
Mahdi Moradi, Mahrokh Shakeri and Mohamad Ghorbani

Abstract:
High quality accruals reduces information asymmetry by providing more information on the value of the firm’s investment projects, thereby reducing adverse selection. Furthermore, high quality accruals mitigates moral hazard problems by facilitating contracting and monitoring. Thus, firms with higher quality accruals have better access to external funds and so are less likely to forgo valuable investment projects in order to pay dividends. So in this study, we examine the impact of accruals quality and dividend policy on investment efficiency and decisions. The sample of this study, includes 155 companies listed in the Tehran Stock Exchange during the period 2008-2013 and for processing and testing hypotheses, Generalized Method of Moments (GMM) Method is used. The results show that accruals quality and dividend policy have no significant impact on investment in the companies listed in Tehran stock exchange.

Introduction:
Under neo-classical theory, firms invest until the marginal benefit equals the marginal cost of this investment in order to maximize their values [1]. However, in the Keynesian framework [9], where expected investment will be determined by the preference for growth or for financial security, and in the agency framework [24], which considers information asymmetry problems, firms may deviate from their optimal investment levels and hence suffer from underinvestment (lower investment than expected) or overinvestment (greater investment than expected). In perfect financial markets, all positive net present value projects (NPV) should be financed and carried out. Nevertheless, there is a significant body of literature that contradicts this assumption [2]. Market imperfections, as well as information asymmetries and agency costs can lead to negative NPV projects being carried out (overinvestment) and to the rejection of positive NPV projects (underinvestment). According to agency theory, both overinvestment and underinvestment can be explained by the existence of asymmetric information among stakeholders. Jensen and Meckling [18], Myers and Myers and Majluf develop a framework for the role of asymmetric information in investment efficiency through information problems, such as moral hazard and adverse selection. With regard to moral hazard, discrepancy of interests between shareholders and a lack of monitoring of managers may lead to management trying to maximize its personal interests by making investments that may not be suitable for shareholders [18], with the consequence of managerial empire building and overinvestment [15]. Under adverse selection, better informed managers may overinvest if they sell overpriced securities and achieve excess funds. To avoid this, suppliers of capital can ration the capital or raise its cost, which will lead to the rejection of some profitable projects due to fund constraints [4] with subsequent underinvestment [12].

The main purpose of this study is investigating the impact of accruals quality and dividend policy on investment efficiency and investment decisions in the companies listed in the Tehran Stock Exchange. Tehran Stock Exchange is considered both as a capital market, including emerging stock exchange in the Middle East.
and as less developed financial market in the world. Iranian capital market which in trade and economic volatility are damaged more, for promoting their major objectives also for using of highest investors’ potential is needed the complete and better understanding from the existent condition, attention to the effects of laws, policies and new financial mechanisms [11].

**Conceptual Framework:**

When managers know more about the value of the firm’s assets and investment projects than outside investors, market imperfections such as adverse selection and moral hazard problems can constrain the firm’s access to external funds. Models of adverse selection [23] suggest that managers acting in the interests of current shareholders have incentives to sell new securities when their private information suggests that these new securities are overvalued; i.e., a lemon’s problem. Models of moral hazard [18] show that firm managers may undertake suboptimal investments that maximize their own benefits at the expense of shareholders. Anticipating these information frictions, outside investors will rationally respond by rationing capital or discounting the share price of the issuing firm, resulting in limited access to external funds or higher cost of raising external funds for those firms [23]. Constraints on access to external funds lead to competition for limited internal funds. When investments and dividends compete for limited internal funds, firms may be forced to choose between paying dividends and pursuing valuable investment projects. As discussed in the previous section, prior research [10] documents that firms are very reluctant to cut dividends but are willing to forgo some valuable investment opportunities to maintain dividends. In addition, it is also possible that firms may cut investments to increase dividends. In sum, dividend policy likely has a constraining effect on investment decisions, an effect inconsistent with the separation principle predicted by the dividend irrelevance theorem.

