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Research Article

INVESTIGATING THE RELATIONSHIP BETWEEN ACCOUNTING CONSERVATISM AND THE BANKRUPTCY RISK OF COMPANIES

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ABSTRACT
The objective of the present study is to investigate the relationship of accounting conservatism with the bankruptcy risk and the reduction of profitability of companies. Bankruptcy risk indices of the decrease in net profit, and the decrease in dividend per share (DPS) were used as the dependent variables and the index of accounting conservatism was used as the independent variable. To test the research hypotheses and investigate the relationship between conservatism and the dependent variables, the data of 68companies listed on the Tehran Stock Exchange as the sample size were used. The temporal scope of the study was from 2005 to 2010. The data were analyzed by the method of paneldata analysis. To evaluate the appropriate models for testing hypotheses in the paneldata, Hausman and Chow tests were used. The results of the research indicated that accounting conservatism has anegative significant correlation with bankruptcy risk and a positive significant correlation with profitability indices.

Keywords: *Accounting Conservatism, Bankruptcy Risk, Net Profit, DPS*

INTRODUTION
When investing in in common stock, investors should do comprehensive investigations. In other words, they should consider many factors when investing because they change their assets into common stocks. If investors start to invest without considering some factors, they will not attain favorable results (Mehrani, 2004). Important cases to which shareholders pay great attention are profitability, DPS andstock returns. If these indices decrease in future, or their increase is probable, they will have bad news for shareholders. Conservatism is one co the qualitative features related to financial information content. In theoretical concepts of financial reporting, conservatism refers to the application of a degree of caring which is required for judgments for doing evaluation in ambiguous conditions, in such a way that incomes and assets are not presented more than those in reality and costs or debts are not presented less than those in reality. Conservatism is a cautious response to ambiguity. If there is no ambiguity, there is no need to conservatism and the more the degree of ambiguity and the risk, the more need to conservatism (Shabahang, 2004).

Theoretical Framework
Traditionally, conservatism is declared with the proverb "do not identify any profit, just identify all losses". In spite of the lack of a comprehensive definition of conservatism, in accounting literature, two important features of conservatism are investigated.
First one is the existence of advocacy in presenting less than reality of the book value less than market value of the assets which was proposed byFeltham and Ohlson (1995) and the second feature is tendency to require a higherdegree of verification for recognizing good news in earnings than for bad news proposed by Basu (1997). Basu (1997) defines conservatism from the loss and gain point of view as the necessity of having a high degree of verification for knowing good news such as profit, in contrast with recognition of bad news such as loss. In another definition of conservatism relying on the balance sheet approach, Feltham and Ohlson (1995) declare that in cases which there is a real doubt in selecting among two or several methods of reporting, that method should be selected which has the least favorable effect on the rights of shareholders.

The third definition is proposed by Givoly and Hayn (2000) which is based on the panelof the balance sheet and profit and loss approach. According to this view, conservatism is an accounting concept which results in decreasingthe reported cumulative profit via later recognition of incomes and faster recognition of costs and the lower evaluation of assets and high evaluation of debts.

The mandatory or conditional conservatism (based on in force standards) has a great effect on accounting regulations during time and assuredly, it can be one of the most fundamental accounting principles. Recently, the international standards of financial reposting have had high persistence on establishing accounting of fair values. The principle of fair value emphasizes timeliness and positive and negative news are recognized based on this principle. This is while conditional conservatism is in contrast with fair value and emphasizes the delay of recognizingnegative news (Hwan and Bong Pevzner, 2010). Basu (1997) believes that conservatism in accounting has been proposed with the objective preventing the unreal presentation of the state of commercial units and the reduction of bankruptcy risks 80 years ago by different groups particularly the suppliers of capital. For Basu, conservatism is the requirement to having a high degree of confirmation for recognizing good news such as profit, in contrast with bad news such as loss.

Conservatism is one of the fundamental concepts of accounting which was considered by the Financial Accounting Standards Board in the conceptual declaration 2. Financial Accounting Standards Board defines conservatism as the cautious response for making sure of the fact that economic and financial situation of companies are sufficiency presented (Biddle *et al.,* 2011). One of the reasons which cause the admittance of the principle of using fair values is the possibility of transferring suitable and timely information tothe users of financial statements. This issue causes that an appropriate economic image be reflected from the company and the profit enjoys more fluctuation. In contrast, conditional accounting conservatism results in less fluctuation of profit (Khan and Watts, 2007).

