

Research Article

THE RELATIONSHIP BETWEEN OPTIMAL TAX RISK AND FIRM VALUE OF COMPANIES LISTED IN TEHRAN STOCK EXCHANGE

Tarazi M. and *Hamidian M.

*Department of Management and Accounting, South Tehran Branch,
Islamic Azad University (IAU), Tehran, Iran*

**Author for Correspondence*

ABSTRACT

The purpose of this study was to investigate the relationship between optimal tax risks and Firm Value. The research was a library and analytical-scientific study based on panel data analysis. In this study, the fiscal data of 109 companies listed in Tehran Stock Exchange during the period 2009 to 2014 were surveyed (654 firm-years). The software that used to analyze of the results of the study were Spss 20, Eviews 7 and Minitab 16. The results of this study in associated with first hypothesis show that there is significant and reverse relationship between tax risk and Firm Value and finally according to the analysis in associated with the second hypothesis we conclude that that there is significant and direct relationship between the tax risk and capital costs of company.

Keywords: *Tax Risk, Firm Value, Cost of Capital and Panel Data*

INTRODUCTION

The tax is considered as one of the most important sources of government that has been important increasingly from the past given the change of government tasks (Ascioglu *et al.*, 2012). As long as the task of the government was limited to provide security and protection of geographical territory, consequently, the costs are put in low level but with the lapse of time and emerging changes in the different area of economic, the government's role became most notable and higher in responsibilities. Taxes as a significant source of revenue of government were proposed to cover the costs and financial tools to applying charge and direct (Chen *et al.*, 2012). In fact, governments play an important role in economic development through making tax rules to collect tax and direct them for infrastructure investments which is complementary to the activities of private sector investment (Hazarika *et al.*, 2012). Tax at a glance is a tool to be in the presence of the state income.

But at a closer look, the monetary policies show that it is an effective and efficient tool for economic development and create a dynamic and productive direction for the country's economy. Tax and fiscal policies has impact on the behavior of economic agents, particularly companies. The decisions relating to the operational activities of the company may affect on the result of changes in tax laws and regulations (Henselmann *et al.*, 2012). Consequently, understanding the interactions could be important in the view of the managers of tax affairs. Also, the managers can be making optimal decisions through recognizing these interactions in the matters associated to the disclosure of tax information, dividend, investment and corporate debt and ultimately increase the Firm Value (Dyreg *et al.*, 2012). Therefore, in this study we will attempt to study the relationship between optimal taxes risks with Firm Value of companies listed in Tehran Stock Exchange. Since attracting investors in the capital market of Iran in considering to the emerging of capital markets than developed countries was most importance in the view point of managers and in order to achieve this objective the identification of factors such as: Tax risk of the company and its impact on Firm Value and cost of capital can be essential strategy in achieving the ultimate goal of the company.

Statement of the Problem

Considering that after the oil, tax is the main source of government revenue and given to the increasing role that be considered in the economic development program for the tax, however, the realization of tax revenues is the major objective of the government. Since wealth and assets is of public interest, so those are not present easily given it to someone or spend it in any way, therefore, the governments faced by

Research Article

problems to levy and more offices have established in the country to collect it (Jorissen A and Otley, 2010).

Always, that is the question why did not match the diagnostic tax and collected tax and do not realize the substantial tax revenues, perhaps due to lack of appropriate structures taxes (Khan and Watts, 2009). One of the policies of the managers over the years was compliance with laws and regulations especially the issues associated to the paying of taxes to governments to increase the optimal Firm Value (Jorissen A and Otley, 2010). The fair and timely payment of taxes will not only establish social justice but strengths the blind spots of economy and also in the other hand maximize the risk of losing the financial corporate power (Chiu *et al.*, 2009). The importance of paying the tax because it is remarkable the tax Tkmyrn time in the long run will increase the company's market value (Fang *et al.*, 2009).

According to the above description, the changes in the tax structure that make by tax legislators at the macro level will be caused to changes in company policies and investor's policies (Lara *et al.*, 2012). Companies considering the needs of shareholders and investors and long-term plans of companies for investment or other policies, making necessary decisions for the disclosure of tax information related to tax issues in order to implement other policies and reduced tax risks and ultimately increase the intrinsic Firm Value (Suzan *et al.*, 2012). Tax evasion was a major concern for managers of tax organization in most modern and developing countries and the policy tax makers have been followed to guidelines for the prevention of tax evasion (Vocht and Kromhout, 2012).

Optimal and actual tax collection not only increases government tax revenue, but it also makes social justice (Lin and Hsieh, 2012). Tax justice demands that people with higher incomes pay more taxes (Islam *et al.*, 2011). In recent years the government to do more detail planning will aim to determine target taxes (Chekili, 2012).

Establishing the target tax was to reduce tax risk represents programming of governments in associated with their income and expenditure and achievement this goal more originating from correct social and cultural structures (Henselmann *et al.*, 2012).

The relationship between suitable structure of taxation and disclosure of fiscal reports may cause the companies that reduce taxes through tax avoidance or are looking for tax evasion to make hostile decisions in their tax reports and selectively report that it leads to a reduction in tax compared to the actual situation and will reduce the Firm Value in the long run (Suzan *et al.*, 2012).

From the perspective of corporate executives, reduction of tax can be a powerful incentive for management so that achieving to the tax objectives of the company in cost-effective manner, but it is possible to reduce the Firm Value (Vocht and Kromhout, 2012). Considering to conducted researches indicate that the relationship between Firm Value and tax decisions are seriously question and issue of financial markets and investors, but most of these studies are not considered the effect of tax risk (Taylor *et al.*, 2011). This factor is very important, especially in Iran, because it can increase the conflict of interest between major shareholders (controller) and minority shareholders in the economic unit that it is one of the most influential factors in determining the dividend policy and regulation of the intrinsic Firm Value. Therefore, the main purpose of our study was to examine the relationship between optimal tax risk and Firm Value in companies listed in Tehran Stock Exchange.

