Investigating Effect of Accounting Conservatism and Earning Quality on
Reaction of Investors to Cash Stocks of Companies Accepted in Tehran
Stock Exchange

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Abstract
Managers tend to hide bad news about the performance of companies and potentially pretend that they
are in a desirable state. In companies with conservative reporting environment, there are more limited
management opportunities and motives for hiding bad news. Therefore, in these companies, projects
with negative net current value are more probably identified and set aside in a timely manner. Main goal
of the present research was to study effect of accounting conservatism and earning quality on reaction of
investors to cash holding level in the companies accepted in Tehran Stock Exchange. The statistical
sample included 160 companies accepted in Tehran Stock Exchange from 2007 to 2011. The data were
analyzed using regression method, the results of which indicated that financial reporting environment
and change in quality of the published information had no effect on the shareholders’ reaction to cash
balance. It also seemed that changes in cash balance were followed by users of financial statements only
when the company reduced the reported earnings due to accounting conservative procedures.

Key words
Accounting conservatism, Earning quality, Cash balance, Final cash value

1. Introduction
According to Jensen and McIling (1976), when free cash flow of companies increases, representation
conflicts between shareholders and managers will be intensified. Managers can follow their benefits and
interests at the expense of shareholders; thus, cash holding benefits of managers are higher than those of
shareholders, which lead to excess cash holding in the company that increases free cash flows. Under such
conditions, managers make decisions about using these resources and invest them in projects with negative
current net value, which leads to efficiency reduction of the company and increases motive of managers to
give incorrect financial report. Accordingly, the presence of supervisory mechanisms such as accounting
conservatism can be a barrier for profit-seeking motives of managers. There are numerous pieces of
evidence about conservation efficiency in reduction of profit-seeking motives of managers and support of
benefits of capital providers of stock companies. Most of these researches are related to role of
conservatism in reducing representation costs and effects on preservation of creditors’ and investors’
benefits. For example, research by Paek W., Chen L., and Sami L. (2007), Givoly, D., C.K. Hayn and A.
This research was conducted to complete theoretical fundamentals of the mentioned studies and explain
effects of conservative procedures on financial reporting environment and quality of the provided
information in financial statements of the companies accepted in Tehran Stock Exchange. In general, the
necessity of conducting the present research was to recognize accounting conservatism as a useful
mechanism in financial reporting and its effects on creating a confidence margin for shareholders and creditors regarding proper application of companies' resources.

2. Problem Statement

Cash flows of companies have special importance for analyzing the value made for shareholders. Managers can invest the above-mentioned funds in projects with positive net value through identifying suitable growth opportunities and thus increase wealth of their shareholders (Lee, E., Powell, R., 2010).

Recent studies have shown that market value of an additional dollar in the held cash fund is lower than a dollar (Faulkender, M., Wang, 2006). In this regard, Lee, E, Powell (2010) stated that capital market reacted to cash holding level in stock companies. They found that companies which constantly had excess cash fund granted lower return to their shareholders compared with those which suddenly and periodically faced this problem. These results are in line with the hypotheses of free cash flow presented by Jensen (1986), suggesting that excess cash funds had a negative effect on efficiency of investment decisions (Louis, H., Sun, A. and Urcan, O.).

According to Jensen and his succeeding researchers, the higher the excess cash in the company, the lower its final optimality for owners of the company in terms of value-building; as a result, managers may spend these excess cash resources for expansionism, which is known as over-investment. On the other hand, managers tend to hide bad news related to performance of companies and potentially pretend that they are in a desirable state. In companies with conservative reporting environment, there are more limited management opportunities and motives for hiding bad news; therefore, in these companies, projects with negative net current value are more probably identified and set aside in a timely manner, which leads to under-investment that includes making free cash flows and failure to invest them in new projects due to conservative procedures. On this basis, accounting conservatism as a supervisory mechanism is expected to increase excess cash value and its final utility for investors (Louis et al., 2011).

