

Investigation the relationship between CV of income with stock return volatility

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ABSTRACT

The present research aims at investigating and comparing the relationship between coefficient of variations of operating income and comprehensive income with the stock return volatility. The statistic population includes the companies listed in Tehran stock exchange. The stock return volatility is the dependent variable and the company size, company age, stockholders' debt equity ratio, operating cash to debt ratio and market value to book value ratio are the controlling variables of the study. This research is an applied descriptive correlational study and the hypotheses were tested by multiple linear regression and Wong test. The results obtained from the study of 155 companies selected as the sample in the interval of 2013 to 2018 revealed that there is positive and meaningful relationship between the coefficient of variations of operating income, net income and comprehensive income with the stock return volatility. Furthermore, there observed no difference between the relationship between coefficient of variation of operating income, net income and comprehensive income with the stock return volatility.

Keywords: coefficient of variation of operating income, coefficient of variation of net income, coefficient of variation of comprehensive income, stock return volatility.

Introduction

The investment is a radical and vital affair for economic development of every country and the financial information is the most valuable asset in the capital market that plays a significant role in the economic growth of communities. The establishment of corporations and participation of a large number of investors in the capital market has created some volatilities in the relations of stockholders and professional managers of these companies and has separated the ownership from the management. In this regard, the prediction of results of performance of listed companies in stock exchange is one of the important decision making criteria of mentioned groups (beneficiaries) which is appeared in different classifications of income such as the

operating income, net income, and comprehensive income ^[1]. But it is worth mentioning that while enjoying such status in the intervals, the income involves in some volatilities. The potential and active investors generally are interested in evaluating the investment features such as risk and return and make decision about the purchase, sale and retention of their stock with regard to these two factors. The stock return volatility is one of criteria of market- based risk that plays a significant role in the investors' decision makings and evaluation of investments risk. Therefore, the knowledge about the relationship between the coefficient of variation of different incomes and stock return volatility is so important for all the users of financial statements and investors. Accordingly, the present research aims to study and compare the relationship between the coefficient of variation of operating, net and comprehensive income with the stock return volatility.

Theoretical Foundations and Research Literature

Theoretical foundations

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The main goals of financial reporting is to state the economic influences of financial operations and events on the status and performance of trade unit in order to help the potential and active users in adapting the financial decisions related to the trade unit. It is obvious that our inference ability about the usefulness of financial information is limited to the capital market. The efficient market theory refers to the speed of reaction of securities of capital market to the new information announcement. In other words, the new information influences considerably the price securities. The information are valuable for the investors when there are some evidence about its influence on the price of securities. If it is occurred, it can be said that the mentioned figures have the informational content. In efficient capital market, every new information states in the market is recorded rapidly in the price of securities. Therefore, it is expected the manifestation of new information about change of company income or its financial structure be lead to the simultaneous change of stock return. The theoretical foundation of capital market or researchers related to the securities price is based on the portfolio theory. The previous studies (such as Markowitz, 1950; Sharp, 1964; Fama & French, 1991; Roll & Ross, 1980; and so on) have made effort to specify the determinant factors of company stock return to select the portfolio. This theory is indicative of logical investment and being maximum of the interests that is done by reducing the risk by the retention of portfolio. The portfolio theory is the basis of development of new model in the financial management that is known as the capital assets pricing model. In this model, the theoretical price of every item of the stock. According to the evidence observed in the studies related to the capital market, the accounting income has an informational content and influences the securities price that is indicative of usefulness of accounting information in the evaluation of return. In accounting standard number 6 of Iran, it has been referred, under the title of financial performance report, to the income statement and comprehensive income statement as two important components which indicate the financial performance. These two components reflect different classes of income (operating income, net income and comprehensive income). The aim of investment in stock is to obtain the appropriate return and the investors' decision making generally is based on the risk and stock return. The studies reveal that when the investors predict high earning dispersion, they demand for high return rate. Therefore the recognition of these factors and their relations can play important role improving the investors and managers decisions for deeper analysis and effective and efficient use of resources ^[2].

