The Study of the Relationship between Comprehensive Earnings Volatility and Market Risk in Companies Listed on Tehran Stock Exchange

Aziz Gord[1*], Saeid Hamzehzadeh[2], Hossein Mahdi[3]

[1]Assistant Prof. in Accounting, Payame Noor University, Tehran, Iran; [2]MSc. in Accounting, Faculty of Accounting , Payame Noor University, Tehran, Iran; [3]MSc in Accounting, Faculty of Accounting , Tehran University, Tehran, Iran
[*]E-mail: afmgord@yahoo.com

Abstract

The main aim of the present study is to examine the relationship between comprehensive earnings volatility and market risk in companies listed on Tehran Stock Exchange. Statistical population of the present study consisted of companies listed on Tehran Stock Exchange during the time frame of 2006 to 2013 and sample volume is calculated to be equal to 122 companies by using screening method and after the elimination of outlaying observations. In this study, net earnings volatility, comprehensive earnings volatility and increasing comprehensive earnings volatility were considered as independent variables in order to study their effect on market risk in companies. In this study, in which panel data with fixed and random effects were used, results obtained from firm data analysis by using multiple-variable regression at 95% confidence indicated that there is a direct relationship between net earnings volatility, comprehensive earnings volatility and increasing comprehensive earnings volatility with market risk of companies.

Keywords: Net earnings volatility, comprehensive earnings volatility, increasing comprehensive earnings volatility, market risk

Introduction

Quality of accounting earnings and its relevance to prediction and pricing goals depend on sustainability of its constituting components. Achieving stable earnings flow is helpful in increasing predictive power of investors and reducing company risk. Some of earnings elements are sustainable reasonably over time. Disclosure of these sustainable earnings' elements aids users in predicting future values related to these items. Other earnings elements might be unsustainable to a great extent. Information related to these elements should be reported in a way that users can separate their effects from the effects of elements which are sustainable (Chestin et al., 2002: 45).

Sustainable earnings are a portion of the existing earnings which are sustainable and their sustainability continues. Kormendi and Lipe (1987) have attributed earnings sustainability to earnings quality and argue that the level of changes in current components of earnings which are transferred to their future values indicated to earnings quality. Not all reported accounting earnings are permanent. Some earnings components, specially, some of the long-term and current accrual components like some restructurings, management discretions, identification of earnings preservation or changes in accounting principles and methods only have a short-term effect on earnings or only have a one-time effect. Therefore, earnings which possess highly transient components might have limited effect on pricing (Cheng, Liu & Schaefer, 1996).

In the present study, relationship between comprehensive income volatility and market risk in companies listed on Tehran Stock Exchange has been examined. In following sections, research literature review is presented. First, main research problem is presented and next, theoretical framework is presented. In the end, data analysis will be discussed.

Statement of problem

Economic concept of earnings has always attracted the attention of economists (Kevin & Wei, 2008) and changes in earnings and stock price are among the effective factors on evaluation of companies and managers and in turn, are effective on potential and actual investors' decisions (Sudhakar & Mohanram, 2012). The reason for this is that the aim of measuring earnings is to determine the status of a business unit and hence, to determine to what extent its operation has been improved during a certain period of time (Belkouee, 2002). It can be said that earnings measurement periodically might be the first aim of accounting process for business units (Kim & Yaxuan, 2010).

Therefore, the issue of earnings volatility analysis in investment is of a special importance and priority (Fama & French, 2004).

The aim of preparing profit and loss statement and comprehensive profit and loss statement is to present all the identified Revenues and expenditures during a fiscal period. The main focus of a profit and loss statement for a period is on operating revenues and expenditures. Revenues and expenditures are not reflected in profit and loss Statement only in cases in which, according to accounting standards they are reflected directly in shareholders' equity account. Since, for economic decision-making of financial statements users, it is necessary to be informed and aware of all the financial performance aspects of a business unit during a certain period; hence, it is necessary that all the identified revenues and expenditures during that certain period are considered. Therefore, it is necessary to prepare and present new fundamental financial statements known as "comprehensive profit and loss statement", so that the extent to which shareholders' equity have been increased or reduced as the result of various revenues and expenditures is reflected. Since, comprehensive profit and loss statement contains all identified revenues and expenditures, including realized and un-realized, net income or loss of the financial period is reflected in comprehensive profit and loss statement as the first item. This means that the period's profit and loss statements reflects one of the items of comprehensive profit and loss statement in detail and that other identified revenues and expenditures are reflected in comprehensive profit and loss statements separately. Other identified revenues and expenditures include the following:

A) Unrealized income and expenses resulting from changes in the value of those assets and liabilities that are basically kept for enabling a business unit to perform its operation continuously and according to relevant accounting standards are considered directly in equity (such as revenues and expenditures resulting from Revaluation of tangible fixed assets).

B) Revenues and expenditures according to accounting standards based on Mandatory rules are directly considered in equity (such as the difference resulting from converting assets and foreign currency liabilities subjected to Article 136 of the Public Audit Act).

In this study, the researcher seeks to examine the relationship between market risk and comprehensive income and to compare it with the relationship between market risk and net earnings.

Theoretical framework

Definition of earnings

Adam Smith, the famous Scottish economist, was the first person who defined earnings as an amount which spending it doesn't incur any damage on capital (Henderickson, 2013, p.81). Sir John Hix, English economist and Nobel Prize winner, has defined earnings in more accurate words as an amount of money which is spent by a person during a period of time but doesn't change his/her wealth (ibid, p. 282).

Although accountants support economic definitions for earnings, however, for measuring it resort to those definitions which have more of an operating nature rather than theoretical nature. Below, the definitions of earnings provided by official authorities and two definitions from Kohler's

Accounting Dictionary are presented: "profit/earnings is an amount of money which is obtained from deducting the final cost of the sold product, other expenditures and non-operating losses from operating earnings or simply earnings" (Terminology Committee, 2011).

"Net profit (loss) is the excess (shortfall) of revenues over expenses in an accounting period" (Accounting Principles Board)

"Comprehensive earnings are the changes in net assets of a business unit during a period of time based on its trades and other events the origin of which are not the owners (Board of Financial Accounting Standards, 2009). It refers to money or the equivalent obtained or realized during an accounting period which increases total net assets in the end of that accounting period comparing to the beginning of the period and results from sales of any product or service, commissions, interests, gifts, recovery of damages".

"Remaining income after deduction of the cost of sales and operations and other costs = net earnings"

Importance of earnings for investors

Realization of earnings indicates to investment return. Return on investment is realized only when the invested amount can be preserved and recycled.

