

The Relationship between Earnings Quality and Capital Structure: Evidence from Tehran Stock Exchange

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Abstract: Capital markets need reliable accounting information. High quality financial reporting help the investors to determine the company's value better and assess the performance. High quality financial reporting improves decision-making by investors. The main objective of this study was to investigate the relationship between earnings quality and capital structure of listed companies on the Stock Exchange in Tehran, Iran. Quality of earnings is measured based on accounting data and market data, as well as capital structure based on the financial leverage. In this regard, information from 130 companies listed in Tehran Stock Exchange in the period from 2003 to 2013 was studied. Correlation via regression was used, in order to test the research hypotheses. The results indicate that there was a significant positive relationship between the stability of profits and capital structure, but there was no significant relationship between the capital structure and the accruals quality, profits persistence, predictability, smoothness, value relevance and timeliness, and conservatism.

Keywords: Quality of Earnings, Accounting Data, Market Data, Capital Structure.

Introduction

The purpose of profits reporting to provide useful information for those who are most interested in financial reporting. But accounting profits are not always a good measure of investment decisions and sometimes it's manipulated by management. Hence, the quality of earnings was raised to be able to help investors make the right decision.

The combination of a variety of corporate finances is called capital structure. In the company's capital structure there is an attempt to explain the combination of different financial resources used in financing activities and required investments. And also, it can be said that the purpose of determining the capital structure is to identify the composition of financial resources of each company, in order to maximize the wealth of its shareholders. Because the cost of capital is seen as a function of the capital structure, selection of optimal capital structure reduces the cost of capital and increases the company's market value.

Thus, this study seeks to provide answers to this question, which is: is there a significant relationship between the features of earnings quality and capital structure in the Tehran Stock Exchange? If there is a significant relationship, what direction this relationship is (positive or negative)?

Research Theory Bases ***The Earnings Quality***

Theory of earnings quality was raised for the first time by financial analysts and stock brokers, because they felt that the reported earnings could not show the power of company's profit as they imagined. They found that the analysis of companies' financial statements is difficult to measure due to numerous weaknesses in the accounting information. The basic question is why financial analysts in their assessment do not use of reported net profit or earnings per share (non-adjusted), and they are cautious. The answer is that in determining the value of company not only the profits quantity, but also quality must be considered. The earnings quality is the potential background of profits growth and the probability of realizing future benefits. In other words, the value of one share does not depend only on earnings per share in current year of the company, but also it will depend on our expectations of company's future and the profitability of the coming years and the confidence over future earnings (Jahankhani & Zarif Fard, 1995). Based on the decision usefulness approach, emphasized by the Financial Accounting Standards Board and academic researchers, it is believed that the quality of earnings and the overall quality of financial reporting from the perspective of those who use financial reporting for contracts purposes and investments decisions are of utmost importance (Saghafi & Bolou, 2009).

No clear definition could be use for the quality of earnings. One of the possible causes of variety in the proposed definitions related to the quality of earnings can be the different views of researchers on different aspects of this concept. For this reason, earnings quality issue is a very complex issue, and no researcher has been able to provide a single definition of the concept, or find a complete index for it (Hermanns, 2006).

Measurement criteria for Earnings quality: Earnings quality literature is full of different criteria for measuring the concept. The number of criteria is such that different investigators made several places for these measures. In this study, for the calculation of earnings quality, the earnings quality criteria based on accounting data and market data is used, following Francis et al. (2004) and Gaio and Raposo (2011). Accruals, earnings persistence, predictability of profits and profits flatness are the profits quality criteria are based on accounting data which are measured by using accounting data such as operational cash flow, profits and accruals. Value relevance, profits timeliness, and conservatism are criteria based on market data, and measuring these criteria are based on estimating the relationship between accounting profits and market efficiency.

Capital Structure

The purpose of stock companies and their executives is to maximize the value of equity, in other words to maximize company value and its stock. This maximizing requires the use of financial resources and gain proportional efficiency and risk. Issue of capital structure and its optimal composition, in other words financing companies from various sources is a topic that was first proposed in 1958 by Modigliani and Miller, and since then it has been the basis of many financial research, and some of the research has resulted in a new theory. Although many researches has been done about the capital structure, but still no definitive and clear solution has been provided for the issue of capital structure which is from financial management issues.

Finance theorists have provided different definitions of capital structure that each of these definitions states an aspect of the financing method as the capital structure.

Cooper (1983) defines capital structure as the ratio of the older securities (high rated) to the total investment.

Hussey (1999) believes that the capital structure is the balance between liabilities and assets, the nature of the assets and the composition of corporate borrowing, and a combination of common stock, preferred stock and its subsets, retained earnings and long-term liabilities that business units use them to finance their assets.

Riahi Belkoui (1999) introduced capital structure as a general claim on the assets of the company. He considers capital structure as securities issued by public, private capital, bank debt, commercial debt and lease contracts, which is usually measured by the ratio of debt to total assets, ratio of equity to total assets, and debt to equity ratio.