Literature review

- Papanastopoulos et al. (2010) studied in a research the relationship between the distributed earnings or spontaneous earnings and the stock return and used the time series model for testing the hypotheses. The results of research indicate that the retained earnings and distributed earnings together affect the spontaneous profitability; but two aforesaid independent variables have no influence on the stock return^[3].
- Lim and Park (2011) studied in a research the relationship between the earnings and stock return and used the time series model for testing the hypotheses. The results of their study reveal that the increase of dysfunction in stock return causes the temporal reduction of determination coefficient of income regression or stuck return. Furthermore, the results indicate that there is negative and meaningful relationship between the stock cumulative return and the dispersion of simultaneous profitability.
- Khan and Bradbury (2014) studied in a research the relationship between the comprehensive income volatility and the risk. In this research, at first, the comprehensive income volatility and net income were studied and then, the relationship between this volatility and the market based risk criteria and stock price. The obtained results indicate that there is positive and meaningful relationship between the comprehensive income and net income volatilities with the stock return and beta volatilities. Furthermore, there was no meaningful relationship between the comprehensive and net incomes volatilities with the stock price ^[4].
- Lindsey et al. (2016) studied in a research the relationship between the total revenue and financial policy and the stock return. They concluded that when the financial policies are controlled, the relationship between the income and stock return changes would be negative ^[5].
- Ghaemi et al. (2003) studied the effect of earnings smoothing on the stock return of companies listed in Tehran stock exchange. They concluded that there is no meaningful difference between the smoothed and unsmoothed companies in terms of unnatural return.
- Samaei et al. (2003) studied in a research the relationship between the earnings smoothing and moderated return based in the risk in all the companies listed in Tehran stock exchange. With regard to the results, it can be said with 90 percent confidence that the companies with earnings smoothing have more unnatural return.
- Izadinia et al. (2012) worked on the determination of operating income power and its changes in the specification and prediction of stock return in Tehran stock exchange. The results are indicative of appropriate operating income power of current year in the prediction of operating income of next year. With regard to this matter that the accounting income is a substitution for the cash flows, it can be accepted that based on the current earnings, the prediction of expected cash flows is possible that is the purpose of financial reporting. Furthermore, the findings indicate that the level of income or return of next year and change of income have positive relationship with the simultaneous return ^[6].
- Dastgir et al. (2015) studied in a research the relationship between the earnings dispersion and stock return in Tehran

stock exchange. The results revealed that there is positive and meaningful relationship between the current earnings dispersion and the current stock return [7].

Research Significance

The earnings is one of the items of financial statements that has attracted the attention of investors, creditors, financial analyzers, managers of companies and other users of financial information. The studies done in case of earnings indicate that the income has informational content which influences the market value, stock price and stock return and on the other side, the earning has different concepts such as the operating income, comprehensive income, net income and so forth that has volatility in different intervals. The active and potential investors generally are interested in the evaluation of investment properties in a company. The investment properties include the factors such as risk, stock return, stock price, stock earnings, and liquidity and so on. If the relationship between the incomes presented in the financial statements with the stock return volatility be recognized, when lacking the required investment information for different financial decision makings, it can be said that the accounting information can be useful for the decision making. The present research aimed at studying the relationship between different concepts of income with the stock return volatility. For this purpose, at first, the volatility of three concepts of income (operating, net and comprehensive) were studied. Then, the relationship between these volatilities and the stock return volatility has been studied to answer this research question: whether the coefficient of variation of operating income, net income and comprehensive income have relationship with the stock return volatility?

Research Hypotheses

With regard to the theoretical foundations, the formulated hypotheses of the research are:

- there is relationship between the coefficient of variation of operating income and the stock return volatility.
- there is relationship between the coefficient of variation of net income and the stock return volatility.
- there is relationship between the coefficient of variation of comprehensive income with the stock return volatility.
- there is difference between the relation of coefficient of variation of operating and net incomes with the stock return volatility.
- there is difference between the relation of coefficient of variation of operating and comprehensive incomes with the stock return volatility.
- there is difference between the relation of coefficient of variation of net and comprehensive incomes with the stock return volatility.

Research Procedure

Research models

For testing the hypotheses, the following models respectively have been represented for testing first three hypotheses:

1. $SRV_t = \beta_0 + \beta_1 CVOI_{it} + \beta_2 SIZE_{it} + \beta_3 DE_{it} + \beta_4 CF_{it} + \beta_5 MTB_{it} + \beta_6 AGE_{it} + \varepsilon$
2. $SRV_t = \beta_0 + \beta_1 CVNI_{it} + \beta_2 SIZE_{it} + \beta_3 DE_{it} + \beta_4 CF_{it} + \beta_5 MTB_{it} + \beta_6 AGE_{it} + \varepsilon$
3. $SRV_t = \beta_0 + \beta_1 CVCI_{it} + \beta_2 SIZE_{it} + \beta_3 DE_{it} + \beta_4 CF_{it} + \beta_5 MTB_{it} + \beta_6 AGE_{it} + \varepsilon$

Wong test: Wong test has been applied for testing the second three hypotheses.

