should define a scientific and rational internal control index to effectively measure internal control, and promote the development of theory and practice of internal control.

Designing internal control index, people should adhere to the following principles. First of all, it should not only reflect the overall internal control condition of evaluated objects, but also reveal basic situation of specific internal control elements, such as internal control environment, risk assessment, control activity, information and communication and internal supervision. What is more, it should consider the relationship of index and make sure the index neither repeated nor omitted. In addition, on the basis of comprehensive evaluation, people should pay attention to company’s important business units, major business issues and high-risk areas. Furthermore, it should fully combine qualitative indexes with quantitative indexes. Ultimately, internal control index should form quantitative indicators. Fully consider the above principles, this paper use internal control index which has been written by

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Chen Hanwen in “Established Internal Control Evaluative System for China’s National Conditions”.

Design of enterprise value index and establishing of model

3.2.1 Design of enterprise value index

The most commonly index used to measure enterprise value is Tobin’s Q by James Tobin. Tobin’s Q means market value of company divided by enterprise replacement cost.

$$Q = \text{Market value} / \text{Replacement cost} \tag{1}$$

When $Q > 1$, the purchase of newly- produced capital goods is more beneficial, which will decrease the demand of investment; when $Q < 1$, the purchase of ready-made capital goods is more beneficial, which will increase the demand of investment. Tobin’s Q explains internal assets quality of enterprises, as well as operating conditions. Higher Tobin’s Q shows the quality of the enterprise is better, and the price of the enterprise in capital market will also become higher. Meanwhile, Tobin’s Q can also reflect potential of an enterprise. When $Q < 1$, the value of the enterprise’s growth opportunity is negative; When $Q = 1$, the value of the enterprise’s growth opportunity equals zero; when $Q > 1$, the value of the enterprise’s growth opportunity is positive. Tobin’s Q clearly reveals potential of an enterprise, as well as the possibility of future growth. It can also explain various reasons of stock price changes.

However, there are some limitations when people use Tobin Q to measure enterprise value in China. The reason may include that the company share premium account, however, the rate of return on stock investment are higher than the rate of return on industrial investment. It will lead to raised capital flowed back in the stock market. Rising share price can’t effectively stimulate industrial investment; in contrast, it will lead to social capital flowed back in the stock market. Despite the restriction of economic situation, Tobin Q still evaluates enterprise value effectively. It establishes the link between capital market and industrial investment unifies theory and practice. As a consequence, Tobin Q will be a most common tool to measure enterprise value.

Consider it is difficult to achieve replacement cost in practice, people usually use the company’s net assets to instead replacement cost.

$$Q = \text{Market value} / \text{Net assets} \tag{2}$$

3.2.2 Relevant control variables

There still exist indirect factors to affect internal control and enterprise value. Therefore, when people analysis the correlation between internal control and enterprise value; we should take relevant control variables into consideration.

(1) Total Asset Turnover (TAT) .Total asset turnover means net operating income divided by average total assets in certain period. It is an important indicator to investigate operational efficiency of enterprise assets, reflecting transfer speed of all assets and manifesting the management quality and efficiency of all assets. Total asset turnover can reflect operation efficiency and changes of enterprise total assets in this year or previous year, find the gap in utilization of assets between the enterprise and the similar enterprises. Finally, it will promote enterprise to explore potential, income, market share and utilization of asset.

(2) Ratio of Profits to Cost (RPC) .Ratio of profits to cost means total profit divided by total cost in a certain period. It reflects the result of operations caused by consuming and displays the growth of profit how much percentage is due to cost savings. Ratio of profits to cost plays an indispensable factor to save assets, reflects change of the cost and combines cost and profit. Eventually, it finds the best way to control the enterprise cost.

(3) Return on Equality (ROE).The indicator of return on equality reflects the level of income equity, measures efficiency of the company’s equity capital. It is a highly comprehensive and representative financial ratio; it is the core of financial analysis system. One of an important goal of financial management is to maximize shareholder wealth. At same time, return on equality can show the ability of invested capital of owner. So this ratio indicates efficiency of various kinds of business activities, such as financial activities and investment activities.

Summary of the relevant model variables, are shown in Table 1.

Table 1 Summary of Model Variables

| Variable (Abbreviation) | Define |
|--------------------------|--------------------------|
| (1)Explanatory Variables | |
| ICI | Internal Control Index |
| (2)Control Variables | |
| TAT | Total Asset Turnover |
| RPC | Ratio of Profits to Cost |
| ROE | Return on Equality |
| (3)Explained Variable | |
| Q | Enterprise Value |

3.2.3 Sample selection and data source

In order to reflect correlation between enterprise value and internal control, the article abided by the principle of random sampling and choice the listed companies which are public share issues in Shanghai or Shenzhen Stock Exchange. 75 companies are selected as research samples, and company's financial statements and related financial data is collected through Sina Financial Network in 2009.

