The Relationship between Investment Opportunity, Dividend Policy and Firm Value in Companies Listed in TSE: Evidence from IRAN

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Abstract
The purpose of this study is to examine of relationship between investment opportunity and dividend policy and firm value. The studied group included companies listed in TSE during 2009-2013. Using systematic elimination method, 88 firms (or 440 firm-years) were selected as samples. The methodology of this study is practical descriptive correlation. The required data are collected by library method; Excel software is used to calculate data from companies. To test the hypotheses, Eviews software and panel data method are used. Findings indicate a positive significant relationship between investment opportunities and dividend policy as well as investment opportunities and firm value.

Keywords: Firm Value, Investment Opportunity, Dividend Policy, Tehran Stock Exchange (TSE)

Introduction
As a part of capital market, stock exchange has its own mechanisms which allow investment for people, particularly small depositors. Expectation to receive cash dividend is one of the main reasons for investment. Year-by-year increase or decrease in cash dividend directly leads to increase or decrease in market price of ordinary shares in joint stock companies. On one hand, dividend is specially interested by shareholders and, on the other hand, board of directors requires to use cash for growth and development of future operations and acquisition of new assets (Hassas Yegane, 2004).

Determination of firm value and identification of effective factors in capital markets are challenging discussions for investors and financial analyzers seeking to recognize effective factors on firms in order to determine real firm value by effective control of these factors (Valipour et al., 2011).

Shareholders require information to determine the value of securities for decision making on purchase of stock. The main role of accounting is to provide information required by users such as evaluation of firms. Using accounting information on firm value, investors can make better decisions on stock trading. Accounting valuation models try to ease decision making for investors by linking accounting data and market value (Hashemi & Akhlaghi, 2011).

Considering that profitability and dividend is emphasized in firm valuating models and firm value reflects future profits, it can be concluded that profitability and dividend policy have a fundamental role in determining the firm value (ibid).

Dividend policy will be a policy relating to decision to share income available for shareholders in the form of dividend or hold an accumulated profit for future investments (Weston & Copeland, 1992).

Investors invest in joint stock firms to make a profit. Investors expect for profit from future shares, for example dividends and capital gains (Wild et al., 2004).
Theoretically, several factors of firm characteristics can directly and indirectly influence dividend policy and firm value. They are managerial ownership, financial leverage, profitability, firm size and investment opportunities (Weston & Copeland, 1992; Chen & Steiner, 1999; Iturriaga & Sanz, 2001; Al-Najjar, 2009; Al-Shubiri, 2011).

This study experimentally tries to determine the relationship between investment opportunity and dividend policy and to determine the relationship between these two variables and firm value in companies listed in Tehran Stock Exchange (TSE). Therefore, the main problem of this study is to examine whether there is a significant relationship between investment opportunity and dividend policy as well as both investment opportunity and dividend policy and firm value.

**Literature Review**

Investors seek to maximize their wealth. Investment opportunity or growth opportunity is a driving force which motivates and a reward for investors. Meanwhile, investors should consider risk in their investment decisions, because the optimal utilization of available investment opportunities leads to success. For this purpose, financial policies effective on growth opportunities should be identified in the businesses. Currently, accounting information systems make the required information available for users for making decisions (Tehrani & Nourbakhsh, 2004).

**Administrative Process of Investment Opportunities**

Five steps of planning and control of investment opportunities can be characterized as follows:

1) Identification of investment opportunity
2) Estimation and evaluation of cash flows of investment opportunity
3) Acceptation or rejection of investment opportunities based on an acceptable standard
4) Approval of the implementation of accepted investment opportunities
5) Monitoring, control and evaluation of investment opportunities while implementing (Esmaealpour, 2003).

Dividend policy is one of the most controversial financial discussions. Conflicting theoretical models which sometimes lack strong empirical support seek to explain corporate dividend policies (Frankforter & Wood, 2002).

The efforts made to find that whether the dividend decision has an effect on the share price led to theoretical models and experimental tests of the proposed theories; interpretations such as tax differences, agency costs, messaging theory and reception theory were introduced among which messaging theory attracted attentions. Most empirical literature of this group focused on the changes in dividends on market reactions to declaration of dividend and test of the messaging theory (Talaneh & shemirani, 2012).

Analysts and evaluators of securities use several models to determine the intrinsic firm value based on fundamental analyses. These models include discount model and price to earnings ratio (P/E) (Vardavaki & Mylonakis, 2007).

Valuation models usually use five accounting variables including remaining profit, return, profit, operating cash flow and dividend to determine firm value. With regard to the fact that firm valuation models, profitability and dividend are emphasized and firm value reflects future profits, it can be concluded that profitability and dividend policy play an essential role in determining firm value (ibid).

