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Identifying and ranking corporate governance based on the ANP method and examining its mediating role on the relationship between income-cost matching and stock price volatility

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ABSTRACT

In order to maintain investors' confidence in the development of the legal framework for corporate governance, it is recommended to develop a conceptual framework and economic growth. Among the important reasons affecting economic growth and development, it can be said that, basically, stock returns are caused by capital gain and stock price fluctuations, and the return on dividends is determined by taking into account the profit earned during the investment period. In order to evaluate the stock price of the company's profit for investors and financial analysts, we must pay attention to the matching principle, because the matching principle focuses on recognizing and measuring profit. The purpose of this research is to identify and rank the mediating role of corporate governance by focusing on the ANP method on the relationship between income-cost matching and stock price volatility. The research sample includes 150 companies from the companies accepted in the Tehran Stock Exchange, which covers a period of 7 years from the beginning of 2013 to the end of 2019. The results of the research show that the corporate governance rating, which includes the four dimensions of the effects of ownership, shareholder equity, transparency and effectiveness of the board of directors, has a full mediating role on the relationship between income-cost matching and stock price fluctuations.

Keywords:

Corporate governance rating, income-cost matching, stock price volatility

1. Introduction

Today, investment includes the main part of economic activities and one of the requirements for progress in any society is investment. It can be stated that no society will progress without investment and information needed for proper investment. The more reliable this information is, the closer the decision will be to success. Every investor pays attention to various factors for investment, the most important of which is the return on investment (Qolizadeh et al., 2012). Basically, stock returns are created from capital gain and from stock price fluctuations, and dividend returns are determined based on the profit earned during the investment period (Pinove, 1989).

One of the main challenges that we will face in this research is to be able to provide a model of stock price fluctuations. Considering that for the evaluation of the stock price, it is necessary for the investors and financial analysts to announce the profit of the company, we turn our attention to the matching principle, because the matching principle focuses on the recognition and measurement of profit. One of the important goals of applying the principle of matching costs with revenues is to clearly identify profit and measure economic reality (Graham et al., 2005; Dicho and Tang, 2008; Scott, 2011).

At the same time, the management strategy refers to spending the least amount of money compared to competitors. Therefore, it is expected that the adoption of management strategy by the company will cause changes in the company's cost structure. On the other hand, agency theory states that managers are representatives of company owners and should act in their interests. But sometimes managers are in situations where their decisions are not in the interest of the company's shareholders and cause financial reports to be distorted, which is known as agency problems (Jensen and Meckling, 1976; Shleifer and Vishni, 1997). This view considers the owner as the provider of information and his representatives as decision makers. Based on agency theory, company managers (representatives) may maximize their utility function at the cost of undermining the interests of shareholders (Lu et al., 2018). In order to maintain investors' confidence in the development of the legal framework for corporate governance, it is recommended to develop a conceptual framework and economic growth. Among the important reasons affecting economic growth and development, it can be said that, basically, stock returns are caused by capital gain and stock price fluctuations, and the return on dividends is determined by taking into account the profit earned during the investment period. Today, the capital market uses its internal mechanisms to determine the fair price of shares and optimal allocation of capital. On the other hand, one of the important goals of applying the principle of income-cost matching is to clearly identify profit and measure economic reality. The above content makes the researcher face another challenge in conducting the research, which is that whether the rating assigned to corporate governance have a mediating role on the relationship between income-cost matching and the prediction of stock price fluctuations or not? The mediating role of the corporate governance rating in the above relationship can only be accepted if it is first proved that the rating assigned to corporate governance can predict stock price fluctuations. Secondly, considering that historical financial statements provide useful information about income-expense matching, it should also be investigated whether income-expense matching also affects the corporate governance rating or not. Only when the above two conditions are met, the mediating role of corporate governance rating on the relationship between income-cost matching and forecasting stock price fluctuations can be investigated. Therefore, according to the material presented, we will seek to identify and rank the factors affecting corporate governance based on the ANP model and determine its mediating role on the relationship between income-cost matching and stock price fluctuations.

2-Research background

Mozafarnejad et al. (2022) experimentally tested the effect of uncertainty in the external information environment caused by the fluctuation of stock returns on the relationship between cost-income matching and stock price synchronicity. The results show that the uncertainty in the external information environment caused by the fluctuation of stock returns in the group of companies with a high matching degree causes a decrease in the synchronicity of stock prices and the uncertainty in the external information environment caused by the fluctuation of stock returns in the group of companies with a degree low matching increases the synchronicity of stock prices.

