Advances in mathematical finance & applications, 2 (1), (2017), 55-68

Published by IA University of Arak, Iran
Homepage: www.amfa.iau-arak.ac.ir

Fair Value Accounting for Liabilities and Own Credit Risk

Parvaneh Khaleghi Kasbi [a,*] **, *Mohammadali Aghaei*** [b]

[a]*Department of Accounting, Islamic Azad University, Qazvin branch, Qazvin,Iran*
[d]*Department of Accounting,Tarbiat Modares University, Tehran, Iran*

ARTICLE INFO

Article history:
Received 16 October 2016
Accepted 25 February 2017

Keywords:
Fair value
Credit risk
Default risk
Solvency

ABSTRACT

Changes in credit risk may arise when either the value or the risk of corporate assets changes. Changes in the equity value associated with the changes in the asset value and changes in asset risk can be characterized into potentially countervailing direct and indirect effects. The indirect effect of risk on equity value is a function of factors that affect the debt value of including leverage, asset value, and asset risk. This study examines whether the equity value reflects the profits and losses associated with the changes in the debt value consistent with the predictions of Merton [21]. The insurance companies listed in the Stock Exchange during 2010-2015 were selected to test the desired hypotheses. It has been found that the stock returns are negatively related to the increase in credit risk as reflected in the changes of estimated bond ratings. More importantly for the research question, it has been realized that the relationship between risk changes and equity returns is negative when the leverage is higher.

1. Introduction

Accounting aims to draw a correct picture of a company for the investors and other users. The advocates of fair value accounting believe that it is unfair to put the responsibility of judgments about large financial risk corporates on the accounting. They assert that the capital market regulates the activities only when the information disclosure is clear and suitable.

Investors are motivated to increase the precision in the beliefs through gathering the required data. If they can find out the correct interpretations, this process is able to change into an investment opportunity quickly. They try to do it in order to direct the share value towards an efficient one. Probably, at least a part of information is achieved by the means of financial statements. Therefore, it is necessary to put the value in the statements interpreting the fairest value in addition to the increased reporting transparency. In order to compare various evaluation methods (evaluation patterns), Sterling has used two error criteria related to time and measurement unit and assessed the interpretation and understanding capabilities of the user in relation to the element of time when the general level of prices is

* Corresponding author. Tel.: *+989125489664*
E-mail address: *pari.khaleghi@gmail.com*

changed; then, he realized that every evaluation method has a specific feature while measuring is done and what makes the desired methods different is time leading to some variations in the measurement location conditions [24]. International accounting standards involve such measurement features as historical cost (used for cash and Liabilities till the due), the adjusted historical cost (used for the property, machinery, equipment and loans), fair value (used for derivative securities and assets revaluation) and specific value of profit unit (used for the damaged inventory and property and old machinery and equipment [5]. Barth stated that these differences especially in the measurements are not originated from theoretical frameworks but they are caused by the rules and different practical methods formed in a specific period. Also, he believed that applying a variety of measuring properties not only is inappropriate from the conceptual perspective but also lead to some problems for the users of statements. The recognized sums in the financial statements are a combination of amounts measured by various methods. It makes the interpretation of summarized sums like net profit complicated [6]. Determining the asset-debt value is based on the determination and calculation methods of characteristics attributed to the assets and Liabilities. Thus, the characteristics related to the asset and debt classification are put in three main classes including the input value, output value and economic value.
The difference between the measuring methods and determination of Assets-Liabilities value and finally, the profit measurement is resulted by the characteristics in relation to the Assets-Liabilities or the differences of measuring units; they have been classified into three classes as follows [23].

- Effects on past, present or future
- Type of transaction which was done or is being done.
- Nature of events which specify the evaluation criterion.

