The Relationship between Certain Economic Theories and Dividend Payout Ratio

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ABSTRACT

Purpose: Stock exchange is one of the most important ways of optimal capital allocation in a country, and understanding this market and its elements is an essential factor in capital market development. Investors, as an important element of stock exchange, pursue different goals when investing in the stocks of firms. Different tendencies and incentives of investors for distribution or holding of income lead to different expectations regarding the firm's dividend policy. Also dividend payout and its changes may have different implications for investors and lead to different responses to this phenomenon. The purpose of the present research is to examine the relationship of dividend payout ratio to such theories as signaling, agency cost, transaction cost, and tax-clientele theories in Tehran Stock Exchange (TSE) during the period 2004-2010. Method: The research is descriptive and the data are collected from TSE and the firms' financial reports. Multivariate regression and synthetic data are used for data analysis, and panel data and related tests (Hausman test, F test, reliability test, etc.) are applied for hypothesis testing. Findings: The results suggest that none of the above theories has any influence on dividend policy. Implications: The present findings can help financial and economic policymakers, capital market decision makers, TSE-listed firms, and individual and corporate investors.

Key words: Leverage, effectiveness, signaling theory, agency costs.

Introduction

The transition from undeveloped to developed economy requires investment, and channeling people's investments toward capital markets entails the trust of investors. Investors need information that will help them in selecting the best investments and the most appropriate stocks. One of the important factors that influence investment decisions is dividend policy and dividend payout, for it plays a significant role in increasing investors' wealth. Accordingly, the present research examines dividend policies in Iran's capital market.

Review of the Literature:

Mollah [12] examined and compared the dividend policy of firms listed in Dhaka Stock Exchange (DSE) following the crisis in 1997-1998. The results showed that pay-out policies did not significantly change following the market crisis. This research also examined theories such as agency cost, transaction cost, tax-clientele theory, and signaling theory. The results indicated the significant effect of agency and transaction cost theories. Moreover, the results showed that size and leverage are the most important predictors of dividend policy, and that investment opportunities are a weak variable for transaction cost theory.

Musa [13] investigated the dividend policy of 53 firms listed in the Nigerian Stock Exchange (NSE) in the period 1992-2002 and found that dividend policy is a function of cash flow, current earnings, and previous dividend. He also showed that net current assets, sales growth, firm size, and industry classification are not associated with dividend policy.

Hardin and Hill [8] evaluated the determinants of excess dividend payments above mandatory requirements in real estate investment trusts (REITs) are evaluated. They found that excess dividend payments is related to reduced agency costs, strong operating performance, the implementation of a stock repurchase plan, and an ability to access short-term bank debt. They also argued that acquisition and use of short-term bank debt provides REIT management flexibility in determining dividend policy.

Ghosh et al. [7] examined the effect of past dividend policy, leverage and profitability on the future value of firms in terms of market-to-book ratio. They found a non-linear relationship between leverage, profitability, and probability of increase in future value of the firm. It was shown that probability of increase in future value of firms decreases.
exponentially with the increase in leverage, whereas, it increases with the raise in profitability of firms. Ling et al. [10] examined the dividend policy of 100 Malaysian public listed firms and identified profitability, growth opportunities, firm risk, size, leverage, and share distribution as the main characteristics of the dividend-paying companies. They concluded that dividend-paying companies are more profitable and less risky than non-dividend-paying companies. Banimahd and Asghari [2] studied the determinants of dividend policy in TSE-listed firms. They found that leverage is not associated with dividend policy, while dividend policy was positively associated with size and cash flow. They concluded that in developing economics such as Iran, leverage is not taken into consideration due to the inefficacy of agency theory and thus no relationship between was found between leverage and dividend policy. Izadinia and Aminighian [9] examined the measures of the ability of firms to pay out dividend. They identified the main factors in dividend payout and studied a sample of 141 TSE-listed firms during the period 2001-2008. Using logit regression and panel data, they showed that cash flow uncertainty, firm life cycle, growth opportunities, and profitability affect dividend payout. After estimating the proposed model with marginal effects, they showed that life cycle and profitability are the most important predictors of dividend payout. Sa’idi and Behnam [15] studied 11 factors in dividend policy of firms: leverage, firm size, previous dividend, growth opportunities, operating cash flow, future expected return, mean dividend payout of competing firms, inflation rate, free-float percentage, mean rate of profit over the last five years, and earnings per share. Firm size, previous dividend, growth opportunities, future expected return, and inflation rate were found to be significant predictors of dividend policy. Pourheidari et al. [14] investigate the dividend policy of TSE-listed firms. The results showed that these firms do not have a stable dividend policy and that previous dividend payout trends have no effect on future dividend payout of these firms. Problem Statement:

The ultimate goal of an economy based on free choice is to maximize welfare in the society. To achieve this goal, the industry sector must produce sufficient goods and supply them to consumers at the right time. This entails investment in manufacturing sectors the source of which is capital market and stock exchange, for this is the place where individual and corporate savings are collected and channeled toward manufacturing units. An important issue for investors is dividend policy and changes in dividend payout compared to previous years. In effect, changes in dividend payout signal investors and shareholders about the financial condition of the firm.

Lack of theories that can explain the effect of dividend policy on firm value has been highlighted by many economists such as Black [4] and Brealey and Myers [5]. These academics believed that dividend payout is an unsolved puzzle that requires much investigation. On the other hand, DeAngelo and DeAngelo [6] criticized Black’s views and argued that dividend payout is no puzzle at all, but roots in the misconception of Miller and Modigliani [11] and their dividend irrelevance theory. Other academics such as Bhattacharyya [3] and Baker et al. [1] believe that dividend policy is an unsolved conundrum and requires further research.

Many theories have been proposed for the problem of dividend payout, which is of utmost importance to managers and investors. Dividend policy signals investors and shareholders about the financial condition of firms, and unclear dividend policy of listed firms is one of the issues that lead to information asymmetry [15]. Therefore, the present research examines different dividend payout theories and tries to identify the theory that best explains dividend policy.

Hypotheses:

Given the purpose of the present research which is to examine dividend theories in TSE, the following hypotheses are developed:
1. There is a relationship between signaling theory and dividend payout ratio.
2. There is a relationship between tax-clientele theory and dividend payout ratio.
3. There is a relationship between transaction cost theory and dividend payout ratio.
4. There is a relationship between agency theory and dividend payout ratio.
5. There is a relationship between the variables of these theories and dividend payout ratio.

It must be noted that business risk was used as a measure for signaling theory, tax status of institutional shareholders as a measure for the tax-clientele theory, leverage, size, and growth as measures of transaction cost theory, and total common stocks, free cash flow, and collateralizableassets as measures of agency cost theory.

Methodology:

Population and Sample:

The present research is descriptive-correlational. The population consists of all the firms listed in Tehran Stock Exchange during the period 2004-2010. The sampling is systematic, that is, firms that meet the following conditions are selected as sample:
Firms’ financial year must end at the end of Iranian calendar;
- Firms must have been active in TSE during the studied period and their financial information must be available;
- The firms’ financial statements must have been audited;
- Investment and credit firms are excluded.

Overall, 80 firms that met the following conditions are studied. Regression models are used for data analysis, and all statistical operations are done in EViews software. The required data are collected from the financial statements of firms as well as the software provided by TSE.

Regression Models:

Four regression models are used in this research. The first model involves signaling theory of dividend payout. Dividend signaling theory holds that dividends convey information about current and future levels of earnings to the market. Business risk is used as a measure for signaling theory, for business risk is the uncertainty about current and future profitability [12]. This model is as follows:

$$ DPR_{it} = \alpha + \beta_1 BR_{it} + \epsilon_0 $$

where $DPR$ is dividend payout ratio, $BR$ is business risk, $\alpha$ is the constant, and $\epsilon_0$ is the error term.

The second regression model involves the tax-clientele theory of dividends. Based on this theory, investors in low tax brackets prefer high dividend paying stocks when compared to investors in high tax brackets. The tax status of the institutional shareholders is considered as the proxy for marginal tax payers to test the clientele effect of dividend in this study, for they are in low tax brackets [12].

$$ DPR_{it} = \alpha + \beta_1 INST_{it} + \epsilon_0 $$

where $INST$ denotes the tax status of institutional shareholders.