3.2.4 Research hypothesis and building model

Hypothesis: There are exist a positive correlation between internal control index (ICI) and enterprise value

Build model between internal control and enterprise value:

$$Q=C_1+C_2ICI+C_3TAT+C_4RPC+C_5ROE \quad (3)$$

(Where: C_1 : Constant; $C_2/C_3/C_4/C_5$: Coefficient Correlation between Q and ICI/TAT/ RPC/ROE)

4 The Research Process and Analysis Results

The paper based on Eviews 5.1 to analysis dates. The first step is to discuss correlation between Tobin's Q, internal control and relevant control variables. And then we use the Least Squared Method (LSM) regression analysis to further study whether Tobin's Q is significantly related to internal control and other control variables.

The correlation coefficient of indexes in model is shown in table 2.

Table 2 Correlation Between Each Variable

| Coefficient | Q | ICI | TAT | RPC | ROE |
|-------------|----------|-----------|-----------|-----------|----------|
| Q | 1 | 0.130728 | 0.313382 | 0.153427 | 0.360799 |
| ICI | 0.130728 | 1 | -0.150435 | 0.503387 | 0.267117 |
| TAT | 0.313382 | -0.150435 | 1 | -0.104315 | 0.500689 |
| RPC | 0.153427 | 0.503387 | -0.104315 | 1 | 0.314192 |
| ROE | 0.360799 | 0.267117 | 0.500689 | 0.314192 | 1 |

From table 2, people can find that coefficient correlation between internal control index (ICI) and Q is 0.130728. It explains the fact that internal control and enterprise value have a positive relationships in some extent. The coefficient correlation between total asset turnover (TAT) and Q are positive value. This shows the higher capital turnover is, the faster total assets turn over, which can bring more value to the enterprise, and theoretically speaking, this is absolutely true. The coefficient correlation between return on equality (ROE) and Q are positive value. This shows that if ROE is higher, the profits of investment, as well as the value of the enterprise, is also higher. The coefficient correlation between ratio of profits to cost (RPC) and Q are positive value. When people compare the figure with total asset turnover (TAT) and return on equality (ROE), however, people can find that coefficient correlation is relatively small.

By using ordinary least squares (OLS), results are shown in table 3.

Table 3 Regression Result Between Variables and Q

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|----------|
| C | 0.718989 | 1.733631 | 0.41473 | 0.6796 |
| ICI | 0.016359 | 0.029437 | 0.555743 | 0.5802 |
| TAT | 0.067231 | 0.039615 | 1.697122 | 0.0941 |
| RPC | 0.001502 | 0.002541 | 0.591 | 0.5564 |
| ROE | 0.025143 | 0.017975 | 1.398777 | 0.1663 |
| R-squared | 0.166585 | Mean dependent var | | 2.302917 |
| Adjusted R-squared | 0.118962 | S.D. dependent var | | 0.998047 |
| S.E. of regression | 0.936804 | Akaike info criterion | | 2.771655 |
| Sum squared resid | 61.43209 | Schwarz criterion | | 2.926154 |
| Log likelihood | -98.93705 | F-statistic | | 3.497949 |
| Durbin-Watson stat | 2.286918 | Prob(F-statistic) | | 0.011604 |

Through the regression results can be seen, the coefficient of C_4 before RPC is not significant. People use the measurement equation to test the correlation between RPC and Q. The result is not significant, although there is existed positive correlation among them which are analyzed in front of the correlation analysis. Higher ratio of profits to cost higher shows enterprise profit is greater, and enterprise value will also become higher. But enterprise value is not only reflected by net profit, it also includes potential profitability of enterprises. The coefficient of C_2 , C_3 and C_5 before ICI, TAT and ROE are significant, which means that internal control index, total asset turnover and return on equality can effectively explained enterprise value. The coefficient of C_2 before RPC is 0.016359; it suggests that the improvement of internal control can effectively promote the improvement of corporate value. The coefficient of C_3 before TAT is positive number, which indicates that TAT can promote enterprise value. The enterprise should pay attention to total asset turnover among the process of operation. The coefficient of C_5 before ROE is positive number. It suggests that enterprise value increased with high revenue which is generated by business investment. The point is no doubt. But, if we take the objectives of internal control into account, it is easy to see that high quality of internal control ensures legality of enterprise's operation, safety of enterprise's assets and integrity of enterprise's financial reports and related information, so as to improve efficiency of operating and help the enterprise to achieve strategic goals, which will absolutely raise the capital turnover rate as well as net assets income rate. As a result, the value of the enterprise will also increase indirectly.

5 Conclusion

From what have been discussed, people find that total asset turnover and return on equality have significant effect to raise the level of internal control; while internal control has significant effect to promote enterprise value. These results indicate that in order to improve internal control, the enterprise should be concerned about aspects of company. The enterprise should pay attention to their situation, as well as improve their "internal strength".

The only 75 listed companies in Shanghai and Shenzhen Stock Exchange is selected as sample. There may have some problems in building the model and the authenticity of listed companies date is still being concerned. As a result, the explanation about conclusions is not very proficient. However, the research among internal control and enterprise value not only limited to above method, people expect to propose new research in this area of new research methods and paths.

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