Financial reporting quality can play an important role in mitigating the constraining effect of dividends on investments. Higher quality financial reporting conveys more precise information about the future cash flows of a firm's investment projects, thereby decreasing the information asymmetry between firm managers and outside investors. The decrease in information asymmetry in turn reduces the likelihood that investors will purchase securities at an inflated price, and thus mitigates the adverse selection cost of issuing new securities [5]. Further, high quality financial reporting also mitigates the moral hazard problem by facilitating efficient contracting between managers and investors and by improving investors’ ability to monitor managers [14]. Consistent with financial reporting quality improving firms' access to external funds, prior research [3] finds that firms with higher quality financial reporting have both lower cost of debt and lower cost of equity. Therefore, firms with higher financial reporting quality are likely to have better access to external funds in the form of more funds and/or lower cost of raising funds and thus are less likely to forgo valuable investment projects in order to pay dividends [27].

**Literature Review:**

Biddle et al. [4] provide evidence of both in documenting a conditional negative (positive) association between financial reporting quality and investment for firms operating in settings more prone to over-investment (under-investment). Firms with higher financial reporting quality also are found to deviate less from predicted investment levels and show less sensitivity to macroeconomic conditions. These results suggest that one mechanism linking reporting quality and investment efficiency is a reduction of frictions such as moral hazard and adverse selection that hamper efficient investment.

Chen et al [7] using firm-level data from the World Bank, their empirical evidence suggests that financial reporting quality positively affects investment efficiency. They further find that the relation between financial reporting quality and investment efficiency is increasing in bank financing and decreasing in incentives to minimize earnings for tax purposes. Such a connection between tax-minimization incentives and the informational role of earnings has often been asserted in the literature. They provide explicit evidence in this regard.

Keefe and Tate [21] investigate the effect of cash flow volatility on investment. Their evidence suggests that financially constrained firms decrease investment (i) when experiencing persistently high volatility; (ii) when experiencing both high volatility and negative cash flow growth realisations; and (iii) when holding low cash levels and experiencing both high volatility and a negative cash flow growth realisations. In financially unconstrained firms the above effects are either not found or are of relatively low economic importance. Overall, their findings lend support to the financial flexibility literature and tend to contradict predictions of the real options literature.

Gomariz and Ballesta [12] examined the relationship between the quality of financial reporting, debit maturity and investment efficiency between the years (1998-2008) in Spanish companies. The results show that the quality of financial reporting reduces the over investment problems. Similarly, short-term debt maturities could improve the investment efficiency and could reduce the overinvestment and less than enough investment problem. In addition, their results showed that the quality of financial reporting and debt maturities are
mechanisms that play a role in improving the degree of investment efficiency. Therefore, companies that use less short-term debts, financial reporting quality improves investment efficiency.

Ramalingegowda et al. [27] find that high quality financial reporting significantly mitigates the negative effect of dividends on investments, especially on R&D investments. Further, this mitigating role of financial reporting quality is particularly important among firms with a larger portion of firm value attributable to growth options. In addition, they show that the mitigating role of high quality financial reporting is more pronounced among firms that have decreased dividends than among firms that have increased dividends. These results highlight the important role of financial reporting quality in mitigating the conflict between firms’ investment and dividend decisions and thereby reducing the likelihood that firms forgo valuable investment projects in order to pay dividends.

Hypotheses:
Based on mentioned arguments, two main testable hypotheses are formulated:
(1) There is a significant relationship between accruals quality and investment efficiency.
(2) Accruals quality moderates the relationship between dividends and investment efficiency.
(3) There is a significant relationship between accruals quality and investment decisions.
(4) Accruals quality moderates the relationship between dividends and investment decisions.

MATERIALS AND METHODS

1. Models:
The model we propose to test hypotheses 1 & 2 is the following:
(1) \[ \text{InvEff}_i = \beta_0 + \beta_1 \text{AQ}_i + \beta_2 \text{Div}_i + \beta_3 \text{Size}_i + \beta_4 \text{KZ}_i + \beta_5 \text{QT}_i + \beta_6 \text{AQ}^*\text{Div}_i + \beta_7 \text{InvEff}_i + \epsilon_i \]
   Where InvEff represents investment efficiency. AQ represents accruals quality; Div represents dividend; Size if firm size; KZ is a proxy for firm financial constraints; QT represents Tobin’s Q as a proxy for firm investment opportunities; AQ*Div represents the interaction effect.