**Firm Valuation Models**

In the past, financial analysts used various models for firm valuation. These models could be very simple or very complex. There are several important models for firm valuation (ibid).
1) Evaluation model based on assets
2) Discounting valuation model
3) Remaining profit model

**Background**

Review of the literature of accounting and financial studies shows some studies on investment opportunity, dividend policy and firm value, as follows:

**Domestic Evidence**

Reviewing the factors determining the dividend ratio in companies listed in TSE during 1999-2004, Jahankhani and Ghorbani (2006) found an inverse significant relationship between size, investment opportunity and risk on dividend ratio.

Shourvarzi and Azadvar (2008) examined the relationship between investment opportunity and performance. Their results showed a positive relationship between investment opportunity and performance.

Kordestani and najafi (2009) examined the determinants of capital structure based on data from 93 companies listed in TSE during 2000-2007. Their findings indicate a positive significant relationship between firm size and liability ratio on book value as well as a positive significant relationship between investment opportunity and liability ratio.

Khademi (2010) studied the relationship between investment opportunity and asset growth at companies listed in TSE during 1999-2006. He used three criteria to measure investment opportunities. According to this study, there is a significant relationship between three indicators considered for investment opportunity and asset growth. The manipulation of these three criteria will lead to a higher level of asset growth.

Hashemi and Akhlaghi (2011) examined the effect of financial leverage, dividend policy and profitability on firm value. Their results showed a positive significant relationship between financial leverage, dividend policy and profitability on firm value as well as a positive significant relationship between these variables and future firm value. In addition, the findings showed that probable increase in future firm value increases as the ratio of financial leverage, dividend policy and profitability increases.

**International Evidence**

Adam and Vidhan (2007) studied investment opportunity and indicator variables, theories and evidence. The findings indicate that although investment opportunity plays an important role in financial statements, there is no agreement on how investment opportunities are evaluated.

Finding the reason why institutions distribute their profits, Denis and Asobov (2008) examined the changes in innate tendency to pay profits during 1994-2002, and the relationship between profitability, growth opportunity, firm size and capital gain among companies paying dividends and companies which did not pay dividend in America, Canada, England, Germany, France and Japan. They concluded that dividend is influenced by the size, profitability, growth opportunity and capital gain.

Ghosh and Ghosh (2009) examined the effect of financial leverage, dividend policy and profitability on future firm value in India. They showed a non-linear relationship between financial leverage, profitability, probable increase in future firm value. Probable increase in future firm value decreases exponentially as financial leverage increases, while probable increase in future firm value increases as dividend payments and profitability increase.

Felix and Lima (2010) studied the problem that whether financial leverage, ownership structure and dividend policy are effective in creating value for the firm. This study was done for
213 Brazilian companies during 1995-2004. The findings indicate a negative relationship between financial leverage and value of firms with higher growth opportunities and a positive relationship between financial leverage and value of firms with lower growth opportunities. In addition, there is a negative relationship between dividend policy and firm value. Moreover, results showed a nonlinear relationship between ownership structure and firm value.

**Hypotheses**

Hypothesis 1): there is a significant relationship between investment opportunity and dividend policy.

Hypothesis 2): there is a significant relationship between investment opportunity and dividend policy and firm value.

**Methodology**

The methodology of this study is practical descriptive correlation. The studied group include companies listed in TSE during 2009-2013; the samples were selected by following restrictions using systematic elimination method:

1) The financial year ends in March 19.
2) For comparability, their activity is not investment and financial such as insurance and banks.
3) They are listed in TSE before 2009.
4) They are profitable during the financial period.
5) The financial year does not change during financial period.
6) The required information is available.

By above conditions, 88 companies, or 440 firm–year, were selected as research sample. The data was calculated by Excel Software and Eviews Software was used for testing hypotheses.

The theoretical data was collected through books, articles and academic theses; the data related to samples was collected through websites of TSE, RDIS, CODAL, Fipiran and also Rah Avard Novin Software.

**Variables**

Simultaneously, this study measures the relationship between investment opportunity and dividend policy and firm value in companies listed in TSE. There are two dependent variables in this study. This study examines two hypotheses. This study evaluates two models; the variables of each model are describes as follows.