Therefore, the concept of preservation of capital is used for determining the difference between return on investment and investment return and determining earnings. The concept of preservation of capital contains two concepts of preserving physical and financial capitals. Financial capital preservation occurs when monetary value of net assets at the end of the period (except for the transactions with owners) is minimum equal to the monetary value of net assets in the beginning of the period. This view is the same as the old view of capital preservation which has been used by financial accountants. Physical capital which refers to return on capital is preserved when physical production capacity of an economic unit at the end of a period (except for the transactions with owners) is minimum equal to the physical production capacity at the beginning of the period. This concept refers to the fact that earnings can only be identified after the replacement of physical assets. Physical production capacity at a point of time is equal to current value of net assets employed for creating earnings. Current value is consisted of expectations related to the level of profitability related to net assets. The main different between preservation of physical capital and financial capital is in profit and loss of maintaining assets. Maintenance profit and loss occurs when the value of balance sheet items changes in a certain accounting period. Advocates of physical capital preservation consider profit and loss resulting from maintenance as return on capital and deploy it as direct adjustments in shareholders' equity. According to this, based on the perspective of the advocates of financial capital preservation, profit and loss resulting from maintenance is considered as return on capital and is reflected in profit and loss statement (Clyde, 2007).

For various goals, awareness from various methods of profit calculation can be very useful. One of the existing approaches in reporting earnings for individuals out of an organization is to provide a comprehensive concept which is accepted by everyone; however, detailed analysis of various earnings goals and concepts indicate that a unique concept cannot equally meet all goals. For this purpose, we are faced with two options: 1) Providing a unique concept which can meet most of the goals in a reasonable or just way; 2) providing various earnings names with consideration of certain goals. But in general, each of these two options has its own advantages and disadvantages (Lazarus, 2002).

Emphasis on earnings advantages started in late 1960s, because, at this time the issue of relevance and advantages of financial information and selecting desirable accounting procedures were at top of the agenda for accounting studies.

The most important question of financial information users is about the advantage of earnings. Reported earnings in financial statements are the first information items reflect in these statements. Economic theories believe that the main contribution of a company's earnings is aiding resource allocation in capital market. Most of the stock evaluation models, consider expected earnings as an explanatory variable (Abdollahzadeh, 2002).

When analysts question about securities' value, comparing to equity or sales or total assets they prefer to talk about earnings forecasts. Management's decisions and their reward are often expressed in terms of earnings targets. Therefore, assessment of earnings advantages for investors and the use of this assessment for reassessment of accounting studies agenda has been a motivation for pioneering in studying the relationship between profit/return (Abdollahzadeh, 2002).

Qualitative characteristics of earnings
1. Earnings sustainability
2. Earnings predictability
3. Earnings relevance to stock value
4. Earnings timeliness
5. Earnings conservatism

Earnings sustainability
Earnings which are not resulted from unusual or unexpected activities have higher level of sustainability. In other words, earnings Durability and repeatability is defined as earnings sustainability. financial analysts and investors in determining future cash flows don't consider accounting earnings figure as the only determining indicator, but for them sustainability and repeatability of the reported earnings is so much important. They pay more attention the items constituting earnings rather than the final figure for it. From their perspective, earnings resulting from Unusual and unexpected items contains more information content; because, repeatable items in earnings are considered as a good criterion for future cash flows. Higher level of earnings sustainability is related to a larger coefficient of earnings variables in profit/return regression (ibid, 2009).

Earnings predictability
Earnings predictability refers to the ability of predicting earnings from itself. This qualitative characteristic of earnings is valued by financial analysts and is considered as one of the necessary components for evaluation models. In theoretical framework of Financial Accounting Standards Board, predictability has been defined as one of the relevance characteristics as following:

Predictability refers to quality of information, which aid users to increase the likelihood of correct prediction of past or present results.

American Accounting Association in its accounting theory statement says: "in codification of standards, the comprehensive criterion is usefulness of information". Almost without any exception all the literature available in this field has related usefulness to facilitation in decision making. In decision making one of the most important issues is the outcome of the decisions and due to the fact that the outcome of the decision is related to future, decision outcome and result is determined through prediction. Therefore, accounting information should have the ability to predict, in order to be able to facilitate investors' decision making (Kordestani, 2007).

Earnings relevance to stock value
Earnings are one of the most superior indicators for measuring activities of an economic unit. In financial reports also a special emphasis has been placed on information related to earnings. Therefore, reported earnings should aid investors in determining the value of a company. In fact, earnings calculation and reporting should be in a way to satisfy this goal. Technically, earnings

should be related to stock value. Test of earnings relevance to stock value is one of the approaches to operating definition of relevance and reliability which is considered by Financial Accounting Standards Board; because, accounting figures (earnings) are related to stock value if they have the ability to explain stock return changes. In this case, stock evaluation is useful for investors and is related to decision making. Also, the reliability of these figures depends on the extent to which they are reflected in stock price.

Earnings timeliness

In order for earnings information to be related to users' decisions, it should be made available to users at a time when they can be effective. In other words, this information should be timely. If earnings information is timely, investors' expected return would be real also. On the other hand, the more information are reported in shorter time periods, due to high level of information accessed by investors, company's information risk would reduce. This, in turn would lead to reduced general risk of investment in company and reduced investors' expected return. Earnings timeliness as a qualitative characteristic is based on this idea that accounting earnings seeks to measure economic earnings which is defined as the change in stock market value. Explanatory power of earnings in regression represents earnings timeliness. Timelines does not distinguish between positive and negative return.

Earnings conservatism

Conservatism in accounting is defined as the different in the necessary confirmation for identification of loss. Conservatism is originated from uncertainty toward future. Future is always ambiguous and future cannot be estimated accurately at all. In accounting two sources cause uncertainty. First, accounting is related to commercial units which are expected to continue their life in future. Since, often these activities are allocated to past and future periods; some assumptions must be made about the logic of these allocations based on the expectation about future. Although, about these allocations some of the assumptions and expectations would be valid in future periods; however, it is possible that we can never fully confirm the allocation process. Second, often calculations and measurements in accounting are determined based on "wealth monetary value" which requires the estimation of future uncertain amounts (Salminen, 2008, 75).

