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Investigation of Relationship between Accounting Conservatism and Future Profitability in the Listed Companies in Tehran Stock Exchange

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ABSTRACT: The purpose of this research is Investigation of Relationship between Accounting Conservatism and Future Profitability in the Listed Companies in Tehran Stock Exchange. We used Ball and Shivakumar and Givoly and Hayn as indexes of conservatism. Also, we used Returns on Assets (ROA) as index of profitability. In this research, sample is 68 firms listed in Tehran stock exchange that are analyzed for the period of 1386-1391 by using of the Panel Data system and Ordinary Least Square Regressions (OLS) Model and Chow tests. The results show that accounting conservatism is negative significantly associated with the returns on assets.
Keywords: Accounting Conservatism, Profitability, Returns on Assets

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INTRODUCTION

While investing on common stock, investors have to investigate widely. In other words, they must consider many parameters while making investments as hey they are converting their assets into common stock. If they proceed to invest regardless of some parameters, the results wouldn't be desirable [1]. Profitability, DPS (dividend per share) and stock return are among the important parameters considered by shareholders. If these parameters reduce or be likely to reduce in future, shareholders would receive bad news.

Conservatism is one of the qualitative characteristic related to the content of financial information. According to theoretical concepts of financial reporting conservatism is to apply a degree of protection required while judging and estimating in ambiguous condition, so that the incomes and assets are not reported more than what they really are and the cost and liabilities are not states less than their real amount. Conservatism is a cautious reaction to ambiguity. Conservatism is not required when there is no ambiguity. The more ambiguity and the higher risk there is, the more conservatism is required.

Theoretical basis

The resent financial scandals throughout the world, from Enron and WorldCom in USA to parliament in Europe, have all condemned the financial reporting. Financial statements are the main core of financial reporting. Investors pay close attention to financial statements, and on top of them, the profit and loss statement (the amount of net profit). During the resent years, the quality of the reported profit has been considered by many scholars. Conservatism is one of the aspects of this quality; i.e. the more conservatism in reporting the profit, the more qualified it is [2].

Basu [3] believes that conservatism has been issued in accounting at least one hundred years ago, aiming to prevent firms from expressing unreal statements and reduce the risk of bankruptcy in different groups specially those who finance the capital. According to Basu, conservatism is the obligation to have a high level of confirmation in recognition of good news such as profit versus bad news such as loss. Conservatism is among the basic concepts of accounting considered by FASB in Statement of Financial Accounting Concepts (SFAC) No.2. FASB defined conservatism as a cautious reaction to ensure the adequacy of financial and economical statement by the company [4].

Conservative accounting practices prevents managers from opportunistic behaviors and too much optimism in profit statement and results in more reliable profit reports. One of the causes that admit the use of present values is the possibility to transfer useful information and up-to-date information to the users of financial statements. This reflects an accurate image of the company and increases the profit fluctuations. On the contrary, conservative accounting results in low profit fluctuation. Conservative accounting practices prevents managers from opportunistic behaviors and too much optimism in profit statement and results in more reliable profit reports.

This research tries to apply the modern models presented by accounting scholars in order to assess if there is a relationship between conservatism in the companies listed in Tehran Stock Exchange and their future profitability.

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Research history

Watts [5] believe that the companies with high political costs tend to use conservative accounting practices. Ahmad and Scott [1] confirm this showing that big companies are more likely to use conservative accounting practices compared to others. The results of their research also shows that when there is a conflict of interest in dividing profits between the creditors and shareholders, the managers of the debtor companies are probably more willing to apply conservative accounting practices.

Givoly and Hayn [8] indicated that profitability has decreased in USA during the four last decades, but this reduction has not caused a decrease in cash flows. The results of their research mention that loss is recognized faster than profit and the rate of unconditional conservatism and loss statement has increased up to 35% of financial reporting in United States. Ball and Shivakumar [7] and Beaver and Rian [8] have investigated the relationship between accounting conservatism and the risk of bankruptcy in their research. They concluded that there is a negative significant relationship between conditional and unconditional conservatism and the risk of bankruptcy.