Variables measurement method

• independent variables

✓ coefficient of variation of operating income (CVOI)

The operating income is the result of operating activities which is obtained by deducting the operating costs from the operating incomes. The coefficient of variation of operating income which indicates the severity of operating income dispersion for every one Rial of its mean, is calculated by the following formula:

$$CV_{OI} = \frac{\sigma_{OI}}{\bar{OI}} \quad \sigma_{OI} = \sqrt{\frac{\sum_{i=1}^n (OI_i - \bar{OI})^2}{N}}$$

CV_{OI}: Coefficient of variation of operating income

σ_{OI}: Standard deviation of operating income

OI_i: operating income of ith year

̄OI: operating income mean

With regard to the formula, for calculating the coefficient of variation of operating income of ith year, at first, the operating income mean should be calculated. For this purpose, the data related to three years (ith year and two past years) has been used.

✓ coefficient of variation of comprehensive income (CVCI)

The comprehensive income is the change of shareholders' equity (net assets) of trade unit during a period as a result of transactions and other events and conditions except the changes resulting from the investment of shareholders and assets distributed between them. The coefficient of variation of comprehensive income which represents the severity of dispersion of comprehensive income for every Rial of its mean, is calculated by the following formula:

$$CV_{CI} = \frac{\sigma_{CI}}{\bar{CI}} \quad \sigma_{CI} = \sqrt{\frac{\sum_{i=1}^n (CI_i - \bar{CI})^2}{N}}$$

CV_{CI}: coefficient of variation of comprehensive income

σ_{CI} : Standard deviation of comprehensive income

CI_i : Comprehensive income of i th year

\bar{CI} : Comprehensive income mean

With regard to the formula, for calculating the coefficient of variation of operating income of i th year, at first, the operating income mean should be calculated. For this purpose, the data related to three years (i th year and two past years) has been used.

✓ coefficient of variation of net income (CV_{NI})

The net income is the surplus of realized incomes in a specific financial period. The coefficient of variation of net income which represents the severity of dispersion of net income for every one Rial from its mean, is calculated by the following formula:

$$CV_{NI} = \frac{\sigma_{NI}}{\bar{NI}} \quad \sigma_{NI} = \sqrt{\frac{\sum_{i=1}^n (NI_i - \bar{NI})^2}{N}}$$

CV_{NI} : coefficient of variation of net income

σ_{NI} : Standard deviation of net income

NI_i : Net income of i th year

\bar{NI} : Net income mean

With regard to the formula, for calculating the coefficient of variation of net income of i th year, at first, the net income mean should be calculated. For this purpose, the data related to three years (i th year and two past years) has been used.

• dependent variable

✓ stock return volatility (SRV)

The return is the ratio of total income (loss) obtained from the investment in a specific period to the early capital consumed at the beginning of same period. The stock return is calculated by the following formula:

$$TR_{it} = \frac{Pt(1+\alpha+\beta) - (P_{t-1} + C\alpha) + DPS}{P + C\alpha}$$

α : percentage of capital increase by cash contribution and debts

β : percentage of capital increase by retained earnings and dividend

C : expense of subscription for every share

DPS : dividend of every share

P_t : stock price at the time t

P_{t-1} : stock price at the time $t-1$

The stock return volatility is calculated by the following formula:

$$SRV = \sqrt{\frac{\sum (R_i - \bar{R}_i)^2}{N}}$$

• controlling variables

✓ **Company size (SIZE)**: the company size is equal to the logarithm of total assets of company

SF = LN (assets)

With regard to Fama and French Three Factor Model, the company size is one of effective factors on the return.

✓ **debt to equity ratio (DE)**: some financial ratios which are calculable by the balance sheet play important role in the evaluation of ability of company and have been mentioned in most of management texts.

✓ **operating cash flow to current debts ratio (CF)**: this ratio is based on the cash flow statement. The cash flow statement-based ratios have the increasing informational content and have more correlation with the stock return and risk in comparison to the traditional ratios (Barlo & Liunatt).