Conservations indicate to the ability of accounting earnings for reflecting economic earnings (positive return on stock) and economic loss (negative return on stock). Conservatism's emphasis is on distinguishing between positive and negative return on stock (economic profit and loss). Conservatism is obtained from ratio of earnings explanatory variable (in profit/return regression) multiply into negative return divided by positive return on stock. Combination of timeliness and conservatism represents earnings transparency as one of the qualitative characteristics demanded by users (Kordestani, 2007).

Persistent and non-persistent earnings/ operating and non-operating earnings

Advocates of the concept of current performance earnings often claim that persistent components of current operation are usually defined as operating items and the part which is irregular and unpredictable is defined as non-operating items. However, this definition is not necessarily correct. So many items might have an operating nature but not necessarily be repeatable. The necessity of overtime pay at the times of need and purchasing raw materials at very favorable situations are both instances of operating events; however, might be non-persistent. On the contrary, some events are non-operating but have a repeatable nature. Yearly inevitable floods in dangerous regions, although might affect non-operating costs in a way; however, have a repeatable nature (Setayesh, 2003).

A net earnings figure based on persistent events usually is more useful for investors in predicting future earnings and dividends flow. Therefore, persistent non-operating events are as

important as persistent operating events. Distinguishing between operating and non-operating events is more useful for measuring management's efficiency. This belief is resulted from this assumption that operating events are more controllable comparing to non-operating events (Setayesh, 2003).

Comprehensive profit and loss statement

Financial statements are the final product of financial accounting process. Profit and loss statements are considered as a basis for investors' decisions and other decisions. Measurement of a period's profitability and financial status of a commercial unit has always been one of the challenges of those who drafts accounting standards and is the main concern of accounting information users. The aims of financial accounting and reporting are more originated from external information users' needs. The main aim of financial reporting is to express financial status and performance of the commercial unit for users outside of an organization for aiding them in their financial decision-making. The main tool for transferring this information to users outside an organization is basic financial statements and explanatory notes to these statements and complementary reports which hare considered as the final product of accounting process and financial reporting. Market efficiency is based on competition theory in which prices are set based on competition and decisions reflect the existing economic information. One of the types of economic information which is used for increasing market efficiency is the information contained in financial statements. Financial analysts are the main groups involved in gathers and disseminating these types of information. When it is difficult to determining the origin of economic information provision, or hasn't' been provided among companies evenly, analyst are not able to play their role in a optimized manner and hence, efficiency reduces (Smith and Ritter, 1996). Before introducing comprehensive profit and loss statements, this problem could have been seen in some of the comprehensive profit and loss items which were reflected directly in equity balance sheet. As per the definition of Financial Accounting Standards Board in Concepts Statement No. 6, comprehensive profit and loss refers to "a change in net assets of a business unit as the result of transactions and other events, except owners' investment or dividends paid to them in a financial period".

Comprehensive profit and loss statement is a tool for evaluating the performance of a company. The aim of providing this financial statement is to require business units to clearly reflect some components of financial performance to aid financial statements' users from financial performance of a business unit during a certain period and provide them with a basis for evaluating future financial performance and future cash flows. A comprehensive profit and loss statement also as a basic financial statement should present all the identified revenues and expenditures during a certain period which are attributable to owners of capitals in separation of their constituting components. The aim of preparing profit and loss statement and comprehensive profit and loss statement is to reflect and present all the identified revenues and expenditures during a certain financial period. The main focus of a profit and loss statement is on operating revenues and expenditures. Revenues and expenditures only in one case are not reflected in profit and loss statement and that is when they are clearly according to accounting standards should be directly reflected in capital owners' equity account.

Since for economic decision-making, users of financial statements should be aware of all the aspects of financial performance of a business unit during a certain period, hence, all identified revenues and expenditures during that period should be considered. In this case, as it has been stated in theoretical concepts of financial reporting, it is necessary to prepare and provide a new basic financial statement with the title of "comprehensive profit and loss statement" in order to reflect the extent to which capital owners' equity has been reduced or increased through the channel of various revenues and expenditure in a certain period.

Risk: In today's society almost all individual in a way are familiar with the concept of risk and they acknowledge that all aspects of life are accompanied by risk. Risk refers to a threat which occurs due to uncertainty about occurrence of an event in future and the more this uncertainty increases, risk also increases (Raee & Saeedi, 2004).

In economic source in general two views has been presented for defining risk. First view defines risk as any kind of possible fluctuation in economic return in future. In second view, risk is defined as possible negative fluctuations in economic return in future. However, today the first view is more accepted. In fact, risk and return are the two main pillars of decision-making for investment, in a way that always maximum return and minimum risk is considered as an appropriate criterion for investment (Raee and Saeedi, 2004).

In other words, every investor with accepting higher levels of risk demands higher levels of return as well. Alternatively, with reduced acceptable risk, expected return also reduces.

Types of risk

Considering the constant changes in environment factors and economic systems, different types of risk affect financial structure of different institutions. Industrial, manufacturing and service companies, financial institutions and even governments are faced with certain risk considering their field they are operating in.

In general, every organization is faced with two risks: financial and non-financial risks. In the following diagram, different types of risk have been shown:

Table 1: Type of risk

Types of risk	
Financial risks	Non-financial risks
Exchange rate risk Interest rate risk Credit risk Liquidity risk Inflation risk Market risk Reinvestment risk	Management risk Political risk Industry risk Operating risk Manpower risk

Financial risks: Financial risk directly affects profitability in companies and can even doom a company. Various factors lead to occurrence of financial risks which are presented as following:

Exchange rate risk: Exchange rate risk is caused due to a change in exchange rate. All companies that are working with countries having a different currency are subjected to exchange rate risk. Exchange rate risk can affect the ability of an organization for repayment of foreign loans and also can cause an organization not to be able to meet its commitments for purchasing goods in advance from foreign markets. In Iran also changes in exchange rate and its destructive effects on economic system have been experiences. So many industrial projects which have been profitable at the time of launching and economic researchers based on the exchange rate of that time have lost their economic justification after considerable reduction in Iranian Rial value (Raee and Saeedi, 2004).

Interest rate risk: Interest rate and its changes are considered as one of the most importance factors of financial risk in current economy. If an organization keeps some of its assets in the form of financial assets, it will be faced with this type of risk. In fact, a change in interest rate and financial assets manifest it when a company has financial liabilities. For example, if an organization has invests its assets with various interest rates and based on them has taken on liabilities, a reduction in interest rate of assets can make the organization face problem in repayment of its

liabilities. On the other hand, profit and loss items of some organziaotns like banks and investment companies are somehow related with interest rate. Hence, a change in interest rate can lead to a change in their earnings as well.