Francis, J., R. LaFond, P. Olsson and K. Schipper (2003) believed that investors use earning quality to recognize information relating to earning. As a result, earning is desirable for present and potential investors and is also considered in the process of contracts. From the viewpoint of investors, low quality of earning is not desirable because it indicates presence of risk in resource allocation. On the other hand, earning quality causes deviation of resources from projects with real return to projects with unreal return, which leads to reduction of economic growth. LaFond R., Watts, R. (2008) believed that accounting conservatism causes information clarity and increases earning quality of companies (Francis, J., R. LaFond, P. Olsson and K. Schipper (2010). In this regard, it is probable that earning quality of companies (like accounting conservatism) is effective in explaining shareholders' reaction to the held cash funds. Based on the above issues, the present research sought to answer the following two questions.

1. Is reaction of shareholders to cash holding level in more conservative companies different from others?
2. Is reaction of shareholders to cash holding level in companies with higher earning quality different from others?

3. Research Background

Paek W., Chen L. and Sami L. (2007) found that, as predicted by Dechow, increase of conservatism reduced profit stability. Considering these results, they argued that enactment of accounting standards which contained conservative procedures implied costs for the capital market. These standards reduced earning predictability and made actual and potential investors deviate from correct economic decision making.

Zhang J. (2008) studied advantages of conservative accounting for parties of debt contracts and found that, in case of using conservative accounting and existence of provisions of conservatism accounting in the debt contract, creditors would gain advantages, such as payment of debt before maturity and imposing fine if debtors violate the provisions. On the other hand, creditors would expect less interest rate from the companies following conservatism accounting and borrowers would benefit from advantages such as less interest rate caused by reduced debt agency costs.

Aloke Ghosh, Zhaoyang Gu and Prem C. Jain (2009) investigated earning quality and earning response coefficient when stable increase of earning was accompanied by stable increase of income. Research
results showed that companies with earning growth along with income growth had higher earning quality than those with growth along with cost decrease. Also, companies with increased income had higher operating future performance. Research results demonstrated that companies which had growth along with income had higher earning response coefficient.

Lee, J. (2010) conducted a research on the role of accounting conservatism in financial decisions of companies and investigated effect of conservative procedures in financial reporting on companies' financial flexibility. Results of the research showed that companies with higher conservative degree had less financial flexibility in their liquidity management, financing decisions, sensitivity of investment to financial limitations and payment policies for shareholders.

Lounis (2011) studied the relationship between accounting conservatism and held cash value and abnormal short-term return of the company and finally concluded that accounting conservatism had a positive effect on the relationship between the company's held cash fund and future operating performance. The evidence obtained from this research represented that accounting conservatism was related to optimal use of cash fund accessible to the company and supported the idea that accounting conservatism could be regarded as an alternative for external supervision and reduction of agency costs.

Khajavi and Nazemi (2005) studied the relationship between earning quality and return on share with an emphasis on the role of accruals in Tehran Stock Exchange. Based on the research findings, mean return on shares of the companies was not affected by accruals and their components. In other words, there was no significant difference between mean return of the companies, accruals of which were reported as the minimum and maximum.

Saghafi and Sadidi (2008) studied effect of conservatism on earning quality and return on shares and the relationship between conservatism and earning quality and return rate. Results of the above research indicated that the earning quality index introduced based on conservatism could be stated as a part of the difference between return rate of operating assets and return rate of shares in the current and next years. In other words, economic units which apply conservative procedures can change their earning quality by changing investment in operating assets.

Karami and Omrani (2009) studied effect of company's lifecycle and conservatism on its value. Results obtained from 450-year study of the company from 2003 to 2008 showed that investors preferred net operating assets and abnormal operating earnings of the companies in growth stage to those in maturity and decline stages. These results also demonstrated that investors in growth and maturity stages preferred net operating assets and operating earnings of conservative companies (to those which used aggressive accounting procedures) and the opposite process was held in the decline stage.

4. Research Hypotheses

First hypothesis: Reaction of shareholders to cash holding level in highly conservative companies is different from others.

Second hypothesis: Reaction of shareholders to cash holding level in companies with high earning quality is different from others.