In Australia, Balkishna et al. showed that 40% of sample companies have reported loss during a ten year period (1993-2003) and the rate of conditional conservatism have increased among them. The results of the research by Klein and Marquardt [9] on conservatism in USA showed a direct relationship between conservatism and loss in accounting. In other words, these results indicated that the more conservatism applied, the more loss was reported in the investigated companies.

Garcia et al. (2006) found an inverse relation between conservatism and the cost of capital. They found that conservatism lowers the risk of company which results in a decrease in the cost of capital. The results showed that despite being theoretically accurate, the previous models to measure the conservative accounting, which investigated the relationship between conservatism the cost of capital, have their own errors.

The results of the research by Qiang indicated that conditional and unconditional conservatism play different roles in each interpretation of Conservatism. Contract interpretation results in conditional conservatism while the interpretation of lawsuits would lead to both conditional and unconditional conservatism. He also found that the increase in unconditional conservatism would decrease the application of conditional conservatism. Therefore, a balance is required in their application.

LaFond and Watts [10] investigated the relationship between conditional accounting conservatism and the money supply in a company and they concluded that the increase in conservatism caused a reduction in money supply in the investigated company. In Another research, Ahmad and Scott [1] concluded that conservative accounting prevent the managers from investing in projects with negative turnover. They also found a direct relationship between the percent of the shares owned by the board of directors and conservatism.

Balachandram and Mohanram have presented some evidence that shows a significant positive relationship between unconditional accounting conservatism and the information content of net profit. Zhang [11] concluded that application of accounting conservatism can decrease the interest rate of long-term loans. Li [12] investigated the relationship between conservative accounting and financial decisions. According to him, management of the money supply is one of the indexes of basic financial decisions in the companies. The results of his research showed a positive significant relationship between accounting conservatism and the index of money supply management. The results also indicated that the relationship between conservatism and money supply is stronger in companies with higher flexibility

Hui et al. [13] investigated the relationship between conditional accounting conservatism and negative news in future. The results of their research indicated that conditional conservatism can decrease the future negative news (reduction of probability and stock return). They also concluded that the return on stock can spread positive news in the market in companies that apply more conservatism. Biddle et al. [4] investigated the relationship between accounting conservatism and the risk of bankruptcy in Hong Kong. The results indicated a negative relationship between conservatism and the risk of bankruptcy.

Research hypotheses:

Considering the theoretical basis and previous studies, following hypotheses were framed in this research:

First hypothesis: there is a significant positive relationship between future profitability and conservatism according to the scale of ball and Shivakumar. Second hypothesis: there is a significant positive relationship between future profitability and conservatism according to the scale of ball and Shivakumar.

Research Variables and experimental models:

Two dependant variables and an independent one have been applied in this research. As the independent variable, accounting conservatism is measured by tow scales including Ball and Shivakumar [7] and Givoly and Hayn [8]. The index of future profitability was considered and the dependent variable. Table 1 illustrates the mentioned variables for each hypothesis.

Table 1. Independent and Dependant variables

hypotheses	Independent Variable	Dependent Variable
First hypothesis	Conservatism index with the scale of Ball and Shivakumar	Future profitability
Second hypothesis	Conservatism index with the Scale Givoly Model	Future profitability

This part describes the way in which independent and dependent variables were measured.

A) Dependent variable: Future profitability (return on assets)

The return on assets for the next year is applied in this research as scale to measure profitability index. The return on assets is measured through the following relation, i.e. it is equal to net profit divided by the total assets.

(1) ***ROA = EARN / TASSET***

Where EARN refers to net profit and TASSET is the total assets.

B) Dependent variable: Conservatism index

Tow discussed methods are applied in order to measure the conservatism index and the regression model was estimated separately through both of them.

1) The model of Ball and Shivakumar[7].

This method was introduced by Ball and Shivakumar [7] and it is based on the variations of operating income which is measured by the regression model (2):

(2) $$\Delta OI_t = \beta_0 + \beta_1 D1_t + \beta_2 \Delta OI_{t-1} + \beta_3 D1 * \Delta OI_{t-1} + e_{it}$$

Where ΔOI_t is the variation of operating Income in the t year, ΔOI_{t-1} is the variation of operating Income in the t-1 year and DI_t would be equal to one if the variation of operating income in t-1 year is negative while it would be zero when the variation is positive.