Now, this question is brought up, "which value is more important for the users of financial statements?"
Using fair values for the measurements of assets and Liabilities is attractive because plenty of qualitative characteristics provide a theoretical framework to prepare useful financial information. This criterion should be utilized according to the main goal of financial reporting which is to help the investors and other users in making the economic decisions. Here, fair values are considered since they reflect current economic conditions. Fair values are able to be compared because the fair values of assets and Liabilities are mostly based upon the characteristics of asset and debt, not features of corporate with the desired assets and Liabilities. Fair values lead to the increased trend stability since they reflect the same information in all the periods. They are timely because they show the variations of conditions. Furthermore, fair values can realize the stewardship role of financial reporting; thus, financial statements display the value of assets while assigning the profit unit. As well, this value is essential to determine the performance ratios such as ROI; as a result, the studies conducted by the Accounting Standards Committee of Germany and Financial Analysts Federation of European countries have demonstrated that the adjusted fair value based on market value highly attracted the attention of investors [22].
Managers of corporates are to make suitable decisions to enhance the share value of corporate and achieve the most optimum combination of various capital sources. To combine the capital sources, different theories have been presented. According to these theories, some believe that the corporate has to use the maximum loan in its own financial structure and the others state that there is no reason to prove the superiority of loans. Based on traditional capital structure view, the use of leverage can

increase the corporate value and to reduce the capital costs, the corporates are suggested to increase their Liabilities. However, the risk is increased and as a consequence, the market demands a higher profit rate for the Liabilities [19].

Measuring the fair value relies on the expected current value approach while creating some adjustments to reflect the risk uncertainty, and market participant preferences in a transaction of a secondary market. Key elements are consisted of timing instructions and cash flow amounts made by the contract group and risk margins. IFRS clearly advocates the risk adjustments. Credit risk is the reflector of current evaluated elements which affect the assets, Liabilities and stock return. Higher levels of credit risk are related to high expected equity [26]. Debt structure evaluation models have been designed on the basis of Merton's idea stating that the equity can be considered as the equity purchase options to the assets value by the predetermined price equaling the nominal debt price [21]. These models introduce the default risk as a function of operational risk related to assets, financial risk related to leverage and debt term [13,14,18,9].

Research question has been presented on the application of fair value accounting for the Liabilities along with recognizing the elements regarded as the anomalous effects originated from the credit risk on the value variations of stakeholders.

After the contract, changes in the credit risk may affect the debt value. When the market equity return rate in accordance with new level of risk is different from the rate determined at the beginning of contract, the debt value is changed. Changes in credit risk are more likely to take place when the corporate's asset risk or value is changed. Merton displayed that the equity value changes resulted by the variations of asset value and asset risk can be divided into two direct and indirect groups [21]. Direct impact of changes function is on the asset value; as the asset value decreases, the equity value is reduced. Variations in the asset risk relatively influence the asset value which is systematic and unexpected. Variations of nonsystematic risk have no effects on the asset value and consequently, it does not influence the stock value directly. If the debt value is ignored, the increased risk has no direct impact on the equity. Indirect impact of risk on the equity value is a function of effective elements such as leverage, asset value and risk value in debt value. If the leverage remains constant, the indirect effect may involve the variation amount of asset value attracted by the creditors in addition to the variations of debt value related to those of asset risk. Merton predicted that the debt value is reduced along with the unexpected changes in asset risk [21]. Since the equity value equals asset value subtracted by debt value, the result of debt value decrease is more likely to be the equity value increase. Current study has concentrated on the indirect effects on the equity value resulted from the increased risk. Therefore, the accuracy of equity value decrease (increase) prediction in relation to the risk increase (decrease) which is reduced according to the debt amount in the corporate capital structure –corporate leverage– will be examined. Credit risk is accounted as the most important risk due to the operation centrality and sensitivity and may be defined as the unexpected events which happen in the form of changes in asset or debt value. Understanding how the variations of credit risk affect the debt and equity values is crucial in the discussion of fair value accounting application for the Liabilities. Conceptual frameworks have been designed by Financial Accounting Standard (FASB) and International Accounting Standards (IASB) boards to identify the profits and losses resulted from the changes in the debt amounts. Thus, if the debt equaling the fair value is specified, the corporates are able to recognize the profit (loss) when the fair value of Liabilities is decreased (increased). The expired insurance policy which is not received yet may make the recognition of profit difficult in the insurance company. Relying on the created portfolio by a primary insurer is more likely to enhance the credit