Risk of default (risk of non-payment): Default risk occurs when borrower due to inability or unwillingness, does not fulfill its commitments against lender at the due date. Risk of default is one of the most important risks which affects specially financial and monetary entities; because, default of a few clients can incur a huge loss on an entity.

Liquidity risk: Risk of liquidity refers to lack of having cash for repaying debts. In general, when companies due to various reasons are unable to sell their manufactured goods or to collect the cash generated from selling their products or when their expenditures has an uncontrolled increase, they will face with liquidity problem.

Risk of a change in general level of prices (risk of inflation or purchasing power risk): Inflation or increased general level of prices increases the final price of all inputs of a company and finally affects company's performance level. When general level of prices increases; fewer products can be purchased with a fixed amount of financial assets. In other words, inflation refers to reduce purchase power of financial assets comparing to actual assets (Raee & Saeedi, 2004).

Market risk: Another type of risk which we are faced with in financial area and causes investment risk is the risk related to changes in financial assets prices or market risk. This risk depends on investors' expectations from securities' future price. Securities price of either normal stock or bonds is usually affects from external factors and cannot be predicted; hence, investors are always faced with uncertainty.

Reinvestment risk: Reinvestment risk is related to those financial assets which have more than one cash flow. Return on these types of investments depends on reinvestment of cash flows which are received during the investment period. For example, return on stock or bonds until the time of sale or maturity is related to the way dividends bonds' cyclical earnings are reinvested. In fact, uncertainty related to future course of interest rates and basically finding an appropriate investment opportunity are the origins of this type of risk (Raee & Saeedi, 2004).

Non-financial risks: The second categories of risk which are briefly discussed below are non-financial risks. Non-financial risks refer to those risks which do not affect profitability directly and can have financial effect with affecting financial risks in the end. Various types of non-financial risks are follows:

Management risk: Management risk is the risk resulting from wrong decisions taken by executives in companies and organization that can have negative outcomes for an organization. Usually, when managers are the same as owners of an organization, they manifest a better performance and market has more transparent information about these companies. Therefore, they are faced with lower levels of risk.

Political risk: If weak political parties for strengthening their own status grant some benefits and advantages to stronger parties, usually some changes will be caused which affect assets' value. When these changes are from the side of government, regardless of the fact that whether there is political or economic benefits and advantages behind the scene or not, the created risk is known as political risk. For example, making changes in tax regulations related to import and export leads to political risk.

Industry risk: Industry risk refers to fluctuations in return on investment which is incurred due to incidental events or certain events and changes in a certain industry. Among these events we can refer to changes in tariffs or prices at local or international levels, industry life cycle, and product tax in an industry, issues related to labor unions in an industry, environmental issues, access to raw material and other similar factors which affect a certain industry. As the result of these

changes which have a similar effect on all the existing companies in an industry, trend of stock price changes in companies would be similar and same.

Operating risk: Operation risk of an organization is related to its operating efficiency. In this way, if systems and methods of works are not implemented correctly or basically a correct definition has not been provided for them, we would face operating risk. Increased production wastes and employees' mistakes are among operating risks.

Manpower risk: Companies are always faced with losing their manpower, with which they lose their advantages also. It is because; today manpower is the most valuable assets in every organization. Off course, by manpower here we refers to those employees who possess special skills.

The above mentioned non-financial risks are the origin of financial risks. In fact, non-financial risks are drivers for financial risks. For example, political risk leads to exchange rate risk and exchange rate fluctuations in turn, affect assets and liabilities price (Raee & Saeedi, 2004). However, we are living in a world full of various types of risk and for achieving a more trustable situation we should identify these risks and count them in our decisions.

Methodology

The present study is a descriptive and posteriori study and in terms of aim of research is an applied study. On the other hand, this study is a positive study and since for testing research hypothesis, historical data is used, it is considered to be a semi-empirical study. Further, the present study is a correlation study in terms of research procedure and is conducted based on post-hoc data (by using past data). Considering research goals, statistical method used in this study is a compositional correlation (time-series and cross-sectional) which means that relationships between variables are studied by using regression method. For data collection, bibliographic method by using stock exchange organization information and the existing information packages were used. In this study, considering the type of data and existing statistical analysis method, regression method was used. Statistical population of the present study is consisted of all companies listed on Tehran Stock Exchange during the time frame of 2006 to 2013. Actual data required for this study was collected from actual information of companies in Tehran Stock Exchange. In this study, by using Cochran's formula, sample volume was determined according to the following criteria:

1. For increasing comparability, the end of their financial periods should be 20th March of every year.

2. Their financial year should not have been changed during the time frame of this study (2006 to 2013).

3. Their financial information should be available and accessible.

4. At least for three consequent years their balance sheets should have liabilities.

5. They should not be among financial companies (such as banks and financial institution) or investment or financial intermediary companies.

6. The information required in variables' definition should be accessible and available.

Industries examined in this research include Automotive and Parts Manufacturing, Pharmaceutical, Metal Manufacturing, Other Non-metallic Mineral Products, Lime-Cement-Plaster, Petroleum Coke and Nuclear Fuel, Manufacture of Basic Metals, Sugar and Sugar-cube, Tile and Ceramic, Rubber and Plastic, Machinery and Equipment, Chemical Products, Food and Beverages (except sugar and sugar-cube), Textiles and so on.

It should also be noted that for sampling in this study first, screening method and then Cochran's formula were used for determining the number of sample individuals and then simple random sampling method was used.

Research hypotheses

Research hypothesis 1: There is a significant relationship between market risk and net earnings volatility.

Research hypothesis 2: There is a significant relationship between market risk and comprehensive earnings volatility.

Research hypothesis 3: There is a significant relationship between market risk and increasing comprehensive earnings volatility.

Model of research statistical variables calculation

Considering the fact that in the present study, researcher seeks to examine the relationship between comprehensive earnings volatility and market risk in companies listed on Tehran Stock Exchange, the following regression model was used:

Statistical model of 1st hypothesis testing:

$$MR_j = \alpha_0 + \alpha_1 DE_j + \alpha_2 CF_j + \alpha_3 \sigma_{NIj} + \varepsilon_j$$

Statistical model of 2nd hypothesis testing:

$$MR_j = \alpha_0 + \alpha_1 DE_j + \alpha_2 CF_j + \alpha_4 \sigma_{CIj} + \varepsilon_j$$

Statistical model of 3rd hypothesis testing:

$$MR_j = \alpha_0 + \alpha_1 DE_j + \alpha_2 CF_j + \alpha_3 \sigma_{NIj} + \alpha_5 (\sigma_{CIj} - \sigma_{NIj}) + \varepsilon_j$$

Operating definition of variables

Dependent variable

MR = Market risk of a company during a certain period is evaluated and measured through systematic risk through the following formula:

$$E(R_i) = R_f + \left[E(R_m) - R_f \right] * \beta_i$$
$$\Rightarrow R_{it} = R_{ft} + (R_{mt} - R_{ft})\beta_i + e_{it}$$

R_{it}= Return ratio of company i in period t
R_{ft}= Return rate of safe risk in period t
β_i = Beta coefficient related to securities market (systematic risk) of company i
R_{mt}= Return rate of market portfolio in period t
e_{it}= Intervening factors.