The theory of capital structure: "The theory of capital structure" is closely related to the cost of capital. Capital structure is the combination of long-term sources of funds used by the Company, and the main purpose of its decisions is to maximize the market value of the company through an "optimal capital structure". Capital structure that could maximize the company's value, and minimize cost of capital is called optimal capital structure, in other words, optimal capital structure is a combination of internal and external sources of financing, in a way that could bring company value to the maximum possible. Nobody has ever been able to provide an optimal capital structure, and theories presented in this area also did not clearly explain the actual behavior of companies' financing. But yet, to achieve such a pattern lots of researches has been done and its results were remarkable.

Research Background
Domestic Researches

Sinai and Rezaeian (2005) examined the impact of the factors within the companies on the formation of capital structure of listed companies in Tehran Stock Exchange. In this study, they tried to measure the factors within the companies and different industries, such as the status of the assets, company size, profitability and growth opportunities on the method of financing. The results confirm the specific effects of each industry on the company's capital structure.

Namazi and Shirzadeh (2005) in their study examined the effect of capital structure on profitability of companies listed on the stock exchange within 1996- 2000. The results obtained in this study indicate that in general, there is a positive relationship between capital structure and profitability, but this relationship is statistically weak. The relationship between capital structure and profitability depends on the industry as well, and optimal capital structure can be determined in various industries, and the relationship between capital structure and profitability of the various industries depends on the definition of profitability.

Ahmadpour and Ahmadi (2008) in their study used the qualitative characteristics of financial information to assess earnings quality, and concluded that earnings response coefficients and explanatory power of regression in prices - profit in the portfolios of the companies with high earnings quality is significantly higher than companies with low earnings quality. Therefore, the quality of high earnings makes accounting information useful for decision making. In general, it can be concluded that companies with relevant and reliable accounting profit have better earnings quality.

Ghaemi et al. (2008) examined the role of accruals and its components to explain normal and abnormal stock returns in earnings quality of the companies listed in the Tehran Stock Exchange. The results show that stock efficiency of companies will be under the influence of accruals and its components. In other words, there is a significant difference between the efficiency of companies which are reported to have minimum and maximum accrual.

Aghaei et al (2010) found that there is a significant relationship between the change in operating cash and changes in structure of asset and capital of company. The results of their study showed that companies in the short term tend to increase savings and reduce external financing and in long-term tend to increase rational investment and foreign financing.

Ebrahimi Kordlar and Aarabi (2010) in their study examined the relationship between ownership concentration and earnings quality in the Tehran Stock Exchange for 148 sample companies in the period from 2002 to 2006. They concluded in their study that the ownership concentration outside of the organization improve the earnings quality, while they did not achieve a compelling evidence regarding the effectiveness of blocks holders of organization on the quality of earnings.

Nasrollahi and Arefmanesh (2010) examined the relationship between ownership structure and the quality of earnings reported by companies listed on the stock exchange. To assess the quality of earnings in this study, qualitative characteristics of accounting information in accordance with theoretical concepts of accounting standards was used. The results show that increasing institutional ownership improved earnings quality.

Yahyazadehfar et al (2010) studied the effects of the characteristics of the company on the capital structure of listed companies in the stock exchange, by using econometric methods, and found that there is a negative and significant relationship between the structure of the company's capital and structure of assets, profitability, expected growth and efficiency of assets, and a significant positive relationship between capital structure of the company and the firm size and the interest expense coverage ratio.

Setayesh and Kargarfard Jahromi (2011) investigated the effect of product market competition on the capital structure, for the period 2002 till 2009, by using panel data methods. And concluded that in various industries with specific features, the existence and strength of this relationship is different, and there is a significant positive relationship between product market competition and capital structure.

Mahmoodabadi and Mehtari (2011) investigated the relationship between accounting conservatism and investment efficiency, and found that there is a relationship between these two issues in the all companies and industries.

Mahmoodabadi and Rezaei (2012) investigated the effect of earnings management on the quality of the financial reporting in the listed companies in the Tehran Stock Exchange. They also studied the role of the two characteristics of debt ratio and the size of the company in this relationship. The results indicate that there is a significant inverse relationship between the earnings management hypotheses and the both discretionary and nondiscretionary accruals quality; also, there is a direct relationship between the size of the company and the both discretionary and nondiscretionary quality of accruals. The results also indicate that no significant relationship was between both discretionary and nondiscretionary quality of accruals and debt ratio.

Mahmoudabadi et al (2014) examined the relationship between capital structure and abnormal returns with an emphasis on the types of companies listed in Tehran Stock Exchange during the period of 2003 until 2012 by means of multivariate regression based on panel data. The results suggest that there is significant negative relationship between the industry debt ratio, the ratio of long-term debt to equity of industry and the market value of the industry debt with abnormal returns, and there is no significant relationship between the ratio of long-term debt to the market value of the industry equity and abnormal returns.