5. Research Variables and their Calculation Method

Dependent Variable(s)

Dependent variable of the present research was reaction of share market to changes in cash balance. In other words, the value which activists of capital market considered for a Rial increase in cash balance, based on which market value of the company was determined, was considered the dependent variable and a function of conservation level and earning quality. This variable was regarded as marginal value of cash and its calculation was presented by Faulkender, M., Wang (2006). Their model was a regression model, in which abnormal return on shares of the company (share market reaction) was dependent variable and a function of changes in cash balance and control variables. Primary model of Faulkender, M., Wang (2006) was as follows:

\[
ABRET_i = \beta_1 \Delta Ci + \beta_2 \Delta Ei + \beta_3 \Delta NCAi + \beta_4 \Delta Li + \beta_5 \Delta Di + \beta_6 NFi + \beta_7 \text{LAGE}_i + \beta_8 \text{LAGC}_i + \beta_9 \text{LAGLi} + \varepsilon_i, \quad (1)
\]
Where:

- ABRET: abnormal return of company (difference between return on share of company and market index return)
- $\Delta C$: change in cash balance of company in financial period $t$ compared with period $t-1$ as control variable
- $\Delta E$: change in net earnings before unexpected items in financial period $t$ compared with period $t-1$ as control variable
- $\Delta NCA$: change in net noncash assets of company in financial period $t$ compared with period $t-1$ as control variable (noncash assets refer to difference between total assets and cash balance)
- $\Delta I$: change in interest cost in financial period $t$ compared with period $t-1$ as control variable
- $\Delta D$: change in dividend of company in financial period $t$ compared with period $t-1$ as control variable
- NF: net cash flows caused by financing activities of company as control variable
- LAGE: net earnings before unexpected items divided by market value of company at the beginning of financial period as control variable
- LAGC: total cash and short-term investments divided by market value of company at the beginning of financial period as control variable
- LAGL: financial leverage of company at the beginning of financial period (debts divided by assets) as control variable

Faulkender, M., Wang (2006) introduced $\beta_1$ coefficient as a marginal value of cash. This coefficient reflects change in abnormal return on shares of company for change in Rial cash balance. According to Louis et al. (2011), for testing the research hypotheses, the above regression model was developed by adding independent variables and was used for studying effect of accounting conservatism and earning quality on reaction of shareholders to changes in cash balance.

**Independent Variable(s)**

Independent variables of the present research were accounting conservatism and earning quality level of the companies. To test conservatism, Givoly and Hayn's model (2000) was used. Also, to measure earning quality level, the modified model of Jones which was presented and tested by Kiotari et al. (2005) was applied. Application manner of each of the considered models is explained as follows:

1. **Measuring Conservatism**

   To measure conservation, Givoly and Hayn's index (2000) was used. The reason for selection of this model in the present research was that other conservatism criteria like Baso's model (1997) were based on capital market reaction while goal of the present research was to study reaction of capital market to cash changes under different degrees of conservatism or earning quality. Therefore, application of a criterion based on market reaction to conservatism could lead to disorder and colinearity in the hypotheses testing model. For this reason, Givoly and Hayn's model (2000), which was based on accounting information, was more suitable for the present research. Conservatism level was calculated based on this index through the following formula. The more the resulting value obtained from the formula, the higher the conservatism level would be.

   \[
   CON = \frac{OACC}{TA} \times (-1) \tag{2}
   \]

   Where:
   - CON: conservatism degree
   - OACC: operating accruals (difference between net operating earnings and operating cash flow)
   - TA: book value of assets

   According to Givoly and Hayn (2000), accruals growth could be an index of change in accounting conservatism degree during a long-term period. In other words, if accruals increased, conservatism would
decrease and vice versa. For this reason, accruals were multiplied by -1 to determine direction of conservatism changes.

