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Abstract—As one of the forms of the dividend payment, cash dividend has become the most common form of dividend payments in the listed companies of China. A proper dividend policy plays an important role in the unimpeded financing channels and the rational capital structure. In order to explore the influence of dividend policy on enterprise value, we used the dividend data and financial indicators of all A share listed companies in China in 2011-2016 as the samples of empirical analysis. With the regression model obtained after the analysis, we derived the influence mechanism of corporate value which can provide a reference for listed companies in making dividend policy.

Index Terms—Dividend policy, empirical analysis, clustering analysis, regression analysis.

I. RESEARCH CONTENTS AND METHODS

Before the empirical research, we analyzed the dividend policy of Apple Inc. and Yonyou. Combining with the theory of dividend policy and enterprise value, we draw the following conclusions:

1. To a certain extent, dividends will promote the listed company value.
2. Both of cash dividends and stock dividends will promote the enterprise value, but in a different way.
3. Enterprise value is positively correlated with the level of cash dividend payments.
4. The continuity of dividend payments is conducive to the enterprise value promotion.

Then we collected the dividend data over the latest six years (2011-2016) of A share listed companies in China. Data processing by IBM SPSS Statistic 17.0 software showed the characteristics of dividend payment of Chinese listed companies.

Take Tobin Q as an indicator of enterprise value, we made regression analysis of the characteristics we derived from data processing so as to quantify the impact of cash dividend policy on the enterprise value of Chinese listed companies.

II. DATA PREPROCESSING

We selected the dividend-related data of all A share companies listed on Shanghai Stock Exchange (SSE) in recent years (2011-2016) as the samples of empirical analysis. We processed the data as follows:

1. Selected companies listed on the Main Board of SSE and culled those on Growth Enterprises Market (GEM). Because of the high growth of the GEM which is mostly engaged in High-tech business, the company scale is mainly determined by its own characteristics and not significantly related to its dividend distribution policy.
2. To reduce the interaction between two capital markets, we removed those companies that simultaneously issued B share. The samples contain only the A share companies.
3. We took the Tobin’s Q as an indicator of enterprise value which is calculated based on the closing price. Companies lack of relevant data were also excluded.
4. To make the regression more reliable, we used pauta criterion to reject outliers for each financial indicator.
5. For a single sample with less than three defaults, its defaults were replaced by the averages. Meanwhile, those with more than three defaults were excluded as well.
6. Standardized the data of each sample to obtain a relatively accurate regression equation.

III. VARIABLE SETTING

Considering that the enterprise value is determined by many factors, in order to avoid that the influence of some non-critical factors leads to the deviations of the result and improve the fit of the empirical analysis, we introduced four indicators as control variables which represent the enterprise profitability, debt-paying ability, operation ability and growth ability [1].

1. Profitability: Profitability represents the ability of a company to make profits and increase wealth. Representative financial indicators include return on assets, earning per share, income from main operation, gross profit ratio, rate of return on common stockholders’ equity, etc. We took earnings before interest and tax (EBIT) as a measure of profitability.
2. Solvency: Solvency refers to the ability of a company to repay its debts. Enterprise solvency indicators include current ratio, quick ratio, debt asset ratio, etc. We took debt asset ratio (Dbasrat) as a measure of solvency.
3. Operation Ability: Operational ability shows the performance of a company on production and operation with various assets. The relevant indicators include Current as-sets turnover, receivables turnover ratio and total asset turnover, etc. We took total asset turnover ratio (totaasrat) as a measure of operational ability.
• Growth Ability: Growth ability refers to the opportunities for value added and prospective earnings and that a company can expect to gain, which can be measured from different perspectives, such as increase rate of revenue, total assets growth rate, etc. We selected total asset turnover rate (totassrat) as a measure of growth ability [2].

