Do Managers Cater to Investors by Paying Dividends?

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Abstract

This paper mainly discuss the applicability of the catering theory in stock market in China. We particularly use the 2009-2014 stock market data as the sample after the equity division reform and the financial crisis. We use PTP to represent the supply of cash dividends of listing corporations and PDND to represent the demand of cash dividends of investors. We find the both have the same trend through the logistic regression, that is to say, the catering theory well explains chinese stock market .
Key words: *catering theory; PTP; PDND; cash dividend; listed company*

1 Introduction

Dividend policy has been one of the core content of financial management. The catering theory examines the motive of issuing cash dividends from the angle of investor demand. The catering theory is proposed by Baker and Wurgler (2004a) [1], they considered that the cash dividend premium had a positive impact on cash dividend payment. With the catering theory put forward, scholars began to discuss the "dividend puzzle". Many scholars found that the catering theory can well explain the cash dividend payment decision in America. In recent years, the catering theory has been increasingly applied to the listing corporations in China. Since the stock market started late in China, the laws and regulations are not perfect, so there is no uniform conclusion to the applicability of the catering theory in China. In this paper, we use the sample data of A-share listing corporations from 2009 to 2014 to discuss whether the theory is applicable to the special stock market in our country and test whether investors cash dividend demand are consistent with supply of cash dividends of listed companies. The rest of the paper is organized as follows: in the second part, the paper reviews the domestic and foreign research of catering theory, the third part is about the empirical analysis of the cash dividend policy, the fourth part is the conclusion.

2 Related research reviews

2.1 Foreign research reviews

The idea of "catering" was first proposed by Long(1978)[2],after comparing the stock price of the companies which issued the cash dividends with the stock dividends, he found that investors would give the companies paid cash dividends of relatively high price and managers would reward investors by issuing cash dividends when the company's equity value increased. Baker and Wurgler (2004a) [1] proposed catering theory and found that cash dividend premium and dividend payments tendency showed a positive correlation in U.S, when investors gave companies paid cash dividend higher prices, the company would pay cash dividends in order to cater to investors. Wei Li and Erik Lie (2006) [3] improved the catering theory, found that the catering theory was only suitable for the continuous cash dividend according to the empirical test, when the company's dividend premium was higher, it would issue cash dividends.

Manconi and Massa (2013) [4] found that investors preference for cash dividends and the degree of market segmentation affected the ability to cater by constructing cater index.

2.2 Domestic research review

2.2.1 Research review on opposing catering theory

Wang and Qi (2005) [5] concluded that there was no significant relationship between dividend payment and investors' demand by logistic regression and linear regression method of listing corporations from1994 to 2003. Huang and Shen (2007) [6] thought that catering theory ignored the equity structure; found that listed companies met the needs of large shareholders by issuing cash dividend.

2.2.2 Research review on supporting catering theory

Xiong and Liu (2007) [7] found that the cash dividend payment tendency was consistent with the dividend demand of investors through empirical analysis in our country. Rao, He and Li (2008) [8]found that when the demand for cash dividends was discounted, the company didn't tend to issue cash dividends. Lin and Cao(2010) [9]found that the cash dividend payment tendency of small and medium board listing corporations in China was consistent with the trend of cash dividend premium. Yan and Gong(2013)[10]studied the applicability of the catering theory in listing corporations by compromising the catering theory and life cycle theory, it turned out that in the same life cycle, the demand of investors' cash dividend had significant impact on the cash dividend payment tendency.

3 Empirical analyses

3.1 Research design

3.1.1 Sample selection

In order to exclude the impact of equity division and subsequent, we select the Shanghai and Shenzhen A-share listed companies cash dividend payment data and stock annual financial data from 2009 to 2014 as samples; The data mainly come from eastmoney.com, Resset database and cninf, we use eviews 7.0 and excel to analyze data. In order to ensure that the data are more effective, the data are processed as follows: (1) Excluding financial and public utility firms. (2) Excluding B-shares and H-shares listed corporations. (3) Excluding small and medium board listed corporations. (4) Excluding the samples labelled ST or PT. (5) Excluding variable missing data samples.

3.1.2 Research method

We study the catering theory by comparing cash dividend supply and demand, if the two trends are same, that is to say the catering theory can be used to explain the cash dividend policy of the listing corporations.