risk. Credit risk is paid attention by the customers or the insurance industry or may encounter some problems in paying the Liabilities. Economic default occurs when the economic value of assets is less than the value of deferred demands. As the corporate asset value covers the book value of Liabilities, the corporate does not encounter the default. At the default point, the market value and asset book value are combined and lots of transactions and services are associated with the Liabilities; it can be stated that the credit risks are the reason of corporate bankruptcy. In order to avoid the crisis, the insurance companies use the financial solvency margin. This index indicates to what extent one corporate faces with financial distress and is exposed to the bankruptcy danger. In other words, how much commitments can be met by the corporate against the creditors and stakeholders. From the viewpoint of accounting, financial solvency margin is the product of capital and debt divided by assets and the suitable limit of it is one based on the balance sheet and accounting equation; from the conceptual perspective, it means the complete adequacy of assets or the capital to meet the rights and commitments of creditors and stakeholders. Credit risk is one of important factors for the solvency index. With a high credit risk, the insurance company will face with lack of liquidity and disability in paying the Liabilities; therefore, the contingency reserve and risk estimation of reserves and commitments have to be regarded. Technical reserves reflected in the balance sheet and Liabilities to the insurers are accounted for the payment of losses. Finally, the impact of this risk is to increase the Liabilities in the balance sheet.

2. Research Background

International Standards Board in a research entitled the investigation of accounting theories on credit risk of corporates studied the credit risk of Liabilities and evaluated the fair value of Liabilities. Profits and losses resulted from the fair value of assets and Liabilities were addressed and the insurance and measurement of fair value of probable Liabilities and assets have been discussed; the authorities of this discussion have accepted all the responsibilities of financial crises.

Strong in relation to the effects of debt value changes on the default risk has studied the changes of debt value and savings bond rating in a sample of 190 corporates in 1983 and attempted to separate the changes of debt value related to the changes of corporate risk from those of market risk. He realized that both of them interpreted the changes of debt value [25]. In this respect, the findings of Edington and Goh have demonstrated that the analysts are to reduce the predicted returns after a falling trend. With regard to credit risk consisted of common elements affecting the equity and debt return, Vassalou and Xing found out that a huge part of default risk is systematic and thus, it is priced by the means of equity value [26]. But none of these studies have investigated the potential decreasing effects of debt value changes on the equity value ones when the common elements lead to the changes of them. Another group of researches has studied the probable role of debt in decreasing the reactions of equity announcements to the return. Dhaliwal, Heitzman and Li have indicated that the corporates with stronger leverage have a lower ERC and confirmed that the stakeholders in more influential corporates have fewer shares of changes in corporate value with regard to the unexpected returns [12]. Dhaliwal and Reynolds showed that the ERC has a negative relationship with the measured risk of default concerning the rating of saving bond [11]. Barth studied the impact of equity value which is reflective of returns and losses in relation to the debt value changes and concluded that the equity return is negatively related to the increased credit risk which may be reflected by the changes in the ratings of savings bonds and the relationship between the changes of risk and equity return is not neg-

ative if the leverage is higher [8].

3. Proposed methodology

3.1 Research Hypotheses

- There is a meaningful relationship between equity return and the increase in credit risk.
- There is a meaningful relationship between risk changes and equity return with higher financial leverage.

3.2 Research Methodology

According to Malcom Smith, current research is an archival one since the required data are collected from the available resources including the statements and equity reports to test the hypotheses. To analyze the data and test the hypotheses, the regression analysis and following models have been applied. In first model, the relationship between equity return and credit risk changes was investigated.

$$RET_t = \beta_0 + \beta_1 \Delta CR_t + \beta_2 DBTA_t + \beta_3 EPS_t + \beta_4 \Delta EPS_t + \beta_5 NEG_t + \beta_6 NEG_t \times EPS_t + \beta_7 NEG_t \times \Delta EPS_t + \beta_8 CI_t + \beta_9 DA_t + \beta_{10} ROE_t + \varepsilon_t \quad (1)$$

RET: Annual equity return
DBTA: Fair debt value
EPS: Share return
NEG: Index variable will equal one if EPS is negative; otherwise, it will be zero.
ΔCR: Annual changes alternative for CR which is a risk for the insurance company if the financial commitments are not met by the parties; therefore, if ΔCR is positive (negative), CR will be increased (decreased). With a high risk, the insurance company has to revise the estimation of insurance reserves involving the delayed losses and technical reserves; as a result, the leverage will be enhanced.