Theoretical Principle and Literature

Value of each assets depend on various factors such as the one who the valuation done for him investment, type of the value that should be measured, when the values are estimated and objective of valuation. Financial Accounting Standards Board in 2000 has provided the following definition:

"The value is estimated economic cost of a firm so to be determined when it sold in the reporting date and on the real deal and in normal commercial circumstances"

The stock valuations patterns can be divided into three general groups include: pattern based on capital market, pattern based on the predicted accounting data and pattern based on historical accounting data (Anand and Facerook, 2008).

On the other hand, the risk is probability of not become fulfilled of anticipation; the risk is a concept. However, the concept of risk in the minds of many people's is means of financial aspects. Financial risk

Research Article

means that to be spending money in a way that there is a possibility of losing it. However, the risk that applied for anything means that there is the possibility of losing it or its threat.

The investigating of statistical evidence in the tax system and relative comparison with other countries are well represented that the gap exists between the current situations of tax system in the economy of Iran with favorable conditions. The deviation from optimal conditions will be eliminable through identification of the problems prevailing in the system and its roots; then try to resolving them. Thus, it is essential to accurately assess the prevailing problems in the tax system.

One of the research done in this field is research by Yantov (2014) which was to test the relationship between corporate governance mechanisms for cash and the impact on the value of the company in the Singapore Stock Exchange. His results showed that the companies by less effectiveness of corporate governance have more tended to hold their cash. Other results also showed that due to the flexibility and the conflict between managers and owners, and representation theory, the managers save cash in order to precaution. In addition, the companies by a pyramidal ownership structure in contrast with single-owner companies or centralized hold less cash and have a higher Firm Value.

Wilin (2013), in his study investigates the effect of the interest management on the being relation on the financial statements. In this study he used of the Jones model to measure earnings management. In his researchm he classified the discretionary accruals into two categories: short-term and long-term. His results showed that earnings management through discretionary accruals has effect on being relationship of the interest and the book value. But, earnings management through long-term discretionary accruals in contrast to earnings management through short-term discretionary accruals has greater impact on the being relationship and book value.

Taylor *et al.*, (2012), in their study examines the impact of international tax structures in companies on the financial disclosure patterns. They result that the coefficients of partial income tax is considered as one of the crucial factor for disclosure of financial reports. The relationship between tax coefficients and disclosure of financial reports may be caused that the companies that reduce taxes through tax avoidance or are looking for tax evasion make hostile decisions in their tax reports and selectively report that it leads to a reduction in tax compared to the actual situation. They also found that, from the perspective of corporate managers, reduction of tax can be powerful motivating factor for the management to recognize the company's financial goals by cost-effective manner.

Marquardt and Wiedman (2012), study the effect of the earning management to being relationship of accounting information. Their results showed that the earnings management caused to reduce the being relationship of earnings and the decrease for optional components of earning is more than non-optional components of earnings.

Taylor *et al.*, (2011), in a study entitled "The impact of international taxes structure on financial disclosure patterns," investigate the relationship between the variables. They analyzed how international tax structures in companies are effective on financial disclosure patterns. They result that the coefficients of partial income tax is considered as one of the crucial factor for disclosure of financial reports. The relationship between tax coefficients and disclosure of financial reports may be caused that the companies that reduce taxes through tax avoidance or are looking for tax evasion make hostile decisions in their tax reports and selectively report that it leads to a reduction in tax compared to the actual situation. They also found that, from the perspective of corporate managers, reduction of tax can be powerful motivating factor for the management to recognize the company's financial goals by cost-effective manner. However, our research followed by the study of Taylor *et al.*, (2011), but given the economic conditions of the country and differences in the exchange stock between the two countries, A number of variables were examined and with respect to our capital markets have been modified by the researcher.

Platt *et al.*, (2011), study the equity of Firm Value with present cash low value of company's actual future capital in 1821 the companies during the period of to 5 years up to maximum 12 years, their results found that the equity of Firm Value with the present value of future cash flow is not true, in fact, the company being valuation less than their present value of future cash and thus the price of securities may not be reflective of future revenues of companies. And the discounted value of future cash has a very little

Research Article

impact on the valuation of companies, also taking into account the effect of firm size; it will also be less. Finally, it should be stated that the Firm Value has relationship with the present value of future cash

Research Hypotheses

According to previous research Ascioğlu *et al.*, (2012) and Reebika *et al.*, (2012), after reviewing the research and preliminary studies on possible solutions, to answer the questions raised in the section of the explanation of problem, the following hypotheses were formulated:

1. There is significant relationship between the tax risk and Firm Value.
2. There is significant relationship between the tax risk and corporate capital costs.

MATERIALS AND METHODS

Research Methodology

The research is applied in term of objective and is considered as survey-correlation in term of method. In this research, the multivariate regression and panel data are used in order to test of the hypothesis.

The populations of this research were all companies listed in Tehran Stock Exchange during a period of six years, from 1387 to 1392. Elimination method used to select the sample and the following criteria were considered for this purpose and if a company has met all the criteria, thus selected as the sample.

- 1- According to the required information from year 2009, the companies were listed at Tehran Stock Exchange by the end of March 2008 and the names of the companies listed above, is not removed by the end of 2014.
- 2- During the desired period, their shares are actively traded on the stock market.
- 3- Their fiscal year should be ended 29 March and should not have been changed in the period under study.
- 4- They are not being involved of financial intermediation firms (investment, holding, leasing and banking and insurance) because they have different functions.
- 5- The required information is available.

After consideration of all the above criteria; 109 companies remains which has been chosen. Thus, our observations were 654 year-firm in 19 different industries.

