



The Application of Empirical Study in Accounting Education: An Example of Internal Control and Cash Dividend

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ABSTRACT

As an important development trend for accounting higher education, accounting empirical teaching plays a fundamental role in enriching and improving researching methods in accounting fields. This paper starts from the relationship between internal control and cash dividend policy, combines with author's accounting teaching experience for years, follows the general research ideas of questions raising, questions analysis, questions solving, and from the aspects of theoretical analysis, literature review, research hypothesis, research methods, empirical process and results discussion to make a detail description on accounting empirical teaching methods and process. The results show that there is a significant positive correlation between internal control and cash dividend policy, and this kind of correlation shows different influence intensity according to the difference of company nature. Through the research of this paper, it can make the relevant educator further clarify the process and methods of the accounting classroom empirical teaching, which is of great significance to popularize and enhance the application of accounting empirical research methods in accounting field.

Keywords: empirical research, accounting education, internal control, cash dividend

INTRODUCTION

In recent years, accounting empirical study has developed into a mainstream field of accounting study in the world (Apostolou et al., 2017). However, the promotion and teaching of accounting empirical research methods are still weak, especially in China, such a country where accounting study is developing rapidly (McPeak et al., 2012). Accountancy students in colleges as an important driving force in the field of accounting, play a critical role in mastering accounting empirical research methods (Paisey & Paisey, 2004). Therefore, based on the experience of accounting teaching in many years, we take the research on the relationship between internal control and cash dividend policy as the breakthrough point, combine with the relevant financial data of China capital market, to make a detail description on the process, existing problems and some other difficult problems in accounting empirical teaching. By doing so, this paper hopes to make some contribution on enhancing and application of accounting empirical teaching.

Besides to master the specific empirical research methods, previous theoretical derivation and question raising are also important parts of accounting empirical study, which should gain special attention for students who are major in accounting (Guo, 2011; Beatty & Liao, 2014). This paper takes the relationship between internal

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Contribution of this paper to the literature

- This study introduces the general process of empirical accounting research and enriches the contents and means of accounting education.
- The empirical research in this paper tests the relationship between internal control and cash dividend, and clarifies the role of internal control in profit distribution decision.
- The research of this paper not only enriches the research literature of accounting education and internal control, but also has important significance for accounting theory and practice.

control and cash dividend policy as an example to explore how to quickly elicit research questions and conduct preliminary theoretical analysis.

Cash dividend is an important decision of corporate profit distribution and has always been valued by Chinese government regulators and investors (Powell et al., 2012). Especially the “On Further Implementation the Related Matters of the Cash Dividend of the Listed Companies” published in May, 2012 by CSRC combined the cash dividend policies and the original public offering to further strengthen supervision of the cash dividend policies of the listed companies. Why the government regulators, as a means of administrative intervention, violate the economic development laws to continually emphasize the importance of the cash dividend policy? According to “the Riddle of Dividend Payment” proposed by Black in 1976, we feel sorry to find a perfect explanation for such a phenomenon by any theory. Whereas the principal-agent theory put forward of the cash dividend policy by Adjaoud and Ben-Amar in 2010 seems to give a most promising explanation. According to this theory, the cash dividend payment can lower principal and agent costs produced by the separation between the ownership and management of a company. To give a specific analysis, we know that the cash dividend payment reduce the level of companies’ free cash flow, restrict the funds abuse of administrators who are compelled to enter the external investment market to finance so as to meet the demands of investment, leading to a severer external market regulation and eventually reducing the agent costs caused between owners and the administrators. As for the successful explanation of the cash dividend policy by the principal-agent theory, we know the deeper reason may go to the impact from the companies’ governance mechanism on the cash dividend policy (Adjaoud & Ben-Amar, 2010). If it is true, the internal control, as a governance mechanism that public companies actively promote, is bound to have a significant influence on the cash dividend policy.

Because of the continuous development of the principal-agent theory, researches on the issues about the current internal control quality and principal-agent, cash dividend policy and principal-agent are appearing constantly. However, there’s a lack of experimental evidence about the internal control quality and the cash dividend policy. The existing research shows that both the internal control quality and the cash dividend policy can be effective means to reduce the principal-agent costs of the listed companies (Fairchild, 2010; Ying, 2016). Taking the establishment of the dividend agent model of LLSV (La Porta et al., 2000) for reference, this study put forward the result model and substitution model about the internal control quality’s impact on the cash dividend policy of the listed companies. On one hand, the result model thinks that the listed companies with higher internal quality will provide stronger protection for their shareholders, especially those medium and small shareholders. Including more transparent information, more normative management process and a stronger regulation, which in turn compels regulators to maintain a cautious attitude in capital using, and they are more inclined to grant the excess cash as dividends to shareholders (La Porta et al., 2000; Mitton, 2004). On the other hand, the substitution model thinks that companies with a higher level of internal control quality has a lower principal-agent costs, therefore, they are under motivation in reducing principal-agent costs through paying the cash dividend (La Porta et al., 2000), leading to the lower levels of cash dividend payment propensity and the payment.

