Studying the relationship between conditional and unconditional conservatism with Altman's bankruptcy model index evidenced from Iran

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Abstract: Conservatism is one of the qualitative characteristics of financial reporting. Also regarding the fact that management uses less conservatism approaches strategically, in the present research we will study the relationship between conditional and unconditional conservatism with Altman's bankruptcy model index in firms accepted in Tehran Stock Exchange. To calculate conditional and unconditional conservatism we have used the models posed by Ball, Shiva Komar, Guili, and Hyne. In the present research 124 firms accepted in Tehran Stock Exchange during the time period between 2007 and 2011 were investigated. To test the hypotheses we have used a linear regression model. The research findings showed that there is a meaningless relationship between conditional conservatism and Altman's bankruptcy index but there is a meaningful and negative relationship between unconditional conservatism and Altman's bankruptcy index.

1. Introduction

One of the opportunistic behaviors of the managers is to recognize the profits rapidly and postpone the losses because they can increase the rewards conferred to them by this activity and this issue has been mentioned in positive theories as management reward hypothesis (Rahmani, 2009). Accordingly Lafond & Watts (2008) consider conservatism as a halting factor for excessive optimistic managers. Wolk & et al (2004) noticed the lack of time symmetry in recognizing assets and profits in describing conservatism and define it as follows: "conservatism is the prior recognition of losses and assessing the assets to be much lower". On the other hand, research on bankruptcy prediction, started more than 7 decades ago, is one of the primary researches done in the field of financial knowledge. Bankruptcy prediction is important for different groups such as firms' beneficiaries, academics, insurance companies, loan givers, financial analysts, and activists in the field of firms' integrations (Sham V., 2001). Thus, regarding the fact that bankruptcy risk is considered to be important by most users and this issue finally results in decreasing firm value, it may also result in increasing conservative approach in financial reporting.

2. Research literature review

William & et al (2010) studied the relationship between debt cost and bankruptcy in their research. They used Zimmersky, Shirata, Ohlson, and Altman's models to measure bankruptcy and used the ratio of interest cost paid divided by the money paid monthly to measure debt cost. Their research results showed that there is a positive and meaningful relationship between debt cost and Zimmersky & Shirata's bankruptcy model indexes and this relationship is not meaningful among other indexes. Cano & Rodriguez (2010) tested the effect of auditing size on conditional and unconditional conservatism and concluded that conditional and unconditional conservatism differ in firms audited by big audit companies and those companies not audited by these audits. Also the incentive of audits is more compared to unconditional conservatism enforcement than conditional conservatism. Garcia & et al (2010) studied the relationship between conditional conservatism, systematic risk and capital cost. They concluded that conditional conservatism has negative effects on systematic risk and capital cost because conservatism can lower the lack of absoluteness of market estimates about cash flows. Gary & et al (2011) tested the effect of conservatism on bankruptcy risk and also the effect of bankruptcy risk on conservatism in their research. They concluded that accounting conservatism decreases bankruptcy risk and also along with bankruptcy risk, accounting conservatism increases. Mirsepasi (2010) tried to identify the relationship between accounting conservatism and financial crisis in firms accepted in Tehran Stock Exchange in a research paper. The results showed that in 48 companies suffering from

financial crisis compared to 57 profitable companies during the time between the year 2001 and 2007 there was a direct and meaningful relationship between accounting conservatism of the companies and the financial crisis.

3. Theoretical framework and research hypotheses

The ever increasing competition of economic entities has limited access to the resources and has increased the probability of bankruptcy. Therefore, the financial decision making has become more strategic then before. Making decisions in financial issues has always been accompanied with risk and lack of assurance (Chawa & Jarou, 2004). Nilson & et al (1993) consider bankruptcy realized when firm value is less than a certain probable amount. This probable level is defined by the changes in time structure when the interest rate and lack of assurance in assets value is observed. Research on bankruptcy prediction, started more than 7 decades ago, is one of the primary researches done in the field of financial knowledge. Bankruptcy prediction is important for different groups such as firms' beneficiaries, academics, insurance companies, loan givers, financial analysts, and activists in the field of firms' integrations (Sham V., 2001).

