

# Influence Analysis on Accounting Information Quality and Internal Control Correlation

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## Abstract.

This paper surrounds establishment of internal control and evaluation index system as well as theoretical and demonstration analysis of internal control on accounting information quality influence, it starts from perspective of listed company and discloses influence of variables such as quality ICDC, company scale, equity concentration, capital structure, profit capacity, percentage of independent director etc on ACR of accounting information quality. Through descriptive statistics and correlation analysis, it demonstrates the assumption proposed by this paper, that is internal control information disclosure of listed company and accounting information quality of listed company are positive correlation. The more perfect and effective of enterprise internal control, the higher of comprehensive index of internal control, and the profit quality will be better; the accounting information quality of enterprise will be higher.

## Introduction

In recent years, the cases of financial fraud caused by false accounting information in domestic and foreign markets are frequently happening{1, 2}, which has seriously disturbed the healthy development of market economy, at the same time, it greatly frustrates investment confidence of vast investors, people can not help having doubts on reliability of accounting information. As one of the important non-financial information, internal control information cannot only reflect system establishment and operation state of company internal control, according to theory of signal transmission; it can transmit the signal of good company management state and normal business development to the investors, so it can strengthen reliability of people on certain disclosed accounting information. So there are more and more enterprises and stakeholders start to pay attention to internal control, and government has successively issued laws and regulation on each internal control system establishments and disclosure of listed company[4, 5]. In fact, accounting information quality is controlled by effectiveness and perfection of internal control system to a large extent. Then how to enhance accounting information quality by internal control to perfect accounting information disclosure on the basis of current state is always one largest topic that financial accounting faces with [6,7].

The study development of this paper adopts way of combing with theoretical analysis and demonstration analysis, it starts from both ends of problems of accounting information theory and internal control theory, it summarizes characteristics frame of accounting information quality by using correlation and reliability of accounting information as basic characteristics, meanwhile, it divides internal control into element property of internal control and information property of internal control and it establishes evaluation system on disclosure quality of internal control information starts from perspectives of self-evaluation of internal control and external auditing of internal control. The result indicates that both of them are present positive correlation, the final model of regression equation has passed obviousness test in the overall linear relations. It can be said that internal control disclosure and accounting information quality are positive correlation; information disclosure of internal control is helpful to enhance accounting information quality.

**Influence of internal control on accounting information quality**

It is indicated by diagram 1, environment setting of internal control is unreasonable and internal control will become a mere formality, it can not reasonable guarantee accounting information quality. Control environment sets up basic tone of enterprise internal control and affects control awareness of staff. Good control environment is the base for the effective implementation of internal control, it can not only guarantee achievement of enterprise management, but also can guarantee realization of relevant target. The function of risk evaluation is to identify, analyze, evaluate and cope with each internal and external risks of affecting enterprises to realize management target. There will be internal risk in the transmission process of accounting information; reasonable evaluation and treatment on financial risk and internal risk of enterprise is base for true and reliable in accounting information.

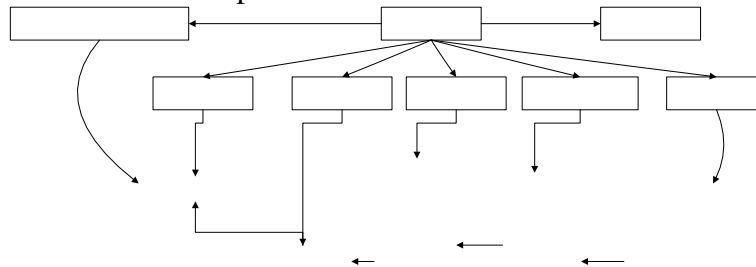


Diagram 1 Effect of internal control on accounting information quality

Control activity means a series of activates related to separation of duty and responsibility, authorization, physical control, information procession and achievement evaluation etc, it is helpful to enable enterprise staff to actually implement command of management levels, like with other elements, it is used to prevent and find errors in accounting data and strengthens functions of accounting information system, so it can produce reliable financial statements, through control on key control points such as approval, authorization, safety control, duty labor division etc, it can reasonable guarantee accounting personnel to actually reflect state and management outcome of enterprise finance, enhance accounting information quality and communication among internal staff and external staff . True information and timely communication can guarantee management levels adopt correction measures on supervision of each activity when necessary; it is the life line of the whole internal control system. Supervision is to track, test and adjust internal control and operation condition of enterprise design, the aim is to guarantee internal control is always effective.

**Study design on internal control disclosure and accounting information correlation**

**Design on disclosure quality and model of internal control:** This paper uses references from guidance of COSO risk management frame and internal control, it refers to the latest Application Instruction of Enterprise Internal Control issued by Ministry of Finance, it makes evaluation on internal information disclosure information from 2 perspectives of self-evaluation of listed company and external auditing of office, and it uses AHP to calculate weight accounted by each index and establish quality and index system of internal control information disclosure to support study.