✓ **market value to book value ratio (MTB)**: the companies with high market value to book value ratio have high return. Therefore, it can be said that this ratio has relation with the risk, too.

✓ **company age (Age)**: it is the interval of intended year with the foundation year of company. It seems that risk in emergent companies is more than the old companies.

Statistic population

The population of this research includes all the companies listed in Tehran stock exchange in the interval of 2013 to 2018. And the sample companies were selected by the screening method with regard to the conditions mentioned in table 1. The temporal domain of research is 2013 to 2018, but the information of some variables have been collected from 2011 due to the nature of research variables. With regard to the sampling criteria, 155 companies were selected and studied.

Table 1- results of systematic exclusion of companies

Number of companies listed in Tehran stock exchange in the interval of 2013 to 2018	451
Number of excluded companies due to not ending their financial year in 19 March	149
Number of excluded companies due to change of financial year	34
Number of excluded companies due to being excluded from the stock exchange	17
Number of excluded companies due to being of financial companies	32
Number of excluded companies due to not doing any transaction for three months	47
Number of excluded companies due to not lack of information	17
Number of remained companies	155

Data analysis

Before analyzing the data, it is necessary to study the manner of distribution of variables by using the dispersion indexes and central indexes as two components of descriptive statistic. The descriptive statistics related to the research variables have been presented in the table 2. The mentioned statistic represents a general diagram of distribution status of research data.

Kolmogorov- Smirnov test has been used for testing the normality of data. Furthermore, the outliers' removal method has been used for the normalization of data. The result of this test is indicative of normality of data specially the dependent variable.

The Spearman's correlation method has been used for determining the correlation between the quantitative variables. The correlation analysis is a tool for determining the type and degree of relationship between one quantitative variable with the other one. This coefficient is between 1 and -1. It would be zero when there is no relationship. The results reveal that at the significance level of %99, the operating income variation has positive relationship with the stock return volatility. Furthermore, at the significance level of %99, the coefficient of

variation of comprehensive income has positive relationship with the stock return volatility. In addition, at the significance level of %99, the coefficient of variation of net income has positive relationship with the stock return volatility. Furthermore, at the significance level of %95, the coefficient variation of comprehensive income has negative relationship with the company size and positive relationship with the variation of comprehensive income at the significance level of %99.

Table 2- research descriptive statistics

Variable	symbol	observations	Minimum	Maximum	Mean	Standard deviation
Coefficient of variation of operating income	CV _{OI}	775	0.022	0.999	0.469	0.39
Coefficient of variation of comprehensive income	CV _{CI}	775	0.023	1.098	0.264	0.197
Coefficient of variation of net income	CV _{NI}	775	0.045	1.999	0.709	0.457
Systematic risk	Beta	775	0.01	1.694	0.498	0.469
Stock return volatility	MR	775	0.020	0.219	0.077	0.040
Company size	Size	775	4.388	7.996	5.951	0.600
Debt to equity ratio	DE	775	0.144	4.99	1.662	1.056
Operating cash flow to current debt ratio	CF	775	- 0.236	1.226	0.242	0.262
Market value to book value ratio	MTB	775	0.416	4.654	1.942	1.063
Company age	Age	775	2.485	4.094	3.578	0.369

Source: researcher's findings

Findings Presentation and Analysis

Results of evaluation of model of research first hypothesis

The first step in testing this hypothesis is to recognize the homogeneity or heterogeneity of data by using Chow test.

The results obtained from the Chow test reveal that the pooling model is appropriate for the data and the Hausman test is not required. Furthermore, the significance level of Chow test statistic (0.596) is higher than the accepted error level and the pooling data model is selected for the fitness. The determination coefficient of model is equal to 0.017. It indicates that 1 percent of variations of stock return volatility can be explained by the variable of coefficient of variation of operating income and other

controlling variables. The amount of Durbin Watson statistic is equal to 1.591. Whereas this coefficient is between 1.5 and 2.5, there is no correlation between the components of model error. The significance level of statistic F (0.030) is less than the accepted error level (5 percent) and the regression model is totally meaningful. The results of heteroscedasticity (White test) indicate that heteroscedasticity exists. Furthermore, the results of Lagrange multiplier test (Breusch Godfery test %²) also indicate that there is serial correlation in the regression model. In such situations, the model is evaluated after the removal of heterogeneity and self- correlation. The results of table 3 indicate that the coefficient of variation of operating income with the coefficient (0.017) and significance (0.007) has direct relationship with the stock return volatility.