It should be mentioned that for measuring systematic risk, information related to securities return rate and existing market portfolio in stock exchange organization were used. Stock exchange organization uses the following formula for measuring real return of securities.

$$R_{i.t} = \frac{(p_t - p_{t-1}) + DPS_t + SO_t + SR_t}{P_{t-1}}$$

R_{it} = Return of company i at period t
P_t = Price per share at the end of period t
P_{t-1} = Price per share at the end of period t-1
D_{PSt}= Dividends per share at period t
SO_t= Value of Buyouts Authority Certificate granted at period t
SR_t= Value of Right of Priority of Stock Purchase granted at period t
Accounting beta (systematic risk) is calculated by using the following equation:

$$\beta_i = \frac{COV(R_{it}, R_{mt})}{VAR(R_{mt})}$$

R_{it} = Return rate of company i at period t

R_{mt}= Return rate of market portfolio at period t

Accounting beta is obtained from dividing covariance to variance and covariance studies and compares the changes in two variances together and studies Dispersion variance which is calculated as following:

$$COV(R_{it}, R_{mt}) = \frac{\sum (R_i - \overline{R_i})(R_m - \overline{R_m})}{n}$$
$$= E(R_i - \overline{R_i})(R_m - \overline{R_m})$$

$$\beta_i = \frac{COV(R_{it}, R_{mt})}{VAR(R_{mt})}$$

Independent variables

Ϭ CI = Comprehensive earnings volatility which is measured and evaluated through standard deviation of comprehensive earnings of a company during the last 5 years.

Ϭ NI = Net earnings volatility which is measured and evaluated through comprehensive earnings standard deviation of a company during the last 5 years.

(Ϭ NI - Ϭ CI) = Increasing comprehensive earnings volatility which is measures and evaluated from the difference between net earnings volatility and comprehensive earnings volatility during the 5 last years.

Control variables

DE = Ratio of liabilities book value to equity book value of a company at the end of the year.

CF = Ratio of cash flows resulting from operating activities to current liabilities book value of a company at the end of the year.

Findings of the study
Descriptive statistics of data

In table 2, research variables' descriptive statistics are shown during the time frame of the study.

Table 2: Descriptive statistics of research variables

Variables' description		Average	Mean	Standard deviation	Min.	Max.
MR	Market risk	0.6782	0.6483	2.3550	-3.2200	4.8722
Ϭ CI	Comprehensive earnings volatility	0.5404	0.5443	0.1861	0.2215	0.8560
Ϭ NI	Net earnings volatility	0.4338	0.4339	0.1838	0.1237	0.7571
Ϭ NI -Ϭ CI	Increasing comprehensive earnings volatility	-0.1066	-0.0974	0.2577	-0.7101	0.5112
DE	Company's equity book value to liabilities book value ratio	1.9366	1.6530	23.3102	-628.5027	303.3701
CF	Ratio of cash flows resulting from operating activities to current liabilities book value	0.3301	0.2082	0.5071	-1.5405	5.3099

Research variables' descriptive statistics b using firm data during the time frame of this study (2006 - 2013) were measured which include average, mean, standard deviation, minimum and maximum.

Inferential statistics

Reliability of the variables

In this section, research variables' reliability is tested. In this study, for testing reliability, Im, Pesaran and Shin (IPS) were used. Im, Pesaran and Shin (IPS) have also played a significant role in introducing unit root test in panel data. In H1 of this test, ρ_i s has different values. In other words, assumptions of this test are as following:

$$\begin{cases} H_0 : \rho_i = 0 & i = 1,2,...,N \\ H_1 : \begin{cases} \rho_i < 0 & i = 1,2,....,N_1 \\ \rho_i = 0 & i = 1,2,......,N \end{cases} \end{cases}$$

In a way that: $0 < N_1 < N$

Based on these assumptions some of these sections can have unit root. Therefore, instead of performing this test for panel data, unit root test is used separately for each section and after that, the average of these statistics are calculated n the form of $\bar{t}_{NT}$. If $t_{iT}(\pi_i, B_i)$ and it indicates t-value for unit root test of ith section with π_i lag and test coefficients of B_i, then standard value of $\bar{t}_{NT}$ will be defined as following:

$$\bar{t}_{NT} = \frac{1}{N} \sum_{i=1}^{N} t_{it}(\pi_i, B_i)$$

Where, with increasing N and T toward infinity, this value shifts toward standard normal distribution. For generating a standard $\bar{t}$ -value, Im, Pesaran and Shin have calculated the values of $E(t_{iT}(\pi_i, B_i))$ and $VAR(t_{iT}(\pi_i, B_i))$ for these values. When t moves toward infinity, these values approach Dickey-Fuller test values.

Due to existence of autocorrelation, use of two methods of asymptotic average size and variances has been suggested and standardized values by using average and variance $t_{iT}(\pi_i, 0)$ under the assumption of $\rho_i = 0$ are applied as following:

$$w_{\bar{t}} = \frac{\sqrt{N}\left[\bar{t}_{NT} - N^{-1}\sum_{i=1}^{N} E(t_{iT}(\pi_i, 0)I\rho_i = 0)\right]}{\sqrt{N^{-1}\sum_{i=1}^{N} Var\left[t_{iT}(\pi_i, 0)I\rho_i = 0\right]}} \Rightarrow N(0,1)$$

After calculating this value, if the calculated value is smaller than the table value, unit root hypothesis cannot be rejected.

