Research on Chinese Listed Companies' Internal Control Quality and Cash Holdings Based on Panel Data Model

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Abstract

Focusing on internal control quality, this article studies the factors of listed company's cash holding level with fixed effect panel data model and a sample of China's A share stocks from the year 2004 to 2013. We find that listed company's internal control quality is negatively related to its cash holding level, and that high internal control quality decreases cash holding level significantly. Further research shows that the relation between internal control quality and cash holding level in state-owned company is stronger than that in private company. Our study not only expands theory of listed company's cash holding, but also helps managements improve their capital efficiency.

Keywords

Internal control quality, Cash holding level, Nature of control.

1. Introduction

The listed company's cash holdings decision is a very important financial decision not only because it relates to the key issues which optimize capital efficiency level and cash holdings, etc., but also has a significant impact on the cost of capital of listed companies and selecting investment opportunities (Chen, 2011). In recent years, both the US and European capital markets in developed countries and other emerging capital markets such as China, the listed company's cash holdings have an increasing trend (Bates et al, 2009; S ánchez et al, 2013; Xing, 2014). Chinese listed companies, for example (see Fig. 1), over the past decade, regardless of the manner in which to measure the level of cash holdings, cash levels were held in 15% (CASH1) and 20% (CASH2) hovering around This is a significantly higher level of cash holdings of foreign listed companies index (Liu, 2014). Studies have shown because of the presence of asymmetric information and transaction costs and other issues, a certain amount of cash holdings can effectively alleviate the financial constraints faced by the company (Yang, 2014), and make the company to keep enough growth investment Financial flexibility (Denis, 2011), high-growth companies in early stages of development of high cash holdings is an effective financial strategy (Mikkelson et al, 2003). But as the company continues to grow and develop as well as changes in the external economic environment, the high level of cash holdings to the company's development also had a negative impact which cannot be circumvented. Firstly, since the cash belongs to non-profit assets, its profitability is low, when the excessive amount of cash is held by listed companies, the liquidity marginal benefits they provide will fall, which will lower the overall level of corporate earnings. Secondly, according to Jensen (1986)'s "free cash flow hypothesis," holding too much cash could become a tool of management to seek personal interests, which will further exacerbate the problem of internal agency of the listed companies existed (Dittmar et al, 2003; Guney et al, 2007; Harford et al, 2008). Therefore, the research on the listed company's cash holdings quickly became a focus of attention.

An important aspect of the listed company's cash holdings empirical research is on cash holdings of influencing factors (Xiao, 2008). Existing researches concentrate on the following aspects: (1) The volatility of listed companies cash flow and cash holdings was in positive correlation. This conclusion is from the United States (Opler et al, 1999), Germany (Faulkender et al, 2006), Japan (Pinkowitz et