The above two views are formed on the basis of learning from the west, especially from the research results of the American mature capital market. However the practicability in our capital market is subject to further test. Since the split-share reform in our country, there has been a big difference between our country and the western countries in ownership structure, the degree of investors protection and the efficiency of capital market (Yeh, 2005), especially the state-owned property controlling people of those listed companies in our country has become a key

factor that cannot be ignored in researching the issues on the Chinese capital market. The existing evidence shows that the ultimate difference controllers can lead to bigger differences of the listed companies on principal-agent problem, internal control quality and the cash dividend policy (Capalbo et al., 2014; Guo et al., 2017). Therefore, when studying the impacts of internal control quality of our country's listed companies on cash dividend policy, the difference caused by the ultimate controllers must be taken into consideration.

Therefore, Based on the Dibo internal control index, this study makes a comprehensive measure on the internal control quality of listed companies and takes 2004-2013 China's A-share main board listed companies as samples to check the relationships between internal control quality and cash dividend payment propensity and that with the payment level by making use the demonstration of panel logit model and panel tobit model. The research results support the result model of the dividend policy (La porta et al., 2000). They show that higher quality of internal control can strengthen the cash dividend propensity and payment level. The further test also found the nature of state-owned ultimate controllers has a reinforcement effect on such positive correlation. All of these results mean that under the background of the current system in China, the promotion of internal control quality in the listed companies objectively have an positive influence on enhancing the cash dividend propensity and the payment level, which just accord with the policy intention of the current government monitoring departments in raising cash dividend payment level and protect the interests of the medium and small investors.

THEORETICAL ANALYSIS AND RESEARCH HYPOTHESIS

Theoretical analysis and research hypothesis as the key content in accounting empirical study, should cause the majority accounting educators attention. At present, some accounting empirical research papers have a series of problems, such as in the theoretical basis is not sufficient, hypothesis proposal is not so rigorous, all of these problems require to be basic educated and corrected in accounting classroom. In view of this, this paper mainly based on the dividend agent theoretical model, to make a comprehensive analysis and discussion on the two possible relationship between internal control and cash dividend from the positive and negative aspects. In the meanwhile, for the state-owned nature of enterprises is an important pillar to China's national economy, the state-owned nature of enterprises may have important impact on the relationship of internal control and cash dividend. Therefore, this paper takes the nature of enterprises as an important factor into the analysis framework when analysis the relationship between the two.

Internal Control and Cash Dividend Policy

Though there are many scholars have done researches on the cash dividend policy of the public companies from different angles and proposed influencing explanation models (Baker & Wurgler, 2004), there hasn't been a perfect explanation for the listed companies paying for dividend. And some financial scholars are making unremitting efforts to solve this problem. As stated in the introduction, the research on the relationship between the internal control quality and the cash dividend policy provides a new experimental evidence for solving the problem of "the riddle of dividend payment" proposed by Black in 1976.

Among those numerous theoretical perspectives on dividend payment policy, the principal-agent theory (Adjaoud & Ben-Amar, 2000) seems to draw the most attention. Especially after the result model and substitution model of the agency of dividend were proposed by La porta and other scholars in 2000, this research was pushed into a new climax. It is thanks to the proposal of this new research paradigm, some scholars conduct the research on the relationship between the company's governance mechanism and the cash dividend policy. It can roughly be summarized into two opposite research contexts. One believes company's governance including equity structure, state-owned holding, corporate governance index, etc. has a positive correlation with the cash dividend policy. According to the corporate governance index provided by CLSA, Mitton (2004) found a remarkable positive correlation relationship between a company's governance structure and the cash dividend payment. After that, Farinha (2003), by using the data of the UK capital market and American capital market successively in 2003 and 2004, obtained a similar research conclusion. Contrary to that, the other view believing a negative correlation relationship between a company's governance mechanism and the cash dividend policy. By utilizing the data from

American capital market in 2006, John and Knyazeva found that the better the governance mechanism of a company, the weaker the principal-agent conflicts are, therefore, their motivation to solve the principal-agent problem through strengthening the cash dividend payment level is becoming weaker. Which is similar to the findings from Short (2002) and other people. This research context supports the substitution model of the dividend policy.

Internal control, as an important governance mechanism that the current listed companies are actively carrying out, has a similar mode of action with the cash dividend policy. The existing research shows that the internal control, as a basic measure of power balance, can effectively lower the degree of information asymmetry between administrators and investors (Cheng et al., 2013; Gao & Wang, 2017) and ultimately reduce the principal-agent costs of the listed companies (Ge et al., 2017; Tsai, 2017). Therefore, incorporating the research models of LLSV in 2000 and the existing research theories, we think that firstly, the internal control quality of the listed companies has a positive correlation relationship with the cash dividend propensity and payment level. The high quality of the internal control can provide investors stronger protection, which is reflected in the relevant information disclosure including the financial position and operating results, and the improvement of regulation degree of regulators, which means an increasing probability of discovery if regulators abuse funds. Compelling administrators to pay investors the excess cash in the form of dividend so as to cater to demands of lower agent costs from investors ultimately lead to the increase of the cash dividend payment propensity and the payment level. In contrast, there's a negative correlation relationship between the internal control quality and the cash dividend payment propensity and the payment level. It is generally acknowledged that there's a remarkable negative correlation relationship between the principal-agent costs and the internal control quality. The higher quality of internal control of a listed company, the lower costs in principal-agent costs, resulting in a less motivation to reduce principal-agent costs through paying cash dividend and lower level in cash dividend payment propensity and payment. As for companies with lower level of internal control quality, investors think that their administrators have a high possibility of excessive investment and misuse of cash which result in a severer principal-agent problem. What's more, the external investors will depend more on the dividend payment signal released by the public companies to make investment decision. In order to effectively reduce the principal-agent costs caused between corporate insiders, that is managers and large shareholders, and outsiders-medium and small shareholders, the public companies will tend to pay the cash dividend. Under this logical analysis, the higher of the internal control quality of a listed company, the lower of the cash dividend payment propensity and payment level, and the vice versa.