Table 3: Im, Pesaran and Shin's test (IPS)

Variables		W-stat	p-value
MR	Market risk	112.567	.000
б CI	Comprehensive earnings volatility	33.832	0.009
б NI	Net earnings volatility	59.543	.0001
б NI -б CI	Increasing comprehensive earnings volatility	21.003	0.0015
DE	Company's liabilities book value to equity book value	21.809	.000
CF	Ratio of cash flows resulting from operating activities to current liabilities book value	8.534	0.026

Results of this test are presented in table 3. Considering the result of IPS test (table 3), since p value for all the variables is smaller than 0.05; therefore, it is concluded that these research variables are reliable during the research time frame. Results of IPS indicated that the variables' average and variance over time and variables' covariance between different years are fixed. Therefore, using these variables in the model will not generate false regression.

Determining the appropriate model for estimating regression model

Considering the existing research literature and also research hypotheses' nature, in this study panel data was used. For determining the appropriate model (pooled or panel with fixed or random effects) for testing research hypotheses, Chew and Haussmann tests were used. In this study for testing research hypotheses, seven regression models were used which are presented in table 4.

Table 4: Regression models related to each hypothesis

Model No.	Hypothesis	Regression equation
1	Hypothesis 1	$MR_j = \alpha_0 + \alpha_1 DE_j + \alpha_2 CF_j + \alpha_3 \sigma_{Nlj} + \varepsilon_j$
2	Hypothesis 2	$MR_j = \alpha_0 + \alpha_1 DE_j + \alpha_2 CF_j + \alpha_4 \sigma_{Clj} + \varepsilon_j$
3	Hypothesis 3	$MR_j = \alpha_0 + \alpha_1 DE_j + \alpha_2 CF_j + \alpha_3 \sigma_{Nlj} + \alpha_5 (\sigma_{Clj} - \sigma_{Nlj}) + \varepsilon_j$

A) Chew test

Results related to F-test for regression model in the present study are presented in table 5.

Table 5: Chew test

Regression model	F-test	probability	Test result	
First	132.776	0.0047	Assumption rejection	Panel model
Second	154.909	0.0036	Assumption rejection	Panel model
Third	87.743	0.0092	Assumption rejection	Panel model

Regarding models 1, 2 and 3, considering the significance level, Chew's test results indicated that H0 hypothesis (pooled model) is not confirmed. In other words, there are some individual and group effects and hence, panel data model method for research regression model estimation should be used. In the following section, for determining the type of panel data (fixed or random effects) Haussmann test is used.

B) Haussmann test

After determining that Intercept for different years is not equal, the method of model estimation (fixed or random effects0 should be determined and for this purpose, Haussmann test is used.

In Haussmann test, H0 hypothesis, indicating to compatibility of random effects estimations, is tested against H1 hypothesis, indicating to incompatibility of random effects estimations.

Table 6: Haussmann test

Regression model	-value χ^2	Probability	Test result	
First	281.012	.0000	H0 rejection	Panel data with fixed effects
Second	2.982	0.378	H0 confirmation	Panel data with random effects
Third	137.109	.0000	H0 rejection	Panel data with fixed effects

Results related to Haussmann test for models 1, 2 and 3 are presented in table 6. Results of these table indicated that χ^2 value from Haussmann test is equal to 281.012 and 137.109 for models

1 and 3, respectively which are significant at 99% confidence level and indicate to confirmation of this hypothesis. Therefore, considering Haussmann test for regression fit by using panel data model with fixed effects would be appropriate for models 1 and 3 in this study.

On the other hand, results of Haussmann's test for model 2 are presented in table 6 as well. Results in this table indicated that Haussmann's test value for model 2 is equal to 0.378 which is not significant at 99% confidence level which indicates that this hypothesis is rejected. Hence, considering the results of Haussmann's test regression fit for model 2 in this study by using panel data model with random effects would be appropriate.

Testing regression's classic assumptions
Before fitting regression models, first it is necessary to test linear regression assumptions.

Normality test of dependent variable
For testing normality of dependent variables distribution, Jarque-Bera test was used. Output table for Jarque–Bera test has been presented in table 7 for this variable in Eviews software. Considering the above table and Jarque-Bera value; since, significance level is larger than 0.05, H0 hypothesis is confirmed and with 95% confidence, it can be said that this variable has a normal distribution in above models.

Table 7: Jarque–Bera test

Variable's name		J-B	Sig. Level	Result
MR	Market risk	1.309	0.2761	Normal distribution

Test of errors independence
Durbin-Watson test examines Serial correlation between regression error residuals based on the following assumption:

H0: There is no auto-regression between errors.
H1: There is auto-regression between errors.

Durbin-Watson values together with critical values at 1% error level are presented in table 8. Considering the fact that calculated Durbin-Watson of the regression model is larger than critical value in 0.01 error level, hence, it is confirmed that there is no residuals' serial auto-regression in regression models 1, 2 and 3 at significance level of 0.01.

Table 8: Test of errors independence

Regression model	Critical values (error level of 1%)		Durbin-Watson test
	Du	Dl	
First	1.978	1.498	2.018
Second	1.967	1.509	2.134
Third	1.909	1.432	1.427

Heteroskedasticity
One of the important issues we are faced with in econometrics is the issue of Heteroskedasticity

Table 9: Result of Heteroskedasticity

Regression model	White's test	P-value	Test result
First	2.621	0.242	No Heteroskedasticity
Second	1.982	0.452	No Heteroskedasticity
Third	2.345	0.346	No Heteroskedasticity

Heteroskedasticity means that in regression model estimation error terms values have unequal variance. For estimating Heteroskedasticity in this study, White test was used. Results of this test are presented in table 9.

Results obtained from White test (F-valu) are presented in table 9. Results indicated that f-value for models 1, 2 and 3 are not significant at 0.05 error level. Therefore, H0 indicating that there is Heteroskedasticity in model's data at 0.05 error level is rejected. Therefore, OLS regression model can be used.

After studying classic assumptions in the following section, results of research regression models' fit and following that research hypotheses are tested and studied.

Results of regression models' fit
Research hypothesis 1 testing
"There is a significant relationship between market risk and net earrings' volatility."

$$MR_j = \alpha_0 + \alpha_1 DE_j + \alpha_2 CF_j + \alpha_3 \sigma_{NIj} + \varepsilon_j$$

Table 10:Results of regression equation fit

Variable name		Variable's coefficient	Value of coefficient	t-value	Sig. level
Constant		α_0	1.522	2.873	0.004
DE	Company's ratio of liabilities book value to equity book value	α_1	0.412	2.231	0.047
CF	Ratio of cash flows resulting from operating activities to current liabilities book value	α_2	-1.156	-3.111	0.028
б NI	Net earnings volatility	α_3	0.843	2.909	0.031
Coefficient of determination		0.428	f-value		14.765
Adjusted coefficient of determination		0.381	(P-Value)significance		.000
			Durbin-Watson test		2.018

After testing regression assumptions and assuring that they are met, results obtained from above equation fit are presented in table 9. F-value (14.765) also indicates that the whole regression model is significant. As it is seen in lower section of table 10, coefficient of determination and adjusted coefficient of determination of the above model are equal to 42.8% and 38.1%, respectively. Therefore, it is concluded that in this regression equation, only 38.1% of changes in dependent variable of the examined companies is explained by independent and control variables. In this table, positive (negative) figures in coefficient value indicates to the extent to which each of these variable directly (reversely) affect market risk.