PTP is defined as the difference between the proportion of actual payment and theoretical payment of cash dividends. Therefore, the model of PTP is expressed as:

$$PTP_t = PayRatio_t - ExpRatio_t \quad (1)$$

In the formula, PTP on behalf of the willingness to pay cash dividends, PayRatio on behalf of the proportion of actual payment of cash dividends, ExpRatio on behalf of the proportion of theoretical payment of cash dividends, ExpRatio is predicted by the cash dividend payment model, we build the following model by combining with the foreign research methods and the special securities market structure in our country:

$$\Pr(payer_{it} = 1) = \log it(a_t + b_t Sh1_{it} + c_t Outs_{it} + d_t Size_{it} + \\ e_t E / BE_{it} + f_t Da_{it} + g_t Growth_{it}) + \mu_{it} \quad (2)$$

In the formula: Payer-- Cash dividend payment tendency, $a_t, b_t, c_t, d_t, e_t, f_t, g_t$ -- Regression coefficient in the model, Sh1--Ownership concentration, Outs--Proportion of tradable shares, Size--The company size, E/BE--Profitability, Da--Asset-liability ratio, Growth--Growth ability, Payer was expressed with 0 or 1, 1 on behalf of the listing corporations only paying cash dividends, 0 on behalf of the listing corporations without paying cash dividends. The explanatory variables included three important factors that affect company's characteristics which was proposed by Fama and French (2001) [11]: Size, E/BE and Growth. Taking into account the particularity of China's equity structure, Sh1, Outs and Da are influence factors. In order to prevent the multi co linearity problem between the variables, we made cross section data correlation test every year and found that the correlation coefficient between the variables is low, so there are no multiple co linear problems.

Because of the short history of Chinese stock market and the quick speed of market development, we estimate the expratio with firm characteristics variable mean the same year.

$$ExpRatio_{it} = \log it(\hat{a}_t + \hat{b}_t \overline{Sh1_{it}} + \hat{c}_t \overline{Outs_{it}} + \hat{d}_t \overline{Size_{it}} + \hat{e}_t \overline{E / BE_{it}} + \hat{f}_t \overline{Da_{it}} + \hat{g}_t \overline{Growth_{it}}) \quad (3)$$

$\hat{a}_t$ To $\hat{g}_t$ are estimation of regression coefficients for each variable; $\overline{Sh1_{it}}$ To $\overline{Growth_{it}}$ are annual mean for each variable. We learn from Baker and Wurgler (2004a) [1] that PDND can measure the preference of investors for cash dividends in this paper. The t-year samples are divided into companies distributing cash dividends and other companies, and then we calculate the mean of market book value respectively, the specific formula is as follows:

$$PDND_t = LN(\frac{M}{B})_t^D - LN(\frac{M}{B})_t^{ND} \quad (4)$$

In the formula: $(\frac{M}{B})_t^D$ -- average market book value of cash dividends; $(\frac{M}{B})_t^{ND}$ -- average market book value of non payment of cash dividends.

3.1.3 Variable selection

The dependent variable is the willingness to pay cash dividends; it is a binary variable, 1 on behalf of companies paying cash dividends only, 0 on behalf of other companies. There are six independent variables: One is the TOP1, the proportion of the largest shareholder on behalf of equity concentration. Two is the OUTS, the proportion of tradable shares on behalf

of capital structure. Three is the SIZE, the logarithm of total assets. Four is the EPS on behalf of profitability. Five is the DA, asset liability ratio on behalf of the level of liability. Six is the TQ, Tobin's q on behalf of growth ability.

3.2 Empirical test

3.2.1 Descriptive statistics

In order to eliminate the influence of the stock dividend and capitalization, we define a company that pays cash dividends only to payment companies. Table 1 lists the annual cash dividend payment and the mean value of the company's characteristic variables.

Table 1— Descriptive statistics of variables (2009-2014)

	2009	2010	2011	2012	2013	2014	mean
samples	1032	1051	993	1110	1112	1033	-
N	565	601	667	770	803	805	-
Dividend	0.547	0.572	0.672	0.694	0.722	0.779	0.664
Top1	0.355	0.356	0.365	0.364	0.365	0.368	0.362
Outs	0.781	0.826	0.840	0.857	0.869	0.857	0.838
Size	21.665	21.886	22.149	22.172	22.298	22.456	22.104
Eps	0.246	0.332	0.415	0.278	0.301	0.377	0.325
Da	0.634	0.582	0.526	0.562	0.529	0.497	0.555
Tq	3.515	3.646	2.204	2.485	2.442	2.782	2.846

From the descriptive statistics, the average cash dividend payment ratio is 0.664, that is to say the cash dividend payment maintained at a higher level in six years. Among the Variables about corporate character, the mean of TOP1 is 0.362, and remains unchanged; the "dominance" phenomenon did not significantly change. The mean of OUTS is 0.838; this is consistent with the increase in the number of tradable shares after equity division. And other variables have not changed significantly for years.

3.2.2 Logistic regression analysis

We Use logistic regression to analyze the sample data year by year from 2009 to 2014 with Eviews, the results as shown in table 2.