Accordingly the creditors, beneficiaries and others who encounter a great amount of loss as a result of firms' bankruptcy believe that accounting conservatism decreases firm's bankruptcy risk (Zhang, 2008; Witenberg, 2008). The reasoning for why accounting conservatism decreases bankruptcy risk the traditional economic logic stated that for conservatism which participates to supply the demand created by investors to get informed about their loan the dissolving and risk reduction will be expected (Watts, 2003; Basu, 2009). The prediction about whether conservatism reduces the forthcoming bankruptcy risk was investigated by the recent researches by Watts (2003), Kwang (2007), Kotary & et al (2010) which resulted in understanding that accounting conservatism supports output cash flows by reducing over investment, reducing risk changes, avoiding economic losses, the spread of economic savings and agency cost reduction (Gary and et al, 2011). Other studies found out that conservatism will result in increasing internal cash flows resulting from the activities. Internal cash flows conservatism can increase by spreading cautious storage, capital costs reduction, avoiding cash distribution, and cash waste (Laura & et al, 2010). The recent researches state that accounting conservatism reduces lack of absoluteness and information asymmetry by less optimistic reporting of assets and net profit and by more in time reporting of bad news (Guili & Hyne, 2007).

Accordingly Lafond and Watts (2008) consider conservatism as a halting factor for over optimist managers and divide conservatism into two types. The first type is pre-incidental conservatism which is also called independent of news conservatism and also unconditional conservatism. Pre-incidental conservatism is resulted from utilizing accounting standards which reduce the profit in a way that it is independent from the current economy. For example, the immediate recognition of propaganda and the research costs and the development as cost even when the future expected cash flows is positive. Another type of conservatism is post-incidental conservatism which also is called news dependent conservatism, conditional conservatism and tie profit asymmetry. Post-incidental conservatism refers to more in time recognition of bad news compared to good news in profit. For example, the least cost principle or market value, asymmetrical recognition of probable losses along with probable profits are of this type (Bivar & Rayan, 2005). Furthermore, regarding the outlook of financial accounting standards bureau about conservatism, it is considered as a cautious guaranteeing reaction for lack of absolute for lack of absoluteness in risks hidden in business conditions (Gary & et al, 2011). Thus the following hypotheses were devised as follows:

1- There is a relationship between conditional conservatism and Altman's bankruptcy index. 2- There is a relationship between unconditional conservatism and Altman's bankruptcy index.

4. Research variables and their operational descriptions

Regarding the fact that in the present research we wanted to study the relationship between conditional and unconditional conservatism and Altman's bankruptcy model index, conditional and unconditional conservatism were considered as independent variables and the models presented by Ball, Shiva Komar, Guili, and Hyne were used to calculate it. Bankruptcy index was considered to be the dependent variable for which Altman's model was utilized to calculate it. Also in this research, based on researches carried out in the country or out of it, the variables of firm size, and financial leverage were utilized as control variables.

4-1. Conditional conservatism

$TACC_{it} = \alpha_0 + \alpha_1 DCFO_{it} + \alpha_2 CFO_{it} + \alpha_3 DCFO_{it} * CFO_{it} + \varepsilon$

$TACC_{it}$ = Total Accrual Commodity

CFO_{it} = Cash Flows resulted from Operations

$DCFO_{it}$ = It is an artificial variable that equals to 1 when CFO is negative, otherwise it equals zero.

All the variables included in the formula above were de-measured of the total assets by the residuals in the beginning of the period. The role of accruals in

reducing the disturbances which can be created due to the operational activities were reflected in $a_2 < 0$. Conservatism or the in time recognition of losses results in $a_3 < 0$. Thus, in this model the coefficient a_3 is an index for conservatism (Ball & Shiva Komar, 2005).