2) The model of Givoly and Hayn

This model has been applied in order to measure the second index of accounting conservatism. Based on the model of Givoly and Hayn, conservatism index is calculated through following relation:

(3)
$$CI_t = \frac{ACC_t}{TA_{t-1}} \times (-1)$$

Where CI represents conservatism index, ACC refers to operating accruals and $TA_{t-1}$is the total asset at the beginning of the fiscal period. Operating accruals are obtained through the adding the depreciation cost to the difference between operating cash flow and net profit. According to Givoly and Hayn [8] the increase in accruals can be the indicator of the variation in the degree of accounting conservatism during a long-term period. In other words, if the accruals go up conservatism would reduce and vice versa. Therefore, accruals are multiplied by -1 in order to determine the direction of variations in conservatism.

Table 2. Definition of research variables and their acronyms

acronym	variable	type	definition
ROA	Profitability index (Return on Assets)	dependant	The return on assets for the next year is obtained by proportion of net profit to total asset
CONS-B	First index of conservatism (Ball and Shivakumar)	independent	This index is calculated through the following model: $\Delta OI_t = \beta_0 + \beta_1 D1_t + \beta_2 \Delta OI_{t-1} + \beta_3 D1 * \Delta OI_{t-1} + e_{it}$
CONS-G	Second index of conservatism (Givoly and Hayn)	control	This index is calculated through the following model: $CI_t = \frac{ACC_t}{TA_{t-1}} \times (-1)$
SIZE	Size of the company	Control	It is equal to the natural logarithm of total assets of the company. This value is higher in companies with wider range of activities.
CFO	Operating cash flow	Control	It is equal to total sum of cash earned through the operations of the company in one year which can be extracted from the cash flow statement
LOSS	loss	Control	Equal to one in case of loss and equal to zero if there is no loss
TACC	Variations of accruals	control	It is equal to variations of accruals in the current year Accruals = Net profit – Operating Cash Flow

In order to test the first, second and third hypotheses and investigate the relationship between Accounting conservatism and profitability index, the regression model presented by Hui et al. [13] and Biddle et al. [4] was applied in this research:

(4) $$ROA_{it+1} = \beta_0 + \beta_1 CONS_{it} + \beta_2 SIZE_{it} + \beta_3 CFO_{it} + \beta_4 LOSS_{it} + \beta_5 \Delta TACC_{it} + e_{it}$$

Where ROA_{t+1} is the return on assets and the index to measure the profitability in year t+1, CONS represents the index of conservatism obtained through Ball and Shivakumar (CONS-B) and Givoly and Hayn (CONS-G) models, $SIZE_t$ indicates the size of company measured through natural logarithm of total assets, CFO_t refers to operating cash flow which can be extracted from the company's cash flow statement, $Loss_t$ is 1 in case of loss and zero when there is no loss, and TA_{t+1} is the variation of Accruals in i company during the t year (Total accrual is equal to the difference between net profit and operating cash flow).

MATERIAL AND METHODS

This is a descriptive applied research in terms of objective and as to the method, a correlation was applied. In terms of design, this is a semi-empirical study and a prospective approached (through past event) was followed .

Statistical population and research samples: The statistical population includes all of the companies listed in Tehran Stock Exchange between 2007 and 20012 which have been able to preserve their membership. These companies where because of the easier access to their financial information which are also more homogenous due to the regulations Tehran Stock Exchange .

Cochran's sampling technique was applied to choose 68 companies (of 12 different industries) to be investigated as the statistical sample.

RESULTS

Descriptive statistics: The raw data was firstly used in order to calculate the values of research variables. Then the descriptive statistics including the average, median, maximum, minimum and standard deviation of the research data were calculated and illustrated in table 3. The mentioned values present the data condition schematically.