Based on Dwita et al (2013), variables of the model (1) include:

Model (1): 
\[ DPR_{it} = \beta_0 + \beta_1 Invest_{it} + \beta_2 Mown_{it} + \beta_3 DAR_{it} + \beta_4 ROA_{it} + \beta_5 Size_{it} + \varepsilon \]

Dependent Variable = Dividend Policy (DPR)
Independent Variable = Investment Opportunity (Invest)
Control Variables = Managerial Ownership (Mown), Financial Leverage (DAR), Profitability (ROA) and Firm Size (Size).

Based on Dwita et al (2013), variables of the model (2) include:

Model (2): 
\[ Firm\ Value_{it} = \beta_0 + \beta_1 Invest_{it} + \beta_2 DPR_{it} + \beta_3 Mown_{it} + \beta_4 DAR_{it} + \beta_5 ROA_{it} + \beta_6 Size_{it} + \varepsilon \]

Dependent Variable = firm value
Independent Variables = investment opportunity (Invest) and dividend policy (DPR)
Control Variables = managerial ownership (Mown), financial leverage (DAR), profitability (ROA) and firm size (Size).
Definitions

Firm Value
Firm value refers to value of a business to generate profits in the future reflecting market value. Firm value is measured by Q Tobin as follows (Chung & Pruitt, 1994; Rose, 2005; Benson & Davidson III, 2009):

\[ Q \text{ Tobin} = \frac{\text{Market value of shares} + \text{Book value of debt}}{\text{Book value of assets}} \]

Dividend Policy
Dividend policy is a policy related to allocation of net income derived from operating activities and distributed in the form of dividends to shareholders or considered as accumulated holding. Dividend policy shown by dividend payout ratio (DPR) can be formulated as follows (Al-Najjar, 2009).

\[ \text{DPR} = \frac{\text{Dividend per share}}{\text{Earning per share}} \]

Investment Opportunity
Investment opportunity is an investment decision in the form of a combination of assets and future investment options in profitable projects. Investment opportunity is measured by capital expenditure to total assets (CAPX / A), which can be formulated as follows (Allie et al., 1993; Iturriaga & Sanz, 2001; Saputro, 2003; Chang, 2009; Pourali & Hassanpour, 2011):

\[ \text{Investment opportunity} = \frac{\text{book value of fixed assets in the current year} - \text{book value of fixed assets in the previous year}}{\text{book value of assets in the previous year}} \]

Managerial Ownership
Managerial ownership describes stock ownership by management. Managerial ownership (Mown) can be formulated as follows (Chrutchley & Hansen, 1989; Handoko, 2002):

\[ \text{Mown} = \frac{\text{Number of owned shares}}{\text{Total published shares}} \]

Financial Leverage
Financial leverage refers to firm’s ability to use fixed financial obligations in order to maximize changes in profit on income per share of common stock. Financial leverage is measured by ratio of total debt to assets, financed by debt. It can be formulated as follows (Aivazian et al., 2003; Al-Najjar, 2009; Al-Shubiri, 2011):

\[ \text{DAR} = \frac{\text{Total debt}}{\text{Total assets}} \]

Profitability
Profitability refers to management effectiveness which is measured based on returns on sales and investment. Profitability is measured by return on assets which reflects firm's ability to use assets to generate profits. Return on assets can be formulated as follows (Chen & Steiner, 1999; Abor & Bokpin, 2010; Mehta, 2012):

\[ \text{ROA} = \frac{\text{Net income}}{\text{Total assets}} \]

Firm Size
Firm size refers to a level of a firm development within businesses. Firm size can be formulated as follows (Al-Najjar, 2009; Al-Shubiri, 2011):

\[ \text{Firm size} = \log(\text{book value of total assets}) \]

Results
For analysis of hypotheses, descriptive statistics given in Table (1) and Eviews Software were used. First, static test was conducted by generalized Dickie–Fuller method and Lyn–Levine method; then, variance anisotropy and estimation model were examined. Significance of the fixed-effects method was tested by F statistics test and Hausman test. Finally, regression model was analyzed through fixed-effects model. By analyzing the regression model resulting from the study