Al-Ibbini and Shaban (2021) investigated the internal company management mechanisms, investors' confidence and the risk of stock price changes. They stated that the main purpose of corporate governance is to create a balance in the distribution of power between shareholders, managers and management to increase the value of shareholders and protect the interests of other shareholders. The main purpose of their study is to find out the effect of corporate governance in increasing investors' confidence and minimizing the risk of stock fluctuations. The conclusion of this study indicated that there is a significant relationship between corporate governance mechanisms in increasing investors' confidence in minimizing the risk of stock fluctuations.

Jiang et al. (2021) investigated the financial constraints and empirical evidence of stock price fluctuations. Based on the theoretical analysis of financing restrictions and stock price fluctuations, the hypothesis "Financing restrictions of large companies that prevent the fluctuations of the company's stock prices" has been presented. This study showed that when companies reduce financing restrictions, the company's stock price fluctuates a lot due to over-investment. In addition, they have shown that by replacing indicators of restrictions in financing with things such as company size, market type, ownership, the conclusion of the study is stronger. This research shows the mechanism of the effect of financing restrictions on the fluctuation of companies' stock prices. The conclusion is important for investors, companies and relevant regulatory authorities.

Yar Mohammadi and Dehdar (2019) investigated the relationship between corporate governance, ambiguity in financial reporting, and falling stock prices in companies listed on the Tehran Stock Exchange. The results show that there is no significant relationship between any of the components of corporate governance and falling stock prices. However, there is a significant relationship between the uncertainty of financial reporting and the fall of stock prices in companies.

Dehghan Benaraki et al. (2019) investigated the role of emotional behaviors in stock price fluctuations of the Tehran Stock Exchange Organization. The results indicate an increase in the explanatory power of the stock price pattern by adding sentiment indicators.

In a research, Pahi and Yadav (2019) investigated the relationship between corporate governance and the dividend policy of companies. Different logit and probit regression models have been fulfilled for 482 accepted companies during 2006-2007. The findings have shown that companies with stronger corporate governance tend to pay higher dividends, which indicates that the company's willingness to pay dividends increases with the improvement of corporate governance standards. Among the structure of the board of directors, company management indicators, audit committee and disclosure norms have shown a positive and significant relationship.

3- Research hypothesis

The rank assigned to corporate governance has a mediating role on the relationship between income-cost matching and stock price volatility.

4- Research methodology

The method of this research is descriptive of the correlation type and regression of combined data is used to test the hypotheses, and it is practical in terms of purpose, because it is done with the purpose of applying these results in the capital market. The geographical scope of the research is the companies admitted to the Tehran Stock Exchange and the time scope is from 2013 to 2019. In this research, 150 companies were considered as a statistical sample of the systematic elimination method. In this research, 150 companies were considered as a statistical sample of the systematic elimination method .To collect the data needed to measure the corporate governance rating, to determine the relationships and intensity of influence and effectiveness of the factors using the F.DEMATEL method, to rank the factors using the F.ANP method, from the questionnaire data and to collect the data of other research variables, the information of the financial statements and the Rahavard Novin software were used. And finally, the research hypotheses were tested using EViews software.

5- Research model

1) $S_{it} = \alpha_0 + \beta_1 \text{ Matching}_{it} + \beta_2 \text{ Size}_{it} + \beta_3 \text{ Lev}_{it} + \beta_4 \text{ Profit}_{it} + \varepsilon_{it}$
2) $CGI_{it} = \alpha_0 + \beta_1 \text{ Matching}_{it} + \beta_2 \text{ Size}_{it} + \beta_3 \text{ Lev}_{it} + \beta_4 \text{ Profit}_{it} + \varepsilon_{it}$
3) $S_{it} = \alpha_0 + \beta_1 \text{ CGI}_{it} + \beta_2 \text{ Size}_{it} + \beta_3 \text{ Lev}_{it} + \beta_4 \text{ Profit}_{it} + \varepsilon_{it}$

4) $S_{it} = \alpha_0 + \beta_1 \text{Matching}_{it} + \beta_2 \text{CGI}_{it} + \beta_3 \text{Size}_{it} + \beta_4 \text{Lev}_{it} + \beta_5 \text{Profit}_{it} + \varepsilon_{it}$
5) In the above models:

$S_{i,t}$: It indicates stock price fluctuations and is the dependent variable of the research and is used as follows (Hasani and Hosseini, 2018).

$$S = \sqrt{\frac{\sum_{i=1}^{n}(X_i - \bar{X})^2}{n-1}}$$

Matching$_{i,t}$: It shows income- **cost** matching and it is the independent variable of the research which is measured as follows. The degree of income- **cost** matching is shown in the regression model with Matching, which is calculated as follows through Dichev and Tang (2008) model:

$$\text{REV}_t = \beta_0 + \beta_1 \text{EXP}_{t-1} + \beta_2 \text{EXP}_t + \beta_3 \text{EXP}_{t+1} + \varepsilon_t$$

REV: The total revenue from the sale of goods and services in the current year.