Table 1: How to calculate credit risk on insurance companies

Risk type	Demands	(1) Rain risk	(2)Risk coefficient (%)	(3) Sum of (1)*(2)	(4) square of (3)
Credit risk (R3)	Abroad demands	Optional premium	0.1		
Sum of credit risks	National demands	National demands value with 50% premium	0.5		
		National demands value added to 50%-100% premium	0.7		
Total market risk (R3)-Squared sum of credit risks		National demands value before 100% premium	0.9		

DA: It refers to the insurance reserves to assets ratio indicating the commitments of insurance companies to the insurers or authorities. Thus, a part of assets is put against the reserves. If the formula of

capital equaling assets subtracted by Liabilities is reversed, the formula of assets equaling Liabilities added by capital will be given. It displays the demanded amounts of insurers and stakeholders with regard to the assets.

CI: It is the losses ratio (losses and received premium regardless of reserves) showing the losses amount which will be paid for the premium received by the insurance company for every field per 100 units; consequently, if the ratio moves toward one (100%), the return margin may be reduced and vice versa.

ROE: Return on equity is regarded as one of the most important goals for every financial institution in order to increase the wealth of stakeholders. Stakeholders enhance their wealth through achieving more profits by the means of a repeatable program. If the net profit to ROE ratio is larger, the cumulative profit will grow more quickly; as a consequence, if an insurance company has no net profit with the accepted activity and risk, the solvency rate may be weakened.

To test H_2, the following statistical model is used:

$$RET_t = \beta_0 + \beta_1 \Delta CR_t + \beta_2 \Delta CR_t \times DBTA_t + \beta_3 DBTA_t + \beta_4 EPS_t + \beta_5 \Delta EPS_t + \beta_6 NEG_t + \beta_7 NEG_t \times EPS_t + \beta_8 NEG_t \times \Delta EPS_t + \beta_9 CI_t + \beta_{10} DA_t + \beta_{11} ROE_t + \varepsilon_t \quad (2)$$

Key variable in the equation (2) is ΔCR×DBTA. Inserting it into the equation (2) makes the continuity between the leverage and the increase (decrease) in equity value related to the increase (decrease) in credit risk possible. Credit risk has been consisted of some elements leading to create the risk premium concerning the debt. Previous studies applied the leverage as a representative for the default risk [12]. Credit risk has been entered into the analyses and the leverage has been utilized to assess the quantity of remaining Liabilities.

Fair debt value based on capital cost rate:

$$P = \sum_{J=t+1}^{T} D_J (1+R)^{t-J}$$

R: Capital cost

3.3 Calculation of R

Total capital cost is the weighted average cost of various resources used by the corporate and the coefficient (weight) of each resource to corporate capital structure. Following equation is utilized to compute the weighted average capital cost:

$$WACC = ke \frac{S_i}{D_i \Gamma S_i} \Gamma kd \frac{D_i}{D_i \Gamma S_i}$$

WACC: Weighted average capital cost
kd: Effective debt rate
ke: Common equity cost
D: Total average debt (book value)
S: ROE of stakeholders (book value)

3.4 Calculation of kd

Debt cost is a part of capital cost which is paid to provide the fund which is achieved outside the corporate. In fact, the cost involves the interests which are paid for the long and short-term loans. Concerning the corporates which have released the bonds, the bond costs are added. With respect to the number of received loans by the corporate, an average value can be considered as the interest and debt cost since the lending rate has been regarded as the debt cost in the circular of central bank.

3.5 Calculation of ke

In this study, Gordon's model has been used:

In the above model,
Dl: Paid cash profit at the end of 1st year
P0: Share price at the beginning of year
G: Dividend profit growth rate

$$g = [\frac{E}{E_0}]^{\frac{1}{t}} - 1$$

3.6 Research Population and Sample

Statistical population of this research involves the accepted insurance companies in Tehran Stock Exchange during 2010-2015.