Table3. Descriptive statistics

variable	Acronym	average	median	max	min	Standard deviation
Conservatism (Ball and Shivakumar)	CONS-B	0.3645	0.3122	0.4654	0.0434	0.1425
Conservatism (Givoly and Hayn)	CONS-G	0.1262	0.1462	0.3268	-0.2164	0.0.0904
Future profitability (return on assets)	ROA_{t-1}	0.2966	0.2326	0.8205	-0.6699	0.1919
Size of the company	SIZE	5.2895	5.1658	7.4326	4.1486	1.3246
Operating cash flow	CFO	0.1843	0.1644	0.3214	-0.1243	0.2148
Net loss	LOSS	0.0765	0.0000	1.0000	0.0000	0.2660
Variations of total accrual	$TA\Delta$	0.4657	-0.0248	0.9273	-0.4253	0.1627

Choosing a suitable model for data combination

There were 68 observations in each section included in a 6 year period. In other terms, independent and dependent variables were investigated among 68 different companies within a 6 year period (2007-2012). Therefore, in order to achieve better results, the panel data model was applied and the data related to the 6 year period of these 68 companies was combined based on which some estimation were performed (408 year-company).

Table 4. The Chow test

Investigated model	Statistic of Chow test	p-value	result
Research model with the first conservatism index (CONS-B)	0.1737	0.9519	Data combination method Pooled data
Research model with the second conservatism index (CONS-G)	9.1043	0	Performance of Hausman test Panel data

As it is observed in Table 4, the results of Chow test for the research model with first conservatism index confirms the null hypothesis based on the equality of Y-intercept along all periods. Therefore the poodle data combination method is a better option for estimation of the foresaid model. According to this method, all pieces of data are combined and estimated through ordinary least square regression (OLS). As to the research model with the second index, the Chow test doesn't confirms the Null hypothesis based on the equity of Y-intercept within all periods. Therefore, the panel model (fixed or random effects) should be applied to test the second hypothesis. Hausman test was performed in order to choose a suitable model among fixed and random effects. The results are illustrated in table 5.

Table 5. The results of Hausman test for the second model

result	p-value	Statistic of Hausman test
Random effect	0.9090	**1.5353**

Reference: author's calculations

The results of Hausman test for the research model with second conservatism index confirms the null hypothesis. Therefore, it is more proper to use the random effect method to estimate this model.

The test results for the first hypothesis

The first hypothesis investigates the relationship between conservative accounting (through Ball and Shivakumar model) and the future profitability. This hypothesis applies the return on assets in the next year as

dependant variable and the conservative accounting as the independent variable. As it is observed in table 6, the f Statistic is significant with 99% confidence since the resulted p-value is less than 1%. Therefore, the research model is generally significant and independent variables are able to describe the dependant variable.

Table 6. The test result for the first hypothesis

$$ROA_{it+1} = \beta_0 + \beta_1 CONS-B_{it} + \beta_2 SIZE_{it} + \beta_3 CFO_{it} + \beta_4 LOSS_{it} + \beta_5 \Delta TACC_{it} + e_{it}$$

Description	coefficient	t-static	p-value
CONS-B	-0.0852	-8.0829	0.000
SIZE	0.0193	4.3276	0.0182
CFO	4.4839	9.3764	0.0000
LOSS	-0.3292	-7.3762	0.0000
ΔTACC	0.1129	1.8923	0.0837
Constant coefficient	-0.5248	-3.8993	0.0182
R-squared		0.3728	
Adjusted R-square		0.3663	
F-statistic		8.0398	
F(p-value)		0.0000	
D-W		1.8289	

The adjusted R^2 resulted through the model test was equal to 0.3663. This value indicates that about 36% of the variation in profitability index (return on future assets) in the sample companies is described by the existing independent and control variables in the model. Durbin-Watson test was used to investigate the absence of auto-correlation among the model errors. The desirable value for the absence of auto-correlation is 2. If the value of this statistic ranges between 1.5 and 2.5, auto-correlation is rejected among the values of model error. Since the Durbin-Watson statistic was equal to 1.8289, there is no auto-correlation among the values of model error.

Considering the results presented in table 6, p-value is equal to 0.0001 (less than 1%) for the variable of first hypothesis. Therefore, in this model, conservative accounting (with Ball and Shivakumar index) has no significant effect on the return on assets. The coefficient of the dependent variable is negative. Thus there is an inverse relationship between conservative accounting and profitability index. In other words, the profitability index was reduced by an increase in application of conservative accounting among the investigated companies. Therefore, the first hypothesis is confirmed with 99% confidence.