Accounting conservative approaches has prevented managers from too opportunistic and optimistic behaviors in presenting profit and caused the report of more reliable profits (Chung *et al.,* 2002).

The situation of companies should be in such a way that they have the ability to pay their debts in predictable future because the value of the assets of companies which is less than the amount of their debts, has a higher risk for investment andlending. Managers should always consider the threats of bankruptcy and the inability to pay their debts. Conservatism is a concept whose appropriate implementation results in appropriate and real presentation of the state of companies and can save companies from the risk of bankruptcy (Biddle *et al.,* 2011).

In the present study, it has been tried to using the modern models presented by the researchers of accounting, the index of conservatism and its effects on bankruptcy risk as well as the decrease in profitability be investigated in the companies listed on Tehran Stock Exchange.

Multiple researches have been conducted on the relationship of conservatism with negative news and the decrease in value as well as loss. Zhang (2008), during the period of 1994 to 2006 indicated that conservative actions among Japanese companies resulted in decreasing interest rates on long-term loans.

Givoly and Hayn (2000), in a research, using panel data, indicated that the relationship of profitability and reporting of loss with conservatism had been reduced during recent ten decades in the US.

Hwan and Bong (2010), in a similar research during the period of 1998-2009, using the data of 348 companies listed in New York Stock Exchange, concluded that conditional accounting conservatism resulted in the decrease in profitability and stock returns. The results of the studies of Balachandran and Mohanram (2008) in Romania were similar to those of Hwan and Bong (2010). Khan (2009) confirmed the relationship of conservatism and the timely decrease in profits among the companies listed on Tehran Stock Exchange during 2000 to 2008. Mashayekhi *et al.,* (2009) found out a negative relationship between conservatism and the amount of distributing profits and its sustainability in the temporal scope 2000 to 2006.

Ball and Shiva (2005) in china and Biddle *et al.,* (2011) in Hong Kong, reported a negative relationship between conservatism and bankruptcy risk. The results of the research conducted by Klein and Marquardt (2006) in the US and BaniMahd and Baghbani (2009) in Iran Stock Exchange confirmed these studies and

indicted a positive significant relationship between conservatism and reported loss of investigated companies. Ahmad and Duellman (2008) in a research conducted in Egypt during 1992 to 2005, reported the issue differently and concluded that conservative accounting prevents managers' investment in projects with negative returns. Rezaei (2009) found out similar results with those of Ahmad and Duellman. He concluded in the time period 2001 to 2007 in Iran Stock Exchange that there is a negative and significant correlation between two kinds of conditional and non-conditional conservatism and investment costs.

Another group of researchers investigated the relationship between conservatism and the decrease in liquidity as another kind of negative news. The researches done by Lafone and Watts (2008) in London Stock Exchange during 1990 to 2007 and Lee (2010) in Hong Kong during 1999 to 2008 are among these studies which indicted that as conservatism increases in the studied companies, liquidity decreases.

Research Hypotheses

The research hypotheses are designed regarding the theoretical framework and literature and presented as follows:

The Main Hypothesis: There is a significant correlation between accounting conservatism and bankruptcy risk.

The First Hypothesis: There is a significant correlation between accounting conservatism and the decrease in future bet profits.

The Second Hypothesis: There is a significant correlation between accounting conservatism and the decrease in future (dividend per share) DPS.

Research Variables and Experimental Models

In the present study, one independent variable and three dependent variables are employed. The independent variable is accounting conservatism and dependent variables are bankruptcy risk, the decrease of future net benefits and the decrease in DPS. Six control variables are used including return on assets (ROA), percentage of institutional ownership, loss, operating cashflow, the size of company, changes to future accruals. All the information related to the variables is extracted from the financial statements of companies listed on Tehran Stock Exchange.