Results
As per table 11, significance level of the variable of net earnings volatility (0.031) is smaller than the considered significance level in the present study (5%); also, absolute value of t-test related to this variable (2.909) is larger than t-value obtained from the table with the same degree of freedom. Hence, H0 hypothesis is rejected at 95% confidence level and H1, indicating that there is a significant relationship between market risk and net earnings volatility, is confirmed.

Research hypothesis 2 testing
"There is a significant relationship between market risk and comprehensive earnings volatility."

$$MR_j = \alpha_0 + \alpha_1 DE_j + \alpha_2 CF_j + \alpha_4 \sigma_{CIj} + \varepsilon_j$$

Table 11: Results of regression equation fit

Variable name		Variable's coefficient	Coefficient's value	t-test	Sig. level
Constant		α_0	-0.651	-0.223	0.823
DE	Company's ratio of liabilities book value to equity book value	α_1	1.709	2.451	0.671
CF	Ratio of cash flows resulting from operating activities to current liabilities book value	α_2	-0.922	-3.711	0.001
бCI	Comprehensive earnings volatility	α_4	1.034	3.073	0.013
Coefficient of determination		0.491	f-value		8.809
Adjusted coefficient of determination		0.447	(P-Value) significance		0.0094
			Durbin-Watson test		2.134

After testing regression assumptions and assuring that they are met, results obtained from above equation fit are presented in table 10. F-value (8.809) also indicates that the whole regression model is significant. As it is seen in lower section of table 11, coefficient of determination and adjusted coefficient of determination of the above model are equal to 49.1% and 44.7%, respectively. Therefore, it is concluded that in this regression equation, only 44.7% of changes in dependent variable of the examined companies is explained by independent and control variables. in this table, positive (negative) figures in coefficient value indicate to the extent to which each of these variable directly (reversely) affect market risk.

As per table 11, significance level of the variable of comprehensive earnings volatility (0.013) is smaller than the considered significance level in the present study (5%); also, absolute value of t-test related to this variable (3.073) is larger than t-value obtained from the table with the same degree of freedom. Hence, H0 hypothesis is rejected at 95% confidence level and H1, indicating that there is a significant relationship between market risk and comprehensive earnings volatility, is confirmed.

Research hypothesis 3 testing
"There is a significant relationship between market risk and increasing comprehensive earnings volatility."

$$MR_j = \alpha_0 + \alpha_1 DE_j + \alpha_2 CF_j + \alpha_3 \sigma_{NIj} + \alpha_5 (\sigma_{CIj} - \sigma_{NIj}) + \varepsilon_j$$

After testing regression assumptions and assuring that they are met, results obtained from above equation fit are presented in table 12. F-value (10.909) also indicates that the whole regression model is significant. As it is seen in lower section of table 12, coefficient of determination and adjusted coefficient of determination of the above model are equal to 35.9% and 32.6%, respectively. Therefore, it is concluded that in this regression equation, only 32.6% of changes in dependent variable of the examined companies is explained by independent and control variables. in this table, positive (negative) figures in coefficient value indicate to the extent to which each of these variables directly (reversely) affect market risk.

As per table 12, significance level of the variable of comprehensive earnings volatility (0.039) is smaller than the considered significance level in the present study (5%); also, absolute value of t-test related to this variable (2.564) is larger than t-value obtained from the table with the same degree of freedom. Hence, H0 hypothesis is rejected at 95% confidence level and H1, indicating that there is a significant relationship between net earnings volatility and market risk, is confirmed. On the other hand, significance level of the variable of increasing comprehensive earnings volatility (0.028) is smaller than the considered significance level in the present study

(5%); also absolute value of t-test related to this variable (2.711) is larger than the obtained t-value from the table with the same degree of freedom. Hence, H0 is rejected at 95% confidence and H1, indicating that there is a significant relationship between market risk and increasing comprehensive earnings volatility, is confirmed.

Table 12: Results obtained from regression equation fit

Variable name		Variable's coefficient	Coefficient's value	t-value	Sig. level
Constant		α_0	0.892	2.311	0.034
DE	Company's ratio of liabilities book value to equity book value	α_1	0.453	0.073	0.509
CF	Ratio of cash flows resulting from operating activities to current liabilities book value	α_2	-0.764	-3.892	0.001
Ϭ NI	Net earnings volatility	α_3	1.231	2.564	0.039
Ϭ NI - Ϭ CI	Increasing comprehensive earnings volatility	α_5	0.763	2.711	0.028
Coefficient of determination		0.359	f-value		10.909
Adjusted coefficient of determination		0.326	(P-Value) significance		0.0067
			Durbin-Watson value		1.427

Discussion and conclusion

The role of information in decision-making process is clear. For economic decision-making we need information with the use of which we can allocated our existing resources optimally. One of the ways of achieving this information is using information presented in yearly financial statements of companies. Financial statements which are used extensively are the most appropriate method for providing financial information to users. The main goal of financial statements is to meet the needs of user, including investors. Potential and actual investors mainly are interested in evaluating investment properties in a company. Properties of an investment include factors such as risk, return, dividend, investment security, liquidity, growth and so on. The impact of financial reports on stock market orientation is the main theme of financial and accounting studies. So many studies have been conducted about the effect of financial information in securities prices and investment decisions.

Comprehensive profit and loss statement is a tool for evaluating company performance. In this study, net earnings and comprehensive earnings were used in order to study the relative ability of comprehensive earnings for delivering information about the performance of a company (based on return). In this study, we studied this claim that measured earnings based on comprehensive earnings provide a better measurement of company performance comparing to other criteria. Results of this study indicated that comprehensive earnings for evaluating performance of a company based on stock return and stock price doesn't have any superiority on net earnings. Regarding the companies listed on Tehran Stock Exchange, except for investment industry, it was shown that comprehensive earnings reporting doesn't have any superiority to net earnings for evaluating a company's performance based on operating cash flow prediction. Regarding state companies also, only at the level of other companies a better situation can be observed and results indicated that for evaluating company performance based on operating cash flows prediction, comprehensive earnings is superior to net earnings. In general, results and findings of this study provides some evidences which indicate that comprehensive profit and loss adjustments improves earnings ability for

reflecting a company's performance, although, still some ambiguities are seen in the results of this study. Considering the above arguments, the main problem in this study which is answered here is that, how comprehensive earnings volatility affect market risk in companies?

