Original Article

Evaluating the impact of fair value accounting on debt structure and financial reporting of listed companies in Tehran Stock Exchange

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ABSTRACT

Fair value accounting is considered as a financial reporting approach allowing the companies, when required, to use it to measure and report based on the audit value of certain assets and debts (financial tools) in estimating their values. The question is how fair value accounting influences the quality of financial reporting. If fair value accounting improves the information environment of debtors and facilitates effective reforming, it is expected that the agency contradictions between shareholders and debtors to be reduced. The objective of the current research was to evaluate the impact of fair value accounting on debt structure and financial reporting. The research population included 128 listed companies in Tehran Stock Exchange since 2011 to 2016. Findings revealed that using fair value accounting would reduce the agency cost and debt maturity structure and increase the quality of financial reporting. Thus, using fair value accounting method can increase the transparency of accounting information.

Keywords: fair value accounting, financial reporting quality, agency cost, debt maturity.

Introduction

One of the main decisions of financial managers in public corporations is determining the combination of debt and stock, which these decisions should be adopted to maximize the wealth of the shareholders [1]. The traditional approach in the capital structure was based on the theory that company's value can be increased using the leverage. However, the beginning of the modern views of capital structure can be traced from the first paper of the Modidalian and Miller (1958), who stated that under certain conditions (complete competition market, lack of tax on income, lack of bankruptcy and agency costs, information symmetry among capital market participants), the value of company is independent of the capital structure. After 1963, these two thinkers argued that creating financial leverage increases the company value by adding debt tax exemptions for companies using the debt. Then, in 1977, Miller realized that tax benefits are lost by tax on personal incomes by adding tax on personal incomes to model, [2]. Fair value is considered one of the most useful and important characteristics of the market, since it causes that no concern to be on financial measurements. The economic roots of this claim can be traced in the studies conducted by Bithey et al (1996) or Heaton et al (2009). However, we need to remember that fair value is not panacea, and events measurement bases need to have the desired characteristics [3], so that fair values might be considered as an appropriate and prioritized solution to end the conflict of suitable selection or ensuring or relevance of the information, while this conflict might not be ended given the nature of these two mentioned characteristics and different from accounting information [1]. Fair value accounting is a financial reporting approach, in which companies, when required, find an

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opportunity to use it to measure and report based on the audit value of the assets and specific debts (financial tool) to estimate their value, so that they know what would be the business unit status and performance if they sell their assets and fulfill their obligations [4]. Based on the fair value accounting of the companies, reports of time-related losses affect the performance of its assets and debts and show the company net income before reaching the relevant time [5]. The current research objective is to evaluate the impact of fair value accounting on debt structure and financial reporting.

Variables of the research

Fair value accounting: Wang and Zhang (2017) model was used in the present research to measure the fair value accounting. Accordingly, reporting based on the value of the audit of certain assets and debts (financial tools) was considered as a fair value accounting criterion. Hence, the ratio of the value of assets audit to the value of debts audit was considered as the fair value accounting criterion [6].

Agency cost: To measure the agency cost, Brockman et al model (2009) was used in the current research.

Accordingly, the agency cost involves multiplying the Q tobin ratio by free cash flow.

$$\text{Agencycost} = \text{Qtobin} \times \text{FCF}$$

Financial reporting quality: Dicho and Decho (2002) model is used to calculate the regression of working capital for accruals for past, present, and future cash flows as well as change in income and gross value of properties, machinery, and equipment.

Debt maturity: based on the studies conducted by Antonio et al (2006), Kai et al (2008), Magerie (2010), and Wang et al (2010), for debt maturity structure, the ratio of long-term debt to total debts represents the debt maturity structure.

Company size: In this research, company size was used as a control variable, measured by the logarithm of the total assets of the company:

$$size = \log(TA_t)$$

TA_t: total assets of the company in year t

Research hypotheses

Hypothesis 1: Fair value accounting reduces the agency cost.

Hypothesis 2: Fair value accounting increases financial reporting quality.

Hypothesis 3: Fair value accounting reduces the debts maturity.

Methodology

This is an applied study and its research design is quasi-experimental, in which Ex post facto approach (through past information) was used. The research population includes all listed companies in the Tehran Stock Exchange since 2011 to 2016, which met the following inclusion criteria:

- Companies should be listed in the Stock Exchange before the finical year 2011 and their financial years should ends to the last day of the year.
- Companies should not change their financial year during the considered period.
- Companies should operate continuously during the research period and their share should be traded (their trading stop should not last over three months).
- Their financial information should be available completely during the research period
- the selected companies should not be regarded as financial and investing intermediary institutions

Accordingly, 128 companies met the mentioned inclusion criteria.

