



Investigating The Relationship Between Accounting Conservatism and Investment Efficiency in Companies Accepted in Tehran Stock Exchange

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ABSTRACT

The main purpose of this article is Accounting Conservatism and Firm Investment Efficiency in the Companies listed in Tehran Stock Exchange (TSE). To reach such a goal, all the firms which presented their financial statements (balance sheet, income statement) and other required information in the years 2006-2010, were checked. 111 companies Observation. Multiple regression (Panel Data) was used to test the hypothesis and their meaningfulness was reached by using *t* and *F* statistics. On the other hand, the Durbin-Watson test was applied to examine the autocorrelation of the model. The results showed that, there is relation between Accounting Conservatism, Leverage and Investment Efficiency. Also there is not any relation between Quality Accrual and Investment Efficiency.

Keywords: Investment efficiency, Overinvestment, Underinvestment, Conservatism.

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INTRODUCTION

Conservatism is one of the features of financial reporting which in the form of a restrictive promise in the framework of principles and concepts of accounting, plays an important role in limiting managers' optimistic behaviors as information providers and applying an estimation of minimum returns by investors and creditors in the place of the most important users.

In Miller and Moodigliani's (1958) opinion, in the full competition market, the investment decisions of a company are independent of its financial structure; however, competitive capital markets are not complete. In inefficient markets, investment and financing decisions are not separated from each other. In fact, the inefficiencies of the capital market, for example, asymmetric information and agency costs can lead to low investment (rejection of NPV projects) and too much investment (investing in -NPV projects). Asymmetric information on this topic implies that market participants do not have the same information; therefore, due to risks and information hazards, creditors demand expenditure for financing which increases the costs of external financing by the company. Therefore, it can be expected that asymmetric information, through financial constraints in capital markets, is the reason of rejection of projects with positive net present value (NPV), and lead companies to low amount of investment (Morgado and Pindadeau 2003).

Also, representative problems, due to the conflict of interests between managers and shareholders, cause managers to use free cash flow of the company to increase the size of the

company and its own interests or current shareholders, in contrast to future shareholders, create a margin of confidence for managers to accept projects with net negative current value (-NPV). These contradictions can ultimately result in greater investment (Roka et al., 2004).

The concept of conservatism has a long history in accounting. Basu (1997) has defined conservatism as follows: the willingness of accountants to regard a higher level of verification in identifying good news (profits) in relation to bad news (losses). This definition expresses conditional conservatism. In fact, conservatism is divided into two types: The first type of conservatism is a pre-event independent of news that also called unconditional conservatism and arises from applying those groups of accounting standards that reduce profits independent from current economic news. For instance, immediate identification of advertising and research and development expenses as a cost even if future cash flows are expected to be positive. Another type of conservatism is conservatism after an event that is related to news or conditional conservatism which means more timely identification of bad news than good news. In this interpretation of conservatism, accounting profits reflect bad news faster than good news. To put it simply, losses are quickly identified under conservatism accounting, while more verifiable evidence is needed to identify profits.

It is anticipated that conservatism has an important informative role which is effective on improving the company's investment performance and is expected to affect investment performance in three ways:

Firstly, recent research shows that conservatism is a response to information asymmetry. Studies show that managers modify

reported profits through the selection of specific accounting policies, changes in accounting estimates and accruals management, (Mehrani et al., 2009). Conservatism reduces the negative impacts of information asymmetry between managers and foreign suppliers of capital through limiting managers for manipulating accounting figures and also through other information sources (Lafon & Watts, 2008).

Secondly, the requirement of identifying losses immediately under conservatism accounting solves many problems caused by agency costs because it reduces the possibility of managers' investment in projects with a negative net present value as well as projects with poor performance (Ball and Shiva Kumar, 2005).

And thirdly, it is anticipated that conservatism makes it possible to absorb foreign resources. Conservatism accounting reduces the contradiction between shareholders and creditors in terms of dividends from borrowed funds (Ahmad et al., 2002). As a result, it reduces the cost of financing from the loan location that allows access to debts with lower risk and consequently, it reduces the negative impacts of creating debt on investment efficiency.