Foreign Researches

Jenkins et al (2006) conducted a study, examined the factors affecting the decreasing the quality of earnings. To evaluate earnings quality, the two criteria of discretionary accruals and earnings response coefficient was used. The results show that a significant increase in the discretionary accruals and a significant decrease in earnings response coefficient show a decrease in the quality of earnings during the period of the sample.

Westgaard et al. (2008) investigated about the determinants of the capital structure of 308 company from 1998 to 2006 in the UK. By using regression analysis, he found that major factors affect the companies' selected capital structure. Profitability and the size of the company had a positive relationship with capital structure, while circulation of assets and profitability were negatively related.

Bhattacharya et al (2009) examined the different relationships between cost of capital and earnings quality. Using path analysis technique in exploring different relationships between earnings quality and cost of equity capital showed that earnings quality through its impact on the information asymmetry can affect the cost of capital.

Aggarwal and Kyaw (2010) investigated the relationship between the capital structure of multinational corporations, and found that with an increase in activity and the competitiveness of companies abroad, less debt in the capital structure is used, in compare to companies that are active in the country.

Gaio and Raposo (2011) have examined the relationship between earnings quality and value of the company at the international level. The criteria of Earning Quality in their research were the seven criteria of accruals quality, persistence, predictability, smoothness, value relevance, timeliness, and conservatism. They found a significant positive relationship between value of the company and the quality of earnings.

Research Hypotheses

In order to investigate the relationship between earnings quality and capital structure of listed companies in Tehran Stock Exchange, seven hypotheses are designed and tested:

First main hypothesis: there is a significant relationship between earnings quality and capital structure.

First sub-hypothesis: There is significant relationship between the capital structure and earnings quality which is measured based on accruals quality.

Second sub-hypothesis: There is a significant relationship between the capital structure and earnings quality which is measured based on the profits persistence.

Third sub-hypothesis: there is a significant relationship between the capital structure and the earnings quality which is measured based on the profits predictability.

Fourth sub-hypothesis: there is a significant relationship between the capital structure and the earnings quality which is measured based on the smoothness.

Fifth sub-hypothesis: there is a significant relationship between the capital structure and the earnings quality which is measured based on value relevance.

Sixth sub-hypothesis: there is a significant relationship between the capital structure and earnings quality which is measured based on the profits timeliness.

Seventh sub-hypothesis: there is a significant relationship between the capital structure and earnings quality which is measured based on conservatism.

Materials and Methods

This research is a quantitative research that uses scientific method and experimental proof. Since the necessary studies took place after the events and there is no manipulation of variables, this study is a retrospective study (Ex-post facto). The results could be used by investors, analysts and managers. Required data and information was mainly collected via database of Tehran Stock Exchange organization, the company's annual financial statements and result of modern processing applications. The collected data was prepared by Excel 2013 and then analyzed by using the software EViews 8.

Test period, population and sample of the study

Listed companies in Tehran Stock Exchange constitute the study sample. Because of some inconsistencies between population members, the sample is selected based on the following criteria:

- ✓ The Company Financial Year should lead to the end of the March of each year.
- ✓ The financial year should not change during 2003-2013.
- ✓ They should be accepted in the stock exchange before the end of the 2003.
- ✓ All required financial information should be available for data extraction.
- ✓ They should not be financial banks and institutions (investment companies, financial intermediaries, holding and leasing companies).
- ✓ Financial statements and notes of the selected companies should be completely available on the website of the Stock Exchange during the mentioned time.

Considering the above circumstances, the size of the study population rose to 130. In this study, to measure the variables, financial statements and accompanying notes of companies listed on Tehran Stock Exchange in 2003 to 2013 was used.

Research Variables and Methods of measuring them

In order to test the hypotheses, Variables are divided into three independent, dependent and control variables that we are going to describe them.

Independent Variable

In this study, earnings quality is intended as an independent variable. In this study, for the calculation of earnings quality, the earnings quality criteria based on accounting data and market data is used, following Francis et al. (2004) and Gaio and Raposo (2011).

On accounting information include accruals quality, earnings persistence (variation of profit), the earnings predictability and smoothness.

Three domains of earnings quality based on market information are value relevance, timeliness and conservative.

Accruals Quality: To calculate accruals quality of working capital the Dechow and Dichev model (2002) is used:

$$\Delta WC_t = b_0 + b_1 CFO_{t-1} + b_2 CFO_t + b_3 CFO_{t+1} + u_t$$

In this model;

ΔWC_t = Represents the change in working capital of year t in compare to the previous year

CFO_{t-1} = Operating cash flow of the year t-1

CFO_t = Operating cash flow of the year t

CFO_{t+1} = Operating cash flow of the year t+1

u_t = Residual error of the model for year t

Error component of this model represents the estimation error of accruals, and it is considered as reverse measure of earnings quality. The independent variables in the model is the cash flow obtained from operating activities for a period of past, current and future, that this data is obtained from the cash flow statement, and the dependent variable is accruals of working capital.