To test research hypothesis and investigate the relationship between accounting conservatism and dependent variables, the regression models introduced by Hwan and Pevzner (2010) and Biddle, Ma and Song (2011) were used as follows:

$$EDF_{t=}\beta+\beta\ CONSI_t+\beta CFO_t+\beta_3 SIZE_{t\ +}\beta_4 Loss_t+e_{ii}\ (1)$$

$$\Delta Earn_{t+1=}\beta+\beta CONS_t+\beta_2 ROA_t+\beta_3 Inst_t+\beta_4 Loss_t+\beta_5 \Delta TA_{t+1\ +e}$$

$$\Delta Div_{t+1}=\beta+\beta_1 CONS_t+\beta_2 ROA_t+\beta_3 Inst_t+\beta_4 Loss_t+\beta_0 \Delta TA_{t+1\ +}e$$

In these models,

EDF is the index of measuring the bankruptcy risk of the company in the year t.

Earn $_{t+1}\Delta$: is the degree of the decrease in net profit in the year t+1 as the first criterion of evaluating future negative news (if the mentioned changes indicate the increase, the value of the variable is assumed zero).

CONS indicates conditional accounting conservatism

ROA indicates the return of assets in the year t for the company i

$Inst_t$: indicates the percentage of institutional ownership for the company i (the percentage of the share belonging to state institutions and organizations)

CFO_t: indicates operational cash flow and it is extracted from the operatingcash flow of the company.

$SIZE_t$: indicates the size of the company and it can be measured using natural logarithm of the total sum of all assets

Loss, is assumed as 1 in case of loss and zero in otherwise case and

ΔTA_{t+1}: indicates changes ofthe total changes to future accruals in the year t+1 for company i (the total accruals are equal to thedifference between net income and operating cash flow).

In the present study, to measure the index of accounting conservatism, the model of Givoly and Hayn (2000) was used. The conservatism index is calculated based on the mentioned model as follows:

$CI_t=\frac{ACCt}{TAt-1}\times(-1)$ (4)

In this equation, Cl indicates the conservatism index, ACC and TA_{t-1}indicateoperating cash flow and the sum of assets respectively in the first period.Operating cash flow is obtained from Difference between net profit and operating cash flows plus depreciation costs. According to Givoly and Hayn (2000) the growthoperating cash flow can be an index of changes in the degree of accounting conservatism during a long-term period. In other words, if accruals increase, conservatism decreases and vice versa. Therefore, to determine the direction of changes of conservatism, accruals must be multiplied in -1.

Table 2: Research variables

Variable	Abbreviation	Variable types
Conservatism	CONSI	Independent
Bankruptcy risk	EDF	Dependent
Changes in net profit for future periods	$\Delta EARN_{t+1}$	Dependent
Changes in DPS for future periods	ΔDIV_{t+1}	Dependent
the size of company	SIZE	Control
operating cash flow	CFO	Control
return on assets (ROA)	ROA	Control
percentage of institutional ownership	INST	Control
Net loss	LOSS	Control
changes to future accruals	ΔTA_{t+1}	Control

MATERIALS AND METHODS

The preset study is descriptive-analytical in terms of objective, and a correlational one in terms of nature and method. The present study is conducted based on a quasi-experimental and using the retrospective approach.

Population and Sampling

The population of the study includes all companies listed on the Tehran Stock Exchange. The temporal scope of the study was from 2005 to 2010 and has retained their membership in this period. Due to selecting and investigating stock companies, there is the possibility of simpler access to financial information of these companies and having more homogenous information due to the existence of the regulations in Tehran Stock Exchange. The total number of the companies listed on the Tehran Stock Exchange is more than 422 companies.

The sampling method of the research was Systematic elimination method in such a way that among all listed companies, those which were not qualified were eliminated and at last, all remaining companies were selected for being investigated and tested.

To evaluate the sample size, regarding that all variables used in the research were quantitative, Cochran's formula was used as follows:

$n=\frac{}{Ne2+Z2pq}$

N is the number of companies

N is the sample size of NZ^2pq

P is the success ratio and q is lack of success ratio, the value of each of them is considered as $p=q\frac{1}{2}$.

Z isthe standard normally distributed variable (1.96)

e is the evaluation error whose value is considered as 10 percent

Therefore, the number of the samples according to the above formula for 68 companies is as:

$N=\frac{230\left(\frac{1}{96}\right)(\%50)(\%50)}{230(\%10)+\left(\frac{1}{96}\right)(\%50)(\%50)}$ =

In order that the sample size be a better representative of the population, the sample companies should be selected among different industries. Therefore, the number of companies in each industry was selected

based on each industry per the whole population. Then, from each industry, a sample was selected based on simple random sampling.