Table 2 —Regression result(2009-2014)

	2009	2010	2011	2012	2013	2014
Top1	1.45**	1.64***	1.40**	1.70***	0.65	1.56**
Outs	1.21***	1.44***	1.42***	2.14***	2.03***	1.31***
Size	0.90***	0.61***	0.86***	0.78***	0.88***	0.65***
Eps	2.52***	3.48***	2.03***	2.74***	2.51***	4.17***
Da	-3.67***	-3.01***	-4.25***	-4.13***	-4.70***	-4.47***
Tq	-0.18***	-0.17***	-0.28***	-0.55***	-0.38***	-0.30***
C	-18.83***	-13.62***	-17.76***	-16.05***	-17.54***	-12.75***
R-squared	0.32	0.31	0.26	0.34	0.33	0.31

We can see that the R-squared are all about 30% from table 2, all the variables are tested by significance expect the Top1 in 2013, the Top1, Outs, Size and Eps regression coefficients are positive, it shows that these four variables have a positive impact on the company's cash

dividend payment tendency, Eps has the most significant impact on the cash dividend payment tendency while Size has the least influence. With the deepening of the reform of equity division, the stock market has gradually realized the full circulation, this will enable investors to fully express their willingness to invest, when the company makes an adverse action against them, investors can vote with their feet, thereby it can increase the possibility of the company being acquired takeover, therefore, the listing corporations improve the level of cash dividend payment in order to avoid such a situation, so the company will pay more cash dividends with the increase in the proportion of tradable shares. Asset liability ratio and Tobin s' Q regression coefficients are negative, companies with high debt are more likely to use internal retained earnings to meet capital requirements and reducing cash dividends. High growth companies are more likely to use retained earnings to expand the production and reduce cash dividends.

3.2.3 *Catering theory analysis*

We can obtain annual Expratio from 2009 to 2014 by substituting annual corporate characteristic variables mean in table 1 and annual variable regression coefficient estimation in table 2 into formula 3, and then obtain the annual PTP showed in table 3.We calculate annual market book value of companies paying cash dividends only and others respectively, and then we calculate PDND as shown in table 3.

Table 3— Statistics of PTP and PDND (2009-2014)

	2009	2010	2011	2012	2013	2014
PTP	-0.453	-0.310	0.008	-0.001	0.135	0.263
PDND	-0.701	-0.622	-0.495	-0.451	-0.275	-0.121

In order to reflect the relationship between the two, we use the line graph to show the two sets of data in Table 3 and observe the relationship between PTP and PDND.
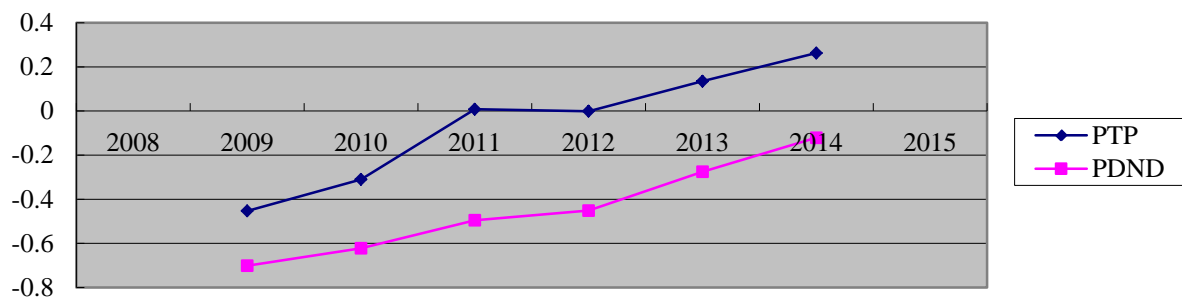

Fig .1 —PTP and PDND: 2009-2014

From Figure 1 we can see that PTP and PDND show an upward trend from 2009 to 2014, and the two trends are consistent. The PTP is negative from 2009 to 2012, except the year 2011, that is to say the listing corporations do not want to pay cash dividends, but the listing corporations increasingly tend to pay cash dividends, both have an overall upward trend, but the two numerical gap is far, the theory can only explain the cash dividend payment in our country to a certain extent.

4 Conclusions

This paper summarizes the description of domestic and foreign catering theory generation and development. We find that the catering theory has a strong explanatory power in U.S market, which is relatively mature in the stock market, but it is difficult to get a coincident conclusion in China's securities market, which has high concentration of ownership, and is not perfect in laws and regulations. Therefore we select the A-share samples to carry on the logistic test from 2009 to 2014, and find that the greater the proportion of the first major shareholders, the higher the proportion of tradable shares, the larger the scale, the more profitable, the lower the asset liability ratio, the smaller the growth ability, the company is more likely to issue cash dividends. We obtain PTP and PDND through calculation and find the two trends are the same and the theory can only explain the cash dividend payment in our country to a certain extent.

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