Accrual of working capital is calculated as follows:

$$\Delta WC_t = \Delta CA_t - \Delta CL_t - \Delta Cash_t + \Delta Debt_t$$

In this model;

ΔWC_t = The change in working capital of year t in compare to the previous year

ΔCA_t = The change in current assets of the year t compared to the previous year

ΔCL_t = The Change in current debt of the year t compared to the previous year

$\Delta Cash_t$ = The Change in cash flow of the year t compared to the previous year

$\Delta Debt_t$ = The Change in current portion of financial liabilities of the year t compared to the previous year

(All variables Dechow and Dichev (2002) are adjusted based on total assets).

Accruals quality criteria is the standard deviation of the model's residual error, and the lower number represents a higher quality of earnings.

Earnings Persistence: Earnings persistence means the repeatability of earnings of the current period. Major researchers (including Penman and Zhang, 2002; Francis et al, 2004; Jing, 2007) used the slope coefficients of the

regression model of the current profit on the earnings gap as a measure of earnings persistence. Higher coefficient indicating more stable earnings, and results in higher earnings quality.

$$E_t = b_0 + b_1 E_{t-1} + u_t$$

In this model;

E_t = Net profit or earnings per share in year t

E_{t-1} = Net profit or earnings per share in year t-1

u_t = Residual error of the model for year t

Earnings timeliness criteria is the slope coefficients model (b_1), the higher represents high profit quality.

Earnings Predictability: In the theoretical concepts of financial reporting, the earnings forecast are considered as a qualitative characteristic of accounting information and part of the relevancy feature (Theoretical concepts of financial reporting, 2011). When the prior period profit has the ability to predict earnings of the future periods, the profit will have quality.

In this study, the criterion of the profit predictability will be the square root of calculated error; the lower indicates a higher quality of earnings.

$$PREDICT_t = \sqrt{\delta^2(u_t)}$$

Profit Smoothness: Profit smoothness is the use of accrual accounting. Leuz et al (2003) measured profits smoothness by using the criteria, the standard deviation of operating profit to the standard deviation of operating cash flow, and both were adjusted based on total assets. Smaller ratios indicate more smoothness and, consequently, lower earnings quality.

Value Relevance: One of the main objectives of financial reporting is to provide useful information for decision making. Users of accounting information evaluated the companies' profitability and anticipated future cash flows, based on the information reported in the financial statements, after making a logical connection between profitability and future cash flows, they forecast company value and decide based on this forecasts (Kordestani and Roudneshin, 2006). According to Francis et al (2004), for calculation of profit relevancy and stock value, the following regression model is used:

$$RET_t = b_0 + b_1 E_t + b_2 \Delta E_t + u_t$$

In this model;

RET_t = Efficiency of the year t

E_t = Net profit of the year t

ΔE_t = Change in net profit of year t compared to the previous year

u_t = Residual error of the model for year t

The criterion of relevancy is the explanatory power of the model and of course the higher reflects the earnings quality.

Earnings Timeliness: Earnings Timeliness is a quality feature that is about accounting profit seeks to measure economic profit, which is defined as the change in stock market value. The most common scale used to measure the timeliness is Basu model (1997). Symbolic expression of this model is as follows:

$$E_t = b_0 + b_1 NEG_t + b_2 RET_t + b_3 NEG_t \cdot RET_t + u_t$$

In this model;

RET_t = The average returns of year t

E_t = Net profit of the year t

u_t = Residual error of the model for year t

If RET_t is less than zero, NEG_t would be equal to one, and otherwise NEG_t is equal to zero. The criterion of timeliness is the explanatory power of the model and higher of course represents earnings quality.

Earnings conservatism: Earnings conservatism is the ratio of bad news to good news in the profit regression on efficiency ($[b_2 + b_3]/b_2$), and the higher represents a higher earnings quality.

Dependent Variable

In this study, the capital structure is considered as dependent variables.

Capital Structure: Capital structure or the financial leverage. Financial leverage refers to limit and the extent to which a company has financing through a loan or borrowing (Abdo Tabrizi and Moshirzadeh, 2005). In other words, financial leverage represents the amount of fixed costs such as interest or fixed profit of loans in the company (Abdo Tabrizi and Hanif, 2007). One of the most important measures of leverage is the debt ratio which is

obtained by dividing the debt to assets. This variable is also used by the same definition in research of Chevalier (1993), Pandey (2004), Guney et al. (2011), Namazi and Shirzadeh (2005).

Control Variable

In order to control other possible factors affecting capital structure, which is not considered by profits quality variables, a number of visible characteristics of the sample companies are intended as a "control variable".

Control variables include profitability, size and sales growth of the company.

Profitability ratios: The profitability ratio is the earnings before interest and tax deductions divided by total assets of the company, in other words the operating profit divided by total assets (Thanatawee, 2011).

Company size: Cooke (1991) and Firth (1997) have shown that larger firms have better financial reports quality than smaller firms. Therefore, in this study similar to the study of Cheng et al (2013), variable of company size (natural logarithm of market value) is used as a control variable.