Table 2: Descriptive indices of research variables, central indices, scattering and form distribution ones

	N	Variation range	Minimum	Maximum	Average	Standard deviation	Variance	Elongation	Skewedness
Return	109	5.01	-0.81	4.2	0.3579	0.92173	0.85	2.153	5.033
EPS	109	1723.16	-476.16	1247	305.0422	246.84099	60930.476	0.481	2.587
NEG	109	1	0	1	0.9633	0.1888	0.036	-4.99	23.4
ΔEPS	109	2088.13	-981	1107.13	1.8202	285.84698	81708.495	0.092	3.429
EPS*NEG	109	1247	0	1247	309.9163	228.38103	52157.894	1.209	2.064
NEG*DELTAEPS	109	2088.13	-981	1107.13	6.3746	268.65815	72177.199	0.399	3.832
PV-DEBT	108	56490278	-959462.92	55530816	2628968.8	5573410.5	3.106	8.185	77.241
DA	109	0.78	0	0.78	0.4619	0.19428	0.038	-0.776	-0.285
CI	109	4.73	-0.38	4.34	.05533	0.48352	0.234	5.201	37.955
ROE	109	2.25	-1.81	0.44	0.1567	0.22695	0.052	-6.45	53.615
ΔCR	108	16676555	-12410861	4265694.4	17850.184	2390138.2	5.713	-3.064	12.226

4. Research Hypotheses Test

In Table (2), these variables including the dependent and independent ones such as average, mean, skewedness and elongation have been presented (see Table 2).

Before analyzing the regression model, it is necessary to study two points: given that the observations in this research have been applied in a variety of levels, the questions "is there any evidence on the integration of data?" or "does the model vary for all the levels?" are to be asked. Therefore, the question "whether are there any personal differences or heterogeneities among the levels or not?" should be first answered. If there may exist heterogeneity, panel data method is used; otherwise, the integrated data method with the least squares approach can be utilized to estimate the desired model. To do this, F-Limer test is used. H_0 referring to the similar intercept (integrated data) may be applied against H_1 stating the dissimilar intercept (panel data).

Before fitting the regression model, the random and constant effects must be determined. In this respect, Hausman test is used. The Hausman test statistic has chi-square distribution with a freedom degree equaling the independent variables. H_0 indicates the compatibility of coefficients whereas H_1 rejects this compatibility. If H0 is not rejected after conducting the Hausman test, the random effect method will be selected for the estimation (Baltaji, 2005). If the probability value resulted from the Hausman test is less than 0.05, H_0 is rejected and H_1 is accepted and vice versa.

Table 3 : Results of F (Limer) test

Model	F-Limer statistic	df	Prob. F	Result
1	23.652	941.156	0.00	H0 is rejected

Table 4: Results of Hausman test

Model	Hausman statistic	df	Prob. Chi-square	Result
1	68.21	2	0.00	H0 is rejected

Test of H_1

Considering that the significance level of F-Limer test is lower than 0.05 (Prob. F<0.05), H0 regarding the similar intercept (integrated data) will not be accepted and the Hausman statistic (Prob. Chi-square <0.05) with the constant effects is more likely to be utilized.

In the following, the fitted regression model of data has been presented:

Table 5: The summary of regression analysis

Model	R	Determination of coefficient	Adjusted determination of coefficient	Standard error of estimate	Durbin-Watson statistic
1	0.574	0.329	0.259	1.06296	1.959
	Sum of squares	Degree of freedom	Mean square	F	Sig.
Regression	53.226	10	5.323	4.711	0.000
	108.470	96	1.130		
Residual	161.696	106			
Total					

Determination of coefficient is given as 0.329 concerning the changes resulted from the independent variables on the dependent ones (stock return); in other words, 32.9% of changes in the dependent variables are caused by the independent ones. In this study, the Durbin-Watson statistic amount has

been estimated as 1.959 (1.5-2.5) that rejects the autocorrelation among the observations.
In the regression model using F-Limer test, the model significance is studied. It is assumed that:
There is no correlation between the independent variables and dependent ones.
There is a correlation between an independent variable and a dependent one.
F statistic amount is given as 10 with regard to the freedom degree of 4.711. Rejecting H_0 (Sig > 0.05) indicates that the impact of at least one independent variable on the dependent one (stock return) is confirmed at the significance level of 0.05.
Relying on T-test, the significance of independent variable impact on the dependent one has been investigated.