The model we propose to test hypotheses 3 & 4 is the following:
(2) \[ \text{Inv}_i = \beta_0 + \beta_1 \text{AQ}_i + \beta_2 \text{Div}_i + \beta_3 \text{Size}_i + \beta_4 \text{KZ}_i + \beta_5 \text{QT}_i + \beta_6 \text{AQ}^*\text{Div}_i + \beta_7 \text{InvEff}_i + \epsilon_i \]
   Where Inv represents firm investment.

2. Variables Definition:
2.1. Dependent Variables:
2.1.1. Investment Efficiency:

Following Biddle et al. [4], to estimate the expected level of investment for firm i in year t, we specify a model that predicts the level of investment based on growth opportunities (measured by sales growth). Deviations from the model, as reflected in the error term of the investment model, represent the investment inefficiency.

(3) \[ \text{Investment}_{it} = b_0 + b_1 \text{SalesGrowth}_{it-1} + \epsilon_{it} \]
   where Investment is the total investment of firm i in year t, defined as the capital expenditures scaled by total assets. SalesGrowth is the rate of change in sales of firm i from t-2 to t-1.

We estimate the investment model for all of the data. The residuals from the regression model reflect the deviation from the expected investment level, and we use these residuals as a firm-specific proxy for investment inefficiency. A positive residual means that the firm is making investments at a higher rate than expected according to the sales growth, so it will overinvest. In contrast, a negative residual assumes that real investment is less than that expected, representing an underinvestment scenario. Our dependent variable will be the absolute value of the residuals multiplied by -1, so a higher value means higher efficiency (InvEff).

2.1.2. Investment:

Investment is the total investment of firm i in year t, defined as the capital expenditures scaled by total assets.

2.2. Independent Variables:
2.2.1. Accruals Quality:

We use the model developed by Dechow and Dichev. In this model, accruals quality is measured by the extent to which current working capital accruals map onto operating cash flows of the prior, current and future periods. Thus, Dechow and Dichev regress current working capital accruals (WCA) on cash flow from operations in the previous tax year (CFO), the current year (CFO), and the subsequent year (CFO), all deflated by average total assets.
Where \( WCA_{it} \) is working capital accruals of firm \( i \) in year \( t \), calculated as the change in current assets (\( \Delta CA \)), minus the change in cash and cash equivalents (\( \Delta Cash \)), minus the change in current liabilities (\( \Delta CL \)) and minus the change in short term bank debt (\( \Delta Debt \)). \( CFO_{it} \), \( CFO_{it-1} \), \( CFO_{it+1} \) and \( CFO_{it+1} \) signify cash flow from operations of firm \( i \) in years \( t \), \( t-1 \) and \( t+1 \), respectively, calculated as the difference between net income before extraordinary items (\( NIBE \)) and total accruals (\( TA \)). Total accruals are calculated for each firm in year \( t \) as working capital accruals (\( WCA_{it} \)) minus depreciation and amortization expenses for the period (\( Dep_{it} \)). All variables are deflated by average total assets. Average total assets are calculated for firm \( i \) in year \( t \) as the mean of the firm’s total assets in years \( t-1 \) and \( t \).

2.2.2. Dividend:
Dividend is firm's common dividend scaled by EPS.

2.3. Control Variables:
SIZE is firm size, which is measured by the natural logarithm of total number of workers at year end; Following previous studies, this study uses Tobin’s Q (\( QT \)) to represent anticipated growth opportunity. Calculation of the Tobin’s Q follows Chung and Pruitt’s (1994) suggestion:

\[
(5) \quad q = \frac{MVE + PS + DEBT}{TA}
\]

Where MVE is the product of a firm’s stock price and the number of common shares outstanding; PS represents the liquidating value of outstanding preferred shares (It is zero in Iran); DEBT is the value of short-term liabilities, net of short-term assets minus the book value of long-term assets, and TA represents the book value of total assets [26].

We use the KZ index constructed by Lamont [19]:

\[
(6) \quad KZ_{index} = -1.002 \left( \frac{OCF_{it}/K_{n-1}}{K_{n-1}} \right) + 0.283 \left( \frac{\text{Total Debt}_{it}/\text{Total Assets}_{it}}{K_{n-1}} \right) - 39.368 \left( \frac{\text{Dividends}_{it}/K_{n-1}}{K_{n-1}} \right) - 1.315 \left( \frac{\text{Cash}_{it}/K_{n-1}}{K_{n-1}} \right)
\]

Where OCF is operating cash flows; and \( K \) is measured by the property, plant and equipment, net of depreciation.