The present study is an applied study in terms of aim of study. This study was conducted in a deductive-inductive reasoning framework, which means, for theoretical framework and research background bibliographical method, websites, articles in deductive framework were used and for hypotheses confirmation or rejection, inductive reasoning was used.

Statistical population of this study is consisted of all the companies listed on Tehran Stock Exchange during the time frame of 2006 to 2013 and finally, final sample volume was taken equal to 122 companies by using systemic elimination method.

Research hypothesis 1: There is a significant relationship between market risk and net earnings volatility.

According to table 10, significance level of the variable of net earnings volatility (0.031) is smaller than the significance level considered in the present study (5%); also, t-test absolute value related to this variable (2.909) is larger than the obtained t-value from the table with the same degree of freedom. Hence, H0 hypothesis is rejected at 95% confidence level and H1 hypothesis, indicating that there is a significant relationship between market risk and net earnings volatility, is confirmed. On the other hand, considering the value and sign of the coefficient of the variable of net earnings volatility (0.843), it is concluded that for each unit of increase in net earnings volatility, market risk of companies' increases 0.843 of a unit. These findings are consisted with the findings of Li et al., (2013), Costello & Witenberg (2011), Ghosh & Moon (2010), Rezaee (2010) and Ghalibaf Asl & Izadi (2009).

Research hypothesis 2: There is a significant relationship between market risk and comprehensive earnings volatility.

According to table 11, significance level of the variable of comprehensive earnings volatility (0.013) is smaller than the target significance level considered in the present study (5%); also, t-test absolute value related to this variable (3.073) is larger than the obtained t-value from the table with the same degree of freedom. Hence, H0 hypothesis is rejected at 95% confidence level and H1 hypothesis, indicating that there is a significant relationship between market risk and comprehensive earnings volatility, is confirmed. On the other hand, considering the value and sign of the coefficient of the variable of comprehensive earnings volatility (1.034), it is concluded that for each unit of increase in comprehensive earnings volatility, market risk of companies increases equal to 1.034 of a unit. These findings are consistent with the findings of Li et al., (2013), Costello & Witenberg (2011), Ghosh & Moon (2010), Rezaee (2010) and Ghlibaaf Asl & Yazdi (2009).

Research hypothesis 3: There is a significant relationship between market risk and increasing comprehensive earnings volatility.

According to table 12, significance level of the variable of net earnings volatility (0.039) is smaller than the target significance level considered in the present study (5%); also, t-test absolute value related to this variable (2.564) is larger than the t-value obtained from the table with the same degree of freedom. Hence, H0 hypothesis is rejected at 95% confidence level and H1 hypothesis, indicating that there net earnings volatility is effective on market risk of companies, is confirmed. On the other hand, significance level of the variable of increasing comprehensive earnings volatility (0.028) is smaller than the target significance level considered in the present study (5%); also, t-test absolute value related to this variable (2.711) is larger than the t-value obtained from the table with the same degree of freedom. Hence, H0 is rejected at 95% confidence and H1 hypothesis, indicating that there is a significant relationship between market risks and increasing comprehensive earnings volatility, is confirmed. On the other hand, considering the value and sign of the coefficient of the

variable of increasing comprehensive earnings volatility (0.763), it can be concluded that for each unit of increase in comprehensive earnings volatility, market risk of companies increases equal to 0.763 of a unit. These findings are consistent with the findings of Li et al. (2013), Costello & Witenberg (2011), Ghosh & Moon (2010), Rezaee (2010) and Ghalibaaf Asl & Yazdi (2009).

References

Abdollah Zadeh, F. (2002). Investment management and stock exchange, Pardazeshgaran publications, 1st edition.

Balachandran, S., & Mohanram, P. (2012). Using residual income to refine the relationship between earnings growth and stock returns, Rev Account Stud , 17, 134–165.

Bolouki, A. (2002). Accounting theories. Tehran: Office of Cultural Studies.

Cheng, C. S. A., C.-S. Liu & T. F. Schaefer (1996). Earnings Permanence and the Incremental Information Content of Cash Flows from Operations, Journal of Accounting Research, 34 (1), 173-181.

Chestin, L., Richard, F., & Melvin, O. (2002). Intermediate Accounting, Translated by Iraj Noroush and Gholamreza Karami, Tehran: Ketab-e Nou Publications, 1st edition.

Clyde, P. C.(2007). The Differentiation of Quality Among Auditors: Evidence from the Not-for-Profit Sector. Auditing: A Journal of Practice and Theory, 19 (2), 9-26.

Fama, Eugene. F., & Kenneth R. F. (2004). The Capital Asset Pricing Model: Theory and Evidence. Journal of Economic Perspectives, 18, 25-46.

Kevin Li, K., & V.Wei tang. (2008). Earnings Quality and Future Capital Investment: Evidence from Discretionary Accruals' Haas School of Business University of California at Berkeley, McDonough School of Business Georgetown University, www.ssrn.com.

Kim, Dongcheol & Yaxuan Qi (2010). Accruals Quality, Stock Returns, and Macroeconomic Conditions. The Accounting Review, 85 (3), 937-978.

Kordestani, Gh. (2007). Studying the relationship between earnings prediction ability and systematic risk in companies listed on Tehran Stock Exchange, Master thesis of Allameh Tabatabaee University.

Kordestani, Gh., & Roudneshin, H. (2007). Studying the extent to which cash and accrual components of accounting earnings are related to market value of a company, Accounting and Auditing Studies, 35 (45-68).

Lazarus, R.S. (2002). Toward better research on stress and coping. American Psychologist, 55 (6), 665-673.

Raee, R., & Saeedi, A. (2004). Principles of financial engineering and risk management, Tehran: Samt Publications.

Setayesh, M. H. (2003). Studying the relationship between cash earnings quality and operating cash flow in companies listed on Tehran Stock Exchange, Master thesis of Islamic Azad University, Sabzevar branch.

Smith P. A., & C. L. Reither (19960. Comprehensive Income and the Effect of Reporting It, Financial Analysts Journal, 52, 14-20.