Based on the above reasons, a direct relationship between conservatism accounting and investment efficiency is anticipated. The clear question of this research is that whether companies that act more conservative also invest more efficiently?

Research hypotheses

Main hypothesis: There is a significant relationship between conservatism in accounting and investment efficiency.

Sub-hypothesis number 1: There is a significant relationship between the quality of corporate accruals and corporate investment efficiency.

Sub-hypothesis number 2: There is a significant relationship between corporate leverage and corporate investment efficiency.

Research methodology

In terms of research method this is an empirical research and in terms of purpose, is a developmental research and in terms of data collection is considered a descriptive correlational research in which actual information is used on corporate financial statements and library method are applied for collecting information and data. In this section, the theoretical aspects of the subject and previous applied studies have been examined. Also, some parts of the data are gathered using existing software and databases. Finally, analysis of data and tests will be done with Eviews and Excel software and other related software.

The community of this research is all companies accepted in the Tehran Stock Exchange from 2006 to 2010 and the following companies are considered to determine the research sample:

- 1- Their fiscal year ends on March 29th each year.
- 2- The company should not have any financial changes between 2006 and 2010.

3- The company should not be a member of financial intermediation group (banks, investments, etc.).

4 -Their financial reports are available.

The most important reason for choosing this statistical society is the standard, reliable and comprehensible information of companies of the statistical society.

RESEARCH MODEL

Since the purpose of this study is to investigate the relationship between conservatism in accounting and investment efficiency among companies accepted in Tehran Stock Exchange.

Therefore, the following model is developed to test the research hypotheses:

the modified model of Asma and Panola (2010) is used in this research To measure the potential effects of conservatism on investment efficiency:

$$Investment_{t+1} = \alpha_t + \beta_t + \sigma_1 cons + \sigma_2 cons * highFCF + \sigma_3 AQ + \sigma_4 Size + \sigma_5 MTB + \sigma_6 StdCFO + \sigma_7 StdInvestment + \sigma_8 Tangibility + \sigma_9 Leverage + \sigma_{10} CFOSale + \sigma_{11} Stack + \sigma_{12} Dividend + \sigma_{13} Loss + \epsilon$$

In which:

Investment = The investment index of total capital assets that is calculated by dividing the cash received from the sale of property and machinery minus the capital expenditures on average total assets. Also, Capital expenditures are equal to the total funds spent in the considered fiscal year for the purchase of property and machinery.

Cons = Conservative index is calculated from Khan and Watts (2009).

High FCF = High (low) investment index, which is calculated from the average of two indicators, free cash flow and leverage.

$$HighFCF = (FCF + Leverage) / 2$$

The following equation is used to calculate free cash flow:

$$FCF = INC - TAX - INTEXP - ORDIV - CAPEXP$$

In which:

FCF: Free Cash Flow.

INC: Operating income before subtracting depreciation.

TAX: Tax.

INTEXP: Total interest expense for long-term and short-term debts.

ORDIV: Profit paid to ordinary shareholders.

CAPEXP: Total Capital expenditures of the Fiscal Year.

The control variables are: AQ (accrual quality), Size (size) and MTB (market value to book value), and...

Conservative criterion

The model designed by Basu to measure conservatism has been investigated by various researchers from different aspects and its validity has been proven. The model is as follows:

Model (3-2)

$$Earn_i = \beta_0 + \beta_1 Neg + \beta_2 Neg + \beta_3 Ret_i * Neg + \mu_i$$

Neg for companies with negative or zero returns (existence of bad news), is equal to 1 and in case of positive stock returns (existence of good news) has a value equal to 0. In this model, if the stock returns are positive β_2 measures the sensitivity of the profit response toward bad news and if the stock return is negative $\beta_2 + \beta_3$ measures the sensitivity of profit reaction to the bad news. According to Basu, profit response to bad news faster than responding to good news. Therefore, $\beta_2 + \beta_3 > \beta_2$ and consequently $\beta_3 > 0$, the coefficient β_3 represents conservatism.