Sales Growth of Company: The percentage change in sales is used to measure the control variable of the growth. Sales growth rate is the difference of current year sales with the previous year, divided by the sales of the previous year. Lee et al (2005) showed that the profits of developing companies generally have lower quality than the profit of other companies. Researchers like Dechow et al (2009) have used this variable.

Results

Descriptive Statistics

Table 1 shows the descriptive statistics of the variables studied in the years 2003 to 2013. This table shows the calculated descriptive statistics including the mean, maximum, and minimum, and standard deviation, and variables of accruals quality, earnings persistence, and profits predictability, smoothness, timeliness, conservatism, capital structure, profitability ratio, company size and growth sales, for the years 2003 to 2013. It should be noted that the calculation accuracy is up to 4 decimal places.

Table 1. Descriptive statistics of variables

Variable name	Number of Views	Mean	Maximum	Minimum	Standard deviation
Accruals quality	130	0.0502	0.4078	0.0001	0.0457
Persistence	130	0.5326	4.7485	-2.4426	0.7109
Predictability	130	0.0432	0.4004	0.0054	0.0359
Smoothness	130	0.9274	6.1087	0.0023	0.7408
Value relevance	130	0.5021	0.9909	0.0001	0.2844
Timeliness	130	0.5654	0.9995	0.0000	0.2956
Conservatism	130	-0.6611	96.1165	136.0345	19.9895
Capital structure	130	0.6462	3.0604	0.1088	0.2685
Profitability ratios	130	0.1195	0.7001	-0.3866	0.1467
Company size	130	5.7408	8.0475	4.0669	0.6887
Company sales growth	130	0.1999	9.4685	-0.8980	0.4768

According to the data of Table 1 that shows the descriptive statistics of variables in the years 2003 to 2013, the conservatism variable of profits has the highest dispersion among the variables. This suggests further changes of this variable in compare to other variables. Also, the lowest standard deviation is for the earnings predictability. This suggests the less changes of profit predictability compared to other variables. In terms of the mean, lowest and highest mean values belong to earnings conservatism and the company size respectively. Maximum variables related to the profits conservatism and minimum value also belongs to the conservatism.

Stability (Reliability) of Research Variables

The result of the reliability of research variables by Levin, Lin and Chu test is presented in Table 2. According to the tests of compilation unit root, if the test statistic significance is less than 0.05, independent and dependent variables are stable over the study period. As can be seen, in all the independent, dependent and control

variables, the significant level is smaller than 0.05 in unit root test of Levin, Lin and Chu, Im, Pesaran and shin, adjusted Dickey Fuller and Phillips-Perron. This indicates that all the variables are reliable. This means that the mean and variance of variables has been constant over the time and variables' covariance between different years. As a result, sample companies had no structural changes, and the use of these variables in the research patterns will not cause spurious regression.

Table 2. The results of testing the reliability of variables

	Levin, lin, chu test	Im, Pesaran, Shin test	Adjusted Dickey-Fuller test	Phillips-Perron test
Variable name	Test statistics (Significance level)	Test statistics (Significance level)	Test statistics (Significance level)	Test statistics (Significance level)
Accruals quality	-37.2232 (0.0000)	-7.93693 (0.0000)	493.373 (0.0000)	612.575 (0.0000)
Persistence	-34.1966 (0.0000)	-7.46877 (0.0000)	485.312 (0.0000)	622.339 (0.0000)
Predictability	-29.8183 (0.0000)	-8.26695 (0.0000)	522.868 (0.0000)	669.258 (0.0000)
Smoothness	-30.4546 (0.0000)	-7.87429 (0.0000)	515.540 (0.0000)	666.425 (0.0000)
Value relevance	-33.8366 (0.0000)	-9.25721 (0.0000)	537.316 (0.0000)	703.961 (0.0000)
Timeliness	-31.2889 (0.0000)	-8.40119 (0.0000)	521.037 (0.0000)	696.760 (0.0000)
Conservatism	-43.9675 (0.0000)	-9.45165 (0.0000)	543.469 (0.0000)	447.675 (0.0000)
Capital structure	-37.3849 (0.0000)	-8.82869 (0.0000)	526.023 (0.0000)	657.749 (0.0000)
Profitability ratios	-28.2658 (0.0000)	-6.68464 (0.0000)	469.802 (0.0000)	583.410 (0.0000)
Company size	-84.6548 (0.0000)	-9.11068 (0.0000)	430.809 (0.0000)	518.322 (0.0000)
Company sales growth	-36.4541 (0.0000)	-7.98486 (0.0000)	499.942 (0.0000)	669.411 (0.0000)

Inferential Statistics

The first main hypothesis: There is a significant relationship between earnings quality and capital structure.

To test the first main hypothesis (earnings quality and capital structure), seven different criteria of accruals quality, profits persistence, earnings predictability, smoothness, relevancy, timeliness and conservatism of profits are calculated.

In order to determine the first main hypothesis testing method with seven subsidiary hypotheses, the test Breusch–Pagan, Chow and Hausman was used, the results of these seven tests are offered.