### TABLE I: VARIABLE DEFINITION TABLE

<table>
<thead>
<tr>
<th>Variable Type</th>
<th>Variable Name</th>
<th>Variable Symbol</th>
<th>Variable Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanatory variable</td>
<td>Tobin Q</td>
<td>Qval</td>
<td>Enterprise market value / Asset replacement cost</td>
</tr>
<tr>
<td>Explained variables</td>
<td>Whether to Pay Dividends</td>
<td>X</td>
<td>(X = 0): Non-payment of dividends, (X = 1): Payment of dividends</td>
</tr>
<tr>
<td></td>
<td>Dividend Payout Ratio</td>
<td>Divprr</td>
<td>Total dividend / Total net profit</td>
</tr>
<tr>
<td></td>
<td>Cash Dividend Amount</td>
<td>Dividend</td>
<td>Amount of actual dividend paid</td>
</tr>
<tr>
<td>Control variables</td>
<td>Fixed Assets Ratio</td>
<td>Fixassrt</td>
<td>Fixed assets / Total assets</td>
</tr>
<tr>
<td></td>
<td>Total Assets Turnover</td>
<td>Totassrat</td>
<td>Sales revenue / Total assets</td>
</tr>
<tr>
<td></td>
<td>Debt Asset Ratio</td>
<td>Dbassrt</td>
<td>Total liabilities / Total assets</td>
</tr>
<tr>
<td></td>
<td>Earnings Before Interest and Tax</td>
<td>EBIT</td>
<td>Net profit + Interest charges + Income tax</td>
</tr>
</tbody>
</table>

Table I is the definition table of explanatory variable, explained variables, and control variables.

### IV. EMPIRICAL ANALYSES

A. Factor Analysis

We took 103 financial indices and ratios of Chinese listed companies from 2011 to 2016 as the original variables. In order to eliminate the impact of the correlation of variables on the results of regression, we first analyzed the 103 inner influencing variables by factor analysis and get common factors which are substituted for the original variables.

From the communalities table we can see that the communalities of all variables are almost over 85%, which indicates that these common factors have contained most information of the original variables. The result of the factor extraction is reliable.

Factor analysis condensed 103 variables into 31 factors FAC1_1~FAC31_1. Then we saved the component scores in the SPSS data files, substituted common factors for original variables.

C. Model Construction

Using the method of multivariate linear regression, we constructed the following model: [3]

\[
QVal = \hat{\varphi}_0 + \hat{\varphi}_1X + \hat{\varphi}_2DivPrt + \hat{\varphi}_3Dividend + \hat{\varphi}_4Fixassrt + \hat{\varphi}_5Totassrat + \hat{\varphi}_6Dbassrt + \hat{\varphi}_7EBIT
\]  

D. Model Solving

First, a multivariate linear regression analysis was performed on the overall data. Then we selected seven representative indicators to reflect the impact on enterprise value. These indicators are: fixed asset ratio, earnings before interest and tax, dividend payout ratio, total assets turnover, whether to pay dividends (\(X=0\) or 1), cash dividend per share and debt asset ratio [4].

According to the Pearson correlation coefficient table, the selected variables are highly correlated with the Tobin Q value of the company, which means the selected variables are representative.

The process of regression adopted the idea of stepwise regression. After each variable entering the equation, the variables that can be excluded are determined again. So each phase of the variables introduction provides an opportunity to eliminate the insignificant variables again, eliminating the effects of multiple co-linearity. According to Table IV, the...
regression has been iterated five times. The first one that went into the equation is the debt asset ratio, and then the fixed asset ratio, the cash dividend, earnings before interest and tax, the total asset turnover entered the equation in turn, and then the iteration ended [4].

\[ Q_{Val} = a + b\text{Dividend} + c\text{Fixassrt} - d\text{Totassrat} - e\text{Dbassrt} - f\text{EBIT} \]

We drew the following conclusions:

1. Enterprise value is related to whether the company pays dividends. Dividend payments increase enterprise value. From this perspective, the listed companies should pay dividends to stimulate investment.
2. Enterprise value is correlated with the level of cash dividend payments. At some extent, the more dividends, the greater enterprise value. So the listed companies should pay as much as possible within rational financial limits.
3. The correlation between enterprise value and dividend payout ratio is not distinct. Though the dividend payout ratio is a good financial index, the listed companies do not need to consider it too much.
4. The investment decision of investors should be based on a comprehensive survey of multiple financial indices to reduce the investment risk.

**REFERENCES**


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