Table 6: Results of model estimation

	Sig.	t	Standardized Coefficients	Unstandardized Coefficients	
			Beta	Std. Error	B
(Constant)	.089	1.719		3.633	6.245
EPS	.095	1.688	2.922	.009	.015
NEG	.126	-1.543	-.752	3.628	-5.599
Δ.EPS	.671	-.426	-.178	.002	-.001
NEG*DELTAEPS	.764	.301	.125	.002	.001
DA	.410	-.827	-.093	.722	-.597
CI	.582	.552	.056	.256	.141
ROE	.036	-2.131	-.218	.556	-1.185
ΔCR	.000	-4.127	-.392	.000	-2.018
NEG×EPS	.126	-1.543	-2.489	.009	-.014

The findings are as follows:
Regarding ΔCR, the rejection of H0 (Sig < 0.05) at the significance level of 0.05 displays that there is a significant relationship between ΔCR and equity return variable. Considering that the regression coefficient of this variable is negative, there is a reverse relationship between this variable and the dependent one (stock return); in other words, as the amount of ΔCR is increased, the amount of equity return is decreased and vice versa.

Concerning ROE, the t-statistic value has been computed as -2.131. Rejecting H0 (Sig < 0.05 or $|t| >$ 1.96) at the significance level of 0.05 demonstrates that there exists a significant relationship between ROE and stock return variable. Considering that the regression coefficient of this variable is negative (-1.185), there is a reverse relationship between this variable and the dependent one (stock return); in other words, as the amount of ROE is increased, the amount of equity return is decreased and vice versa.

Table 7 : Results of F (Limer) test

Model	F-Limer statistic	df	Prob. F	Result
2	35.327	941.156	0.00	H0 is rejected

Regarding other independent variables (NEG, EPS, CI, DA, NEG*EPS PV-DEBT, NEG*DELTAEPS and ΔEPS), the Sig amount is bigger than 0.05 in the regression coefficients Table so that H_0 is accepted and there is no significant relationship.

Table 8: Results of Hausman test

Model	Hausman statistic	df	Prob. Chi-square	Result
2	24.325	2	0.00	H0 is rejected

Test of H_2

Considering that the significance level of F-Limer test is lower than 0.05 (Prob. F<0.05), H0 with regard to the similar intercept (integrated data) will not be accepted and the Hausman statistic (Prob. Chi-square <0.05) with the constant effects is more likely to be utilized.

In the following, the fitted regression model of data has been presented:

Table 9: The summary of regression analysis

Model	R	Determination of coefficient	Adjusted determination of coefficient	Standard error of estimate	Durbin-Watson statistic
1	0.604	0.3640	0.298	1.03465	1.932
	Sum of squares	Degree of freedom	Mean square	F	Sig.
Regression Residual Total	58.927 102.768 161.696	10 96 106	5.893 1.071	5.505	0.000

Determination of coefficient is given as 0.364 concerning the changes resulted from the independent variables on the dependent ones (equity return); in other words, 36.4% of changes in the dependent variables are caused by the independent ones. In this study, the Durbin-Watson statistic amount has been estimated as 1.932 (1.5-2.5) that rejects the autocorrelation among the observations.

In the regression model using F-Limer test, the model significance is studied. It is assumed that:

There is no correlation between the independent variables and dependent ones.

There is a correlation between an independent variable and a dependent one.

F statistic amount is given as 10 with regard to the freedom degree of 5.505. Rejecting H_0 (Sig > 0.05) indicates that the impact of at least one independent variable on the dependent one (stock return) is confirmed at the significance level of 0.05. Relying on T-test, the significance of independent variable impact on the dependent one has been investigated.

The findings are as follows:

Regarding ΔCR, the rejection of H0 (Sig < 0.05) at the significance level of 0.05 displays that there is a significant relationship between ΔCR and equity return variable. Considering that the regression coefficient of this variable is negative, there is a reverse relationship between this variable and the dependent one (equity return); in other words, as the amount of ΔCR is increased, the amount of equity return is decreased and vice versa (t statistic is -2.082).

Concerning DBTA. ΔCR, the t-statistic value has been computed as 2.486. Rejecting H0 (Sig < 0.05 or|t|> 1.96) at the significance level of 0.05 demonstrates that there exists a significant relationship between DBTA. ΔCR and equity return variable. Considering that the regression coefficient of this variable is positive, there is a direct relationship between this variable and the dependent one (equity return); in other words, as the amount of DBTA. ΔCR is increased, the amount of equity return is increased and vice versa.