4-2. unconditional conservatism

Where, the operational accrual commodities are resulted by calculating the difference between net profits and operational cash flows plus depreciation cost. Guili & Hyne (2000) believe that the growth of accrual commodities can be an index showing the change in accounting conservatism degree during a long term period.

$$Conservativeness\ index = \left(\frac{Operational\ accrual\ commodities}{total\ assets\ at\ the\ start\ of\ the\ period}\right)$$

The reasons to choose the models above to measure accounting conservatism are as follows:

A: The present models for measuring conservatism such as Basoo (1997) and penman & Jhang (2002) which have also been used in some local researches encounter a lot of errors in measuring conservatism.

B: The data of the model used in this research is based on accounting data and market indexes are not used in it. Regarding the accessibility of the financial statements' data to measure the hidden conservatism in financial statements, these two models are more appropriate than other models for the markets in developing countries such as Iran (Banimahd, 2006).

4-3. Altman's bankruptcy index

To measure the dependent variable, we have used Altman's bankruptcy model index. But because the coefficients and variables of these models based on the economic structure, and Iranian companies' status are different we have used some adjusted models which were posed in a research by Ghadiri-e-Moghaddam (2009) in knowledge and development knowledge.

$Z = 0.717\ X_1 + 0.874 X_2 + 3.107 X_3 + 0.420 X_4 + 0.998 X_5$

Where:

X_1: flowing capital to total assets' ratio

X_2: accumulated profit to total assets ratio

X_3: profit before interest and tax to total assets ratio

X_4: book value of a firm's stocks to book value of debts ratio.

X_5: sales to total assets ratio

Table (1) shows Altman's bankruptcy probability.

Table 1: Bankruptcy probability

Bankruptcy possibility	Limits
Bankrupted	$Z \leq 1.23$
Critical area	$1.23 \leq Z < 2.9$
Non-bankrupted	$2.9 \leq Z$

4-4. Control variables

Firm size: it is calculated by the natural logarithm of total assets at the end of the period.

Drashid & Zhang (2003) used the natural logarithm of total assets at the end of the period and Zimmerman (1983) used total sales revenues as the representatives of firm size. Sales revenue has a direct structural effect on profit. This internal effect can change the research results in a way that is not favorable for the present researcher. Thus, natural logarithm of total assets was used for firm size (Cano & Rodriguez, 2010).

Financial leverage: this variable is gained by dividing total debt to total assets at the end of the period. Accounting methods are related with financial leverage because firms' debt ratio is one of the important criteria by creditors (in Iran, banks).

Table (2) shows trademarks of the variables and also their names:

Table 2: Symbol and variables name of research

Symbol	variables name
AltmanZ	Altman's bankruptcy index
CONSERc	Conditional conservatism
CONSERu	unconditional conservatism
SIZE	Firm Size
LEV	Financial Leverage

5. Research Findings

5-1. Explanatory findings

The descriptive statistics of independent, dependent and control variables are presented in table (3).

Table 3: Descriptive Statistics

Variable	AltmanZ	CONSERc	CONSERu	SIZE	LEV
N	619	619	619	619	619
Mean	1.794	0.039	0.134	13.304	0.625
Std. Deviation	0.979	0.437	0.606	1.330	0.313
Minimum	-2.996	-1.497	-2.416	10.739	0.096
Maximum	5.504	3.992	3.377	17.635	0.913

5-2. Empirical results

To study the normality of the variables and residuals we have used Kolmogorov-Smirnov test. If the probability amount related to this test is more than 0.05, we can approve the normality of the distribution of the variables with %95 assurance and vice versa. The results of this test in table (4) showed that all quantitative variables of the research except Conditional and unconditional Conservatism have normal distribution. As it was observed the amount of probability of each one of the variables is more than 0.05. Thus, the data can be tested through a parametric test.

Table 4: the outcomes of Kolmogorov-Smirnov test

Variables	AltmanZ	CONSERc	CONSERu	SIZE	LEV
Kolmogorov-Smirnov Z	1.246	4.083	2.863	1.057	1.207
Sig.	0.084	0.000	0.000	0.204	0.088

Pearson's correlation matrix is a test used to identify the correlation amount of the data. For example, in table (5) and in an assurance level of %99 there is a negative and meaningful relationship between AltmanZ and unconditional Conservatism which shows that the negative relationship between AltmanZ and unconditional Conservatism is %10.8.