2. Measuring Earning Quality Level

The desired index for measuring quality of earning was discretionary accruals level which was estimated using Jones' modified model. In this regression model, discretionary accruals were calculated by residual of total regression of accruals by sale, property and machinery (independent variables). Jones' modified model which was presented and applied in 2005 by Kiotari et al. was as follows:

\[
\frac{TACC}{TA_{t-1}} = \alpha_1 \left(\frac{1}{TA_{t-1}}\right) + \alpha_2 \left(\frac{\Delta REV_{t}}{TA_{t-1}}\right) + \alpha_3 \left(\frac{PPE_{t}}{TA_{t-1}}\right) + \varepsilon_t
\]

(3)

Where:
- TACC: total accruals obtained by the difference between operating earnings and operating cash flow
- \(\Delta REV\): change in sale income compared with the previous period
- PPE: sum of properties, machinery and equipment
- TA: total assets
- \(\varepsilon\): residual of regression model reflecting discretionary accruals which show view of manager in the reported earning in each year company. Higher accruals reflect lower quality level of earning. Thus, accruals obtained for discretionary accruals should be multiplied by -1 to estimate earning quality level (Barth et al., 2009). According to Barth et al. (2009), the following was performed:

\[
EQ_t = (1-\|\varepsilon_t\|) \cdot \frac{1}{|\varepsilon_t|}
\]

(4)

6. Hypotheses Testing Method

The desired regression models for testing the hypotheses were adopted from research by Louis et al. (2011), which were based on marginal value of cash presented by Faulkender, M., Wang (2006), who found that dollar increase of excess cash increased market value of company by less than one dollar. Main objective of the present research was to answer the question that whether accounting conservatism increased market value of excess cash fund of the company or not. Therefore, to test the present research, regression model of Faulkender, M., Wang (2006) was used by adding variables of conservatism and earning quality (Louis et al., 2006).

6.1. Testing Method of First Hypothesis

In the first research hypothesis, effect of accounting conservatism on reaction of shareholders to cash balance was considered. Therefore, developed model of marginal value of cash was used for its testing. This model was as follows:

\[
ABRET_i = \beta_0 + \beta_1 \Delta C_i + \beta_2 CON_i + \beta_3 DCON_i + \beta_4 \Delta C_i \cdot CON_i + \beta_5 \Delta C_i \cdot DCON_i + \beta_6 \Delta E_i + \beta_7 \Delta NCA_i + \beta_8 \Delta I_i + \beta_9 \Delta D_i + \beta_{10} NFi + \beta_{11} LAGE_i + \beta_{12} LAGC_i + \beta_{13} LAGL_i + \beta_{14} \Delta C_i \cdot LAGE_i + \beta_{15} \Delta C_i \cdot LAGC_i + \beta_{16} \Delta C_i \cdot LAGL_i + \varepsilon_i.
\]

(5)

In the above model, CON reflects conservatism level based on Givoly and Hayn's model (2000). DCON is a dummy variable and, in case conservatism level of company is higher than mean of total conservatism of statistically sampled companies, its value is 1; otherwise, it is 0. Thus, \(\beta_1\) coefficient is reaction of capital market to cash holding in all statistically sampled companies, \(\beta_3\) coefficient is effect of conservatism level on this reaction and \(\beta_5\) coefficient is reaction of shareholders to cash holding in companies with high conservatism level.

6.2. Testing Method of Second Hypothesis

In the first research hypothesis, effect of earning quality on reaction of shareholders to cash holding was studied. Therefore, developed model of marginal value of cash was, to which earning quality criterion was added, was applied for its testing. This model was as follows:
In the above model, EQ is earning quality level based on Jones' model. DEQ is a dummy variable; in case earning quality level of company is higher than mean of total earning quality of the statistically sampled companies, its value is 1; otherwise, it is 0. Thus, $\beta_1$ coefficient is reaction of capital market to cash holding in all statistically sampled companies, $\beta_4$ coefficient is effect of earning quality level on this reaction and $\beta_5$ coefficient is reaction of shareholders to cash holding in the companies with high earning quality level.

7. Information Collection Method of Studied Statistical Sample and Population

In the present research, library method was used to collect the required information for testing the research hypotheses, which included financial information and figures of companies accepted in Tehran Stock Exchange.