Table 3- results of testing the first hypothesis

Dependent variable: stock return volatility					
Variable	symbol	Unstandardized coefficients		Statistic t	Prob.
		Coefficient	Level of error		
Fixed value	C	0.058397	0.025603	2.280901	0.0230
coefficient of variation of operating income	CV _{OI}	0.017131	0.006325	2.708486	0.0070
Company size	Size	0.002005	0.003484	0.575369	0.5653
Debt to equity ratio	DE	0.000637	0.002031	0.313696	0.7539
Operating cash flow to current debt ratio	CF	- 0.006570	0.006841	- 0.960336	0.3374
Market value to book value ratio	MTB	- 0.000550	0.001826	- 0.301060	0.7635
Company age	Age	- 0.000155	0.004399	- 0.035188	0.9719
Statistic F		2.345651	Determination coefficient (R ²)		0.029687

Significance level of F(Prob.)	0.030509	Moderated determination coefficient (R ² A)	0.017031
		Durbin-Watson statistic (D.W)	1.591645
Type of integrated data		Level of statistic	Significance level (Prob.)
Chow test (fixed effects)		0.690823	0.5986
Hausman test (random effects)		-	-
Serial correlation test (Breusch- Godfrey test)		8.735485	0.0002
Heteroscedasticity (White test)		2.941257	0.0000

Source: researcher's findings

Results of evaluation of model of research second hypothesis

The first step in testing this hypothesis is to recognize the homogeneity or heterogeneity of data by using Chow test.

The results obtained from the Chow test reveal that the pooling model is appropriate for the data and the Hausman test is not required. With regard to the table 4, the significance level of Chow test statistic (0.765) is higher than the accepted error level and the pooling data model is selected for the fitness. The determination coefficient of model is equal to 0.033. It indicates that 3 percent of variations of stock return volatility can be explained by the variable of coefficient of variation of operating income and other controlling variables. The amount of Durbin

Watson statistic is equal to 1.603. Whereas this coefficient is between 1.5 and 2.5, there is no correlation between the components of model error. The significance level of statistic F (0.030) is less than the accepted error level (5 percent) and the regression model is totally meaningful. The results of heteroscedasticity (White test) indicate that heteroscedasticity exists. Furthermore, the results of lagrange multiplier test (Braeush Godfery test %) also indicate that there is serial correlation in the regression model. In such situations, the model is evaluated after the removal of heterogeneity and self-correlation. The results of table 4 indicate that the coefficient of variation of operating income with the coefficient (0.015) and significance (0.000) has direct relationship with the stock return volatility.

Table 4: results of testing the second hypothesis

Variable	symbol	Dependent variable: stock return volatility		Statistic t	Prob.
		Unstandardized coefficients			
		Coefficient	Level of error		
Fixed value	C	0.054495	0.024778	2.199379	0.0284
coefficient of variation of operating income	CV _{NI}	0.15725	0.004476	3.513092	0.0005
Company size	Size	- 0.001489	0.002918	-0.510260	0.6101
Debt to equity ratio	DE	0.003631	0.002124	1.709067	0.0882
Operating cash flow to current debt ratio	CF	- 0.003607	0.006356	- 0.567410	0.5707
Market value to book value ratio	MTB	- 0.000389	0.001887	- 0.206190	0.8367
Company age	Age	- 0.003069	0.004172	0.735737	0.4623
Statistic F		3.473990		Determination coefficient (R ²)	0.047389
				Moderated determination coefficient	0.033748
Significance level of F(Prob.)		0.002313		(R ² A)	
				Durbin-Watson statistic (D.W)	1.603617
Type of integrated data			Level of statistic		Significance level (Prob.)
Chow test (fixed effects)			0.459755		0.7653
Hausman test (random effects)			-		-
Serial correlation test (Breusch- Godfrey test)			4.506221		0.0116
Heteroscedasticity (White test)				1.685049	0.0187

Results of evaluation of model of research third hypothesis

The first step in testing this hypothesis is to recognize the homogeneity or heterogeneity of data by using Chow test.