Based on the above theoretical analysis, this passage proposes two competitive hypothesis:

H1a: Under other constant conditions, there's a positive correlation relationship between the internal control quality of a public company and the cash dividend propensity and payment level, and the higher level of the internal control quality, the stronger cash dividend payment propensity and the higher payment level.

H1b: Under other constant conditions, there's a negative correlation relationship between the internal control quality of a public company and the cash dividend propensity and payment level, and the higher level of the internal control quality, the weaker cash dividend payment propensity and the lower payment level.

Nature of Ultimate Controllers, Internal Control and the Cash Dividend Policy

Subject to the special institutional environment of China, the state-owned companies have played important roles in the process of the development of national economy of China for a long time. Since the reform of non-tradable shares, the ownership structure of the listed companies in China has had some extent of improvement, but the state-owned companies still play important roles in the national economy development of China. Due to many government interventions, the state-owned companies generally are supposed to bear some social functions and they show large differences in operating performance, financial decision-making and corporate

governance with non-state-owned companies (Aharoni, 1981). The existing research demonstrates that the different nature of ultimate controllers leads to differences to companies' different appeals for the cash dividend policy. According to the research by La Protta in 1999, the different interest motivations controllers of different natures of property rights result in their different demands for cash dividend payment, which was supported by the researches of Moh'd in 1995 and Allen in 2000. At the same time, along with the implementation of the basic norms of the internal control of a listed company, the difference of internal controlling field between state-owned companies and non-state-owned companies appears progressively. By making use of the data of the Chinese capital market, Lu found in 2011 that compared with non-state-owned holding companies, the internal control quality and the executives' salary-performance sensitivity in the state-owned holding companies is more significant. However, Tong's research in 2012 found that by depending on the special relationship with government to gain competitive advantage, the state-owned companies didn't have a strong motivation to gain competition advantage by disclosing the internal control quality, that is to say their motivations to actively improve the internal control quality were not strong. All in all, the existing researches show that the different ultimate controllers of listed companies lead to remarkable differences in internal control quality and the cash dividend policy.

Further analysis based on the principal-agent theory angle, research by Wang et al. (2007) showed that the control chain of the state-owned companies is longer than that of others, which usually results in neglecting supervision for administrators and owner absence phenomenon so that the principal-agent costs are higher than that of non-state-owned companies. At the same time, the long control chain and the lack of enthusiasm to implement the internal control specification is likely to lead to the weakening of the internal control system and further magnify their principal-agent problem, which may affect the relationship between internal control quality and the cash dividend policy. On the other hand, as the core of the national economy, the state-owned companies usually have exemplary effect in carrying out the government policies. In the process of carrying out "The enterprise internal control basic norm" and its complete guidelines, the state-owned companies start first once again. According to the requirement of "About 2012 notification of partial classification implementation of internal control standard system of main-board companies in 2012", the state-owned companies fully implemented prior to non-state-owned companies the corporate internal control standard. Which indicates from another side that the internal control quality of the state-owned companies is better than that of the non-state-owned companies. The strengthening of the internal control quality of the state-owned companies can effectively solve their principal-agent problems and further affect the cash dividend policy.

Based on the above theoretical analysis, this passage puts forth two competitive hypotheses:

- H2a:** In certain conditions, Compared to the nature of the non-state-owned listed companies controllers, the nature of the state-owned listed companies' controllers whose effect of internal control quality on the cash dividend policy is more serious. That is to say, it is the nature of the state-owned ultimate controllers strengthens the degree of relationship between them both.
- H2b:** In certain conditions, Compared to the nature of the state-owned listed companies controllers, the nature of the non-state-owned listed companies' controllers whose effect of internal control quality on the cash dividend policy is more serious. That is to say, it is the nature of the non-state-owned ultimate controllers strengthens the degree of relationship between them both.

METHODOLOGY

The empirical research method of accounting mainly including the variable definition, model contribution, data collection and so on (Rebele & Pierre, 2015; Yuan et al., 2017). The authenticity of the data collection, the rationality of the model construction directly determines the objective and fairness of the follow-up empirical research conclusion (Gassen, 2014). This study will be discussed in detail for the above three aspects.