To select suitable statistical population, systematic elimination sampling method was used. Table 1 shows selection and extraction methods of suitable statistical sample considering the mentioned sampling methods, considerations, conditions and data and information of the stock exchange.

<table>
<thead>
<tr>
<th>Table 1. Selection and extraction of the sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of companies attending stock exchange from 2007 to 2011</td>
</tr>
<tr>
<td>Number of the companies which were not part of investment companies, insurance or banks</td>
</tr>
<tr>
<td>N of the companies with financial year ending to the end of 20th March</td>
</tr>
<tr>
<td>Number of the companies with accessible information during the studied period</td>
</tr>
<tr>
<td>Number of the companies which did not have stop trading symbol during the studied period</td>
</tr>
<tr>
<td>(Final sample)</td>
</tr>
</tbody>
</table>

7.1. Results Obtained from Testing the First Hypothesis

The first hypothesis focused on reaction of shareholders to changes in cash balance and effect of conservatism on this reaction. Considering that some independent variables of regression model are combination of each other (they are obtained by multiplying two variables by each other) and some others reflect specifications of the statistically sampled companies, there is probability of colinearity between them. Therefore, regression models of the present research were fitted by stepwise method to prevent colinearity and invalid results. This technique adds independent variables of regression model to the regression one after another and, in each stage, eliminates invalid variables. Results obtained from fitting the first hypothesis testing model by stepwise method are given in Table 2.

<table>
<thead>
<tr>
<th>Table 2. Results of statistical analysis for testing the first hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>$\Delta C$</td>
</tr>
<tr>
<td>$\Delta E$</td>
</tr>
<tr>
<td>$\Delta NCA$</td>
</tr>
<tr>
<td>$\Delta LAGE$</td>
</tr>
</tbody>
</table>

\[ ABRET_i = \beta_0 + \beta_1 \Delta C_i + \beta_2 CON_i + \beta_3 \Delta CON_i + \beta_4 \Delta C_i \times CON_i + \beta_5 \Delta E_i + \beta_6 \Delta NCA_i + \beta_7 \Delta Di + \beta_8 NFi + \beta_9 LAGE_i + \beta_10 LAGCi + \beta_11 LAGLi + \beta_12 \Delta C_i \times LAGE_i + \epsilon_i, \]
Results of statistical analysis in terms of regression model validity are given in the first section of the above table. Determination coefficient of regression model was 0.309, indicating that this model could explain 30.9% of changes in abnormal return in the statistically sampled companies through independent variables. The results also showed that Durbin-Watson statistic was between 1.5 and 2.5; therefore, there was no significant correlation between errors of regression model and the absence of autocorrelation between the errors was accepted as one of the main hypotheses of regression regarding the fitted model. Significant level of F statistic for the model was lower than error level of the test (\(\alpha = 0.05\)). As a result, \(H_0\) was rejected; the estimated regressions were statistically significant and relations between the research variables were linear.

Results demonstrated that 4 of the variables in regression model of the first hypothesis were recognized as valid in stepwise regression and other variables were excluded from the regression due to invalidity or insignificance. Stepwise method in regression excludes all the variables which threaten the regression validity due to colinearity or non-significance. Therefore, the results showed that colinearity statistics was close to 1 for all the variables presented in Table 2 and no colinearity was found between the independent variables.

The results represented that the estimated coefficient for \(\Delta C*\text{CON}\) variable which reflected effect of conservatism on reaction of shareholders to changes in cash balance was significantly negative. This finding showed that accounting conservatism level was effective for attitude of shareholders toward changes in cash balance and stimulated their undesirable reaction to these changes. It should be noted that variable \(\Delta C\) as reaction of shareholders to changes in cash balance was excluded from the regression model due to lack of significance, indicating that shareholders did not clearly react to these changes and significant results were obtained only when variable of conservatism level was included in the regression.