The third regression model examines the agency cost theory of dividends. Based on this theory, firms pay higher amount of dividends as monitoring and bonding package to reduce agency cost when insiders hold a lower percentage of common stock and/or greater number of common stocks held by outsiders. Higher percentage of common stocks held by insiders leads to less protection of outsiders, and in that case the management usually expropriates funds by maximizing their own benefits rather than return the money to the outsiders. It must be noted that since in TSE almost all the firms are internally owned this variable was not included in the model. Meanwhile, La Porta et al. argued that agency cost increases with free cash flow, for managers can use the cash to maximize their own profit [12]. Another important issue in the agency cost theory is the conflict of interests between bondholders and shareholders. Since collateralizable assets reduce this conflict, this measure was also incorporated in the model [12]. The third regression model is as follows:

$$ DPR_{it} = \alpha + \beta_1 DOWNER_{it} + \beta_2 FCF_{it} + \beta_3 COLLAS_{it} + \epsilon_0 $$

where $DOWNER$ is dispersion of ownership (logarithm of percentage of common stocks), $FCF$ is free cash flow, and $COLLAS$ denotes collateralizable assets.

The fourth model deals with transaction cost, residual, and pecking order theory. A higher burden of transaction cost reduces the ability to pay dividends. Therefore, the level of debt can be a measure for transaction cost. One the other hand, bigger firms enjoy advantages in the capital market for external financing and have higher dividend payout ability. Moreover, firms experiencing higher growth rates usually have large investment requirements and subsequently less ability to pay dividend. Naceur et al. consider growth of net assets as a measure for growth. Thus, the fourth model can be expressed as follows:

$$ DPR_{it} = \alpha + \beta_1 LEVER_{it} + \beta_2 SIZE_{it} + \beta_3 INVEST_{it} + \epsilon_0 $$

where $LEVER$ is financial leverage (the ratio of long-term debt divided by book value of assets), $SIZE$ is firm size (logarithm of total assets), and $INVEST$ is investment opportunities (net growth in fixed assets).

Results:

Reliability Test of Variables:

Before estimating the regression models, reliability of the variables was tested using the unit root tests of Im, Pesaran and Shin (IPS). The results are provided in Table 1.

The null hypothesis assumes the existence of unit root or non-stationarity of the variables, while the alternative hypothesis assumes otherwise. If the significance level is lower than 5%, the variable is reliable with 95% CI. As can be seen in the table above, all the variables except $COLLAS$ are stationary, while this variable is also stationary and reliable at first order difference.

Testing the First Hypothesis:

Based on the first hypothesis, there is a relationship between the agency cost theory (with business risk as the proxy) and dividend payout ratio. The regression model was estimated using panel data with fixed effects and pooled method (since the
sample was not randomly selected, random effects model was not used). The panel data results are provided in Table 2.

Table 1: Test of stationarity (IPS).

<table>
<thead>
<tr>
<th>Variable</th>
<th>W-stat</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPR</td>
<td>2.212515*</td>
<td>0.0000</td>
</tr>
<tr>
<td>BR</td>
<td>11.47*</td>
<td>0.0000</td>
</tr>
<tr>
<td>INST</td>
<td>4.2125612*</td>
<td>0.0000</td>
</tr>
<tr>
<td>DOWNER</td>
<td>7.49*</td>
<td>0.0000</td>
</tr>
<tr>
<td>FCF</td>
<td>4.5**</td>
<td>0.0000</td>
</tr>
<tr>
<td>LEVER</td>
<td>10.6*</td>
<td>0.0000</td>
</tr>
<tr>
<td>SIZE</td>
<td>5.69*</td>
<td>0.0000</td>
</tr>
<tr>
<td>INVEST</td>
<td>19.578</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Notes: * Unit root stationarity ** First order difference stationarity