Table 1. Description Table of Internal Control Quality and Cash Dividend Policy

Year	All				State-owned				Non-state-owned			
	N	ICI	DIV	DIVRATE	N	ICI	DIV	DIVRATE	N	ICI	DIV	DIVRATE
2004	1100	6.495	50.3	0.278	806	6.514	53.5	0.305	294	6.436	41.5	0.206
2005	1143	6.483	50.7	0.328	827	6.501	53.7	0.353	316	6.432	43.0	0.254
2006	1139	6.522	47.7	0.248	787	6.540	50.1	0.270	352	6.480	42.3	0.198
2007	1142	6.528	48.5	0.214	784	6.541	51.4	0.230	358	6.499	42.2	0.178
2008	1159	6.509	47.7	0.340	803	6.519	52.2	0.389	356	6.485	37.6	0.220
2009	1156	6.527	49.6	0.213	797	6.540	53.7	0.243	359	6.500	40.4	0.147
2010	1159	6.542	53.1	0.201	802	6.554	56.7	0.207	357	6.516	45.1	0.185
2011	1135	6.544	57.1	0.265	781	6.550	61.1	0.274	354	6.531	48.3	0.230
2012	1260	6.523	55.0	0.281	807	6.527	59.7	0.302	453	6.517	46.6	0.240
2013	1312	6.484	62.3	0.293	826	6.499	65.4	0.293	486	6.459	57.2	0.284
Total	11705	6.515	52.4	0.267	8020	6.528	55.8	0.287	3685	6.487	45.0	0.217

Note: All the internal control quality, dividend payment propensity and dividend payment level in the table are annual means.

Data Source and Sampling Procedure

We select 2004-2013 A-share main board listed companies as research objects and undergo a filtering process on the original data like this: (1) get rid of the financial listed companies because of their particularity. (2) Get rid of the companies with unknown controllers and companies losing their financial data. (3) Get rid of ST, *ST and PT companies. (4) Get rid of companies with deficits but still issuing cash dividend. (5) In order to control potential influence of the extreme value on the regression results, we winsorize all the continuous variables from the top and bottom 1% to finally get a 10-year data and a research sample of all together 11705 measure values. From the **Table 1**, we know from the research samples there are 8020 observed values of the state-owned companies and 3685 observed values of the non-state-owned companies, which demonstrates that the state-owned companies still occupy an important position in the system of national economy of our country. In the last decade, the internal control quality of the sample firms has been relatively stable and presented little difference over the years, all hovering around 6.5 on the whole. While the cash dividend payment propensity and payment level have shown some volatility, which is mainly connected with profitability of sample firm over the years, therefore, presenting a certain regularity. But on the whole, the internal control quality, dividend payment propensity and payment level of the state-owned companies are all higher than those in non-state-owned companies.

In order to ensure the reliable of the data, all the data of cash dividend payment propensity and payment levels we need come from listed companies' annual reports, and arranged by author himself. Other internal control index and financial indicator are from the following database: (1) DIB internal control and risk management database. (2) CSMAR database. (3) Wind database.

Empirical Model and Variables Definitions

This paper measures the cash dividend policy through the cash dividend payment propensity and the cash dividend payment level (Bradford et al., 2013). In them, DIV is dummy variable. If a listed company pays in the very year the cash dividend, then we will 1 to mark, if not, zero will be marked. Whereas the DIVRATE is the ratio between the dividend per share and earnings per share. As for the internal control quality of a listed company, we will measure it through ICI provided by DIB internal control and risk management data. This index is based on five goals of the internal control including management, compliance, assets safety, strategy and report. Which has been continuously released for many years, and has gained recognition from the theoretical cycle and practice circle, and has been widely applied in the existing researches on internal control.

In addition, based on the existing documents (Pinkowitz et al., 2006; Sawicki, 2009; Huang et al., 2011), this paper sets the corresponding control variables of listed companies including the scale, profitability, balance sheets, growth, operation ability, the cash flow situation, Outstanding shares, ownership concentration and the

Table 2. Variable Definitions

Variables	Description
DIV	Dummy variable. If a listed company pays in the very year the cash dividend, then we will 1 to mark, if not, zero will be marked.
DIVRATE	Dividend per share/Earnings per share
ICI	Internal control index (Nature logarithm)
SIZE	Nature logarithm of ending total assets
ROA	Return on total assets
LEV	Gross liabilities/total assets
GW	(The very year operation revenue-last year operation revenue)/Last year operation revenue
TAT	Ending operation revenue/Ending total assets
FCF	(Net increase in cash and cash equivalents-The net cash flow generated by financing activities) The current value/The ending value of paid-up capital
LIQOID	Numbers of A-share in circulation/The total number of equity
TOP1	Shareholding ratio of companies' largest shareholder
AGE	The difference between the very year and listing year
YEAR	Year dummies
IND	Industry dummies

listed years. At the same time, it also controls the effect from years and industry. And the detailed variable definitions are as follows in **Table 2**.