EXP_{t+1}, EXP_t,EXP_{t-1} : They represent the total cost in the previous year, the current year, and the next year, respectively.

This model states that the income of each year depends on the expenses of the current year, the previous year and the next year. The dependence of incomes on the expenses of the current year (coefficient β2) indicates the strict and complete observance of the matching principle. In Dichev and Tang's model, the coefficient $\beta 2 > 0$ indicates compliance with the matching principle. The larger β2 is, the greater the match between the current year's expenses and revenues.

$CGI_{i.t}$: It shows the governance rank of the company which has four dimensions as follows which is used as a mediating variable in the model:

$CGI1_{i.t}$: It indicates the rank of ownership effects, $CGI2_{i.t}$: It shows the rank of shareholders' equity, $CGI3_{i.t}$: Indicates the level of transparency, $CGI4_{i.t}$: It shows the effectiveness rating of the board of directors.

Considering that each dimension of corporate governance has sub-factors, we can obtain the rank of corporate governance at the level of dimensions through the following relationship:

$$\text{CGI}=\lambda_1 \text{CGI1} + \lambda_2 \text{CGI2} + \lambda_3 \text{CGI3} + \lambda_4 \text{CGI4} \qquad (1)$$

According to the obtained coefficients for the components, the related equations at the level of the components will be as follows, and finally by solving the mentioned equation, we will achieve an ideal rank for each of the dimensions, in which both the opinions of capital market experts have been used and attention has been paid to the disclosure ratio of each of the indicators related to the dimensions in the financial reports. It is possible that many indicators, which according to the opinions of capital market experts are of special importance, have not been disclosed in financial reports.

$$\text{CGI1}=\lambda_1 C_{11} + \lambda_2 C_{12} + \lambda_3 C_{13} \qquad (2)$$
$$\text{CGI2}=\lambda_1 C_{21} + \lambda_2 C_{22} + \lambda_3 C_{23} \qquad (3)$$
$$\text{CGI3}=\lambda_1 C_{31} + \lambda_2 C_{32} + \lambda_3 C_{33} + \lambda_4 C_{34} \qquad (4)$$
$$\text{CGI4}=\lambda_1 C_{41} + \lambda_2 C_{42} + \lambda_3 C_{43} + \lambda_4 C_{44} \qquad (5)$$

By solving the above equations, we will achieve the ideal rank of each dimension, which in the above equations:

CGI4,CGI3 ,CGI2,CGI1: It shows the dimensions of ownership effects, shareholders' equity, transparency and effectiveness of the board of directors, respectively.

λ_4 ,λ_3 ,λ_2 ,λ_1: It shows the final weight of the components.

C_{44}… C_{13} ,C_{12} ,C_{11}: It shows the disclosure ratio of each component.

To calculate the disclosure ratio of each component, we use the following checklists. In this way, we assign one score to each of the items in the checklist in case of disclosure, and finally we divide the total scores by the total number of items in the checklist. It is worth noting that the components of ownership transparency and compliance with information disclosure regulations have been measured by examining financial statements and assigning codes of one and zero. Ownership concentration and ownership of institutional shareholders are measured for each year of the company using financial statements based on the following relationship.

By combining equation (1) with equation (2), (3), (4) and (5), it is possible to calculate the rank of corporate governance based on the components based on the following equation and use it as a criterion for measuring the independent variable (rank of corporate governance) in the main hypotheses.

$CGI=\lambda_1 (\lambda_1 C_{11} + \lambda_2 C_{12} + \lambda_3 C_{13})+ \lambda_2 (\lambda_1 C_{21} + \lambda_2 C_{22} + \lambda_3 C_{23})+ \lambda_3 (\lambda_1 C_{31} + \lambda_2 C_{32} + \lambda_3 C_{33} + \lambda_4 C_{34}) + \lambda_4 (\lambda_1 C_{41} + \lambda_2 C_{42} + \lambda_3 C_{43} + \lambda_4 C_{44})$

6- Research findings

6-1-Stages of ranking corporate governance

In this research, the F. DEMATEL method was used to determine the relationships and the intensity of the influence and effectiveness of the factors, and the F. ANP method was used to rank the factors, and in the following, the steps of the mentioned method were examined based on the questionnaire data.