Table 5: Pearson correlation coefficient

Variables	AltmanZ	CONSERc	CONSERu	SIZE	LEV
AltmanZ	1				
CONSERc	0.036	1			
CONSERu	-0.108*	-0.031	1		
SIZE	-0.092*	0.059	-0.311*	1	
LEV	-0.743*	-0.023	0.072	0.067	1

*95% Confidence

5-3. Results of testing hypotheses
5-3-1. Results of testing first hypothesis

Regarding table (6), there is not a meaningful relationship between conditional conservatism and Altman's bankruptcy index. But the amount of F statistics equals 255.161 through which the meaningfulness level (P-value) is less than %5. Thus, we can say that the regression model is determinative. But since the meaningfulness level of conditional conservatism (independent variable) is less than %5, by considering the meaningfulness level of the independent variable we can say that conditional conservatism does not have any effects on Altman's bankruptcy index. Also the control variables of financial leverage have a meaningful relationship with Altman's bankruptcy index. Durbin-Watson's statistics is located between 1.5 and 2.5 therefore we can conclude that there is not a self-correlation problem between the variables. Additionally, the identification coefficient (R Square) shows that the changes in independent and control variables represents %55.5 change in dependent variable.

Table 6: The results of first hypothesis test

research variables	Coefficient of Regression	T	Sig.	F	P-value	D-W	R	R^2
CONSERc	0.022	0.800	0.424					
SIZE	-0.043	-1.604	0.109	25.606	0.00	2.008	0.745	0.555
LEV	-0.740*	-27.413	0.00					

5-3-2. Results of testing second hypothesis

Regarding table (7), there is a meaningful relationship between unconditional conservatism and Altman's bankruptcy index. But the amount of F statistics equals 256.469 through which the meaningfulness level (P-value) is less than %5. Thus, we can say that the regression model is determinative. But since the meaningfulness level of unconditional conservatism (independent variable) is less than %5, by considering the meaningfulness level of the independent variable we can say that unconditional conservatism has negative and meaningful effects on Altman's bankruptcy index. Also the control variables of firm size and financial leverage have a meaningful relationship with Altman's bankruptcy index. Durbin-Watson's statistics is located between 1.5 and 2.5 therefore we can conclude that there is not a self-correlation problem between the variables. Additionally, the identification coefficient (R Square) shows that the changes in independent and control variables represents %55.6 change in dependent variable.

Table 7: The results of first hypothesis test

research variables	Coefficient of Regression	T	Sig.	F	P-value	D-W	R	R^2
CONSERu	-0.104*	-2.546	0.023					
SIZE	-0.056*	-1.970	0.049	25.469	0.00	2.000	0.802	0.643
LEV	-0.736*	-27.201	0.00					

6. Conclusion

The goal of doing the present research is to study the relationship between conditional and unconditional conservatism with Altman's bankruptcy risk in firms accepted in Tehran Stock Exchange. The evidences of bankruptcy risk decreases enforced by accounting conservatism arises from the traditional economic logics which supports the demand created by the investors to be informed of the loan decisions, dissolution and the reduction of firm risk. Besides the theoretical foundations mentioned, the research findings show that unconditional conservatism has a negative and meaningful relationship with Altman's bankruptcy risk but conditional conservatism does not have a meaningful relationship with it. This means that conservatism reduces the forthcoming bankruptcy risk. Accounting conservatism supports output cash flows by decreasing over-investment, decreasing risk changes, avoiding economic losses, spreading economic savings and decreasing agency costs and results in increasing the internal cash flows resulting from the activities. Also conservatism increases internal cash flows by spreading cautious storage, reducing capital costs, avoiding cash distribution, and reducing cash wasters. Finally accounting conservatism reduces lack of absoluteness and information asymmetry by less optimistic reporting of assets and net income and by in time reporting of bad news. Thus, regarding the viewpoints of the board of financial accounting standards, conservatism is considered as a cautious reaction to guarantee lack of absoluteness in risks hidden in business conditions which result in reducing the firm's bankruptcy risk.

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