3. Sample:
Our sample includes the collected data from 155 nonfinancial companies listed on the Tehran Stock Exchange from 2009 to 2013. Each company had to meet specific criteria to be included in the sample:
1. They must close their fiscal year in mid-March (end of Persian calendar year).
2. They must have full financial data for the whole period of investigation.
3. They must list on the Tehran Stock Exchange before 2009.

4. Data Collection Method:
The data needed for analysis are gathered from audited financial statements and decisions taken in annual general meetings. This enables the main part of the data to be collected from the database that belongs to the Islamic Research Management Center of the Tehran Exchange Market, and the remaining data are gathered from the second version of Tadbir Pardaz software.

Results:
Caselli et al. [6] used GMM for dynamic panel data for the first time in estimating the economic growth models. Using GMM for dynamic panel data has some advantages like consideration of dissonance and more information, elimination of biasedness in pairwise regression which lead into more precise and more efficient approximation and less collinearity in GMM. GMM for dynamic panel data will be used when the number of cut-offs (cross sections) (\( N \)) is more than the number of years. (\( T \)) (\( N > T \)) Overally GMM has the following advantages compared to other methods:
1. Solving the problem of being endogenous: The main advantage of GMM is that all regression coefficients which are uncorrelated with error term could be potentially an instrumental variable.
2. Reduction in collinearity: Using dependent variables with lag leads to eliminate collinearity. It is very unlikely for lagged difference and lagged level to be correlated between characteristic variables and identical variables.
3. Expanding the time of variables: Although cross section could find the long term relation between variables, these estimations do not have the advantages of time series. Using time series provides the effect of all factors which have not been observed [17].

1. Descriptive statistics:
Table 1 presents the descriptive statistics for the variables, including the mean, median, and standard deviation.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>InvEfft</td>
<td>-0.031</td>
<td>-0.021</td>
<td>0.03</td>
</tr>
<tr>
<td>Invu</td>
<td>0.035</td>
<td>0.026</td>
<td>0.031</td>
</tr>
<tr>
<td>AQu</td>
<td>-0.082</td>
<td>-0.057</td>
<td>-0.074</td>
</tr>
<tr>
<td>Divu</td>
<td>0.521</td>
<td>0.603</td>
<td>0.368</td>
</tr>
<tr>
<td>Sizetu</td>
<td>3.8</td>
<td>5.742</td>
<td>0.633</td>
</tr>
<tr>
<td>KZu</td>
<td>15.778</td>
<td>15.847</td>
<td>3.043</td>
</tr>
<tr>
<td>QTu</td>
<td>1.307</td>
<td>1.169</td>
<td>0.489</td>
</tr>
</tbody>
</table>

2. Test Hypotheses 1 & 2:
   Table 2 presents the estimation results of Model (1). For hypothesis 1 we are concerned with the coefficient ($\beta_1$) and for hypothesis 2 we are concerned with the coefficient ($\beta_2$). According to the results in Table 2, coefficient for the AQ is 0.023192, indicating that AQ has positive effect on investment efficiency. The calculated value of $t$ statistic for the coefficient of AQ is smaller than critical value of $t$ statistics in error 0.05 and likelihood for AQ is 0.3879 that represents no significant coefficient obtained for AQ. This shows that hypothesis one will be rejected.

   Also, coefficient for the AQ*Div is 0.002834, indicating that AQ has positive effect on investment efficiency. The calculated value of $t$ statistic for the coefficient of AQ*Div is smaller than critical value of $t$ statistics in error 0.05 and likelihood for AQ*Div is 0.2923 that represents no significant coefficient obtained for AQ*Div. This shows that hypothesis two will be rejected.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>$t$-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQ</td>
<td>0.023192</td>
<td>0.026822</td>
<td>0.864660</td>
<td>0.3879</td>
</tr>
<tr>
<td>Div</td>
<td>0.001451</td>
<td>0.001742</td>
<td>0.832599</td>
<td>0.4057</td>
</tr>
<tr>
<td>Sizet</td>
<td>-0.016915</td>
<td>0.000715</td>
<td>-2.411341</td>
<td>0.0165</td>
</tr>
<tr>
<td>KZu</td>
<td>0.124405</td>
<td>0.017652</td>
<td>7.047592</td>
<td>0.0000</td>
</tr>
<tr>
<td>QTu</td>
<td>-0.004551</td>
<td>0.003899</td>
<td>-1.167215</td>
<td>0.2441</td>
</tr>
<tr>
<td>AQ*Div</td>
<td>0.002834</td>
<td>0.002867</td>
<td>1.054890</td>
<td>0.2923</td>
</tr>
<tr>
<td>InvEfft</td>
<td>0.276312</td>
<td>0.000141</td>
<td>17.54123</td>
<td>0.0000</td>
</tr>
<tr>
<td>C</td>
<td>0.066440</td>
<td>0.026819</td>
<td>2.477385</td>
<td>0.0138</td>
</tr>
</tbody>
</table>