The data were collected from 2005 to 2010, but regarding the calculation of research dependent variables including the increase in future net profit, the data of the next year were needed; therefore, the period of research for testing hypothesis includes a five-year time period from 2005 to 2009.

Data Collection Method

In the present study, data collection was conducted in two stages. In the first stage, to develop the theoretical framework, a library research was conducted and in the second stage, to collect the data, the documents of the sample companies such as financial statements available in CDs presented byTehran Stock Exchange and the website of Research Management, Development and Islamic Studies of Tehran Stock Exchange and the website ofResearch Management, Development and Islamic Studies of the Stock Exchange (htt://rdis .ir) were used. Therefore, the method of collecting data was field study.

The Method of Testing Hypotheses and the Significance of the Regression Model

To analyze the data and test the hypotheses, Eviews software program was employed. To test the hypotheses, the multivariate regression model focusing on the data approach was used. In this method, to select the type of method, Chow test or bound F and Hausman tests were used.

RESULTS AND DISCUSSION

Descriptive Statistics

In the present study, first using raw data, the value of the research variables were calculated and then descriptive statistics including mean, mode, maximum and minimum, and standard deviation were calculated. The results are presented in table 3. The mentioned values are only a general schema of the state of distributing research data.

Table 3: Descriptive statistics of research variables

Variables	Symbol	Mean	Mode	Max.	Min.	SD
Bankruptcy risk	EDF	0.3645	0.3122	0.4654	0.0434	0.1425
Changes in net profit for future periods	$\Delta EARN_{t+1}$	0.3471	0.0000	58.97600	-.3.4220	0.6443
Changes in DPS for future periods	ΔDIV_{t+1}	0.1749	0.000	1.0000	0.0000	0.3307
Conservatism	CONSI	0.1262	0.1462	0.3268	0.2164	0.0904
return on assets (ROA)	ROA	0.7966	0.1326	11.7505	0.6699	0.8919
percentage of institutional ownership	INST	0.4241	0.4120	0.8810	0.0320	0.2951
changes to future accruals	ΔTA_{t+1}	0.4657	0.0248	0.9273	0.4253	01627
Net loss	LOSS	0.0765	0.0000	1.0000	0.0000	0.2660
the size of company	SIZE	0.2895	5.1658	7.4326	4.1486	1.3246
operating cash flow	CFO	0.1843	0.1644		0.1243	0.2148

Test for an Appropriate Model of the Paneldata

Models 1, 2, and 3 were employed respectively for testing hypotheses 1, 2, and 3. The independent variable in each three models was conservatism (CON). Diagnostic tests were administered in each of the three model. To investigate the type of the test for the model in different time sections and periods of the paneldata, Bound F test (Chow) and Hausman test were used. In Chow test, if the value is significant, the

null hypothesis is rejected and thefixed effect model is accepted. In the case of insignificance of the mentioned statistic, random effects model is used for testing hypotheses. The results of Chow test are presented in table 4:
As observed in table 4, the results of Chow for models 1 and 3, the null hypothesis of this test claiming similarity of the intercept in all periods is rejected; therefore, the method of estimating the pooled data is more appropriate for models 1 and 3.

Table 4: The results of Chow test

The tested model	Chow test statistic	p-value	Test results
Model 1	0.1737	0.9519	Pooled data model
Model 2	9.1043	0.0000	Hausman test Panel data
Model 3	2.1556	0.0938	Pooled data model

According to this method, all the data are combined with each other and evaluated using Ordinary least squares regression. But, in model 2, the results of Chow test of null hypothesis of this test claiming the similarity of the intercept in all periods was not confirmed. Therefore, the panel model (fixed and random effects) should be used for testing the second hypothesis. To select an appropriate model among fixed and random effects model, Hausman test was used. The results are presented in table 5.