The results obtained from the Chow test reveal that the pooling model is appropriate for the data and the Hausman test is not required. With regard to the table 5, the significance level of

Chow test statistic (0.684) is higher than the accepted error level and the pooling data model is selected for the fitness. The determination coefficient of model is equal to 0.053. It indicates that 5 percent of variations of stock return volatility can be explained by the variable of coefficient of variation of operating income and other controlling variables. The amount of Durbin Watson statistic is equal to 1.728. Whereas this coefficient is

between 1.5 and 2.5, there is no correlation between the components of model error. The significance level of statistic F (0.030) is less than the accepted error level (5 percent) and the regression model is totally meaningful. The results of heteroscedasticity (White test) indicate that heteroscedasticity exists. Furthermore, the results of Lagrange multiplier test (Brausch Godfery test %²) also indicate that there is no serial

correlation in the regression model. In such situations, the model is evaluated after the removal of heterogeneity and self-correlation. The results of table 5 indicate that the coefficient of variation of operating income with the coefficient (0.045) and significance (0.000) has direct relationship with the stock return volatility.

Table 5- results of testing the third hypothesis

$$SRV_t = \beta_0 + \beta_1 CVNI_{it} + \beta_2 SIZE_{it} + \beta_3 DE_{it} + \beta_4 CF_{it} + \beta_5 MTB_{it} + \beta_6 AGE_{it} + \epsilon$$

Dependent variable: stock return volatility					
Variable	symbol	Unstandardized coefficients		Statistic t	Prob.
		Coefficient	Level of error		
Fixed value	C	0.051081	0.022900	2.230602	0.0262
coefficient of variation of comprehensive income	CV _{CI}	0.045134	0.007982	5.654154	0.0000
Company size	Size	0.001683	0.003008	0.559441	0.5761
Debt to equity ratio	DE	0.003044	0.001956	1.555947	0.1204
Operating cash flow to current debt ratio	CF	-0.004572	0.005690	- 0.803467	0.4221
Market value to book value ratio	MTB	0.000573	0.001714	0.334345	0.7383
Company age	Age	- 0.000807	0.004009	- 0.201209	0.8406
Statistic F		5.737557		Determination coefficient (R ²)	0.64416
Significance level of F(Prob.)		0.000009		Moderated determination coefficient (R2A)	0.053189
				Durbin-Watson statistic (D.W)	1.728379
Type of integrated data			Amount of statistic		Significance level (Prob.)
Chow test (fixed effects)			0.569901		0.6846
Hausman test (random effects)			-		-
Serial correlation test (Breusch- Godfrey test)			2.033102		0.1320
Heteroscedasticity (White test)			1.408948		0.0852

Source: researcher's findings

Result of evaluation of research fourth hypothesis

For testing the fourth hypothesis, Wong test has been used that compares the determination coefficient of every ones of models 1 and 2:

- $SRV_t = \beta_0 + \beta_1 CVOI_{it} + \beta_2 SIZE_{it} + \beta_3 DE_{it} + \beta_4 CF_{it} + \beta_5 MTB_{it} + \beta_6 AGE_{it} + \epsilon$
- $SRV_t = \beta_0 + \beta_1 CVNI_{it} + \beta_2 SIZE_{it} + \beta_3 DE_{it} + \beta_4 CF_{it} + \beta_5 MTB_{it} + \beta_6 AGE_{it} + \epsilon$

The table 6 represents the results of comparing the determination coefficient (R²) of the aforesaid models with each other. With regard to the coefficient of statistic Z (-0.438) and significance level (0.660), it is observed that the relationship between the coefficient of variation of operating income and coefficient of variation of net income has no effect on the explanation of stock return volatility or has no specific status.

Table 6- Wong test for comparing the prediction power of fourth hypothesis models

Wong test	Statistic type	Statistic value	Significance (Prob.)
		Z	- 0.618698
Model	Determination coefficient (R ²)		
Regression model of first hypothesis	0.029687		
Regression model of second hypothesis	0.033748		

Source: researcher's findings

Result of evaluation of research fifth hypothesis

For testing the fifth hypothesis, Wong test has been used that compares the determination coefficient of every ones of models 1 and 2:

- $SRV_t = \beta_0 + \beta_1 CVOI_{it} + \beta_2 SIZE_{it} + \beta_3 DE_{it} + \beta_4 CF_{it} + \beta_5 MTB_{it} + \beta_6 AGE_{it} + \epsilon$
- $SRV_t = \beta_0 + \beta_1 CVCI_{it} + \beta_2 SIZE_{it} + \beta_3 DE_{it} + \beta_4 CF_{it} + \beta_5 MTB_{it} + \beta_6 AGE_{it} + \epsilon$

The table 7 represents the results of comparing the determination coefficient (R²) of the aforesaid models with each other. With regard to the coefficient of statistic Z (0.671) and significance

level (0.502), it is observed that the relationship between the coefficient of variation of operating income and coefficient of variation of comprehensive income has no effect on the explanation of stock return volatility or has no specific status.