Research Variables

Research models derived from study by Ascioğlu *et al.*, (2009) and modified variants for research by Reebika *et al.*, (2012) have been estimated as follows:

The model associated to the first hypothesis of the study:

There is significant relationship between tax risk and Firm Value.

$$LOG_MKT_Value_{i,t} = \alpha_0 + \beta_1 TAXRISK_SQ_{i,t} + \beta_2 DEBT_{i,t} + \beta_3 BTM_{i,t} + \beta_4 LEV_{i,t} + \beta_5 LOG(ASS)_{i,t} + \beta_6 LT_GROW_{i,t} + \beta_7 DISCR_ACC_{i,t} + \varepsilon_{i,t}$$

$LOG_MKT_Value_{i,t}$: Firm Value

$TAXRISK_SQ_{i,t}$: Optimal tax risk

$DEBT_{i,t}$: Debt-to-equity ratio

$BTM_{i,t}$: Growth opportunities

$LEV_{i,t}$: leverage ratio

$LOG(ASS)_{i,t}$: firm size

$LT_GROW_{i,t}$: rate of growth

$DISCR_ACC_{i,t}$: discretionary accruals

The model associated to the second hypothesis:

There is significant relationship between the tax risk and capital cost

$$r_{i,t} = \alpha_0 + \beta_1 TAXRISK_SQ_{i,t} + \beta_2 DEBT_{i,t} + \beta_3 BTM_{i,t} + \beta_4 LEV_{i,t} + \beta_5 LOG(ASS)_{i,t} + \beta_6 LT_GROW_{i,t} + \beta_7 DISCR_ACC_{i,t} + \varepsilon_{i,t}$$

$r_{i,t}$: capital cost

Research Article

$TAXRISK_SQ_{i,t}$: Optimal tax risk

$DEBT_{i,t}$: Debt-to-equity ratio

$BTM_{i,t}$: Growth opportunities

$LEV_{i,t}$: financial leverage ratio

$LOG(ASS)_{i,t}$: firm size

$LT_GROW_{i,t}$: rate of growth

$DISCR_ACC_{i,t}$: discretionary accruals

Definitions of Dependent Variables

Firm Value ($LoG_MKT_Value_{i,t}$)

According to the research of Dayrng *et al.*, (2012), the Firm Value will be calculated by the formula:

$$LoG_MKT_Value_{i,t} = MV_{i,t} + DI_{i,t} / BV_{i,t-1}$$

Where

$MV_{i,t}$ = The value of the stock market.

$DI_{i,t}$ = the amount of dividends.

$BV_{i,t-1}$ = the book value of equity in the previous year.

Capital Cost ($r_{i,t}$)

According to the research of Hamdan *et al.*, (2011), the capital cost is calculated as follows:

$$r_{i,t} = [(1 - S)V] / [E - (1 - p) - (1 - S)V]$$

Where

$r_{i,t}$ = capital cost

S = amount of sold shares.

V = value of convertible shares

E = expected value of the stock.

p = current stock price.

Definitions of Independent Variables

Optimal Tax Risk ($TAXRISK_SQ_{i,t}$)

Optimal tax predicates to obtain maximum taxation according to economic status of companies and applicable government tax policies and the optimal tax risk represents the deviations rate in achieving optimal tax. According to research and Ewert and Wagenhofer (2011), the optimal tax risk will be calculated by the formula:

$$\frac{\text{Total Tax Deferred}}{\text{Book Value of Total Assets}} = TAXRISK_SQ_{i,t}$$

Definitions of Control Variables

Debt-to-equity Ratio ($DEBT_{i,t}$)

Debt-to-equity ratio reflects the corporate commitment to the corporate equity (Lin and Hsieh, 2012) and calculates as follows:

$$DEBT_{i,t} = \frac{\text{total liabilities}}{\text{market value of equity}}$$

Growth Opportunities ($BTM_{i,t}$)

The growth opportunity is the market value of equity to book value of equity (Lara *et al.*, 2012).

Research Article

$$BTM_{i,t} = \frac{\text{market value of equity}}{\text{book value of equity}}$$

Leverage Ratio ($LEV_{i,t}$)

In this study, we follow of the leverage ratio in the research by Vocht and Kromhout (2012), and the leverage ratio ($Lev_{i,t}$) will be calculated as follows:

$$Lev_{i,t} = \frac{\text{book value of total liabilities}}{\text{book value of total assets}}$$

Firm Size ($LOG(ASS)_{i,t}$)

It indicates the natural log of book value of total assets of firm (Suzan *et al.*, 2012).

$$LOG(ASS)_{i,t} = \ln \left(\sum_{k=1}^6 \text{Total Assets} \right)$$

Growth Rate ($LT_GROW_{i,t}$)

According to a study Humperry (2012), the growth rate is calculated as follows:

$$LT_{GROW_{i,t}} = GR_{i,t} * GP_{i,t} = \frac{R_{i,t} - R_{i,t-1}}{R_{i,t-1}} GR_{i,t}$$

Where:

$GR_{i,t}$ = Rate of return on equity of firm i in year t

$R_{i,t}$ = Stock returns of firm i in year t .

$R_{i,t-1}$ = Stock returns of firm i in year $t-1$.

And $\frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}} GP_{i,t}$

$GP_{i,t}$ = Stock price growth rate of firm i in year t

$P_{i,t}$ = Stock prices of firm i in year t .

$P_{i,t-1}$ = stock price of i company in year $t-1$.

Discretionary Accruals ($DISCR_ACC_{i,t}$)

In this study, we will follow by the basic model Henselmann *et al.*, (2012) and Dyreng *et al.*, (2012) and modified model by Lara *et al.*, (2012), to estimate discretionary accruals as following:

Initially, total accruals will be calculated by the formula:

$$\frac{TA_{it}}{A_{it-1}} = \alpha_1 \frac{1}{A_{it-1}} + \left(\frac{\Delta REV_{it}}{A_{it-1}} - \frac{\Delta AR_{it}}{A_{it-1}} \right) + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \alpha_4 \frac{NetIncome_{it-1}}{A_{it-1}} + \varepsilon_{it}$$

Where

α = constant factor

TA_{it} = Total accruals

$TA_{it} = NI - OCF$

Where

NI = Net Income

OCF = operating cash flows

A_{it-1} = Accruals in the previous year.