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and examining the significance of the regression model and coefficients of the variables, the hypotheses were tested.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm Value</td>
<td>0.01</td>
<td>5.673</td>
<td>1.343</td>
<td>0.568</td>
<td>-1.2659</td>
<td>0.5748</td>
</tr>
<tr>
<td>Dividend Policy</td>
<td>0.03</td>
<td>4.91</td>
<td>1.96</td>
<td>0.41</td>
<td>0.6652</td>
<td>0.1565</td>
</tr>
<tr>
<td>Investment Opportunity</td>
<td>0.02</td>
<td>2.13</td>
<td>0.57</td>
<td>0.39</td>
<td>2.3326</td>
<td>-1.0266</td>
</tr>
<tr>
<td>Managerial Ownership</td>
<td>11.24</td>
<td>82.51</td>
<td>37.02</td>
<td>12.25</td>
<td>1.7458</td>
<td>-1.4125</td>
</tr>
<tr>
<td>Financial Leverage</td>
<td>0.04</td>
<td>5.12</td>
<td>0.58</td>
<td>0.27</td>
<td>0.9655</td>
<td>0.5966</td>
</tr>
<tr>
<td>Profitability</td>
<td>0.03</td>
<td>1.46</td>
<td>0.15</td>
<td>0.12</td>
<td>-0.4785</td>
<td>-0.1251</td>
</tr>
<tr>
<td>Firm Size</td>
<td>2.78</td>
<td>7.37</td>
<td>5.01</td>
<td>0.76</td>
<td>-1.5965</td>
<td>1.003</td>
</tr>
</tbody>
</table>

Findings of each hypothesis are as follows:

**Hypothesis (1):**

**H₀:** there is no significant relationship between investment opportunity and dividend policy.

**H₁:** there is a significant relationship between investment opportunity and dividend policy.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Impact factor</th>
<th>Deviation of Estimate</th>
<th>T Statistics</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed</td>
<td>0.415</td>
<td>0.332</td>
<td>1.485</td>
<td>*0.045</td>
</tr>
<tr>
<td>Investment Opportunity</td>
<td>0.521</td>
<td>0.622</td>
<td>2.415</td>
<td>*0.002</td>
</tr>
<tr>
<td>Managerial Ownership</td>
<td>0.074</td>
<td>0.245</td>
<td>1.623</td>
<td>*0.032</td>
</tr>
<tr>
<td>Financial Leverage</td>
<td>-0.147</td>
<td>0.601</td>
<td>-0.748</td>
<td>0.354</td>
</tr>
<tr>
<td>Profitability</td>
<td>0.722</td>
<td>0.411</td>
<td>1.247</td>
<td>0.219</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.369</td>
<td>0.248</td>
<td>2.211</td>
<td>*0.009</td>
</tr>
</tbody>
</table>

*Error level of 5%

<table>
<thead>
<tr>
<th>R</th>
<th>Durbin – Watson</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determination Coefficient</td>
<td>Adjusted Determination Coefficient</td>
<td>F</td>
</tr>
<tr>
<td>0.547</td>
<td>0.521</td>
<td>1.662</td>
</tr>
</tbody>
</table>

**Error level of 1%

According to Table (3), the value of Durbin-Watson test ranges from 1.5 - 2.5; therefore, the assumption of the lack of correlation between errors is accepted and the regression can be used. Given the significant F-value (12.254, error < 0.01), it can be concluded that regression model composed of independent, control and dependent variables is a good model and the series of independent and control variables is able to explain changes in dividend policy. The value of adjusted coefficient of determination (0.521) indicates that 52.1% of the total changes in dependent variable depend on independent and control variables of this model. In addition, the impact factor of investment opportunity on dividend policy (0.521) implies a positive and direct relationship between investment opportunity and dividend policy; this suggests that increase in investment opportunity will increase dividend policy. Considering the significant t-statistic of investment opportunity (0.002) which is <5% error, H₀ hypothesis can be rejected in 95% confidence. Therefore, there is a significant relationship between investment opportunity and dividend policy. The regression model can be written as follows:
DPR_{it} = 0.415 + 0.521 \text{Invest}_{it} + 0.074 \text{Mown}_{it} - 0.147 \text{DAR}_{it} + 0.722 \text{ROA}_{it} + 0.369 \text{Size}_{it} + \varepsilon

**Hypothesis (2):**

H_0: there is no significant relationship between investment opportunity and dividend policy on firm value.

H_1: there is significant relationship between investment opportunity and dividend policy on firm value.

**Table 4: regression test for the second hypothesis**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Impact factor</th>
<th>Deviation of Estimate</th>
<th>T-statistic</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed</td>
<td>0.502</td>
<td>0.263</td>
<td>2.069</td>
<td>*0.008</td>
</tr>
<tr>
<td>Investment Opportunity</td>
<td>0.415</td>
<td>0.115</td>
<td>2.154</td>
<td>*0.002</td>
</tr>
<tr>
<td>Dividend Policy</td>
<td>0.269</td>
<td>0.102</td>
<td>2.335</td>
<td>*0.000</td>
</tr>
<tr>
<td>Managerial Ownership</td>
<td>0.049</td>
<td>0.552</td>
<td>2.033</td>
<td>*0.012</td>
</tr>
<tr>
<td>Financial Leverage</td>
<td>0.185</td>
<td>0.262</td>
<td>1.125</td>
<td>0.138</td>
</tr>
<tr>
<td>Profitability</td>
<td>0.452</td>
<td>0.773</td>
<td>1.775</td>
<td>*0.032</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.142</td>
<td>0.662</td>
<td>0.962</td>
<td>0.247</td>
</tr>
</tbody>
</table>