In order to testify the two research hypothesizes in the above passage, here builds two regression models to examine impacts of the internal control quality of a listed company on the cash dividend policy.

$$\ln \left\{ \frac{P(DIV)}{[1 - P(DIV)]} \right\} = \alpha_0 + \alpha_1 ICI_{i,t} + Controls_{i,t} + \varepsilon_{i,t} \tag{1}$$

$$DIVRATE = \alpha_0 + \alpha_1 ICI_{i,t} + \alpha_2 Controls_{i,t} + \varepsilon_{i,t} \tag{2}$$

Model 1 mainly check the influence of the internal control quality on the cash dividend payment propensity. According to the feature that the DIV is the dummy variable, this passage adopts the panel logit model to unfold regression analysis. While model 2 is mainly to check the influence of the internal control quality on the cash dividend payment level. According to the feature of the limited dependent variable of DIVRATE being greater than zero, this passage adopts the panel tobit model to unfold regression analysis. When checking hypothesis 2, we divide our samples into the state-owned companies group and the non-state-owned companies group according to different nature of the ultimate controllers of the listed companies, to undergo regression analysis respectively on model 1 and model 2.

EMPIRICAL RESULTS

Descriptive Statistics and Variable Estimation

Table 3 provides the descriptive statistics of the key variables which were used in this study. As seen in **Table 3**, relative to the non-state-owned company, the propensity of the cash dividend payments of the state-owned companies seem to be much stronger, and the level is much higher. At the same time, the quality of internal control of state-owned companies is significantly higher than non-state-owned companies, in addition, these differences among the key variables also maintain a consistent with the theoretical analysis above. This conclusion also highlights the necessity of the validation of hypothesis 2, and it also shows the significant difference between the state-owned companies and non-state-owned companies in other control variables apart from the free cash flow (FCF) per share.

Table 3. Descriptive Statistics

Variables	Sample	Obs	Mean	SD	Min	Medium	Max
DIV	All	11705	0.524	0.499	0	1	1
	State	8020	0.558	0.497	0	1	1
	Non-state	3685	0.45***	0.498	0	0	1
DIVRATE	All	11705	0.267	0.493	0	0.072	3.333
	State	8020	0.286	0.506	0	0.116	3.333
	Non-state	3685	0.223***	0.459	0	0.000***	3.333
ICI	All	11705	6.515	0.156	5.928	6.533	6.854
	State	8020	6.528	0.152	5.928	6.538	6.854
	Non-state	3685	6.489***	0.160	5.928	6.521***	6.854
SIZE	All	11705	21.859	1.271	19.213	21.727	25.683
	State	8020	22.039	1.288	19.213	21.864	25.683
	Non-state	3685	21.482***	1.146	19.213	21.410***	25.543
ROA	All	11705	0.032	0.059	-0.238	0.030	0.200
	State	8020	0.032	0.057	-0.238	0.030	0.200
	Non-state	3685	0.033	0.065	-0.238	0.031**	0.200
LEV	All	11705	0.522	0.196	0.082	0.529	1.085
	State	8020	0.524	0.193	0.082	0.534	1.085
	Non-state	3685	0.514***	0.203	0.082	0.518***	1.085
GW	All	11705	0.248	0.710	-0.649	0.132	5.491
	State	8020	0.211	0.611	-0.649	0.137	5.491
	Non-State	3685	0.288***	0.888	-0.649	0.121***	5.491
TAT	All	11705	0.706	0.518	0.063	0.584	2.846
	State	8020	0.733	0.524	0.063	0.610	2.846
	Non-state	3685	0.649***	0.499	0.063	0.527***	2.846
FCF	All	11705	-0.313	1.724	-7.814	0.012	3.752
	State	8020	-0.327	1.784	-7.814	0.017	3.752
	Non-state	3685	-0.282	1.583	-7.814	0.005	3.752
LIQUID	All	11705	0.652	0.276	0.091	0.626	1
	State	8020	0.639	0.279	0.091	0.602	1
	Non-state	3685	0.682***	0.268	0.091	0.677***	1
Top1	All	11705	37.682	16.051	9.086	35.710	75.843
	State	8020	40.504	15.882	9.086	40.155	75.843
	Non-state	3685	31.574***	14.664	9.086	28.582***	75.843
AGE	All	11705	10.468	4.536	1	11	23
	State	8020	10.40	4.497	1	10	23
	Non-state	3685	10.62**	4.617	1	11**	23

Note: ***, **, * each means the significant level of means' different statistical test between state-owned companies and non-state-owned companies, which is 1%, 5%, 10%. The dummy variable DIV uses Chi-square test, the other variables use t-statistic test, medium test uses Wilcoxon test.

We made a further mean difference test on the variables (ICI), which are the key variables that influenced the propensity of the cash dividend payments of the listed companies. Firstly, we divided the sample groups into two categories according to whether the companies pay the cash dividend or not, and to test whether there is significant difference on the mean values of the internal control quality of the listed companies that from those two sample groups. Secondly, we can see if there is any differences among different propensity of the cash dividend payments between the state-owned companies and non-state-owned companies through different character of rulers. In **Table 4**, compared with the companies which don't pay cash dividend, the internal control quality is higher in the companies which pay cash dividend, it means the company with high quality of internal control has stronger cash dividend payment propensity, this conclusion partially proved hypothesis 1a. What's more, the PanelB showed that the difference of the internal control quality is more significant in state-owned companies but in non-state-owned companies is only weak significant, it indicates that the impact of quality of internal control on cash dividend payment propensity is strengthened in state-owned companies, which supports hypothesis 2a.