al, 2006) and the UK (Belghitar, 2013) and other countries to support the company's publicly traded empirical evidence. The degree of separation (2) The company's ownership structure, ownership and control have a significant impact on the level of cash holdings, and magnitude of this effect also exhibit different characteristics with the rising level of cash holdings (Kuan et al , 2012). (3) The company's organizational structure on cash holdings also significantly influence organizational structure, more diversified company's cash holdings were significantly lower than in the same organizational structure in a single industry companies (Subramaniam et al, 2011). (4) Institutional ownership, ownership and family control managers have a significant impact on cash holdings, but the affect of the composition and characteristics of the ultimate controller of the directorate to cash holdings were not significant (Ozkan et al , 2004; Belghitar, 2013). (5) Pension of the CEO of a listed company (executives deferred compensation paid within the company, ie internal debt: Inside Debt) and the company's cash holdings showed a significant positive correlation (Liu et al, 2014). (6) A listed company governance mechanism / level of its cash holdings showed a positive correlation between higher levels of protection of the rights of shareholders leading to a lower level of cash held by managers (Dittmar et al, 2003; Chang et al, 2006; Drobetz et al, 2010; Belghitar, 2013).
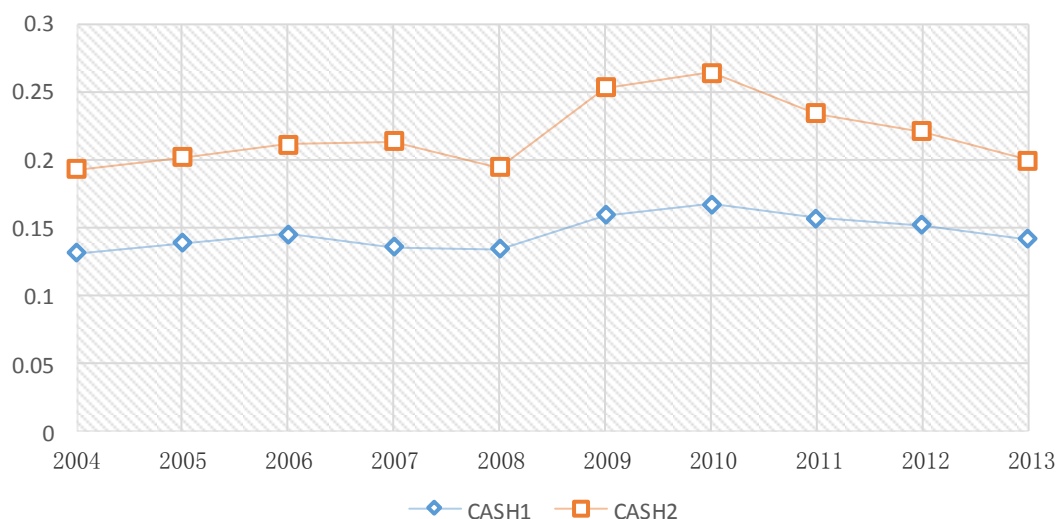

Fig. 1 China's listed companies cash levels in nearly a decade

It's not difficult to find, the existing research mainly around within the company, especially the researches which from the perspective of corporate governance launched factors affecting cash holdings also made more fruitful. However, the existing studies also ignore a more important additional perspective, the angle of internal control. As an internal system construction in recent years, the acts government agencies took, the listed company and its corporate governance efforts to promote, become a modern corporate governance structure of an essential part, and the protection of investors also played a significant effect (Yang et al 2011). Thus, whether the listed company's internal control quality is able to influence the level of its cash holdings is a topic of great significance. Meanwhile, the country is in economic transition period, the equity structure of listed companies are more distinctive, liquidity is poor, equity definition is not high, and the "dominance" phenomenon prevalent (Xiao, 2008; Liao et al., 2009), so the impact of China's listed companies cash holdings might be more complicated, in the course of empirical research, we must consider the impact of the nature of the actual control of listed companies on the level of cash holdings caused.

Based on the above analysis, this paper on the basis of using DIB internal control and internal control index of overall quality of internal control the risk management database provides, took objective measure according to 2004--2013 Shenzhen A-share Shanghai and Shenzhen main board listed companies as samples, paper examined the impact on the quality of internal control of cash holdings, and further explored the impact of differences in actual control of the nature of the relationship between the two caused. The study found that the quality of internal controls and the listed company's

cash holdings was a significant negative correlation, the quality of internal control significantly reduces the listed company's cash holdings. Research also showed that the actual control of non-state-owned listed companies and state-owned properties are in negative correlation, the quality of internal control of listed companies with cash holdings is more significant. These findings implied that in the background of our current system, the internal control of listed companies on quality improvement objective reduce its cash holdings and played a role in the level, and can solve the prevalence of cash holdings in the listed companies in China to a certain extent too high.