Basu's model is estimated at the level of year-industry by using cross-sectional regression or for a company by using time series at the year-level of the company. Both methods have limitations (Khan and Watts, 2009). In this research, we use the Khan and Watts model to calculate the conservative criterion. Khan and Watts stated the annual conservatism of the company and sensitivity to good news as a linear function of the company's features.

Model (3-3)

$$G_Score = \beta_2 = \mu_1 + \mu_2 Size_i + \mu_3 M/B_i + \mu_4 Lev_i$$

Model (3-4)

$$C_Score = \beta_3 = \lambda_1 + \lambda_2 Size_i + \lambda_3 M/B_i + \lambda_4 Lev_i$$

In this research, C_Score (or CONS) is the conservative criterion. To calculate it, we put these coefficients, β_2 and β_3 in the Basu's original model. Basu's modified model is as follows:

Model (3-5)

$$Earn_i = \beta_0 + \beta_1 Neg + Ret_i (\mu_1 + \mu_2 Size_i + \mu_3 M/B_i + \mu_4 Lev_i) + Ret_i * Neg (\lambda_1 + \lambda_2 Size_i + \lambda_3 M/B_i + \lambda_4 Lev_i) + \delta_1 Size_i + \delta_2 M/B_i + \delta_3 Lev_i + \delta_4 Size_i * \delta_5 Neg_i + \delta_5 M/B_i * Neg_i + \delta_6 Lev_i * Neg_i + \mu_i$$

We estimate the above regression in a sectional form for each sample year. Finally, we use these estimation coefficients to calculate C-Score (CONS), as expressed in Equation (4). After collecting data and computing variables, the hypotheses of the research were analyzed through Eviews software.

Research findings

Main hypothesis: There is a significant relationship between conservatism in accounting and investment efficiency.

As previously mentioned, the following linear regression model has been used in order to examine the relationship between conservatism in accounting and the investment efficiency.

$$Investment_{t+1} = \alpha_t + \beta_t + \sigma_1 cons + \sigma_2 cons * highFCF + \sigma_3 AQ + \sigma_4 Size + \sigma_5 MTB + \sigma_6 StdCFO + \sigma_7 StdInvestment + \sigma_8 Tangibility + \sigma_9 Leverage + \sigma_{10} CFOSale + \sigma_{11} Stack + \sigma_{12} Dividend + \sigma_{13} Loss + \epsilon$$

In which Investment t + 1 is the investment index in capital assets, CONS is the conservatism index and High FCF is the high and low investment index.

The investigation of heterogeneity of the variance

Disrupted sentences of Arch LM test has been used to investigate the existence of heterogeneity of the variance. The test results of the heterogeneity of the variance (Arch LM), are as follows:

Table 1: The results of heterogeneity test (Arch LM)

Description	Amount of statistic	Possibility
F-statistic	2.207384	0.1381
Obs*R-squared	2.206351	0.1374

The model test probability is equal to 0.1381. Given that the statistics of this test is significant at 5% level, therefore, the hypothesis of heterogeneity is rejected and the consistency of the disrupted sentences variance is accepted. This issue comes from the confirmation of $I \delta^2 = ((U_i Var))$ hypothesis. Therefore, the OLS method is considered the most efficient method of estimating regression.

The test of significance of the fixed effects method

Two statistical tests of F and Haxman should be used for the test of significance of the fixed effects method.

Table 2: The test results of F statistic

Description	Amount of statistic	Degree of freedom	Probability
Cross-section F	2.827661	(110320)	0000

Table 3: Hausman Test Results

Description	Amount of statistic	Degree of freedom	Probability
Cross-section random	91.972166	13	0000

Given that the probability obtained for the regression model is less than 5% in both of the tests conducted in this research, therefore, we should use the fixed effects method in this model.

Self-correlation Examination

Durbin-Watson statistic is used to test the lack of self-correlation in the model. Based on the results of Table 4, this statistic is 2.50. If these statistics are in the range of 1.5 to 2.5, the H₀ of the test, which means the lack of self-correlation between the remaining, is accepted; otherwise H₀ is rejected, this means that it can be accepted that there is correlation between the remainders. According to the obtained statistics, it can be stated that the lack of correlation between the remainders is accepted in the research model.