Table 10: Results of model estimation

	Sig.	t	Standardized Coefficients	Unstandardized Coefficients	
			Beta	Std. Error	B
(Constant)	.154	-1.437		3.427	-4.926
EPS	.217	-1.244	-1.936	.008	-.010
NEG	.106	1.631	.764	3.487	5.687
Δ.EPS	.789	.268	.108	.002	.000
NEG*DELTAEPS	.739	-.334	-.133	.002	-.001
DA	.161	-1.412	-.141	.638	-.901
CI	.439	.778	.077	.250	.194
ROE	.036	-2.123	-.212	.541	-1.149
ΔCR	.040	-2.082	-.237	.000	-1.221
NEG×EPS	.179	1.354	1.900	.008	.010
DBTA.ΔCR	.015	2.486	.682	.000	3.838

Concerning ROE, the t-statistic value has been calculated as -2.123. Rejecting H0 (Sig < 0.05 or|t|> 1.96) at the significance level of 0.05 indicates that there exists a significant relationship between ROE and equity return variable. Considering that the regression coefficient of this variable is negative (-1.149), there is a reverse relationship between this variable and the dependent one (equity return); in other words, as the amount of ROE is increased, the amount of equity return is decreased and vice versa.

Regarding other dependent variables (NEG, EPS, CI, DA, NEG*EPS PV-DEBT, NEG*DELTAEPS and ΔEPS), the Sig amount is bigger than 0.05 in the regression coefficients Table so that H_0 is accepted and there is no significant relationship.

5. Conclusion

The most important task of insurance companies is to accept the risks which create the financial commitments in the future. In order to ensure the financial solvency for meeting the future commitments, continue the insurance business and satisfy the insurer and stakeholder benefits, the insurance companies can distribute their activities and risks at regional and global levels by the use of an effective management and ensure the stakeholders concerning the corporate profits. Reduction of return margin of insurance companies is mainly resulted from lack of efficiency in the credit risk management and imposes some pressures on them to decrease the costs. Credit risk indicates the failure to perform the commitments for the party in the contract. It is obvious that with regard to the vast market

of buy and sell and the chain relationship between the parties of different contracts, nowadays, failure of one party can permeate into the other contracts like a domino and lead to considerable losses. One economic unit may potentially face with the failure of parties in all the obligatory contracts. Using the credit risk index may distinguish the low and high risk corporates. The integrated management of assets and Liabilities is more likely to be accounted as a coherent, comprehensive and uniform system which redefines the asset-debt model existing in the organizations and creates appropriate strategies through paying attention to three aspects involving a) assets structure and compound, b) Liabilities structure and compound and c) risks in the activities of insurance company in order to establish the optimized asset-debt integration and improve the efficiency leading to the achievement of corporate fundamental goals. Through obtaining one index (credit risk degree or score), the corporates with good or bad status may be separated. Credit risk management can be introduced as a model which is more likely to be used to assess the credit risk of corporates. Sometimes, this model is called Merton or asset value model. Current research examines the accuracy of Merton's predictions in 1974 on the basis of equity value as a reflector of profits and losses related to the debt value changes. This study not only enhances the literature on the unpaid debt and equity valuation but also plays a vital role in discussing the application of fair value accounting. Both hypotheses addressed in this paper have been confirmed and according to previous conducted researches involving those by Barth in 2008, it can be understood that the equity return is negatively related to the increase of credit risk. The finding for the research question is that there is a positive relationship between risk changes and equity return when the leverage is higher. The increased equity relies upon the increased risk within the system in lots of corporates such as those with relative ability to perform the commitments. Our findings display the existence of two effects of equity value in relation to the increased credit risk and establish a relationship between a) the reduction of equity value resulted from the decreased asset value or the increased systematic asset risk and b) the increase of equity value related to the decreased debt value resulted from the increased asset value or the increased systematic or unsystematic asset risk. Our suggestions are as follows:

- Given that the updated financial data are required to develop and improve the credit risk models, a financial customer information bank is proposed as one of basic tools. Undoubtedly, developing this idea at the general economic level leads to establish a widespread financial information bank in the country. On one hand, it contributes to the financial transparency and on the other hand, it facilitates the conduction of financial investigations and researches such as modeling a variety of risks.
- Risk management, particularly credit risk management as one of organizational bases is to be discussed in the insurance companies; thus, it is worthy that the necessary activities are performed to develop and organize it in the insurance companies.