Research Article

ΔREV_{it} = changes in sales as follows:

$$\Delta REV_{i,t} = \frac{S_{i,t} - S_{i,t-1}}{S_{i,t-1}}$$

ΔREV_{it} = Sales growth of firm i in year t

$S_{i,t}$ = Net sales of firm i in year t

$S_{i,t}$ = Net sales of firm i in year $t-1$.

ΔAR_{it} = changes in the corporate demands.

$$\Delta AR_{i,t} = \frac{AR_{i,t} - AR_{i,t-1}}{AR_{i,t-1}}$$

ΔAR_{it} = Growing demands for firm i in year t

$AR_{i,t}$ = Demands for firm i in year t

$AR_{i,t-1}$ = Demands for firm i in year $t-1$

PPE_{it} = the net book value of assets, property and equipment.

$NetIncome_{it-1}$ = net income of firm in the previous year of the survey.

After calculating the total accruals and paste it in the following model, the discretionary accruals will be calculated by the formula:

$$DISCR_ACC_{i,t} = \varepsilon_{it} = \frac{TA_{it}}{A_{it-1}} - \left(\hat{\alpha}_1 \frac{1}{A_{it-1}} + \hat{\alpha}_2 \left(\frac{\Delta REV_{it}}{A_{it-1}} - \frac{\Delta AR_{it}}{A_{it-1}} \right) + \hat{\alpha}_3 \frac{PPE_{it}}{A_{it-1}} + \hat{\alpha}_4 \frac{NetIncome_{it-1}}{A_{it-1}} \right)$$

$\varepsilon_{i,t}$ = Random error of firm i in year t .

The required data for research for test of the hypothesis have been gathered through referring to the audited financial statements of companies listed in Tehran Stock Exchange (available in the library Stock Exchange) and the database "Rahavard Novin" and sites for manage research, development and Islamic Studies affiliated with the Securities and Exchange at www.rdis.ir and Codal network, comprehensive information systems to publishers at www.codal.ir, and the processing of financial information at www.fipiran.com. A library method using books and Persian and Latin scholarly articles and dissertations were used to theoretical study and review of the literature. Preliminary calculations were done on a spreadsheet, Excel Office and the data were prepared for analysis, then the Software 20 Spss, Eviews 7 and Minitab16 were used to final analysis.

RESULTS AND DISCUSSION

Research Findings Results

Analysis and Hypothesis Testing

In this study the multi-variables linear-regression model was used to data analysis and hypothesis test. A statistical method used in this research is panel data method. To test the hypotheses, firstly, the correctness of data integration was tested using f bound test then the type of test method (fixed effects or random effects) was determined based on the Hausman test and then proceed to estimate depending on the method.

To determine the significance of the model the F-statistics was used and to determine the significance of the coefficients of the independent variables in the model, the t-statistic of 95% for accept or reject the hypothesis was making decision. Also, in order to evaluate the normality of the variables, matches of variance of errors and independence of errors Jarque - Bera test, Breusch-Pagan test and Durbin-Watson statistics used respectively.

Research Article

Descriptive Statistics

Variable	Number of Observations	average	Standard deviation	Minimum	maximum	Skewness	elongation
Firm Value	654	0.2996	0.2564	0.0002	2.5957	2.114	11.161
Capital costs	654	0.6328	0.3447	0.0110	6.8448	8.979	161.508
Optimal tax risk	654	0.2709	0.3578	0.0001	2.9326	3.576	16.428
Debt-to-equity ratio	654	0.1390	0.2548	0.0000	2.5554	4.850	30.619
Growth opportunities	654	0.1473	0.7506	0.0001	17.4459	20.363	448.207
Leverage ratio	654	0.7689	0.0433	0.6791	0.9025	0.445	0.124
Firm size	654	0.0881	0.0684	0.0000	0.2357	0.592	0.846
Growth rate	654	0.0881	0.0684	0.0000	0.2357	0.592	0.846
Discretionary accruals	654	0.5593	0.1746	0.1157	1.2175	0.279	0.097

Test Results of Statistical Hypothesis

Dependent Variables Distributed Normality Test

In the present study ordinary least squares method was used to estimate the model parameters and this method is based on the assumption that the dependent variable of research has normal distribution so that non-normal distribution of the dependent variable leads to a violation of the assumptions of the method for parameter estimation and does not provide accurate results. Hence it is necessary that normal distribution of the variables being tested.

The normality of rest of the regression model is one of the regression assumptions indicating the validity of the regression analysis, however, the normality of the dependent variables leads to normality of model (the difference between the estimated values with the actual value). So be sure to control the normality of the dependent variable before estimation of the parameter and if this condition is not established, the appropriate solution to normalize them (including transferring it) shall be adopted. This issue was examined in this research through Kolmogorov-Smirnov (K-S) statistic. The null and contrary hypothesis for this test is as follows:

$$\begin{cases} H_0 : \text{Normal Distribution} \\ H_1 : \text{Not Normal Distribution} \end{cases}$$

If the significance level of the test statistic is greater than 0.05 (Prob > 0.05), the null hypotheses will be accepted based on the normal distribution of the variables. Table 1 presents the results of the K-S test for dependent variables of studied corporates

Table 1: Shows the results of tests of normality of the dependent variables

Variable	Number (n)	Statistic (K-S)	Significance
Firm Value	654	3.0107	0.019
Capital cost	654	4.336	0.043

Given that the dependent variables so that the significance level of K-S statistic is less than 0.05, thus the null hypothesis based on normality of distribution of the variables was rejected at 95% and indicates that the variables do not have a normal distribution.

Normality of the dependent variables is a prerequisite for regression models, therefore, it is necessary that the variables being normalized before testing the hypothesis. In this research the Johnson Transformation

Research Article

was used to normalize the data and was analyzed by Minitab 16 software. K-S test results after normalization process data is summarized in Table 2.