Table 4. Mean Difference Test

Panel A: Internal Control Quality Mean Difference Test						
Variables	Sample	DIV=1		DIV=0		T Test
		Obs	Medium	Obs	Medium	
ICI	All	6131	6.574	5574	6.451	45.391***

Panel B: Internal Control Quality Mean Difference Test—State Vs Non-state						
Variables	Sample	DIV=1		DIV=0		T Test
		Obs	Medium	Obs	Medium	
ICI	State	4473	6.581	3547	6.461	36.772***
	Non-state	1658	6.555	2027	6.435	25.106*

Note: Medium test uses t-statistic test; ***, **, * each means significant level, which is 1%, 5%, 10%.

Table 5. Correlation Coefficient

	DIV	DIVRATE	ICI	SIZE	ROA	LEV	GW	TAT	FCF	LIQUID	TOP1	AGE
DIV		0.516**	0.392**	0.362**	0.353**	-0.151**	-0.035**	0.098**	-0.070**	0.027**	0.171**	-0.113**
DIVRATE	0.916**		0.094**	0.122**	0.066**	-0.103**	-0.073**	0.039**	-0.021*	-0.028**	0.105**	-0.090**
ICI	0.383**	0.293**		0.485**	0.570**	-0.122**	0.095**	0.183**	-0.054**	-0.018	0.181**	-0.027**
SIZE	0.374**	0.297**	0.494**		0.162**	0.219**	0.026**	0.047**	-0.208**	0.079**	0.261**	0.072**
ROA	0.406**	0.289**	0.523**	0.157**		-0.332**	0.171**	0.136**	0.091**	0.008	0.122**	0.003
LEV	-0.136**	-0.156**	-0.024**	0.257**	-0.326**		0.052**	0.075**	-0.163**	0.016	-0.015	0.086**
GW	0.102**	0.038**	0.267**	0.116**	0.291**	0.059**		0.046**	-0.046**	-0.113**	0.071**	0.000
TAT	0.113**	0.094**	0.211**	0.033**	0.169**	0.063**	0.147**		0.105**	-0.003	0.061**	0.009
FCF	-0.049**	-0.036**	-0.012	-0.160**	0.136**	-0.141**	-0.076**	0.135**		0.011	-0.021*	0.048**
LIQUID	0.028**	-0.018	-0.044**	0.099**	-0.042**	0.025**	-0.116**	0.007	0.004		-0.335**	0.426**
TOP1	0.173**	0.178**	0.179**	0.235**	0.131**	-0.008	0.089**	0.070**	-0.016	-0.317**		-0.204**
AGE	-0.107**	-0.134**	-0.036**	0.113**	-0.029**	0.091**	-0.113**	-0.026**	0.064**	0.412**	-0.204**	

Note: The top right is Pearson correlation coefficient test, the lower left is Spearman correlation coefficient test, ** means there is significant correlation at 0.01 level (two-tailed), * means there is significant correlation at 0.05 level (two-tailed).

Correlation analysis

Table 5 is a correlation coefficient list of main variables. From it we can see, listed companies' internal control quality has positive correlation with cash dividend payment propensity and payment level no matter in Spearman correlation coefficient or Pearson correlation coefficient, which indicate that the improvement of listed companies' quality of internal control can strengthen cash dividend payment propensity and payment level, this conclusion proved hypothesis 1a at first step. In other coefficients, all the coefficients are in positive correlation except that debt level (Lev), free cash flow per share (FCF), listed years (AGE) and cash dividend payment propensity/level are in significant negative correlation.

Multiple Regression Analysis

The paper tests the relationship between listed companies' internal control quality and the propensity of cash dividend payment through logit model. Because that panel fixed effects logit model may delete the no variation in the independent variable individual observations (within the sample interval all 0 or all 1) in the entire sample may cause the loss of effective sample information, the paper will firstly consider to use random effects model as well in order to consistent with panel tobit model, and take the regression results of fixed effects model as a part of robustness test.

From the sample regression results in **Table 6** we can see, the coefficients of listed companies' internal control quality (ICI) and their cash dividend payment propensity (DIV) are significant positive at 1% statistic level, which indicated listed companies' internal control quality has significant positive correlation with their cash dividend payment propensity. The results show that under the same conditions, the logarithm odd ratios of sample companies' cash dividend payment propensity will increase 1.665 when their per internal control quality increased

Table 6. Panel Logit Regression of Internal Control Quality and Cash Dividend Payment Propensity

Variables	All		State		Non-state	
	Coefficient	Z Statistics	Coefficient	Z Statistics	Coefficient	Z Statistics
Intercept	-33.406	-16.81***	-33.295	-13.80***	-35.326	-9.48***
ICI	1.665	5.34***	2.047	5.34***	1.043	1.83*
SIZE	1.107	22.71***	0.967	16.62***	1.407	14.79***
ROA	15.818	16.90***	17.230	14.45***	14.236	8.86***
LEV	-3.341	-14.24***	-3.134	-11.09***	-3.784	-8.62***
GW	-0.387	-8.27***	-0.348	-5.78***	-0.480	-5.88***
TAT	0.452	5.31***	0.394	3.90***	0.585	3.59***
FCF	-0.083	-4.81***	-0.100	-4.93***	-0.032	-0.92
LIQUID	1.415	7.95***	1.378	6.38***	1.526	4.54***
TOP1	0.008	2.77***	0.010	2.84***	0.005	0.82
AGE	-0.120	-8.84***	-0.096	-5.82***	-0.162	-6.65***
Obs	11705		8020		3685	
YEAR	YES		YES		YES	
IND	YES		YES		YES	
Log likelihood	-5330.667		-3709.415		-1591.511	
Wald chi2	1403.54***		951.73***		463.07***	