Breusch–Pagan test

In this test, the null hypothesis means better use of money data model, and rejecting the null hypothesis means random effects model.

Table 3. results of Breusch–Pagan test

	Statistics	Significance	Result
First sub-hypothesis	6.760619	-0.0093	Random effect
Second sub-hypothesis	4.100774	-00429	Random effect
Third sub-hypothesis	5.93072	-0.0149	Random effect
Fourth sub-hypothesis	7.829788	-0.0051	Random effect
Fifth sub-hypothesis	6.839817	-0.0089	Random effect
Sixth sub-hypothesis	6.737394	-0.0094	Random effect
Seventh sub-hypothesis	6.39896	-0.0114	Random effect

Chow Test

In this test, the null hypothesis represents the equality of coefficients and width of the origin in the listed companies. And hence rejecting the null hypothesis, suggests using panel data and not rejecting the null hypothesis suggests using ordinary least squares method of money.

Table 4. The results of Chow.

	Statistics	Significance	Result
First sub-hypothesis	1.076956	0.2816	Common effects
Second sub-hypothesis	1.035135	0.3881	Common effects
Third sub-hypothesis	1.087595	0.2574	Common effects
Fourth sub-hypothesis	1.090974	0.2500	Common effects
Fifth sub-hypothesis	1.076344	0.2831	Common effects
Sixth sub-hypothesis	1.081938	0.2702	Common effects
Seventh sub-hypothesis	1.086515	0.2598	Common effects

Hausman Test

Considering that in all seven hypotheses, Breusch–Pagan test confirmed the existence of random effects model and Chow test has confirmed the common effects, so, one of the two data estimation method, the method of "random effects" and "common effects" should be selected. For this purpose, the panel data from Hausman test is used. Based on this test, rejecting the null hypothesis suggests the use of fixed effects. The results of the Hausman test are presented in Table 5, implies the acceptance of null hypothesis and the random effects model.

Table 5. Hausman Test results

	Statistics	Significance	Result
First sub-hypothesis	5.893734	0.2072	Random effect
Second sub-hypothesis	3.327373	0.5046	Random effect
Third sub-hypothesis	2.579605	0.6304	Random effect
Fourth sub-hypothesis	1.77243	0.7775	Random effect
Fifth sub-hypothesis	2.390849	0.6643	Random effect
Sixth sub-hypothesis	3.015268	0.5553	Random effect
Seventh sub-hypothesis	1.65774	0.7984	Random effect

The results of the test of estimated models with each of the indicators and the random effects method is presented in Table 6:

Table 6. The results of the first main hypothesis.

Variables	First sub-hypothesis	Second sub-hypothesis	Third sub-hypothesis	Fourth sub-hypothesis	Fifth sub-hypothesis	Sixth sub-hypothesis	Seventh sub-hypothesis
Constant	12.71109 (0.000)	12.88267 (0.000)	12.61554 (0.000)	12.66845 (0.000)	12.62731 (0.000)	12.27791 (0.000)	12.66916 (0.000)
Earnings quality	-0.901497 (0.3676)	3.997119 (0.0001)	0.167959 (0.8667)	-1.86498 (0.0626)	-1.29985 (0.194)	0.462144 (0.6441)	-0.571668 (0.5677)
Profitability ratios	-21.00042 (0.000)	-21.5397 (0.000)	-20.8815 (0.000)	-20.6057 (0.000)	-20.857 (0.000)	-20.9239 (0.000)	-20.91174 (0.000)
Company size	-0.830237 (0.4067)	-1.24899 (0.212)	-0.97527 (0.3297)	-0.70179 (0.483)	-0.04154 (0.2979)	-0.96289 (0.3359)	-0.970301 (0.3322)
Growth rate	4.036187 (0.0001)	3.580945 (0.0004)	4.027821 (0.0001)	4.038946 (0.0001)	4.029904 (0.0001)	4.050698 (0.0001)	4.47259 (0.0001)
Coefficient of determination	0.418241	0.429616	0.417285	0.419779	0.418628	0.417515	0.417448
Adjusted coefficient of determination	0.415239	0.426672	0.416785	0.415627	0.414508	0.414508	0.414441
F statistic	139.2912 (0.000)	145.9333 (0.000)	138.7456 (0.000)	140.1747 (0.000)	139.5131 (0.000)	138.8765 (0.000)	138.8381
Durbin-Watson	1.964293	1.929889	1.97232	1.98543	1.977636	1.975362	1.97698

The results of the second hypothesis estimation by random effects model suggests that there was a significant positive relationship between profit persistence index and the capital structure, regardless of the profitability ratio, company size and growth rate. Therefore, the research hypothesis is accepted and there is a significant positive relationship between the profits persistence and capital structure.