Contributions of this paper is mainly reflected in the following aspects: (1) It attempted to control the quality from the perspective of internal inspection of its impact on the level of cash holdings of listed companies, and enriched the study of factors currently affecting the level of cash holdings, and conclusions of this study also extended the research on the economic consequences of internal quality control. (2) In-depth analysis of the quality of internal control of listed companies based their impact on cash holdings, the further integration of China special ownership structure of listed companies in the background, examines the nature of the difference between the actual control of internal control quality and level of cash holdings affect relations between, so this study is more suitable for the Chinese situation. (3) Studies on the relationship between the quality and level of cash holdings of internal control has important theoretical and practical value, studying the relationship between the conclusions of this paper has a certain significance in providing empirical evidence which determined enterprises optimize cash holdings and improving capital efficiency.

The following arrangements are for the content of this article: The second part is the theoretical analysis and research hypothesis; the third part is the study design, including the build variable definitions, data filtering, and regression models; fourth part is empirical results and a simple analysis of the results; fifth part is the conclusion of the study.

2. The Theoretical Analysis and Research Hypothesis

2.1 Quality of internal control and company cash holding level

Compared with Europe and other mature capital market, China's capital market development is relatively immature, companies generally face different degrees of financial constraints, the company usually has a strong cash precautionary motives. Synthesis of existing researches on the motivation of cash holdings found, the company's cash holding mainly considers the following two aspects: First, risk management incentive in cash holdings. Changes in product markets subject to fierce competition and the macroeconomic environment, listed companies generally will hold cash as an important tool for risk management (Han et al., 2011), in order to effectively improve the level of cash holdings of risk aversion (Almeida , 2004). A certain amount of cash held by listed companies can maintain a certain degree of liquidity to meet future investment opportunities may be encountered (Keynes, 1936; Acharya et al, 2007; Fr ésard, 2008). But with the emergence of the company's risk management as part of internal control systems (COSO, 2004), the risk of internal and external crises faced by the company will be listed as the quality of internal control enhancement has been significantly improved (Li et al., 2013), internal quality control can effectively alleviate the financial constraints faced by enterprises (Cheng et al., 2013; Dai et al., etc., 2014), and further lead to the weakening of its cash holdings motivation. Therefore, from this perspective, the internal control of listed companies can reduce incentives to enhance the quality of its high cash holdings, effectively reduce its cash holdings. Secondly, the motivation of cash holding agencies. Agencies' conflict between shareholders and management is a key factor affecting the company's cash holdings (Xing et al., 2014). From free cash flow hypothesis of view, management has carried out to obtain personal gain or steal cash overinvestment tendencies (Jensen, 1986), which is generally believed that the listing agency cost (risk aversion, self-serving tendency to over-investment, etc.) more high cash holdings higher (Dittmar et al, 2003; Harford et al, 2008). The basic measure of the balance of powers, as a listed company's internal control (Yang et al., 2005), can effectively reduce the information asymmetry (Farms, 2010) between shareholders and managers, and ultimately reduce the agency listed companies costs (Deming et al., 2009; Yang et al., 2010). As the internal control of listed

companies to enhance the quality, managers are increasingly subject to strict regulation, its abuse of cash, overinvestment probability of discovery have continued to grow, forcing managers to measure the excess cash dividend payment to investors, listed companies and ultimately reduce the level of cash holdings. Based on the above two analysis, this paper gives the first research hypothesis:

H1: Under other certain conditions, there is negative correlations between quality of internal control of listed companies and cash holding level.