The test results for the second hypothesis

The second hypothesis investigates the relationship between accounting conservatism and the profitability index. This hypothesis applies the return on assets in the next year (profitability index) as dependant variable and the conservative accounting as the independent variable. The results of significance test on research model and investigation of foresaid coefficients between 2007 and 2012 through random effect method are illustrated in table 7. As it is observed in the table, the F statistic is significant with 99% confidence. Therefore, research model is generally significant and independent variables are able to describe the dependent one. Moreover, Adjusted R^2 0btained through the model test was equal to o.3238. This shows that about 32% of variations in the dependent variable (future profitability) are derived by the variations in independent and control variables and 68% of these variations are caused by other parameters.

Table 7. The test result for the second hypothesis

$$ROA_{it+1} = \beta_0 + \beta_1 CONS-G_{it} + \beta_2 SIZE_{it} + \beta_3 CFO_{it} + \beta_4 LOSS_{it} + \beta_5 \Delta TACC_{it} + e_{it}$$

Description	Coefficient	t-static	p-value
CONS-G	-3.3226	-6.3678	0.0172
SIZE	1.3809	4.0067	0.0446
CFO	0.0018	8.1174	0.0066
LOSS	-0.1709	-0.4236	0.6719
ΔTACC	-1.1687	--0.1667	0.8676
Constant coefficient	0.0229	3.0162	0.0049
R-squared		0.3366	
Adjusted R-square		0.3238	
F-statistic		6.2386	
F(p-value)		0.0007	
D-W		2.3279	

D-w statistic is equal to 2.3279. If the value of this statistic ranges between 1.5 and 2.5, auto-correlation is rejected among the values of model error. Since the Durbin-Watson statistic is equal to 1.8289, there is no auto-correlation among the values of model error. Considering the results presented in table 7, the value of t statistic and p-value are respectively equal to -6.3687 and 0.0172 for the independent variable of second hypothesis. Since the considered error level for this research is equal to 0.05, Conservatism has had a significant effect on the return on assets in the next year and the second hypothesis is confirmed with 95% confidence. The coefficient of the dependent variable is negative. Thus there is an inverse relationship between conservative accounting and profitability index. In other words, the more conservatism in profit statement, the more decrease in profitability in future years.

DISCUSSION

The results confirm the first hypothesis. Therefore, it can be claimed that there is a significant negative relationship between accounting conservatism and future profitability among the listed companies in Tehran Stock Exchange.

Confirmation of this hypothesis describes that when a more intense conservatism is applied according to accounting standards and regulations, the managers would try to identify loss, current costs and even the probable expenses and liabilities in a short term. On the contrary, identification of profits and assets would be postponed. In companies with higher level of conservatism, managers try to choose an accounting practice which doesn't state assets and incomes more than their real amount so that this principle can be applied perfectly. This can cause a decrease in net profit in future periods. The decrease in net profit is considered as bad news for shareholders, since they are always after higher profit and return and the reduction in future profit and return is not desired by them. Although application of conservatism would lead to profit reduction, it would indeed increase the transparency of information and somehow prevents managers from smoothing the incomes.

The results achieved through testing this hypothesis are in accordance with the results of Hui et al. [13], Klein and Marquardt [9], Givoly and Hayn [8]. The results of the estimation of regression model show that the coefficient of independent variable (conservative accounting) is significant with 5% error and there is a negative inverse relationship between conservatism and the return on assets in the next year. In other words, the findings confirm this hypothesis. As a result, it can be claimed that there is a significant negative relationship between application of conservative accounting (with Givoly and Hayn scale) and the profitability in the next year. I.e. the increase in application of conservatism decreases the profits in future years.

When conservatism is applied more strictly in a company according to accounting standards and regulations, the managers would try to identify loss and current costs in a short term. On the contrary, identification of profits and assets would be postponed. This would cause a decrease in profit which is followed by a reduction in the profit divided per share. The reduction in the distributed profit among the shareholders is considered as bad and negative news for them. The results achieved through testing this hypothesis are in accordance with the results of Hui et al. [13], Klein and Marquardt [9], Givoly and Hayn [8]. Considering the achieved results, some suggestions are presented for the future studies:

1. Investigation of the effect of accounting conservatism on other indexes profitability and performance of the companies such as the value added and the return on equity.

2. Investigation of the effect of conditional and unconditional conservatism on future profitability and comparing them.

3. Investigation of the effect of conservatism on profitability and stock return in different industries and comparing the results among them.

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