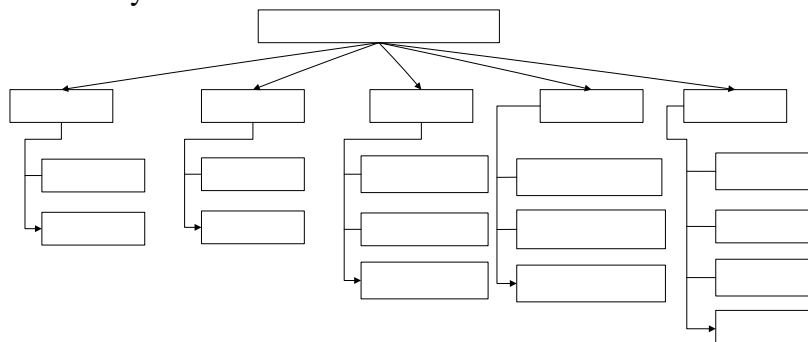


Diagram 2 Index system of internal control information disclosure quality

The evaluation index system of internal control is indicated by diagram 2. It uses target of internal control as base and designs sub-target of strategy, regulation, asset safety, report and management, but on demonstration study, it is not enough to divide it into 5 targets, it needs to choose much more delicate and qualitative index. From diagram 2 we can see that there are many variables to measure target realization of internal control and the same variable can reflect 2 realization degrees or realization degree of the same target can be reflected by many variables, so wirier introduces into method of principal component analysis. It can make optimal comprehensive treatment on multi-element data, it can simply data by deleting variable with little influence but not affect the overall effectiveness of data. This paper uses spss19.0 software, firstly it makes KMO and Battle tests whether original data is suitable for principal component analysis or not, this test is to test whether each variable is independently implemented.

**Choice on measurement index of accounting information:** On the basis of considering difficulty degree of collected data and reliability, it chooses cross section data (controllable accrued profits) of modified Jones model to measure profit and quality. The higher of controllable accrued profits, the controllable degree of profit management is bigger; it means accounting information quality is lower. On the contrary, the lower of controllable accrued profits, the controllable degree of profit management is smaller; it means accounting information quality is higher. The modified Jones model selected by this paper is as follows:

$$\frac{TA_i}{A_{it-1}} = \frac{\alpha_{1i}}{A_{it-1}} + \frac{\alpha_{2i}(\Delta REV_{it} - \Delta REC_{it})}{A_{it-1}} + \frac{\alpha_{3i}FA_{it}}{A_{it-1}} + \frac{\alpha_{4i}IA_{it}}{A_{it-1}} + \varepsilon_{it} \quad (1)$$

Of which:  $TA_i$  indicates the accrued profit of company I in year t,  $A_{it-1}$  indicates the total asset of company I in beginning year t,  $\alpha_{1i} \sim \alpha_{4i}$  is model coefficient,  $\Delta REV_{it}$  indicates distribution revenue change of company i, that is income difference from year t-1 to year t,  $\Delta REC_{it}$  indicates the change of accounts receivable of company i from year t-1 to year t,  $FA_{it}$  indicates the fixed asset of company i from year end of t,  $IA_{it}$  indicates the immaterial assets of company i in the end year of t. Regress the collected statements data in SPSS19.0 software by using the above formula as base. The remaining difference is the controllable accrued profit  $DA_{it}$ , it can reflect amount of profit quality. The higher of  $DA_{it}$ , the lower of profit quality, the lower of accounting information quality, the smaller of  $DA_{it}$ , the higher of profit quality, the higher of accounting information quality.

**Control variable:** This paper makes control by using the following variables: SIZE, CR, LEV, ROE and ID. Of which, SIZE uses natural logarithm of total asset of company to make measurement, CR uses the sum of top 10 shareholder percentage, LEV uses asset-liability ratio to make measurement, ROE uses net profit of total asset to make measurement. ID uses ratio of the number of people of director and the total number of people of board of director. The formula for asset-liability ratio, net profit ratio of total asset is as follows:

$$\text{Asset-liability ratio} = (\text{total liability} / \text{total asset}) \times 100\% \quad (2)$$

$$\text{Net profit ratio of total asset} = (\text{net profit} / \text{total asset}) \times 100\% \quad (3)$$

**Sample choice and establishment of regression model:** It chooses listed company of A share of Shanghai Stock Exchange in 2013 as sample, the obtained sample number is 644, whether there is financial restatement, occupied fund of correlation party, discloses self-evaluation report of internal control, exists penalty of violating laws and lawsuit in the comprehensive evaluation index of internal control, it mainly collects annual report of listed company, other relevant data is taken from WIND data base. After deleting ST company, financial and insurance company, company lacking of effective data and company listed in many places, it randomly chooses 165 listed companies by 40%, it uses annual report of financial statements, self-evaluation report of internal control and appraisal report as samples. Through the annual report of listed company downloaded by manual collection, self-evaluation report of internal control and appraisal report stated by office, and it obtains information of sample data.