2.2 Quality of internal control, actual control of nature and company cash holding

Due to historical, institutional and other factors, equity liquidity, there is a certain gap between Europe and mature capital markets. Listed companies in the "dominance" phenomenon is also relatively serious (Ping et al., 2008; Li et al., 2009), therefore, analyzing issues related to China's capital market must given sufficient attention to the actual control problems. Studies have shown that, on the basis of the actual control of state-owned and the quality of non-state-owned listed companies, the quality of internal control on cash holdings showed enough differences (LU et al., 2011; Chen et al., 2011; Tong et al. 2012; Wang et al., 2012). For the actual control of listed companies in terms of state-owned properties, which tend to occupy in our economic system in an important position, play a leading and exemplary role in the implementation of some government policies, based "On The 2012 Main Board Listed Companies Classified Partial Implementation Of The System Of Internal Control Practices Notice", the actual control of state-owned properties listed company prior to the non-state-owned listed companies is in the full implementation of the basic norms of internal control, which reflects the actual control of state-owned properties the quality of its internal control of listed companies may be better than the non-state-owned companies. At the same time, currently, China's capital market as a policy market is still strongly characterized (Chen et al., 2011), there is inextricably linked to the actual control of state-owned properties between listed companies and the government departments at all levels to give government "helping hand" of aid is greater, which leads to smaller business risks it faces, and because of its status of state-owned properties also led to their easier access to bank-based financial support of creditors, which is said actual control of state-owned properties listed financial constraints faced by small companies, therefore, with respect to the actual control of non-state-owned listed companies, which tend to have lower levels of cash holdings. The actual control of non-state-owned listed companies on the contrary, because its subject often have to maintain a high level of cash holdings in order to reduce operating style. At the same time, due to the implementation of the internal control system of listed companies need some input costs, which will further exacerbate the plight of financial constraints it faces, so for the actual controller unlisted state-owned properties, enhance the quality of internal controls is likely to lead to its cash holding levels to further improve, but it needs further empirical testing. Based on the above analysis, the paper gives the second research hypothesis:

H2: Under other certain conditions, as for actual control of non-state-owned listed companies, the negative correlation between state-owned properties in the quality of internal control of listed companies and cash holding levels are more sufficient.

3. Research Design

3.1 Samples selection and data sources

This paper selected 2004-2013 Shenzhen A-share Shanghai and Shenzhen main board listed company as the research object. And the raw data were as follows screening process: (1) Excluding the financial listed companies, since these companies exist industry specificity. (2) Excluding the actual control of the company and the nature of the unknown missing financial data company. (3) Excluding ST / PT companies. (4) In order to control regression results the influence of extreme values may cause, we all continuous variables at the 1% and 99% quantile which were reduced tail (Winsorize). All the internal control quality data is from the DIB internal control and management risk database in Shenzhen Dibo Company, data processing is completed by stata 12.0.

3.2 Model and variable definitions

Learn from the practice Opler, etc. (1999), Dittmar et al. (2003), Wang et al. (2012), we build model that the influences internal control quality to cash holding levels as follows:

$$CASH1/CASH2 = \alpha_0 + \alpha_1 ICI_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 ROA_{i,t} + \alpha_4 LEV_{i,t} + \alpha_5 MB_{i,t} + \alpha_6 CAPEX_{i,t}$$
$$+ \alpha_7 CFO_{i,t} + \alpha_8 DIV_{i,t} + \alpha_9 BANKDEBT_{i,t} + \alpha_{10} DEBTSTR_{i,t} + \alpha_{11} NWC_{i,t}$$
$$+ \alpha_{12} YEAR + \alpha_{13} IND + \varepsilon_{i,t} \tag{1}$$