But the results of the first, fourth, fifth and seventh hypothesis estimation by random effects method demonstrated a negative relationship between the accruals quality, earnings smoothness, relevancy, conservatism and capital structure which is calculated due to the possibility ($P\text{-Value} > 0.05$), this relationship was not statistically significant. Therefore, the first, fourth, fifth and seventh sub-hypotheses were not accepted and there was no significant relationship between the earnings quality (calculated by indicators of accruals quality, earnings smoothness, relevancy and conservatism) and capital structure. But the results of the third and sixth hypothesis estimation by random effects method demonstrated a positive relationship between the earnings predictability, timeliness and capital structure which is calculated due to the possibility ($P\text{-Value} > 0.05$), and this relationship was not statistically significant. So, the third and sixth sub-hypotheses were not accepted and there was no significant relationship between the earnings quality (calculated by indicators of the earnings predictability and timeliness) and the capital structure.

Conclusion

Earnings quality is an important issue that has been widely used without comprehensive definition. In this study, seven quality criteria of accruals, profit persistence, predictability, smoothness, relevancy, timeliness and conservatism are selected, from the profit quality criteria. First, the seven earnings quality criteria were calculated for each of the member companies, and then their relationship with the capital structure was investigated.

Results of regression analysis showed that there is a significant positive relationship between the earnings persistence and capital structure, but there is no significant relationship between the accruals quality, the earnings predictability, smoothness, relevancy, timeliness and conservatism and capital structure.

Recommendations of the Study

- ✓ According to the significant positive relationship between earnings persistence and capital structure, stock market investors are suggested to consider this feature of earnings quality before other features of earnings quality in their decisions.
- ✓ Stock exchange organization should establish a database so that earnings quality information of companies will be available to the clients through the database.
- ✓ Tehran stock exchange organization rank the companies based on earnings quality. Tehran stock exchange organization by doing this has done a part of their informing task and helped to clarify the market.
- ✓ Investors of Tehran Stock Exchange are recommended that consider the quality of earnings in their decision.

Suggestions for Future Research

To make greater use of research results as well as improving the quality of earnings in the future, it is suggested that the researchers consider the following topics:

- ✓ It is recommended that researchers use other indexes and models to measure the capital structure, and compare the results of using these indexes.
- ✓ Doing the present study in a broader period.

Limitations of the Study

In doing the research, there are limitations for the researcher to achieve the aims of the research. This study is not an exception. The major limitations in the way of this research are as follows:

- ✓ In Iran, such a research on the assumptions of this study has not been done for the companies listed in Tehran Stock Exchange. This makes it impossible to compare the results of this research with other national researches.
- ✓ Other problems in the study is the lack of record of many active companies in the Tehran Stock Exchange, according to these limitations, the sample is limited to companies that their related statistical information was available.

Conflict of interest

The authors declare no conflict of interest

References

- Abdo Tabrizi H, Hanifi F, 2007. Financial Management (Volume II). Written by Fred Weston, Eugene Brigham. Agah Publication.
- Abdo Tabrizi H, Moshirzadeh Moayadi P, 2005. Financial Management (Volume I). Written by Fred Weston, Eugene Brigham. Agah Publication.
- Aggarwal R, Kyaw N, 2010. Capital Structure, dividend policy and multi-nationality: Theory versus empirical evidence. *International Review of Financial Analysis*, 19 (2).
- Aghaei M, Jamali GH, Ahmadi H, 2010. The effect of operating cash flow shocks on asset and capital structure of listed companies in Tehran Stock Exchange. *Financial Accounting Journal*, 8: 39-59.
- Ahmadpour A, Ahmadi SA, 2008. The use of qualitative characteristics of financial information in evaluating the quality of earnings in the Tehran Stock Exchange. *Reviews of accounting and auditing journal*, 2: 3-16.
- Basu S. 1997. The Conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics*, 24: 3-37.
- Bhattacharya N, Desai H, Venkataraman K, 2009. Earnings quality and information asymmetry. Working Paper.
- Cheng P, Man P, Yi CH, 2013. The impact of product market competition on earnings quality. *Accounting and Finance*, 53: 137-162.
- Chevalier JA, 1993. Capital structure and product market competition: empirical evidence from the supermarket industry. *American Economic Review*, 85: 415-435.
- Cooke TE, 1991. An assessment of voluntary disclosure in the annual reports of Japanese corporations. *The International Journal of Accounting*, 26: 174-189.
- Cooper WW, 1983. Kothler s dictionary for accountants, sixth edition.
- Dechow P, Dichev I. 2002. The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review*, 77: 35-59.
- Dechow P, Ge W, Schrand C, 2009. Understanding Earnings Quality: A Review of the Proxies, Their Determinants and Their Consequences. Working Paper, Haas School of Business, University of California, Berkeley.
- Ebrahimi Kordlar A, Aarabi MJ, 2010. Ownership concentration and earnings quality of listed companies in Tehran Stock Exchange. *Journal of Accounting Research*, 2 (2): 95-110.
- Firth M, 1979. The impact of size, stock market and auditors on voluntary disclosure in corporate annual reports. *Accounting and Business Research*, 9: 273-280.
- Francis J, LaFond R, Olsson P, Schipper K, 2004. Cost of equity and earnings attributes. *The Accounting Review*, 79, 967-1010.
- Gaio R, Raposo C, 2011. Earnings quality and firm valuation: International evidence. *Accounting and Finance*, 51: 467-499.
- Ghaemi MH, Jamal Livani A, Deh Bozorgi S, 2008. Quality of earnings and stock returns. *Journal of Accounting and Auditing reviews*. 3: 71-88.
- Guney Y, Li L, Fairchild R, 2011. The relationship between product market competition and capital structure in Chinese listed firms. *International Review of Financial Analysis*, 20, 41-51.
- Hermans S, 2006. Financial Information and Earnings Quality: A Literature Review. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=897722[Online][3 September 2011]
- Hussey R, 1999. *Oxford dictionary of accounting*, second edition.
- Jahankhani A, Zarif Fard A, 1995. Do the directors and shareholders use appropriate criteria to measure the firm value? *Financial Research journal*. 7: 41-66.
- Jenkins D, Kane G, Velury U, 2006. Earnings quality decline and the effect of industry specialist auditors: An analysis of the late 1990s. *Journal of Accounting and Public Policy*, 25: 71-90.
- Jing Z, 2007. Earnings Quality, Analysts, Institutional Investors, and Stock Price Synchronicity. Unpublished PhD Dissertation, School of Accounting and Finance, The Hong Kong Polytechnic University, UMI Number: 3313068.
- Kordestani GR, Roudneshin H, 2006. Evaluation of the cash and accrual components relevancy of accounting to the company's market value. *Journal of accounting and auditing reviews*. 3: 45-68.
- Lee YJ, Petroni K, Shen M, 2005. Cherry Picking, Disclosure Quality, and Comprehensive Income Reporting Choices: The Case of Property-Liability Insurers. Working paper, Michigan State University.