Note: ***, **, * each means significant level is 1%, 5%, 10%.

one level (or 1 point), which means the sample companies' cash dividend payment propensity will increase 0.841, this supports the research hypothesis 1a. Next, we divided samples into state-owned companies and non-state-owned companies based on the different nature of listed companies' ultimate controllers, and did the regression analysis separately by using model 1. It shows, the internal control quality (ICI) has positive correlation with cash dividend payment propensity (DIV) at the level of 1% in state-owned companies samples, while in non-state-owned companies samples, this kind of positive correlation is significantly lowered, only be positive at level of 10%. In state-owned companies, the logarithm odd ratios of cash dividend payment propensity will increase 2.047 (the payment propensity increased 0.886) when per internal control quality increased one level (or 1 point); while in non-state-owned companies, the logarithm odd ratios of cash dividend payment propensity will increase 1.043 (the payment propensity increased around 0.739), which support the research hypothesis 2a, the state-owned nature of listed companies' ultimate controllers can strengthen the degree of relationship between the internal control quality and cash dividend payment propensity.

Table 7 shows the full samples of the listed companies' internal control quality and cash dividend payment level and the sub-samples of regression result. The full samples' regression results show that there is significant positive correlation (level of 1%) between listed companies' internal control quality (ICI) and their cash dividend payment level, which means high internal control quality can remarkably enhance the cash dividend payment level and agreed with our research hypothesis 1a. In regression of sub-samples, the internal control quality in state-owned companies' samples has significant positive correlation with cash dividend payment level at 1%, while in non-state-owned companies samples, this kind of correlation is not significant. The result also supports research hypothesis 2a.

Table 7. Panel Tobit Regression of Internal Control Quality and Cash Dividend Payment Level

Variables	All		State		Non-state	
	Coefficient	Z Statistics	Coefficient	Z Statistics	Coefficient	Z Statistics
Intercept	-6.030	-11.30***	-5.827	-9.16***	-7.164	-7.12***
ICI	0.249	2.84***	0.306	2.88***	0.178	1.12
SIZE	0.220	18.11***	0.189	13.13***	0.300	12.79***
ROA	1.227	5.32***	1.320	4.69***	1.128	2.73***
LEV	-0.904	-14.16***	-0.795	-10.45***	-1.156	-9.77***
GW	-0.131	-8.95***	-0.121	-6.51***	-0.152	-6.29***
TAT	0.101	4.44***	0.081	3.03***	0.166	3.80***
FCF	-0.018	-3.89***	-0.020	-3.70***	-0.006	-0.66
LIQUID	0.235	4.95***	0.289	5.13***	0.205	2.23**
TOP1	0.003	3.52***	0.003	3.02***	0.003	2.04**
AGE	-0.023	-7.11***	-0.019	-4.68***	-0.033	-5.59***
Obs	11705		8020		3685	
YEAR	YES		YES		YES	
IND	YES		YES		YES	
Log likelihood	-9564.416		-6832.311		-2701.744	
Wald chi2	1072.30***		669.06***		434.89***	

Note: ***, **, * each means significant level is 1%, 5%, 10%.

From the regression results of **Table 6** and **7**, the internal control quality in listed companies has significant positive correlation with cash dividend policy (payment propensity and level), and this correlation is being enhanced in listed companies that the nature of ultimate controllers is state-owned, while in the companies that the nature of ultimate controllers is non-state-owned, this kind of positive correlation is significantly lowered (the payment propensity) or not notable (the payment level).

Potential Endogeneity Test

The paper mainly discussed the impact of listed companies' internal control quality on cash dividend policy, however, there may be a major dispute, the listed companies' cash dividend policy may cause the internal control quality changed by influencing agency costs, which means there may be potential endogeneity between internal control quality and cash dividend. Therefore, in this part, we will test the casual relationship between listed companies' internal control quality and cash dividend policy depending on Jiraporn and Ning (2006)'s research method. And construct following regression models by using Granger causality test proposed by Granger (1969).

$$DIV(t) = \alpha_0 + \alpha_1 ICI_{i,t-1} + \alpha_2 DIV_{i,t-1} + \alpha_3 Controls_{i,t} + \varepsilon_{i,t} \tag{3}$$

$$ICI(t) = \beta_0 + \beta_1 ICI_{i,t-1} + \beta_2 DIV_{i,t-1} + \beta_3 Controls_{i,t} + \varepsilon_{i,t} \tag{4}$$

$$DIVRATE(t) = \alpha_0 + \alpha_1 ICI_{i,t-1} + \alpha_2 DIVRATE_{i,t-1} + \alpha_3 Controls_{i,t} + \varepsilon_{i,t} \tag{5}$$

$$ICI(t) = \beta_0 + \beta_1 ICI_{i,t-1} + \beta_2 DIVRATE_{i,t-1} + \beta_3 Controls_{i,t} + \varepsilon_{i,t} \tag{6}$$

According to Jiraporn and Ning (2006)'s research, if the listed companies' internal control quality can cause the change of cash dividend policy, we expect that coefficient α_1 in model 3 and 5 should be significantly different from 0, and the coefficient β_2 in model 4 and 6 have no significant difference with 0. In contrast, if it is the cash dividend policy that causes the change of internal control quality, the coefficient β_2 should have significant difference with 0, while α_1 don't have significant difference with 0.