CASH is explained as variable, based on literature review, we find that the current measure of the level of cash holdings mainly in the following three ways: (1) Cash and cash equivalents / total assets, Kalcheva et al (2007) and Lian et al. (2008,2011) uses this ratio to measure the level of cash holdings. (2) Cash and cash equivalents / (total assets - cash and cash equivalents), Opler, etc. (1999), Harford et al. (2008) and Wang et al (2012) have adopted this approach. (3) (Monetary funds + short-term investments) / total assets, Hu et al. and Wang et al. (2007) have used this method to our listed company's cash holdings measure. The paper attempted to use the above two methods to measure listed companies' cash holding level, and considered third metrics under robustness test. For the internal control of listed companies selected quality indicators, existing research mainly uses two means, first is to liste company to disclose whether internal control deficiencies as a basis to judge (Doyle et al, 2007; Kim et al, 2011; Fang et al., 2011). Second, the five major objectives of internal control is built on internal control index to measure the quality of internal control of listed companies (Fang et al., 2013; Dai et al., 2013). This paper argues that the internal control of information disclosure of listed companies under the overall environment of relatively weak case, only used disclosure of internal control weaknesses as a measure of internal control of listed companies on the basis of quality, may be biased, and even lead to findings of bias. Therefore, this article uses the second method, internal to DIB internal control and risk management database to provide a control index (ICI) to measure the quality of internal control of listed companies. The index is based on the operation of internal control, compliance, asset security, strategy and reporting five goals designed to continuously release many years now, it has been recognized by theory and practice, and the existing internal control relevant Research has been widely applied (Zheng et al., 2013; Li et al., 2013). In addition, the paper also based Opler, etc. (1999), Kalcheva et al. (2007), Lian et al. (2011), Wang et al. (2012), set corresponding control variables to related factors which have been found can influence listed companies' cash holding levels. To control annual and industry influence, we added annual and industry dummies to model separately, which has been shown in Table 1.

Table 1 Variable definitions

Name	Definition
CASH1	Cash and cash equivalence/Total assets
CASH2	Cash and cash equivalence/(Total assets-cash and cash equivalence)
ICI	The natural logarithm of index internal controls
SIZE	The natural logarithm of total assets
ROA	Net profit/Total assets
LEV	Total liabilities/Total assets
MB	Market value/Book value of assets
CAPEX	Capital expenditure/(Total assets-cash and cash equivalents)
CFO	Net cash flow from operating activities/(Total assets-cash and cash equivalents)
DIV	Cash dividend of 1, otherwise 0
BANKDEBT	(Long-term borrowings + short-term borrowings)/Total liabilities
DEBTSTR	Total current liabilities/Total liabilities
NWC	(Working capital-cash and cash equivalents)/(Total assets-cash and cash equivalents)

4. The Empirical Results and Analysis

4.1 Descriptive statistics

Table 2 shows the descriptive statistics of the main variables. As it shows, after screening of samples, cash holdings remained at over 10%, and the gap between the maximum and minimum values is more obvious. At the same time, the average quality of internal control of listed companies to 6.501 (after taking the natural logarithm), but the gap between its maximum and minimum values are still strong, other control variables also showed similar features.

Table 3 depending on the nature of the actual control of listed companies, the entire sample was divided into state-owned nature of the company and non-state nature of the company, and both groups were the main variable difference test. The results showed that, regardless of the manner in which to measure the level of cash holdings, cash non-state-owned holding company of the sample group were significantly higher than the state-owned company sample set, and the internal state-owned nature of the company's quality control sample group was significantly higher than that non-state-owned company, which previously raised about hypothesis 2 when the analysis is consistent.

Table 2 Main variables descriptive statistics

Variable	Observation	Means	SD	Min	Median	Max
CASH1	12247	0.101	0.111	0.000	0.074	0.510
CASH2	12247	0.134	0.183	0.000	0.079	1.041
ICI	12247	6.501	0.174	5.778	6.530	6.853
SIZE	12247	21.797	1.291	18.972	21.679	25.655
ROA	12247	0.028	0.068	-0.309	0.029	0.204
LEV	12247	0.536	0.221	0.082	0.538	1.481
MB	12247	1.741	1.087	0.668	1.346	7.308
CAPEX	12247	0.054	0.062	-0.080	0.037	0.285
CFO	12247	0.056	0.098	-0.236	0.052	0.389
DIV	12247	0.51	0.500	0	1	1
BANKDEBT	12247	0.385	0.237	0.000	0.399	0.856
DEBTSTR	12247	0.822	0.190	0.246	0.891	1.000
NWC	12247	0.142	0.732	-3.285	0.202	2.428