- Leuz C, Nanda D, Wysocki P, 2003. Earnings management and investor protection an international comparison. *Journal of financial Economics*, 69: 505-527.
- Mahmoodabadi H, Mehtari Z, 2011. The relationship between accounting conservatism and investment efficiency of listed companies in Tehran Stock Exchange. *Advances in Accounting*, University of Shiraz, Iran. 2: 113-140.
- Mahmoodabadi H, Rezaei G, 2012. The effects of earnings management on the quality of financial reporting of listed companies in Tehran Stock Exchange. *The first regional conference on new approaches to accounting and auditing*. Islamic Azad University of Bandar Gaz, Iran, 113-128.
- Mahmoodabadi H, Setayesh MH, Faraghat N, 2013. Examining the relationship between capital structure and abnormal returns with an emphasis on the types of companies listed on the Stock Exchange in Tehran. *The third national conference of accounting and management*.
- Modigliani F, Miller M.H, 1958. The cost of capital corporation finance and the theory of investment. *American Economic Review*, 53: 433-443.
- Namazi M, Shirzadeh J, 2005. Examining the relationship between capital structure and profitability of listed companies in Tehran Stock Exchange. *Journal of accounting and auditing reviews*, 42: 75-95.
- Nasrollahi Z, Arefmanesh Z, 2010. Investigate the relationship between ownership and earnings quality in listed companies in Tehran Stock Exchange. *Journal of Accounting Knowledge*. 3: 117-137.
- Pandey IM, 2004. Capital structure, profitability and market structure: Evidence from Malaysia. *Asia Pacific Journal of Economics and Business*, 8: 78-91.
- Penman S, Zhang XJ, 2002. Accounting conservatism, the quality of earnings and stock returns. *The Accounting Review*, 77: 237-264.
- Riahi Belkai A, 1999. *Capital Structure*. first edition, .
- Safarzadeh MH, 2013. Earning quality and its measuring criteria. *Accounting Research*. 1 (9): 125-145.
- Saghafi A, Bolou G, 2009. The cost of equity and profit characteristics. *Accounting Research*. 2: 4-21.
- Setayesh MH, Kargarfard Jahromi M, 2011. The effect of product market competition on the capital structure. *Empirical research of financial accounting Journal*. 1: 9-29.
- Sinai HA, Rezaeian A, 2005. The effect of firm characteristics on the capital structure. *Journal of Humanities and Social Sciences*, University of Shiraz, Iran. 3: 123-148.
- Technical Committee on Audit Organization 2011. *accounting standards*. Tehran. Corporate Audit.
- Thanatawee Y, 2011. Life-Cycle theory and free cash flow hypothesis: Evidence from dividend policy in Thailand. Retrieved from SSRN: <http://ssrn.com/abstract=1872686>.
- Westgaard S, Amund E, Stien F, Thor C, 2008. Investigating the Capital Structure of UK Real Estate Companies. *Journal of Property Research*, 25: 61-87.
- Yahyazadehfar M, Shams Sh and Matan M, 2010. Investigate the features of company with capital structure of listed companies in Tehran Stock Exchange. *Accounting Research*, 8: 123-138.