Table 7- Wong test for comparing the prediction power of fifth hypothesis models

Wong test	Statistic type	Statistic value	Significance (Prob.)
	Z	- 0.411677	0.680690
Model	Determination coefficient (R ²)		
Regression model of first hypothesis	0.029687		
Regression model of third hypothesis	0.064416		

Source: researcher's findings

Result of evaluation of research sixth hypothesis

For testing the sixth hypothesis, Wong test has been used that compares the determination coefficient of every ones of models 1 and 2:

1. $SRV_t = \beta_0 + \beta_1 CVNI_{it} + \beta_2 SIZE_{it} + \beta_3 DE_{it} + \beta_4 CF_{it} + \beta_5 MTB_{it} + \beta_6 AGE_{it} + \varepsilon$
2. $SRV_t = \beta_0 + \beta_1 CVCI_{it} + \beta_2 SIZE_{it} + \beta_3 DE_{it} + \beta_4 CF_{it} + \beta_5 MTB_{it} + \beta_6 AGE_{it} + \varepsilon$

The table 8 represents the results of comparing the determination coefficient (R²) of the aforesaid models with each other. With regard to the coefficient of statistic Z (0.450) and significance level (0.652), it is observed that the relationship between the coefficient of variation of net income and coefficient of variation of comprehensive income has no effect on the explanation of stock return volatility or has no specific status.

Table 8- Wong test for comparing the prediction power of sixth hypothesis models

Wong test	Statistic type	Statistic value	Significance (Prob.)
	Z	0.096155	0.923422
Model	Determination coefficient (R ²)		
Regression model of second hypothesis	0.047389		
Regression model of third hypothesis	0.064416		

Source: researcher's findings

Discussion and Conclusion

With regard to the presented theoretical foundations, first three hypotheses have studied the relationship between the coefficient of variation of operating, net and comprehensive incomes with the stock return volatility. A considerable section of stock return is related to the reported income of companies and the reaction the stockholders reveal to these information. It seems that when the income volatility is high, the stockholders consider that as a sign of development of company performance criteria and show more tendency toward the investment in such companies. Therefore, the high coefficient of variation of company's past incomes has been potentially indicative of managers' effort to

access further income and the capital market probably considers such volatility optimal. Therefore, it can be said that there is meaningful relationship between the coefficient of variation of income and stock return volatility. With regard to the obtained results, it is concluded that there observed stronger relationship between the coefficient of variation of income and the stock return volatility by the comprehensiveness of the income. It might be due to comprehensiveness of the income; it means that when the income becomes more comprehensive and covers more factors of company performance, its relationship with the stock return volatility is increased. In addition, when the income includes the elements which have been invested by the capital market, the higher volatility should involve further risk. With stable condition, this affair is indicative of higher expected return and lower stock price. The results of three second hypotheses somehow confirms the results of three first ones, since the research results have revealed that there is no difference between the relationship of coefficient of variation of operating, net and comprehensive incomes with the stock return volatility. Therefore, there is positive and meaningful relationship between the coefficient of variation of operating, net and comprehensive incomes with the stock return volatility. The severity of this relationship with the comprehensive income is more than the other two incomes. So, with knowledge about these relationships, the investors and other users can act better and consciously in their decision makings. In present research, there observed no difference between the relationship of operating, net and comprehensive income with the stock return volatility and all the hypotheses were rejected. In terms of comparison of results with other researches, it can be said that Jorgensen et al. (2012), Khan & Bradbury (2014), Izadinia et al. (2012), and Dastgir et al. (2015) have concluded in their research a positive and meaningful relationship between the earnings dispersion and the stock return volatility [4, 6-8]. This result corresponds completely to the results of present research hypotheses. With regard to this matter that the coefficient of variation of operating, net and comprehensive income have positive relationship with the stock return volatility and this matter that the stock return volatility includes both systematic and unsystematic risk, it is suggested to the investors of Tehran stock exchange to consider this coefficient of variation as a positive and effective factor on the stock risk with regard to their risk aversion.

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