Table 2: Shows the results of tests of normality of the dependent variables after normalization process

Variable	Number (N)	Statistic (K-S)	Significance
Firm Value	654	0.798	0.548
Capital cost	654	0.496	0.967

According to Table 2, since after the data normalization the significance level of Kolmogorov-Smirnov test for dependent variables is greater than 0.05 (0.548) and (0.967), thus the hypothesis was confirmed in 95% and indicates that the dependent variables after normalization process has a normal distribution.

Correlation between Variables

In this section, to be examined the relationship between variables and the correlations between them using the Pearson correlation coefficient.

	Firm Value	capital cost	optimal tax risk	Debt-to-equity ratio	growth opportunities	leverage	Firm size	growth rate	Discretionary accruals
Firm Value (P – Value)	1								
capital cost (P – Value)	0.051 (0.190)	1							
optimal tax risk (P – Value)	-0.020 (0.617)	0.014 (0.296)	1						
Debt-to-equity ratio (P – Value)	0.038 (0.338)	0.034 (0.381)	0.809 (0.000)	1					
growth opportunities (P – Value)	0.026 (0.513)	0.041 (0.298)	0.019 (0.632)	0.222 (0.000)	1				
Debt-to-equity ratio (P – Value)	0.002 (0.965)	-0.084 (0.032)	0.017 (0.656)	0.012 (0.757)	-0.062 (0.115)	1			
Firm size (P – Value)	-0.002 (0.965)	-0.034 (0.380)	-0.007 (0.858)	-0.006 (0.878)	-0.049 (0.210)	0.598 (0.000)	1		
Growth rate size (P – Value)	0.024 (0.533)	-0.047 (0.230)	0.020 (0.618)	-0.014 (0.720)	0.031 (0.435)	- 0.026 (0.503)	-0.008 (0.843)	1	
Discretionary accruals (P – Value)	0.056 (0.153)	0.110 (0.005)	0.015 (0.703)	- 0.014 (0.716)	-0.061 (0.119)	0.013 (0.744)	0.077 (0.049)	0.076 (0.053)	1

Collinearity among Variables

In the present study, the collinearity relationship between independent variables using Pearson correlation coefficient was conducted. The results show that there is direct correlation between the results of optimal tax risk that this correlation is very strong. Therefore due to existence of problem among the variables, the

Research Article

simultaneous entry of these variables in a model was not possible and it is necessary to survey and test them in the separate model. In the case of other variables due to the lack of strong correlations one can say there is no problem of collinearity among them and the entry of them at the same time will not cause to collinearity problem.

The Results of First Hypothesis

The aim of test of the first hypothesis was to study the relationship between tax risk and Firm Value, and statistical hypothesis is defined as follows:

H0: there is not significant between tax risk and Firm Value s.

H1: there is significant relationship tax risk and Firm Value s.

This hypothesis is estimated using the model (1) supported by panel data and if the coefficient of β_1 being in significant at 95% will be approved.

$$LoG_MKT_Value_{i,t} = \alpha_0 + \beta_1 TAXRISK_SQ_{i,t} + \beta_2 DEBT_{i,t} + \beta_3 BTM_{i,t} + \beta_4 LEV_{i,t} + \beta_5 LOG(ASS)_{i,t} + \beta_6 LT_GROW_{i,t} + \beta_7 DISCR_ACC_{i,t} + \varepsilon_{i,t}$$

$$(1) \quad \begin{cases} H_0 : \beta_1 = 0 \\ H_1 : \beta_1 \neq 0 \end{cases}$$

the Chow test or F bound was used in order to determine whether using panel data would be effective in the estimation of given model and the Hausman test was used to specified which method (fixed effects or random effects) is better to estimation (recognition of fixed or random of variation of sectional units). The results of these tests are presented in Table 3.

Table 3: The results of Chow and Hausman test for the model (1)

Test	Number	Statistic	Statistic value	Degrees of freedom	P-Value
Chow	654	F	3.1402	(108,538)	0.0286
Hausman	654	χ^2	7.5039	7	0.0193

According to the results of the Chow test and P-Value (0.0286), the *H0* hypothesis was rejected at 95%, indicating that one can be used from panel data method. Also according to the results of the Hausman test and P-Value (0.0193) which is less than 0.05, the *H0* hypothesis was rejected at 95% and the *H1* is accepted. Therefore it is necessary that the model is estimated using fixed effects.

Jarque-Bera test results shows that the residual from an estimation of the research model in 95% has the normal distribution, so that the probability of the test (0.4829) is larger than 0.05. In this study, we used to Breusch–Pagan test for homogeneity of variance. Due to the importance of this test which is smaller than 0.05 (0.0293), the null hypothesis based on being homogeneity of variance was rejected and can be said that the model has heterogeneity of variance. In this study to address the problem of estimating, the generalized least squares estimation method (GLS) has been used. According to the preliminary results of estimating of the Durbin-Watson statistic of 2.27 and since it is between 1.5 and 2.5. It may be concluded that the residuals are independent of each other because the level of the encoded test (0.7655) is larger than 0.05, however, the null hypothesis of this test based on linearity of model is confirmed and the model has not specified error is not. Summary of results of these tests are presented in Table 4.

Table 4: Results the statistical assumptions for model (1)

Jarque-Bera statistic		Breusch-Pagan statistic		Durbin-Watson statistic	Ramsey statistic	
χ^2	P-Value	F	P-Value	D	F	P-Value
1.4295	0.4829	4.0758	0.0293	2.27	8.4919	0.7655

Research Article

According to the results of Chow and Hausman tests and also the results of statistical assumptions of the classical regression model (1), the research is estimated using panel data as fixed effects. The results are presented in Table 5. The estimated form of the model using Eviews 7 software will be as follows:

$$\begin{aligned}
 LoG_MKT_Value_{i,t} = & -1.9010 - 0.1277TAXRISK_SQ_{i,t} + 0.2451DEBT_{i,t} \\
 & - 0.0037BTM_{i,t} + 2.8405LEV_{i,t} - 0.0178LOG(ASS)_{i,t} + 0.1776LT_GROW_{i,t} \\
 & - 0.1826DISCR_ACC_{i,t} + \varepsilon_{i,t}
 \end{aligned}$$