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

Hausman test statistic	P-value	Test results
0.0034	0.9864	Random effects model

Resource: researchers' calculations

The results of Hausman test for model 2 indicate that the null hypothesis of this test is confirmed. Therefore, random effects method for estimating model 2 is a more appropriate model. After identifying the type of test model, the results of testing hypotheses are present in the following sections.

The Results of Testing the First Hypothesis

In this hypothesis, the dependent variable is bankruptcy index and independent variable is accounting conservatism. As observed in table 6, the statistic F at significance level 99% is significant. Because p-value is less than 1%. Therefore, the research model is significant and independent variables have the ability to explain the dependent variable.
The adjusted R^2 obtained from testing the model is 0.3494. This figure indicates that about 35 percent of the variations of bankruptcy index of companies are explained by independent and control variables available in the model. To investigate the lack ofautocorrelation of errors due to model, Durbin-Watson test was used. Its optimal value for the lack of autocorrelation is 2. If the value of this statistic is from 1.5 to 2.5, autocorrelation is rejected in the values of errors of the model. Regarding that the value of the statistic of Durbin-Watsonobtained from the research model is 1.8372, the existence of autocorrelation in the values of errors of the model is rejected.

Table 6: The results of testing the first hypothesis
$EDF_t=\beta_0+\beta_1CONSI_t+\beta_2CFO_t+\beta_3SIZE_t+\beta_4Loss_{t+Eii}$

Description	Coefficient	t-static	p-value
CONS	0.0942	8.0489	0.0000
CFO	-0.0263	4.2786	0.0264
SIZE	-4.4681	11.6634	0.0000
LOSS	03042	9.9956	0.0000
fixed	0.6348	6.2904	0.0002
R-SQUARED	03529		

Adjusted R-squared	0.3494
F-static	8.6352
p-value	0.0000
D-W	1.8372

After investigating the significance of the model, analyzing the hypotheses and the significance of the coefficients was conducted. The statistic related to determining the significance of the coefficients is t-student test. This test both determines the significance of coefficients and the direction of coefficients in the dependent variable.

Regarding the results presented in table 6, the p-value for the variable of the first hypothesis is 0.0000 (lower than 1%). Therefore, the variable accounting conservatism has a significant effect on bankruptcy index in the model.

The coefficient of the independent variable is negative. As a result, the type of correlation between accounting conservatism and bankruptcy is a reverse one. In other words, by increasing accounting conservatism among the studied companies, bankruptcy decreases. Therefore, the first hypothesis is confirmed at the significance level 99%.

The obtained results are consistent with those of Biddle *et al.*, (2011), Ball and Shivakumar (2005) and Beur and Rein (2008). But it is not consistent with those of Klein and Marquardt (2006), BaniMahd and Baghbani (2009) and Hwan and Bong (2010).

Results

In this hypothesis, the dependent variable is the decrease in future net profit (as one of future bad news) and independent variable is accounting conservatism. The result of testing the significance of the second model and investigating the mentioned coefficient can be observed in table 7 using random effects method for years 2005 to 2009.

Table 7: The results of testing for the second hypothesis

Description	**Coefficient**	**t-static**	**p-value**
CONS	3.2988	6.3626	0.0170
ROA	1.3809	4.0067	0.0446
INST	0.0018	8.1174	0.0066
LOSS	-0.1709	-0.4236	0.6719
ΔTA_{t+1}	-1.1687	-0.1667	0.8676
Fixed	0.0229	3.0162	0.0049
R-SQUARED	0.3166		
Adjusted R-SQUARED	0.3238		
F-static		6.2386	
p-value		0.0007	
D-W		2.3277	

Dependent variable: $EARN_{t+1}$

As observed in table 7, F-statistic is significant at the significance level 99%. Therefore, the research model is significant and the independent variable is able to explain the dependent variable. In addition, the figure is obtained from the independent and control variations available in the model and 68 percent of other variations due to the existence of autocorrelation in the values of errors of the model are rejected.

The t-statistic related to the independent variable of the second hypothesis and its p-value is 6.3626 and 0.0170 respectively. Regarding that the error level for the research is 0.05, therefore, conservatism has a significant effect on the decrease in future net profit and the second hypothesis is confirmed at 95% of significance level. The coefficient of the independent variable (conservatism) is positive. As a result, the

type of the correlation between conservatism and the decrease in future net profitis direct. In other words, by increasing conservatism in providing profit, the decrease in the profit of next years will increase. The results of testing this hypothesis are consistent with the researches dome by Klein and Marquardt (2006), BaniMahd and Baghbani (2009) Hwan and Bong Pevzner (2010) and Givoly and Hayn (2000).