Results of the statistical analysis for the control variables showed a significantly direct relationship between abnormal return with changes of net earnings and net earnings of the previous period. This finding indicated excessive attention of investors and actors of capital market to earning figures of the companies, demonstrating that they could considerably involve these figures in their investment decisions. Results also showed that reaction of investors to changes of noncash assets was negative and increased noncash assets was not probably desirable from their viewpoint.

Totally, the results showed that accounting conservatism was effective for reaction of shareholders to changes in cash balance while shareholders did not react to cash changes. For this reason, the claim mentioned in the first hypothesis was accepted at confidence level of 95%.

8. Results of Testing the Second Hypothesis

The second hypothesis focused on reaction of shareholders to changes in cash balance and effect of earning quality on this reaction. Results of fitting the second hypothesis model using stepwise method are given in Table 3.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient size (standardized (\beta))</th>
<th>Statistic t</th>
<th>Significance level (P-value)</th>
<th>Colinearity tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ</td>
<td>-0.07</td>
<td>-2.385</td>
<td>0.017</td>
<td>0.999</td>
</tr>
<tr>
<td>(\Delta E)</td>
<td>0.23</td>
<td>7.431</td>
<td>0.000</td>
<td>0.907</td>
</tr>
<tr>
<td>(\Delta NCA)</td>
<td>-0.497</td>
<td>-16.84</td>
<td>0.000</td>
<td>0.997</td>
</tr>
<tr>
<td>LAGE</td>
<td>0.104</td>
<td>3.368</td>
<td>0.000</td>
<td>0.909</td>
</tr>
</tbody>
</table>

The results showed that the estimated coefficient for EQ variable which reflected relationship between earning quality and abnormal return on shares of the statistically sampled companies was significantly negative, demonstrating that the companies with higher (lower) earning quality had higher
(lower) abnormal return. This finding can be explained by profit-seeking motives of the managers for managing increasing earning. It also seems that the statistically sampled companies were willing to exaggerate their earning. Moreover, main independent variables of the research, balance, changes in cash balance and its interactional variables with earning quality were excluded due to lack of significance. Therefore, shareholders did not have any reaction to changes in cash balance and earning quality had no effect on this reaction. Results of statistical analysis for control variables were similar to those for testing the first hypothesis, showing a significantly direct relationship between abnormal return and changes of net earnings and net earnings of the previous period. Also, reaction of investors to changes of noncash assets was negative.

In sum, the results showed that earning quality influenced reaction of shareholders to changes in cash balance. Accordingly, the claim mentioned in the second hypothesis was accepted and this hypothesis was rejected at confidence level of 95%.

9. Conclusions and Recommendations

Results of the present research indicated that financial reporting environment and change in quality of the published information had no effect on reaction of shareholders to cash balance; but, changes in cash balance was probably followed only when the company reduced the reported earning due to accounting conservative procedures. According to the findings, companies with free cash flows did not have desirable efficiency in application of resources from the viewpoint of capital market; considering profit-seeking motives of the managers, cash holding might be improperly spent. Regarding findings of the first research hypothesis, the following cases could be mentioned:

1. Results of testing the first hypothesis showed that accounting conservatism had negative effects on reaction of capital market to cash changes. In this regard, in case the company had a conservative policy in financial reporting, earning and other performance criteria based on accounting information would be underestimated. This event would potentially lead to negative reaction of investors because accounting earning is highly considered by the capital market.

2. Testing the second hypothesis showed that earning quality affected attitude of capital market to changes of cash balance. It should be noted that presence of conservative procedures in financial reporting reduced discretionary accrual level and increased earning quality.

Based on conservatism fundamentals and results of this research, it is recommended for investors that companies with higher conservatism are more suitable for investors with long-term vision. Shareholders and creditors of stock companies are also recommended to lead managers toward applying conservative procedures in financial reporting by applying corporate governance mechanisms in all conditions in order to reduce probability of waste and distribution of companies' resources as low-quality earnings. Managers of stock companies are also recommended to constantly follow news related to the company and its outcomes in the capital market, which is published from different resources, and include these reactions in financial reporting of their company. Thus, there is alignment between the expected return based on general information and expected return based on financial information.

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