Table 8 is the estimation results of the above 4 models. The results of model 3 and 5 show, the lag one of listed companies' internal control quality (α_1) has positive correlation with cash dividend payment propensity and level (all at 1%). On the other side, the relationship between the lag one of cash dividend payment and level (β_1) and the internal control quality. This results show there isn't endogeneity between listed companies' internal control quality and cash dividend policy. From above we can see, the higher internal control quality in listed

Table 8. Granger Causality Test between Internal Control Quality and Cash Dividend Payment Propensity/Level

Variables	Model 3		Model 4		Model 5		Model 6	
	Coeff	Z	Coeff	T	Coeff	Z	Coeff	T
Intercept	-39.361	-19.86***	3.535	77.28***	-10.901	-20.65***	3.548	80.45***
ICI(t-1)	3.680	12.43***	0.334	41.96***	1.214	14.16***	0.332	42.49***
DIV(t-1)	1.191	16.59***	-0.002	-0.89	—	—	—	—
DIVRATE(t-1)	—	—	—	—	0.069	3.76***	-0.0002	-0.12
SIZE	0.708	15.01***	0.036	33.60***	0.149	11.87***	0.036	33.79***
ROA	15.270	17.76***	1.050	54.06***	0.946	4.23***	1.048	54.38***
LEV	-2.162	-9.46***	-0.022	-3.77***	-0.679	-10.04***	-0.022	-3.71***
GW	-0.229	-4.43***	0.010	6.31***	-0.103	-6.16***	0.010	6.37***
TAT	0.250	3.14***	0.016	7.59***	0.058	2.44**	0.016	7.57***
FCF	-0.036	-2.04**	-0.001	-2.28**	-0.009	-1.85*	-0.001	-2.24**
LIQUID	1.159	6.60***	0.014	2.79***	0.235	4.72***	0.014	2.72***
TOP1	0.007	2.66***	0.00004	0.59	0.003	3.48***	0.00004	0.56
AGE	-0.075	-6.34***	-0.0003	-1.05	-0.018	-5.32***	-0.0003	-0.94
Obs	10187		10187		10187		10187	
YEAR	YES		YES		YES		YES	
IND	YES		YES		YES		YES	
Log	-4465.658		—		-8300.730		—	
Wald chi2	1817.06***		15693.59***		1061.36***		15651.39***	
R ²	—		0.8404		—		0.8399	

Note: In order to ensure the comparability of research conclusion, model 4 and model 6 adopt random results model, R² is between R²; ***, **, * each means significant level is 1%, 5%, 10%.

companies' has stronger propensity to pay cash dividend to their shareholders and the level of payment is higher too.

DISCUSSION

The paper take A-share listed company board of China during year 2004 to 2013 as samples, studies the relationship between internal control quality and cash dividend through panel logit model and panel tobit model. The paper proposes results model and alternative model about the impact of internal control quality on cash dividend based on analyzing principal-agent theory and incorporating the fruits of previous researches, and then deducts the main hypotheses. The regression results show: listed company's cash dividend payment propensity and the level of cash dividend payment have a statistically positive effect with internal control quality but with level of cash dividend payment is relative weaker when factors such as operation results are being controlled. In addition, this study uses Granger causality test and gains empirical evidence that internal control quality is one of the influencing factors of cash dividend payment policy in listed companies. In short, internal control quality in listed companies is an important factor that influences cash dividend payment policy and causes different cash dividend payment policies of in different natured ultimate controllers.

CONCLUSION

This study makes the general accounting educators clear the general methods and processes of accounting empirical research, and also understand the key points and difficulties in accounting education. In the accounting classroom education, we should consciously strengthen the students, especially the graduate students of accounting empirical course learning, which is to improve and enrich the field of accounting research methods and means of great significance.

The conclusion of this paper not only plays a certain role in promoting the theory of accounting empirical education, but also has some enlightenment significance for the practical circles, especially the government regulators and investors. The results of this paper also show, high internal control quality governance mechanism

can lower the agency conflict between listed company insiders and outsiders, further control the governors' opportunism on cash dividend payment policy and efficiently lifted the listed companies' propensity and level of cash dividend payment. At present, the conclusion provides new ways for China's regulators to make policies for they are strongly advocating to protect the small investors' interests and improving the listed companies' cash dividend policy. Considering the differences that different nature of ultimate controllers may cause, the regulators should adopt appropriate policy measures when they making relative policies.

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