Table 2: The results of testing the first regression model.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pooled Method (OLS)</th>
<th>Fixed Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>p-value</td>
</tr>
<tr>
<td>C</td>
<td>0.608*</td>
<td>0.0000</td>
</tr>
<tr>
<td>BŘ_n</td>
<td>-2.29*</td>
<td>0.0000</td>
</tr>
<tr>
<td>Model's F</td>
<td>22.4*</td>
<td>(0.00)</td>
</tr>
</tbody>
</table>

Notes: * Significant at the 95% confidence level

As shown in Table 2, F-test was applied to choose between fixed effects and OLS. If the F-statistic (the value inside parentheses) is less than 10%, the null hypothesis is rejected and the fixed effects model is selected. Based on the data, the pooled method (OLS) is selected and preferred to fixed effects model. The result of model estimation through OLS indicates that the regression model is significant at the 95% confidence level, because the p-value of model's F is less than 5%. Moreover, since the p-value of the regression model (business risk) is less than 5%, the null hypothesis is rejected at the 95% confidence level and there is a significant negative relationship between business risk and dividend payout ratio. The explanatory power of this model is, however, very low and the value of $R^2$ is about 4%. Moreover, the Durbin-Watson statistic indicates the lack of autocorrelation.

Testing the Second Hypothesis:

Based on the second hypothesis, there is a significant relationship between the tax-clientele theory (tax status of institutional shareholders) and dividend payout ratio. The regression model was estimated using fixed effects and pooled OLS (Table 3).

Table 3: The results of estimating the second model.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pooled Method (OLS)</th>
<th>Fixed Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>p-value</td>
</tr>
<tr>
<td>C</td>
<td>0.4322*</td>
<td>0.0000</td>
</tr>
<tr>
<td>INST_n</td>
<td>0.0016*</td>
<td>0.0007</td>
</tr>
<tr>
<td>Model's F</td>
<td>6.73*</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Notes: * Significant at the 95% confidence level

As shown in the table above, the value of F-statistic is close to one; therefore, the pooled method was selected. The results of estimating the model through pooled OLS method indicates that the regression model is significant at the 95% confidence level, since the p-value of the model's F is less than 5%. Moreover, since the p-value of INST is less than 5%, the null hypothesis is rejected at the 95% confidence level and there is a significant positive relationship between tax status of institutional shareholders and dividend payout ratio.

Testing the Third Hypothesis:

Based on the third hypothesis, there is a relationship between transaction cost theory (with leverage, size, and growth as proxies) and dividend payout ratio. The regression model was estimated using fixed effects and pooled OLS (Table 4).
Table 4: The results of estimating the second model.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pooled Method (OLS)</th>
<th>Fixed Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>$p$-value</td>
</tr>
<tr>
<td>$C$</td>
<td>1.0787*</td>
<td>0.0016</td>
</tr>
<tr>
<td>$LEV_it$</td>
<td>-0.9678</td>
<td>0.0500</td>
</tr>
<tr>
<td>$SIZE_it$</td>
<td>-0.0362</td>
<td>0.3122</td>
</tr>
<tr>
<td>$INVEST_it$</td>
<td>0.0019</td>
<td>0.8473</td>
</tr>
</tbody>
</table>

Model's $F$ 2.74* 0.02 1.06 0.33

$R^2$ 1.59 2.71

Durbin-Watson Statistic 1.59 2.71

F-statistic 13.21* 0.0000 0.95 0.59

Notes: * Significant at the 95% confidence level

Table 4 shows that the value of F-statistic is close to one; therefore, the pooled OLS method is used and preferred to the fixed effects method. The results of estimating the model through pooled OLS method indicates that the regression model is significant at the 95% confidence level, since the $p$-value of the model's $F$ is less than 5%. Moreover, since the $p$-value of $LEV\_it$ is less than 5%, the null hypothesis is rejected at the 95% confidence level and there is a significant negative relationship between leverage and dividend payout ratio. This model has a very low explanatory power ($R^2 = 0.02$). The Durbin-Watson statistic suggests lack of autocorrelation.

Testing the Fourth Hypothesis:

Based on the fourth hypothesis, there is a relationship between agency cost theory (with dispersion of ownership, free cash flow, and collateralizable assets as proxies) and dividend payout ratio. The regression model was estimated using fixed effects and pooled OLS (Table 5).