Table 5: The results of the first research hypothesis testing using fixed effects
dependent variable: Firm Value

number of observations: 654 year-firm

Variable	Coefficient	t- statistical	P-Value	Relationship
Fixed component	-1.9010	-3.1320	0.0018	negative
Optimal tax risk	-0.1277	-1.3898	0.0385	negative
Debt-to-equity ratio	0.2451	1.9523	0.0271	positive
Growth opportunities	-0.0037	-0.3969	0.6915	non-significant
leverage ratio	2.8405	1.5215	0.0295	positive
Firm size	0.1776	1.7071	0.0484	positive
Growth rate	0.1776	1.7071	0.0484	positive
discretionary accruals	-0.1826	-1.8619	0.0391	negative
coefficient of determination				0.3572
F- statistics				2.5998
P-Value				(0.0000)

For significance of the model, because the probability of F statistics is smaller than 0.05 (0.0000), with a significant 95%, the significance of the model is confirmed. The coefficient of determination of model also shows that 35.72% of the Firm Value is explained by introduced variables in the model.

For be significant of coefficient given to the results presented in Table 5, since the probability of t-statistic for variable coefficient of optimal tax risk of corporate is smaller than 0.05 (0.0385), thus, existence of a significant relationship between optimal tax risk and Firm Value at 95 percent is approved. Therefore, the first research hypothesis is accepted and we can say at 95% confidence that there is an inverse relationship between tax risk and Firm Value s. Being negative of coefficient of the variable (-0.1277) indicates that there is an inverse relationship between tax risk and Firm Value s so that with increasing of 1 unit tax risk, the Firm Value also reduced to amount of 0.1277 unit. Thus, according to the analysis in associated to the first hypothesis can be concluded that there is an inverse relationship between tax risk and Firm Value.

Second Hypothesis Test Results

The purpose of test of the second hypothesis is there a significant relationship between the tax risk and capital cost? The statistical hypothesis is expressed as follows:

H0: there is not significant between tax risk and capital cost.

H1: there is significant relationship tax risk and capital cost.

This hypothesis is estimated using the model (2) supported by panel data and if the coefficient of β_1 being in significant at 95% will be approved.

Research Article

$$r_{i,t} = \alpha_0 + \beta_1 TAXRISK_SQ_{i,t} + \beta_2 DEBT_{i,t} + \beta_3 BTM_{i,t} + \beta_4 LEV_{i,t} + \beta_5 LOG(ASS)_{i,t} + \beta_6 LT_GROW_{i,t} + \beta_7 DISCR_ACC_{i,t} + \varepsilon_{i,t}$$

$$(1) \quad \begin{cases} H_0 : \beta_1 = 0 \\ H_1 : \beta_1 \neq 0 \end{cases}$$

The Chow test was used to determination for using panel data or fixed effects and the Hausman test was used to recognition of fixed or random effects in using panel data). The results of these tests are presented in Table 6.

Table 3: The results of Chow and Hausman test for the model (1)

Test	Number	Statistic	Statistic value	degrees of freedom	P-Value
Chow	654	<i>F</i>	3.1402	(108,538)	0.0286
Hausman	654	χ^2	7.5039	7	0.0193

According to the results of the Chow test and P-Value (0.0286), the *H0* hypothesis was rejected at 95%, indicating that one can be used from panel data method. Also according to the results of the Hausman test and P-Value (0.0418) which is less than 0.05, the *H0* hypothesis was rejected at 95% and the *H1* is accepted. Therefore it is necessary that the model is estimated using fixed effects.

Jarque-Bera test results shows that the residual from an estimation of the research model in 95% has the normal distribution, so that the probability of the test (0.5196) is larger than 0.05. In this study, we used to Breusch–Pagan test for homogeneity of variance. Due to the importance of this test which is smaller than 0.05 (0.0298), the null hypothesis based on being homogeneity of variance was rejected and can be said that the model has heterogeneity of variance. In this study to address the problem of estimating, the generalized least squares estimation method (GLS) has been used. According to the preliminary results of estimating of the Durbin-Watson statistic of 2.38 and since it is between 1.5 and 2.5. It may be concluded that the residuals are independent of each other because the level of the encoded test (0.5349) is larger than 0.05, however, the null hypothesis of this test based on linearity of model is confirmed and the model has not specified error is not. Summary of results of these tests are presented in Table 7.

Table 7: Results the statistical assumptions for model (2)

Jarque-Bera statistic		Breusch-Pagan statistic		Durbin-Watson statistic	Ramsey statistic	
χ^2	<i>P-Value</i>	<i>F</i>	<i>P-Value</i>	D	<i>F</i>	<i>P-Value</i>
1.5232	0.5196	3.4507	0.0298	2.38	9.6263	0.5349

According to the results of Chow and Hausman tests and also the results of statistical assumptions of the classical regression model (2), the research is estimated using panel data as fixed effects. The results are presented in Table 8.

The estimated form of the model using Eviews 7 software will be as follows:

$$r_{i,t} = 0.9454 + 0.0633TAXRISK_SQ_{i,t} - 0.0615DEBT_{i,t} + 0.0213BTM_{i,t} - 0.5219LEV_{i,t} + 0.0162LOG(ASS)_{i,t} - 0.1746LT_GROW_{i,t} + 0.0020DISCR_ACC_{i,t} + \varepsilon_{i,t}$$

For significance of the model, because the probability of F statistics is smaller than 0.05 (0.0000), with a significant 95%, the significance of the model is confirmed. The coefficient of determination of model also shows that 34.61% of the capital cost is explained by introduced variables in the model.

Research Article

For be significant of coefficient given to the results presented in Table 8, since the probability of t-statistic for variable coefficient of optimal tax risk of corporate is smaller than 0.05 (0.0325), thus, existence of a significant relationship between optimal tax risk and capital cost at 95 percent is approved. Therefore, the second research hypothesis is accepted and we can say at 95% confidence that there is a direct and significance relationship between tax risk and capital cost. Being positive of coefficient of the variable (0.0633) indicates that there is direct relationship between tax risk and capital cost so that with increasing of 1 unit tax risk, the capital cost also increased to amount of 0.0633 unit.