Table 3 Difference primary variable-state-owned VS non-state-owned

Variable	State-owned			Non-state-owned			T test	Z test
	Obs	Means	Median	Obs	Means	Median		
CASH1	8297	0.099	0.072	3950	0.105	0.075	-2.611***	-2.611***
CASH2	8297	0.131	0.078	3950	0.140	0.082	-2.596***	-2.611***
ICI	8297	6.518	6.535	3950	6.465	6.514	14.909***	-14.094***
SIZE	8297	22.004	21.840	3950	21.365	21.313	27.189***	-24.291***
ROA	8297	0.029	0.028	3950	0.026	0.029	2.276**	-1.123
LEV	8297	0.533	0.540	3950	0.543	0.533	-2.015**	-1.256
MB	8297	1.616	1.296	3950	2.003	1.496	-16.309***	-16.939***
CAPEX	8297	0.058	0.042	3950	0.046	0.028	10.731***	-13.515***
CFO	8297	0.060	0.055	3950	0.049	0.045	5.252***	-6.080***
DIV	8297	0.55	1	3950	0.42	0	13.777***	-13.627***
BANKDEBT	8297	0.386	0.400	3950	0.382	0.396	0.788	-1.015
DEBTSTR	8297	0.811	0.879	3950	0.847	0.917	-10.254***	-10.885***
NWC	8297	0.098	0.165	3950	0.235	0.286	-9.263***	-13.332***

Note: Means test adopts t-statistic, median test adopts Wilcoxon; ***,**,* respectively represent significance level as 1%, 5%, 10%.

4.2 Correlation analysis

Table 4 shows the quality of internal control of listed companies with cash holdings of partial correlation coefficients. Previous studies showed that factors affecting the level of cash holdings of listed companies are in many aspects (Opler et al, 1999; Pinkowitz et al, 2006), therefore, to more realistic reflect the correlation between internal control quality and cash holding level, under the condition that controlled known factors that influence other cash holding levels, this paper analyzed the correlation between internal control quality and cash holding levels. It showed, under this condition, there is significant negative correlation between listed companies' internal control quality and its cash holding level, high quality of internal control can lower its cash holding level, which also primarily verified H1.

Table 4 Quality of internal control and cash holdings of partial correlation coefficients

	CASH1	CASH2	ICI
CASH1	1.000	0.968***	-0.067***
CASH2	0.968***	1.000	-0.065***
ICI	-0.067***	-0.065***	1.000

Note: ***,**,* respectively represent significance level as 1%, 5%, 10%.

4.3 Panel regression analysis

In order to further investigate the influence on the quality of internal control between cash holdings and examine the relationship between the nature of the actual control of listed companies, we follow the usual practice of the mainstream literature, based on the nature of the actual control of listed companies of the sample data is divided into state-owned nature of the company and two types of non-state nature of the company (including state-owned nature of the company's 8297 observations, non-state-owned company 3950 observations). We were on the internal quality control relationship with the cash holdings of the two sub-samples based on multiple regression analysis, the results shown in Table 5. Wald test and Hausman test concluded that either state-owned company sample or non-state company sample set should use a fixed effect model to analyze the relationship between the regressions. it can be seen in Multiple regression analysis of the two, different nature of the actual control of internal control quality have significant differences to cash holding levels . In the state-owned nature of the company's sample set, the listed company's internal quality control and cash holdings showed a significant negative correlation (CASH1 and CASH2 were at the 1% significance level), this indicates that the state-owned nature of the company's sample set, internal reduce the role of quality control on the level of cash holdings more obvious. In non-state-owned companies' sample set, the relationship between the quality and level of cash holdings of internal control by negative into a positive correlation, but not significant statistically. This indicates that the non-state-owned companies' sample set, to enhance the quality of internal control of listed companies is likely to further exacerbate the difficulties they face and lead to rising levels of cash holdings. This conclusion also agreed with the theory during analyzing the Hs, which directly verified the H2.