Regression estimation

A regression equation model is the starting point of econometric studies in which a relation between dependent variable and one or several independent variables is assumed. The regression model tries to explain the observed changes in the dependent variable by independent variables changes. The tables in the next pages show the result of the regression analysis test.

Table 4: the test results of combined regression analysis

Variable	Dependent Variable: Investment		
	Coefficient	t-Statistic	P-Value
Cons	0.967074	2.766609	0.0060
Highfcf*Cons	-1.291835	-2.639581	0.0087
AQ	-0.211791	-1.913349	0.0566
Size	-0.021592	-1.870467	0.0623
M/B	0.027786	3.198608	0.0015
StdCFO	-0.009055	-0.092092	0.9267
StdInvestment	0.088371	-1.229262	0.2199
Tangibility	-0.148171	4.824906	0.0000
Leverage	-0.008792	3.526911	0.0005
CFOsale	0.039767	1.611602	0.1080
Slack	0.007330	0.583773	0.5598
Dividend	0.007900	0.266437	0.7901
Loss	0.007566	0.595820	0.5517
0.422321	Adjusted R-squared	3.633023	F-statistic
2.508194	Durbin-Watson stat	0.000000	Prob-(F-statistic)

The total coefficient statistic (F statistic) is larger than the critical statistic with a significant level of less than 5% which indicates that there is a linear relationship between the independent and dependent variables and the regression has the required statistical validation. Therefore H₀ is rejected and H₁ is accepted. Durbin-Watson statistic value is 2.5 which indicate that the variable does not self-correlation.

As can be seen, the relationship between the amounts of money needed for future investment and conservative criterion (Cons) with t statistic is equal to 2.766 and P-Value is 0.006 and is significant at 5% error level. Also, the relationship between investment and the criterion of more (less) investment (Cons*Highfcf) with t statistic is 2.639 and P-Value is 0.008 is significant at 5% error level. The CONS coefficient is positive and equal to 0.96 and it shows that in companies with low cash and high leverage and as a result, invest small amounts of money (Their Highfcf is zero or close to zero), conservatism increases the amount of investment. Also, Cons * Highfcf is negative and is equal to 1.291. This indicates that in companies with no liquidity constraints (their Highfcf is one or near one) and in the condition of high investment, conservative accounting reduces the amount of money to invest.

Consequently, it can be said that companies that are more conservative are also investing more efficiently. The M / B variable (t = 3.198 and P-Value=0.001), Tangibility (t-statistic -4.824 and P-Value=0.000), and Leverage (t-statistic -3.526 and P-value=0.000) are meaningful at 5% error level. The coefficient of the Leverage variable indicates that if other factors are kept constant the investment will be reduced to 0.008 with a unit change in financial leverage. The adjusted coefficient of determination is equal to 42%, which shows that 42% of the changes in dependent variables are explained by independent variables.

AQ variables (t-statistics -1.913 and P-Value=0.056), Size (t-statistic -1.870 and P-value is 0.062), StdCFO (t statistics -0.092 and P-value 0.92), StdInvestment (t statistical -1.229 and P-Value is 0.21), CFOsale (t-value 1.611 and P-value is 0.10), Slack (t statistic 0.583 and P-value is 0.55) Dividend (t statistic 0.266 and P-value 0.79) And Loos (t-value 0.595 and P-value=0.55) are not significant at the 5% error level.

CONCLUSION

The research results are in accordance with the results of osma & penalva (2010). In their paper, they investigated and approved the existence of a positive and meaningful relationship between conservatism in accounting and the efficiency of investment in three levels of economy, industries and companies. These researchers used the criterion provided by Khan and Watts to measure conservatism. They also used OverInv criterion as the high (low) investment index. This criterion is defined as the deviations from the average regression of future capital expenditures on the growth of current sales. Positive deviations are considered as over-investment and negative deviations as low investment.

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