Table 8: The results of the first research hypothesis testing using fixed effects

dependent variable: capital cost				
number of observations: 654 year-firm				
Variable	Coefficient	t- statistical	P-Value	Relationship
Fixed component	0.9454	1.6027	0.1096	non-significant
Optimal tax risk	0.0633	1.5467	0.0325	positive
Debt-to-equity ratio	- 0.0412	- 1.9929	0.0271	negative
Growth opportunities	0.0213	1.6840	0.1927	non-significant
leverage ratio	- 0.5219	-1.6807	0.0163	negative
Firm size	0.0162	1.0904	0.0360	positive
Growth rate	-0.1746	-1.5968	0.1109	non-significant
discretionary accruals	0.0020	1.0387	0.0291	positive
coefficient of determination				0.3461
F- statistics				2.4768
<i>P-Value</i>				(0.0000)

Thus, according to the analysis in associated to the second hypothesis can be concluded that there is significance and direct relationship between tax risk and capital cost.

Conclusion

Test results of the hypothesis led to confirmation of the first and second research hypotheses. The results show that:

1- There is significance and inverse relationship between tax risk and Firm Value s so that with increasing of 1 unit tax risk, the Firm Value reduced to amount of 0.1277 units.

2- There is significance and direct relationship between tax risk and capital cost so that with increasing of 1 unit tax risk, the capital cost increased to amount of 0.0633 units.

The results of this research study were consistent by Marquardt and Wiedman (2012)), Chiu (2011), Wi (2013) and Taylor *et al.*, (2012).

Recommendations based on the Results

- According to the first hypothesis, "*There is significance relationship between tax risk and Firm Value* ", it is recommended that:

1- The Securities and Exchange organization may be due to the results of the research and similar research published the comprehensive information regarding to the Firm Value to the shareholders.

2. It is recommended to Accounting Standards references to voluntary disclosure of information about the level of optimal tax risk and Firm Value.

- According to the second hypothesis, "*There is significance relationship between the tax risk and cost of capital.*" It is recommended that:

1. Because the increasing of the level of optimal tax risk have important effects on investment decisions, providing complete and clear information by the management for optimal tax risk and capital cost would be very useful.

Research Article

2- it is better that the active financial analysts in the capital markets, the investment adviser in the Securities and Exchange along with the analysis and conventional techniques, make specific analyzes based on the cost of capital and its effective factors and optimal tax risk in accordance with the accounting standards.

Suggestions for Future Research

1. Study of the effect of industry on the relationship between optimal tax risk, Firm Value and capital cost.
2. Using of other control evaluation variables such as corporate credit rating and expected stock returns to survey of the relationship between optimal tax risk and Firm Value.
3. Investigation of the effect of macroeconomic variables such as inflation, oil prices and exchange rates to examines the relationship between optimal tax risk and Firm Values.

REFERENCES

- Adel Azar and Mansour Momeni Mansour (1385).** *Statistics and its Application in the Management*, statistical analysis (Samt publication) Tehran 2.
- Pour Heydari Ahmad and Hemmati Davoud (1383).** Effects of debt contracts, political costs, incentive plans, and profit in property management companies listed in Tehran Stock Exchange. *Accounting and Auditing Reviews XI*(36).
- Jalali Fatem (1387).** Corporate governance and accounting profession. *Magazine of Chartered Accountants (Journal of Accounting)* 196.
- Jahankhani Ali Amini Sirvan (1387).** Effect of changes in the stock price at the time of change management. *Journal of the Stock Exchange* 2 117-146.
- Jahankhani Ali Asadi Morteza (1374).** Changes in stock prices after the dividend. *Journal of Research "Financial Research"* 2(7 and 8) 119-105.
- Hassas Yeganeh Yahya (1384).** *The Philosophy of Auditing* (Scientific and Cultural publication) Tehran.
- Hassas Yeganeh, Yahya Moradi and Mohammad Eskandar Hoda (1387).** The relationship between institutional investors and Firm Value. *Accounting and Audit Findings* 15(52).
- Haghighat Hamid and Ghorbani Arash (1391).** *Investigation of the Relationship between Profits and Cash Flows of the Company in Terms of Life Cycle* (Payam management publication) 21 219- 201.
- Ascioglu A, Hegde SP, Krishnan GV and McDermott JB (2012).** Earnings management and market liquidity. *Review of Quantitative Finance and Accounting* 38(2) 257–274.
- Adhikari A, Derashid C and Zhang H (2006).** Public policy, political connections, and effective tax rates: longitudinal evidence from Malaysia. *Journal of Accounting and Public Policy* 25 574–595.
- Bikki Jaggi and Sidney Leung (2007).** Impact of family dominance on monitoring of earnings management by audit committees: Evidence from Hong Kong. *Journal of International Accounting Auditing Taxation* 16 27- 50.
- Bhattacharya U, Daouk H and Welker M (2003).** The world price of earnings opacity. *The Accounting Review* 78(3) 641–678.
- Bushman R and Piotroski J (2006).** Financial reporting incentives for conservative accounting: the influence of legal and political institutions. *Journal of Accounting & Economics* 42 107–148.
- Ball R, Robin A and Sadka G (2008).** Is financial reporting shaped by equity markets or by debt markets? An international study of timeliness and conservatism. *Review of Accounting Studies* 13 168–205.
- Chekili S (2012).** Impact of some governance mechanisms on earnings management: an empirical validation within the Tunisian market. *Journal of Business* 3(3) 95–104.
- Chen B, Li T and Ning L (2012).** Accounting stability, ownership characteristics and the effectiveness of compensation contract empirical study of 2007–2010 China listed companies. *Third International Conference on Digital Manufacturing & Automation* 161–166.
- Chen BL (2003).** Tax evasion in model of endogenous growth. *Reviews of Economic Dynamics* 13(1) 381-403.