Table 5 Multiple regression results of internal quality control sample points and level of cash holdings

Variable	State-owned company				Non-state-owned company			
	Dependent variable: CASH1		Dependent variable: CASH2		Dependent variable: CASH1		Dependent variable: CASH2	
	Coefficient	T value	Coefficient	T value	Coefficient	T value	Coefficient	T value
ICI	-0.027	-3.58***	-0.057	-4.17***	0.003	0.27	0.008	0.39
SIZE	0.013	6.20***	0.021	5.55***	0.002	0.64	-0.003	-0.64
ROA	0.070	3.74***	0.130	3.88***	0.003	0.12	0.004	0.10

LEV	-0.089	-11.55***	-0.144	-10.38***	-0.081	-9.03***	-0.135	-8.30***
MB	0.010	7.69***	0.017	7.64***	0.004	2.88***	0.009	3.43***
CAPEX	0.086	5.64***	0.131	4.77***	0.057	2.17**	0.083	1.77*
CFO	0.182	18.94***	0.325	18.77***	0.156	11.63***	0.268	11.10***
DIV	0.001	0.27	0.00006	0.02	0.005	1.44	0.010	1.48
BANKDEBT	-0.024	-4.22***	-0.039	-3.78***	-0.009	-1.05	-0.026	-1.64
DEBTSTR	0.012	1.83*	0.028	2.31**	0.006	0.56	0.014	0.73
NWC	0.020	12.51***	0.033	11.26***	0.015	7.47***	0.025	6.91***
CON	-0.097	-1.54	-0.062	-0.55	-0.051	-0.55	0.046	0.28
YEAR	Control		Control		Control		Control	
IND	Control		Control		Control		Control	
Obs	8297		8297		3950		3950	
Wald test	5.02***		5.10***		3.82***		3.73***	
Hausman	185.60***		198.27***		129.27***		127.75***	
R^2	0.5734		0.4400		0.4804		0.3654	

Note: ***,**,* respectively represent significance level as 1%, 5%, 10%.

4.4 Robustness test

Finally, in order to reflect the conclusions of this study reliability, robustness test from the following aspects: (1) Using Hu et al. and Wang et al.'s cash holding level testing standard :(monetary funds + short-term investments) / total assets of China's listed companies to measure the level of cash holdings, and analyzed the relationship between internal control quality level of cash holdings and regression. (2) Notwithstanding the test showed that the fixed effects model panel may be the most suitable test model, but we still use the random effects model and the mixed effects model to do the regression test to the relationship between the panel. (3) Reducing the sample interval. Taking 2010--2013 years of data for the study, using the model of the relationship between one pair to do re-examination. Robustness test results agreed with the regression results in the content, which means the conclusion of this paper has a certain robustness.

5. Conclusion

The paper studies the impact internal control quality on cash holding level based on the data samples which came from A-share stocks from Shanghai and Shenzhen's listed companies, and further analyzed the influence of the nature of the actual control of listed companies to the relationship between internal control quality and cash holding level. Study showed, the promotion of listed companies' internal control quality can significantly lower their cash holding levels, there is significant negative correlation between internal control quality and cash holding level. Combined with the researches of the nature of the actual control of listed companies, in the samples of state-owned companies, the negative correlation between internal control quality and cash holding level is still very significant, while in non-state-owned companies' samples, there is positive correlation between internal control quality and cash holding level in spite of there isn't statistically significant in this positive correlation.

This paper fulfilled the current abroad and China's researches about the impact factors of cash holding levels, it helped us take knowledge of how to lower the listed companies' cash holding levels from the perspective of internal control quality, enlightened listed company to construct internal control and improve the quality of internal control and pay attention to the change of their cash holding levels at the same time. The conclusion of this paper also provided practical support to companies' risk management of cash flow and using the holding cash efficiently. In the meanwhile, the relation of these two also enhanced the research view of quality of internal control economic

consequences, positively provided new way of thinking and theoretical support for further improving construction of listed companies' internal control.

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