The Results of Testing the Third Hypothesis

In this hypothesis, the dependent variable is the decrease in future DPS (as one of future bad news) and independent variable is accounting conservatism. The result of testing the significance of the third model and investigating the mentioned coefficient can be observed in table 7 using money data method for years 2005 to 2009.

As observed in table 7, F-statistic is significant at the significance level 99%. Therefore, the research model is significant and the independent variable is able to explain the dependent variable. In addition, the adjusted coefficient of determination obtained from testing the model is 0.2136.The figure indicates that about 21 percent of the variations of the dependent variable are duet to variations of independent and control variables available in the model.

Regarding the value of the statistic of Durbin-Watson was 2.0116, the existence of autocorrelation in the values of error of the model is rejected. The t-statistic related to the independent variable of the third hypothesis and its p-value is 0.01. Therefore, conservatism has a significant effect on the decrease in future DPS and the third hypothesis is confirmed at 99% of significance level. The coefficient of the independent variable (conservatism) is positive. As a result, the type of the correlation between conservatism and the decrease in future DPS is direct. In other words, by increasing conservatism in providing profit, the decrease in the profit of next years will increase. The results of testing this hypothesis are consistent with the researches dome by Klein and Marquardt (2006), BaniMahd and Baghbani (2009) Hwan and Bong (2010) and Givoly and Hayn (2000).

Table 8: The results of testing the model of the third hypothesis

Description	Coefficient	t-static	p-value
CONS	1.4689	8.5289	0.0056
ROA	-0.0002	8.5289	0.0000
INST	-0.0004	-0.2415	0.8092
LOSS	0.1749	3.4944	0.0005
ΔTA_{t+1}	-4.3322	-6.3328	0.0394
Fixed	0.1625	3.4432	0.0006
R-squared	0.2222		
Adjusted R-squared	0.2136		
F-static	6.5908		
p-value	0.0000		
D-W	2.01116		

Dependent variable: $Div_{t+1}\Delta$

Discussion

To test the research hypotheses, the methodsof the research are estimating the panel data and multivariate regression by applying a sample of 68 companies listed on Tehran Stock Exchange from 2005 to 2009. The total results obtained from testing research hypotheses indicate the confirmation of first and third hypotheses. Therefore, it can be claimed that more conservative accounting results in the more decrease in the criteria of profitability and bankruptcy and consequently, sending negative news of the information of future year to the shareholders of the companies listed on Tehran Stock Exchange.

The confirmation of research hypotheses can be explained in such a way that by adopting more seriously the principle of conservatism according to the regulations of accounting standards, the managers of companies try to identify early the losses andcurrent costs and even probable costs and debts. In contrast, identifying can delay profits and assets. In addition, managers, in companies with higher conservatism, to

adopt these principles better, select the method which does not indicate the assets and incomes more than reality. This issue results in decreasing the net profits of next periods. The decrease in the net profit is considered bad and negative news for shareholders because shareholders always pursue higher profit and return rate and the decrease in profits and return of future is not considered good news. However, conservative measures result in the decrease in profit, they increase clarity of information prevent to some extent the adoption of income smoothing by managers.

Regarding the obtained results, in the present study, there are some suggestions for future researches:

1. Investigating accounting conservatism in other indices of profitability and performance of the company including value added and return on equity
2. Investigating the effect of conditional and non-conditional conservatism in bankruptcy index
3. Investigating the effect of conservatism inliquidity management separated by different industries and comparing the results among the industries
4. Determining the relationship between accounting conservatism and bankruptcy risk using criteria insolvent companies under the provisions of Article 141 of the Commercial Code
5. Evaluating the effect conservatism on stock returns of different industries and comparing the results among industries
6. Determining the relationship between conservatism and profitability indices in companies other than those listed on Tehran Stock Exchange such ascompanies covered by the Iran National industries Organization, Foundation of the Oppressed, Bank of Industry and Mine and other private companies working in Iran.

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