Conducting any research requires identifying and defining each of the research variables. In this research, fair value accounting was considered as an independent variable and capital structure and financial reporting were considered as dependent variables, which each of them would be described and the method of their measurement would be explained.

Research models

The research models are as follows:

$$\text{Agencycost}_{i,t} = \alpha + \beta_1 (AAV/DAV)_{i,t} + \beta_2 Size_{i,t} + U_{i,t}$$

$$Accruals_{i,t} = \alpha + \beta_1 (AAV/DAV)_{i,t} + \beta_2 Size_{i,t} + U_{i,t}$$

$$LTD/TD_{i,t} = \alpha + \beta_1 (AAV/DAV)_{i,t} + \beta_2 Size_{i,t} + U_{i,t}$$

In which

AAV/DAV: Fair value accounting

Agencycost: Agency cost

$Accruals$: Financial reporting quality

LTD/TD: Debts maturity

Findings

First, Jarque-Bra statistic was used to check the normal or non-normal distribution of the dependent variable. Then, likelihood ratio test was used in order to examine the heterogeneity of variances. Then, F-Limer and Hausman tests were used to select an appropriate model.

Testing the normality of the dependent variable

One of the assumptions of regression model fitness and performing its corresponding parametric tests is confirmed normality of experimental distribution of dependent variable values. In the current research, it was examined using Jarque-Bra statistic. The null hypothesis and the opposite hypothesis in this test are as follows:

H0=data are normally distributed

H1= Data are not normally distributed.

If the significance level of the test statistic is more than 5% (P-value>5%), the H0 (normal distribution of variable) is confirmed.

Table 1: results of Jarque-Bra normality test for dependent variables of the research

Variable	Test statistic	Significance level
Agency cost	0.83848	0.275
Financial reporting quality	0.69182	0.495
Debts maturity	0.39167	0.719

As the significance level of the test statistic for variables of the agency cost, financial reporting quality, and debt maturity structure is more than 5%, the H0 hypothesis (normal distribution of this variable) is confirmed at 95% confidence level. It means that these variables have normal distribution.

Testing the variance heterogeneity

Given the important impact of variance heterogeneity on estimation, standard deviation and statistical inferring, it is necessary to test the heterogeneity of the variance before any estimation. Table 2 shows the results of testing the heterogeneity of variance of the models using the likelihood ratio test.

Table 2: results of the variance heterogeneity test

Models	Statistic	Statistic value	Significance level
First model	likelihood ratio	1.03848	0.164
Second model	likelihood ratio	2.8791	0.085
Third model	likelihood ratio	1.91374	0.094

Based on the data of Table (2), the significance level of the test statistic of the likelihood ratio for all models is greater than the error level considered by the research (5%), so H0 (lack of heterogeneity of variance) is confirmed. Therefore, regression models do not have heterogeneity of variance at 95% confidence level.

Testing the selection of model appropriate for data

F-Limer statistic was used to select one of panel data or polled data methods. In other words, the F-Limer statistic determines if there is a separate intercept for each of the companies or not. If there are individual differences or heterogeneities among the observations, the panel data method is used, otherwise, polled data method is used. F-Limer test is used in this regard. If the null hypothesis is rejected after the F-Limer test, this question is asked that which of the random effects and fixed effects methods can be used to examine the relationships. Hausman test is used to answer for this question. The results of these two tests are shown in Table 3.

Table 3: results of F-Limer and Hausman tests

Models	Statistic	Statistic value	Significance level
First model Second model	F-Limer	18.721945	0.000
	Hausman	8.815320	0.012
Third model Models	F-Limer	16.634185	0.000
	Hausman	6.216548	0.023
First model	F-Limer	16.106845	0.000
	Hausman	9.162485	0.000

According to the Table (3), the significance level obtained from the F-Limer test for all models is less than 5%, so the null hypothesis is rejected and the panel data method is confirmed. Thus, Hausman test should be performed to select one of the random effects and fixed effects methods. In this regard, given the significant level obtained from the Hausman test for all models, the significance level is less than 5%, so fixed effects method is selected.