Research Article

- Chiu Chi Li (2011).** Do Transparency and Disclosure Predict Firm Performance? *Evidence from the Taiwan Market Journal*, Available: www.elsevier.com/locate/eswa.
- Chu Ke Young, Hamid Davoodi and Sanjev Gupta (2010).** Income Distribution and tax and Government spending policies in developing countries, IMF working paper, 100/G2 Washington.
- Campbell JY, Ramadorari T and Schewortz A (2009).** Institutional trading, stock returns, and earnings announcement. *Journal of Finance* **92** 66-91.
- Dyreng SD, Hanlon M and Maydew EL (2012).** Where manage earnings? *Review of Accounting Studies* **17**(3) 649–687.
- Ewert R and Wagenhofer A (2011).** *Earnings Quality Metrics and What They Measure* 1–77.
- Farooq O and Jai HE (2012).** Ownership structure and earningsmanagement: evidence from the Casablanca stock exchange. *International Research Journal of Finance and Economics* **84** 95–105.
- Fang Vivian W, Noe Thomas H and Tice Sheri (2009).** Stock market liquidity and firm value. *Journal of Financial Economics* **94** 150-169.
- Guan L, He SD and Eldowney JM (2008).** Window dressing in reported earnings. *Commercial Lending Review* **23**(3) 26–30.
- Hamdan AM, Abzakh MH and Al-Ataibi MH (2011).** Factors influencing the level of accounting conservatism in the financial statements. *International Business Research* 145–155.
- Hazarika SJ, Karpoff M and Nahata R (2012).** International corporate governance, CEO turnover and earnings management. *Journal of Financial Economics* **104**(1) 44–69.
- Henselmann K, Scherr E and Ditter D (2012).** Applying Benford's law to individual financial reports. An Empirical Investigation on the Basis of SEC XBRL Filings 1–47.
- Holland D and Ramsay A (2003).** Do Australian companies manage earnings to meet simple earnings benchmarks? *Accounting and Finance* **43** 41–62.
- Islam MA, Ali R and Ahmad Z (2011).** Is modified Jones model effective in detecting earnings management? Evidence from a developing economy. *International Journal of Economics and Finance* **3**(2) 116–125.
- Jorissen A and Otley D (2010).** The management of accounting numbers: case study evidence from the “crash” of an airline. *Accounting and Business Research* **40**(1) 3–38.
- Khan M and Watts RL (2009).** Estimation and empirical properties of a firm–year measure of accounting conservatism. *Journal of Accounting and Economics* **48**(2) 132–150.
- Kwon S, Yin Q and Han J (2006).** The effect of differential accounting conservatism on the over-valuation of high-tech firms relative to low-tech firms. *Review of Quantitative Finance and Accounting* **27**(2) 143–173.
- Lara JMG, Osma BG and Penalva F (2012).** Accounting conservatism and the limits to earnings management. *Working Papers Series* 1–55.
- Lin F and Hsieh CH (2012).** Applying digital analysis to dete
- Lin FY and Su HA (2011).** Voluntary Information Disclosure and Mandatory Information Disclosure of Earnings Management. *Journal of Management* **28**(4) 345–359.
- Lin F, Chang C and Wu S (2009).** A study on the relationship between related party transactions and monthly sales in Taiwan's publicly issued companies. *J. Chin. Inst. Ind. Eng.* **26**(5) 337–343.
- Lim Roslinda (2009).** The Relationship between Corporate Governance and Accounting Conservatism. The University of New South Wales.
- LaFond R and Watts RL (2008).** The information role of conservatism. *Accounting Review* **83**(2) 447–478.
- Lai C and Taylor SL (2008).** Estimating and validating a firm–year-specific measure of conservatism: Australian evidence. *Accounting and Finance* 673–695.
- Marquardt CA and Wiedman CI (2006).** The Effect of Earnings Management on the Value Relevance of Accounting Information. *Journal of Business Finance & Accounting* **31** 297-332.
- Murphy K (2008).** Enforcing Tax Compliance: To Punish or Persuade?, *Economic Analysis & Policy*, Faculty of Arts and Education, Deakin University **38**(1) 113.

Research Article

- Platt H, Demirkan S and Platt M (2009).** Free Cash Flow, Enterprise value, and Investor Caution. Boston, MA: North eastern University working paper <http://ssrn.com/abstract=1397708>.
- Roychowdhury S and Watts RL (2007).** Asymmetric timeliness of earnings, market-to-book and conservatism in financial reporting, *Journal of Accounting and Economics* **44**(1) 2–31, Investors and Firm Value: empirical evidence of Iran. *Middle East Journal of Scientific Research* **8**(1) 72–76.
- Suzan A, Al-Badainah J and Serdaneh JA (2012).** The level of conservatism in accounting policies and its effect on earnings management. *International Journal of Economics and Finance* **4**(6) 78–85.
- Taylor Grantley, Hayn CK and Natarajan A (2013).** Measuring reporting conservatism. *Accounting Review* **82**(1) 65–106.
- Taylor Grantley, Tower Greg and Van Der Zahn Mitch (2011).** The influence of international taxation structures on corporate financial disclosure patterns. *Accounting Forum* **35** 32–46.
- Tate WL, Ellram LM, Bals L, Hartmann E and Valk W (2010).** An agency theory perspective on the purchase of marketing services. *Industrial Marketing Management* **39** 806–819.
- Tao M (2009).** Accounting Conservatism and Underinvestment. Working paper, Washington University in St. Louis-Olin Business School, Available: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1505104. [Online] [30 October 2010].
- Vocht FD and Kromhout H (2012).** The Use of Benford’s Law for Evaluation of Quality of Occupational Hygiene Data. *Annals of Occupational Hygiene* **57**(3) 296–304.
- Yuanto K (2014).** Do corporate governance mechanisms matter for cash holdings and firm value? *Journal of Corporate Finance* **17** 725–740.