In order to make demonstration study on correlation of internal control disclosure and accounting information quality of listed company, this paper uses ICDI as explanation variable, it makes control

on elements affecting company accounting information quality(including SIZE, CR, LEV, ROE, ID) and establishes the following linear regression model, the regression equation is as follows:

$$ACR = \beta_0 + \beta_1 ICDI + \beta_2 SIZE + \beta_3 LEV + \beta_4 ROE + \beta_5 ID + \varepsilon \quad (4)$$

Of which,  $\beta_0$  is constant term,  $\beta_i$  is the estimated coefficient of explaining each variable ( $i=1, \dots, 6$ ),  $\varepsilon$  indicates random error.

## Test result and analysis

**Descriptive statistics and analysis:** After mark arrangement on data of internal control disclosure quality for 165 companies, it obtains descriptive statistics analysis result of internal control disclosure quality. For the details, please see the overall condition table of internal control information disclosure quality (see table 1). The result is as follows:

Table 1 The overall condition of internal control information disclosure

ICDI	Score	Frequency
ICDI<60	117	0.7091
60 ≡ ICDI<80	25	0.1515
ICDI ≧ 80	23	0.1394

This table divides internal control disclosure quality of listed company into low, medium and high grade. The company score lowers than 60 is group of lower level, company score lower than 80 but higher than 60 is group of medium level, the company scores higher than 80 is group of higher level. According to the obtained data in the table, there are only 23 listed companies with higher disclosure quality of internal control, accounting for 15.15%, which accounts for 13.94 of the whole, there are more than 70% companies have low internal control disclosure level.

Table 2 is the study object of this paper, it is the descriptive statistics analysis result on correlation of internal control information disclosure and accounting information quality, meanwhile it considers the influences caused by control variable; it makes analysis on control variable together. The detailed result is indicated in the following table.

Table 2 Descriptive statistics analysis on correlation demonstration study of internal control information disclosure and accounting information quality

	sample quantity	Extreme difference	Minimum	Maximum	average	Standard difference	variance
ACR	165	3	1	4	2.91	.652	.425
ICDI	165	59.20	27.60	86.80	56.0848	14.73202	217.032
SIZE	165	14.2255	11.4468	25.6723	22.0300	1.6531553	2.733
CR	165	80.6600	10.3700	91.0300	50.1558	17.8680885	319.269
LEV	165	86.27	1.68	87.95	52.6548	19.33237	373.741
ROE	165	26.19	-.05	26.14	3.6800	4.15730	17.283
ID	165	57.14	.00	57.14	38.2768	6.92618	47.972

From the data analysis in the table we can see: (1) the overall assessment result of listed company in aspects such as information disclosure, standard operation, supervision measure and violations etc is relatively ideal, but difference on accounting information quality of different listed companies are as high as 3%, which indicates that the gap among accounting information quality of company is still larger, (2) different listed companies have different attention and enforcement on information disclosure of internal control, the average value is 56.0848, the average of disclosure quality of internal control information for listed company is disqualified, the overall quality is still low, (3) the overall CR level is bad, (4) the difference of asset-liability ratios of listed company is very large, financial risk level is higher.(5) From the overall situation, listed company has stronger profit capacity but different listed companies have large difference.

**Correlation analysis:** Table 3 lists Pearson test on correlation of each variable as well as correlation coefficient and obviousness test result

Table 3 Correlation analysis on internal control information disclosure and demonstration study of accounting information quality

correlation coefficient	accounting information quality	disclosure quality of internal control information	SIZE	CR	LEV	ROE	ID
Accounting information quality	1						
Internal control information disclosure	0.240	1					
SIZE	0.276	0.281	1				
CR	0.167	0.185	0.307	1			
LEV	0.076	0.018	0.063	0.015	1		
ROE	0.131	0.038	-0.062	0.091	-0.600	1	
ID	-0.123	0.003	-0.046	-0.80	-0.013	-0.470	1

\*\* . It is obviously correlated in level of 0.01 (both sides)

\* . It is obviously correlated in level of 0.05(both sides)

Among the chosen 165 samples of listed company, the correlation coefficient of internal control disclosure quality and accounting information quality for listed company is 0.24, both of them are in the positive correlation in level of 1%, it is conforms to predicted, which indicates that the higher of internal control disclosure quality, it is more helpful to enhance accounting information quality of enterprise. In the control variable, enterprise scale and accounting information quality are obviously in the positive correlation on level of 1%, which indicates that the large scale of enterprise, the higher level in accounting information disclosure, it can establish the positive image of company. CR and accounting information quality are obviously in positive correlation on level of 0.05, which indicates that enterprise accounting information quality with relatively concentrated stock right is higher than that with dispersed stock right. While correlation of other factors with accounting information quality is not so obvious, this indicates that other factors can not obviously influence accounting information quality.

## Conclusion

With the perfection and improvement on laws and regulations for internal control, the internal control level of Chinese listed company has been enhanced from the whole, but it still has problems can not be ignored. With enforcement in external supervision strength, accounting information quality of Chinese listed companies has got obvious improvement. Whether internal control is perfect and effective or not will directly influence quality of accounting information, perfect and effective internal control has positive effect on enhancing accounting information quality. Internal control coefficient and profit quality have obvious positive correlation relations, the much more perfect and effective of enterprise internal control, the higher comprehensive index of internal control, the profit quality will be better, the accounting information quality of enterprise will be higher.

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