Table 5 shows that the value of F-statistic is close to one; therefore, the pooled OLS method is used and preferred to the fixed effects method. The results of estimating the model through pooled OLS method indicates that the regression model is significant at the 95% confidence level, since the $p$-value of the model's $F$ is less than 5%. Moreover, since the $p$-value of $FCF\_it$ and $COLLASS\_it$ are less than 5%, the null hypothesis is rejected at the 95% confidence level and there is a significant positive relationship between collateralizable assets and dividend payout ratio and there is a significant negative relationship between free cash flow and dividend payout ratio. Like previous models, this model has a very low explanatory power ($R^2 = 0.06$). The Durbin-Watson statistic suggests lack of autocorrelation.

Conclusion:

The results of testing the first hypothesis showed that there is a significant negative relationship between business risk (as a proxy for the signaling theory) and dividend payout ratio. However, the regression model had a very low explanatory power (slightly more than 4 percent). This finding was inconsistent with the results of Mollah [12]. Mollah showed that there is no significant relationship between business risk and dividend payout ratio. The results of testing the second hypothesis showed that there is a significant positive relationship between the tax status of institutional shareholders (as a proxy for the tax-clientele theory) and dividend payout ratio. The model's coefficient of determination was very insignificant (about 1%). This finding is inconsistent with the results of Mollah [12] and Forughi et al, who observed no significant relationship between these variables. It must be noted that the poor explanatory power of the model can suggest a weak relationship or lack of a relationship between these variables.

The third hypothesis addressed the relationship between transaction cost theory (with leverage, size, and growth as proxies) and dividend payout ratio. The results of testing this hypothesis showed that there is a significant negative relationship between
leverage and dividend payout ratio. However, no significant relationship was observed between dividend payout ratio, size, and growth. The explanatory power of this model was also very low. This finding is consistent with the results of Banimahd and Asghari [2] and Izadinia and Alinaghian [9]. These researchers argued that leverage is not associated with dividend payout ratio, while size and operating cash flow are positively associated with dividend payout ratio.

The fourth hypothesis addressed the relationship between agency cost theory (with dispersion of ownership, free cash flow, and collateralizable assets as proxies) and dividend payout ratio. The results of testing this hypothesis indicated that dividend payout ratio is negatively associated with free cash flow and positively associated with collateralizable assets. No significant relationship was observed between dispersion of ownership and dividend payout ratio. The model's coefficient of determination was about 7%. This finding was inconsistent with the results of Mollah [12] who found a significant positive relationship between free cash flow and dividend payout ratio. However, in terms of the relationship between dividend payout ratio and collateralizable assets, the present findings and the results of Mollah [12] were consistent.

In sum, the present findings were consistent with certain studies in the literature and inconsistent with some other studies. One of the most important differences was the poor explanatory power of the regression models in the present research, which may be due to heterogeneity of dividend policies. It must be noted that the variable of industry can be an important determinant of dividend policy in financial research; that is, firms operating in the same industry usually have similar dividend policies, which could be due to imitation or similar structures. It appears that in the literature on dividend policy, examining the driving factors of dividend payout without paying attention to industry classification can lead to misleading results.

Another important inconsistency between the present findings and other studies, especially those carried out in advance economies, is the lack of a significant relation between dividend payout ratio and such important variables as leverage and free cash flow. Several factors can be at work:

1. Inefficiency of Iran's capital market;
2. Investors' disregard of dividend policy due to the short-term horizon—given the considerable risks that affect stock returns, including the risk of inflation, political risk, and the risk of change in government regulation, investors in Iran usually have a short-term horizon and rarely consider long-term investment; therefore, dividend is not very important for them;
3. Little familiarity of small and institutional investors with fundamental analysis and the driving factors of dividend policy.

#### Recommendations for Future Research

1. Future research can examine these relationships after controlling for industry classification.
2. The capital markets of other developing countries such as Persian Gulf countries can be examined and compared.
3. Future research can account for the special characteristics of Iran's capital market, including the variable of inflation. It must be noted that high inflation rate in Iran and its effect on financial statements, adjusting the variables used in this research based on inflation can lead to more clear-cut results.

#### References