References

[1] American Bankers Association, *Letter to SEC on Fair Value and Other Accounting Standards*, Washington: September, 2008, 23.

[2] Barth Mary E. *Including Estimates of the Future in Today's Financial Statements*, Accounting Horizons, September 2006, 20(3), P.57-85.

[3] Barth, M. E, *Why it's not fair to blame fair value*, IESE Insight, 2010, 7, P.48–54.

[4] Barth, M. E, *Global comparability in financial reporting: What, why, how, and when?* China Journal of Accounting Studies, 2013, 1, P.2–12.

[5] Barth, M. E, *Measurement in Financial Reporting: The Need for Concepts*, Accounting Horizons, 2014,28(2), P. 331–352.

[6] Barth, M. E., and W. R. Landsman, *Fundamental issues related to using fair value accounting for financial reporting*, Accounting Horizons, 1995, 9, P.97–107.

[7] Barth, M. E., L. D. Hodder, and S. R. Stubben, *Financial reporting for employee stock options: Liabilities or equity?*, Review of Accounting Studies, 2013, 18, P.642–682.

[8] Barth, M.E., Hodder, L.D., Stubben, S.R., *Fair Value Accounting for Liabilities and Own Credit Risk*, The Accounting Review, 2008, 83(3), P. 629-664.

[9] Bohn, J., *A survey of contingent-claims approaches to risky debt valuation*, Journal of Risk Finance , 2000, P.1-18.

[10] Dhaliwal, D.S. Heitzman, S.; Li, O. Z., *Taxes, leverage, and the cost of equity capital*, Working paper, University of Arizona.2005.

[11] Dhaliwal, D.S, Reynolds, S.S., *The effect of the default risk of debt on the earnings response coefficient*, The Accounting Review , 2004, 69, P. 412-420.

[12] Dhaliwal, D.S., Lee, K.J., Fargher, N.L., *The Association Between Unexpected Earnings and Abnormal Security Returns in the Presence of Financial Leverage*, Contemporary Accounting Research, 1991, P.20-41.

[13] Duffee, G. R., *Estimating the price of default risk. Finance and Economic Discussion Series*, Federal Reserve Board, 1996, P.96-129.

[14] Duffie, D., Singleton, K., *Modeling term structures of default able bonds*, Review of Financial Studies, 1999, 12(4), P.687-720.

[15] Hand, Hughes, P. J., Sefcik, S. E., *In substance defeasances: Security price reactions and motivations*, Journal of Accounting and Economics, 1990, 13, P. 47-89.

[16] Hand, J.R., Holthausen, R.W, Leftwich, R.W., *The effect of bond rating agency announcements on bond and stock prices*, Journal of Finance, 1992, 47, P.733-752.

[17] Holthausen, R., Leftwich, R., *The effect of bond rating changes on common stock prices*, Journal of Financial Economics, 1996, 17, P. 57-90.

[18] Huang, J. Z., Huang, M., *How much of the corporate-treasury yield spread is due to risk?*,Working paper. Penn State University and Stanford University. 2003.

[19] Khodaka, B, *Leverage and the Cost of Capital: some Tests Using Nepalese Data*, The journal of Nepalese business studies, 2006, 3(1), P. 85-91.

[20] Kliger, D., Sarig, O., *The information value of bond ratings*, The Journal of Finance, 2000, 55, P.2879-2902.

[21] Merton, R.C., *On the pricing of corporate debt: The risk structure of interest rates*, Journal of Finance, 1974, 29, P. 449-470.

[22] RBC Assets Management, *Being a Great Investor in All Types of Markets; "Rules" you Can Use to Take Advantage of Market Volatility*, Royal Bank of Canada. 2006.

[23] Riahi Belkaoui, A, Theories of Accounting , 1943.

[24] Sterling Robert R., *Relevant Financial Reporting in an Age of Price Changes*", Journal of Accountancy, 1975, P.42-51 .

[25] Strong, J. S., *Valuation effects of holding gains in long-term debt*, Journal of Accounting and Economics, 1990, 13, P. 267-283.

[26] Vassalou, M. and Xing, Y., *Default Risk in Equity Returns* , Journal of Finance, 2004, 59, P.831–868.