*Error level 5%

**Table 5: explanation and overall significance of the model**

<table>
<thead>
<tr>
<th>R</th>
<th>Coefficient of Determination</th>
<th>Adjusted coefficient of determination</th>
<th>Durbin-Watson</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.614</td>
<td>0.603</td>
<td>1.932</td>
<td>14.475</td>
</tr>
</tbody>
</table>

** Error level 1%

According to Table (5), the value of Durbin-Watson test ranges from 1.5 - 2.5; therefore, the assumption of the lack of correlation between errors is accepted and the regression can be used. Given the significant F-value (14.475, error < 0.01), it can be concluded that regression model composed of independent, control and dependent variables is a good model and the series of independent and control variables is able to explain changes in firm value. The value of adjusted coefficient of determination (0.603) indicates that 60.3% of the total changes in dependent variable depend on independent and control variables of this model. In addition, the impact factor of investment opportunity on firm value (0.415) implies a positive and direct relationship between investment opportunity and firm value; this suggests that increase in investment opportunity will increase firm value. On the other hand, impact factor of dividend policy on firm value (0.269) implies a positive and direct relationship between dividend policy and firm value; this implies that increase in dividend policy will increase firm value. Considering the significant t-statistic of investment opportunity (0.002) and dividend policy (0.000) which are <5% error, H_0 hypothesis can be rejected in 95% confidence. Therefore, there is a significant relationship between investment opportunity and dividend policy on firm value. The regression model can be written as follows:

\[
\text{Firm Value}_{it} = 0.502 + 0.415 \text{Invest}_{it} + 0.269 \text{DPR}_{it} + 0.049 \text{Mown}_{it} + 0.185 \text{DAR}_{it} + 0.452 \text{ROA}_{it} + 0.412 \text{Size}_{it} + \varepsilon
\]
Table 6: summary of the results from testing hypotheses

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Description</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>There is a significant relationship between investment opportunity and dividend policy.</td>
<td>Accepted</td>
</tr>
<tr>
<td>Second</td>
<td>There is a significant relationship between investment opportunity and dividend policy on firm value.</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

**Discussion and Conclusion**

The purpose of financial reporting is to provide information required by investors, creditors and other users for decision making on investment and financing. Shareholders and investors can make better decisions on purchase of stock by accounting information on firm value. Thus, the models which are able to express the relationship between accounting data and market value can be effective in determining the firm value, identifying investment opportunities and proper dividend policy. As a result, users of this information make better decisions; this facilitates the access of companies to goals such as fundraising and maximizing profit.

Considering the fact that shareholders and creditors have limited financial resources, they try to allocate them to stocks of companies with good return. Therefore, the recognition of investment opportunities is very important. On the other hand, managers can both divide the profits among shareholders using a proper dividend policy and have an accumulated profit for development and expansion of firms in order to increase firm value, which itself can raise funds. Therefore, managers seek to maximize the value of shareholders' wealth (owners) at long term.

Financial analysts also seek to find indicators and benchmarks which can evaluate performance of managers for informed judgment based on firm value.

The results of this study indicate a positive and direct relationship between investment opportunity and dividend policy. As a result, the increase in investment opportunities will increase the dividend policy of firms. Therefore, there is a significant relationship between investment opportunity and dividend policy. The results also indicate a positive and direct relationship between investment opportunity and dividend policy on firm value. The results suggest that increase in investment opportunities and dividend policy will increase firm value. It can be concluded that there is a significant relationship between investment opportunity and dividend policy and firm value. Hashemi and Akhlaghi (2011) found a positive significant relationship between financial leverage, dividend policy and profitability on firm value. Jahankhani and Ghorbani (2006) found a reverse significant relationship between size, investment opportunity and risk on dividend ratio of companies. Fleix and Lima (2010) showed a negative relationship between financial leverage and value of firms which have higher growth opportunities and a positive relationship between financial leverage and value of firms which have lower growth opportunities. Moreover, there is a negative relationship between dividend policy and firm value. Ghosh (2009) showed a nonlinear relationship between financial leverage, profitability and probable increase in future firm value. Denis and Asobov (2008) concluded that dividend policy is under influence of size, profitability, investment opportunity and gained capital.

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