Testing the hypotheses

1-Testing the first hypothesis

The research first hypothesis states that fair value accounting reduces the agency cost. The general model of the hypothesis is as follows:

$$\text{Agencycost}_{i,t} = \alpha + \beta_1 (AAV/DAV)_{i,t} + \beta_2 Size_{i,t} + U_{i,t}$$

Table 4- testing the first hypothesis

Variables	Beta coefficient	SD	statistic t	Significance level
Fixed coefficients	3.384	0.234	14.409	0.000
fair value accounting	-5.176	0.089	-57.75	0.000
Company size	0.082	0.016	5.002	0.000
R^2	0.882			
adjusted R^2	0.882			
F	1220.197			
Significance level	0.000			
Durbin Watson	2.37			

Table 4 results show that based on the F statistic and the significance level (1220.197 and 0.000, respectively), with 95% confidence, it can be stated that there is a significant relationship between independent and control variables and dependent variable (agency cost). However, the Durbin Watson statistic was obtained to be 2.372 that is less than 2.5, indicating lack of correlation of the errors. The correlation coefficient was obtained to be 0.88, indicating that 88 percent of the variations in the dependent variable are explained by two variables of the fair value accounting and company size. The significance level and the beta coefficient for the fair value accounting variable were obtained to be 0.000 and -5.176, respectively, indicating a negative and significant relationship between fair value accounting and agency cost.

1-Testing the second hypothesis

The research second hypothesis states that fair value accounting increases the financial reporting quality. The general model of the hypothesis is as follows:

$$Accruals_{i,t} = \alpha + \beta_1 \left(\frac{AAV}{DAV}\right)_{i,t} + \beta_2 Size_{i,t} + U_{i,t}$$

Table 5- Testing the second hypothesis

Variables	Beta coefficient	SD	statistic t	Significance level
Fixed coefficients	9.541	0.039	242.942	0.000
fair value accounting	4.850	0.013	370.106	0.000
Company size	0.621	0.002	210.453	0.000
R^2	0.92			
R^2 adjusted	0.94			
F	495.7218			
Significance level	0.000			
Durbin Watson	2.27			

Table 5 results show that based on the F statistic and the significance level (495.78 and 0.000, respectively), with 95% confidence, it can be stated that there is a significant relationship between independent and control variables and dependent variable (financial reporting quality). However, the Durbin Watson statistic was obtained to be 2. 27 that is less than 2.5, indicating lack of correlation of the errors. The correlation coefficient was obtained to be 0.94, indicating that 94 percent of the variations in the dependent variable are explained by two variables of the fair value accounting and company size. The significance level and the beta coefficient for the fair value accounting variable were obtained to be 0.000 and 4.850, respectively, indicating a positive and significant relationship between fair value accounting and financial reporting quality.

1-Testing the third hypothesis

The research third hypothesis states that fair value accounting reduces the debts maturity. The general model of the hypothesis is as follows:

$$LTD/TD_{i,t} = \alpha + \beta_1 (AAV/DAV)_{i,t} + \beta_2 Size_{i,t} + U_{i,t}$$

Table 6: Testing the third hypothesis

Variables	Beta coefficient	SD	statistic t	Significance level
Fixed coefficients	0.838	1.022	0.820	0.4126
fair value accounting	-0.106	0.015	-6.647	0.0000
Company size	0.231	0.071	3.249	0.0012
R^2	0.155			
R^2 adjusted	0.149			
F	29.757			
Significance level	0.000			
Durbin Watson	2.19			

Table 6 results show that based on the F statistic and the significance level (29.757 and 0.000, respectively), with 95% confidence, it can be stated that there is a significant relationship between independent and control variables and dependent variable (debts maturity structure). However, the Durbin Watson statistic was obtained to be 2. 19 that is less than 2.5, indicating lack of correlation of the errors. The correlation coefficient was obtained to be 0.149, indicating that 15 percent of the variations in the dependent variable are explained by two variables of the fair value accounting and company size. The significance level and the beta coefficient for the fair value accounting variable were obtained to be 0.000 and -0.106, respectively, indicating a negative and significant relationship between fair value accounting and debts maturity structure.

Conclusion and recommendations

Institutional shareholders play an important role in monitoring the performance of companies' management given their motivation, specialized knowledge and effective communication. However, as macro-shareholders are looking for maximize their interests, micro-shareholders' participation can fill the gap between the interests of macro- shareholders and micro-shareholders through educating the stakeholders and their coherence and coordination. The general results of this research revealed that using fair value accounting method has a negative and significant impact on the agency cost and debts maturity and has a positive and significant impact on financial reporting quality .This research results revealed that using fair value accounting method could increase transparency in the stock market by increasing the quality of financial reporting and reducing the agency cost and maturity of debt. Previous research has emphasized on capital market with regard to fair value accounting. Limited number of studies has examined the role of fair value accounting in the debt market. This research results show that fair value measurements have a significant impact on the design of debt contract. Further studies can expand our research through revealing the results of the market debt in using the fair value accounting.

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