3. Test Hypotheses 3 & 4:
   Table 3 presents the estimation results of Model (2). For hypothesis 3 we are concerned with the coefficient ($\beta_3$) and for hypothesis 4 we are concerned with the coefficient ($\beta_4$). According to the results in Table 3, coefficient for the AQ is 0.035812, indicating that AQ has positive effect on investment. The calculated value of $t$ statistic for the coefficient of AQ is smaller than critical value of $t$ statistics in error 0.05 and likelihood for AQ is 0.5202 that represents no significant coefficient obtained for AQ. This shows that hypothesis three will be rejected.

   Also, coefficient for the AQ*Div is -0.491745, indicating that AQ has negative effect on investment. The calculated value of $t$ statistic for the coefficient of AQ*Div is smaller than critical value of $t$ statistics in error 0.05 and likelihood for AQ*Div is 0.0835 that represents no significant coefficient obtained for AQ*Div. This shows that hypothesis four will be rejected.

Discussion:
According to the above explanations, the results of statistical analysis indicate that there is not a stable relationship between accruals quality and dividend with efficiency and investment decisions. In fact, the main variables of the study cannot be strong and determining predictors of independent variables. According to this, established hypotheses are rejected. Despite rejecting the hypotheses of the study, significant results obtained by GMM are severe influence of the firm’s investment in previous year on its investment in current year. Thus, it becomes clear that the firm’s decisions are to a large extent independent of other factors and variables. Furthermore, among control variables, the firm’s size have also a direct significant relationship with investment, and a reversed significant relationship with the efficiency of the firm’s investment.
Thus, it is suggested to the managers and decision makers of firms listed in Tehran’s Sock Exchange to use different financial and non-financial scales and criteria for further optimization of investment, since investment is one of the fateful decisions for firms.

Table 3: Test Hypotheses Three & Four.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQ0</td>
<td>0.035812</td>
<td>0.055641</td>
<td>0.643630</td>
<td>0.5202</td>
</tr>
<tr>
<td>Div</td>
<td>3.225470</td>
<td>3.462483</td>
<td>0.931554</td>
<td>0.3519</td>
</tr>
<tr>
<td>Size</td>
<td>12.25125</td>
<td>1.946021</td>
<td>6.295540</td>
<td>0.0000</td>
</tr>
<tr>
<td>KZ</td>
<td>-1.236059</td>
<td>0.68196</td>
<td>-1.999471</td>
<td>0.0463</td>
</tr>
<tr>
<td>QT</td>
<td>3.812073</td>
<td>0.672383</td>
<td>5.669499</td>
<td>0.0000</td>
</tr>
<tr>
<td>AQ*Div</td>
<td>-0.49745</td>
<td>0.283342</td>
<td>-1.735519</td>
<td>0.0835</td>
</tr>
<tr>
<td>Inv</td>
<td>1.682276</td>
<td>0.383999</td>
<td>19.589293</td>
<td>0.0000</td>
</tr>
<tr>
<td>C</td>
<td>28.34762</td>
<td>5.047931</td>
<td>5.615689</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Weighted Statistics

| R-squared | 0.790476 | Durbin-Watson stat | 1.830641 |
| J-statistic | 429.5541 | Instrument Rank | 9 |

In addition, it is suggested that the models of this study be tested again, and the results be compared by using other criteria of accruals quality measurement (or earnings management and financial reporting quality) in future studies. Meanwhile, the main subject of this study can be reanalyzed by using other criteria of investment efficiency measurement as the dependent variable.

REFERENCES