1- Evaluation and selection of factors

In order to identify factors, various articles were used and factors were extracted. Due to the fact that the number of identified factors is large and in order to localize the factors and reduce the inputs, as well as determine the importance of the inputs relative to each other and check their validity, weight restrictions will be applied in the model. To do this, a questionnaire with 14 questions (where each question represents a factor) was designed and 20 questionnaires, which are the number of respondents, were provided to them, and all the questionnaires were comprehensive and complete. These questionnaires are written qualitatively and based on 5 ranges from extremely important to unimportant. After distributing and collecting the questionnaire, to determine the most important factors, the scoring method was used with the help of EXCEL software, which is shown in table (1).

Table (1). Screening calculations of effective factors and sub-factors in ranking corporate governance

Main factors	Sub-factors	Answers					Score	Number of experts	Result
		1	2	3	4	5			
Effects of ownership	ownership Concentration	0	0	2	7	11	89	20	1
	Ownership Transparency	0	0	4	4	12	88	20	1
	Institutional shareholder ownership	0	1	3	7	9	84	20	1
Shareholders' equity	Voting procedures and assembly meetings	0	2	3	6	9	82	20	1
	Dividend rights	0	0	2	3	15	93	20	1
	Equal treatment with shareholders	0	1	3	5	11	86	20	1
Transparency	Compliance with the information disclosure regulations	0	0	0	4	16	96	20	1
	Quality and adequacy of information disclosure	0	0	2	5	13	91	20	1
	Information about the auditor	0	0	1	4	15	94	20	1
	Disclosure related to remuneration and shares of board members	0	0	1	6	13	92	20	1
The board of directors effectiveness	The structure and arrangement of the board of directors	0	0	3	3	14	91	20	1
	Board meetings	0	2	3	5	10	83	20	1
	Reward and performance evaluation	0	0	1	3	16	95	20	1
	Governance structure	0	0	4	5	11	87	20	1

After the data output from the EXCEL software, the indicators with a weight greater than the threshold of 60, which was obtained by multiplying the average of the answers (3) by the number of experts (20), were selected. The results of the order of weights were re-checked by experts and finally all 12 influential factors were selected as important and main factors for the final solution of the model. One of the goals of this section is to identify relationships and the intensity of influence and indicators effectiveness. In this research, the powerful Fuzzy DEMATEL method is used to identify relationships and how indicators influence. In the following, we will describe the fuzzy DEMATEL method.

2- Fuzzy DEMATEL method

At first, from the indicators extracted in the first step, a survey matrix is prepared, in such a way that the indicators form the rows and columns of this matrix. The matrix is provided to the experts and they are asked to compare the indicators located on each row with the individual indicators located on each column according to the criteria for scoring the verbal variables in order of importance (very high impact, high impact, low impact, very low impact, no impact) in the relevant questionnaire. 10 experts gave their opinions, which can be seen in the following pairwise comparison tables of each expert. In these matrices, $x_{ij}$is the opinion of each expert and $x_{ii} = (i = 1,2,3,\dots,n)$ is equal to zero (The main diameter is zero). In order to consider the opinions of all experts, we take an arithmetic average from them according to the following equation.

$$z = \frac{x^1 + x^2 + x^3 + \cdots + x^p}{p}$$

In this equation, p is the number of experts and X^1, X^2, and X^p are the pairwise comparison matrix of expert 1, expert 2, and expert p, respectively. After calculating the aggregated fuzzy direct relationship matrix, expert opinions are calculated for the main indicators, sub-factors, and the fuzzy normalized direct effects matrix at the level of the indicators. Finally, the general relationship matrices (T) that show the relative intensity of direct and indirect relationships among indicators and sub-indices are calculated according to the following equation.

$$T = \lim_{k\to+\infty}(H^1 + H^2 + \cdots + H^k) = H_i \times (I - H_i)^{-1}$$

3- The weight of indicators using ANP with the help of fuzzy DEMATEL

In this research, we solve fuzzy ANP based on the general relationship matrix that shows the influence and effectiveness of indicators. To solve the ANP model, first we normalize the general relationship matrix and the balanced supermatrix matrix is obtained. After normalization, converge the weighted supermatrix through the relation $\lim_{K\to\infty}(W^{\alpha})^K$to form the limited supermatrix. In this research, the balanced supermatrix converged in the power of 11 and the bounded matrix was formed.

Table (2). Weight and rank of factors and sub-factors of corporate governance ranking

Weight and final priority of sub-factors		Weight and relative priority of sub-factors		Code	Sub-factors	Weight and priority of factors	
(3)	0/0818	(3)	0/307	C_{11}	ownership Concentration	0/266 (2)	Effects of ownership (CGI_1)
(1)	0/0924	(1)	0/347	C_{12}	Ownership Transparency		
(2)	0/0922	(2)	0/346	C_{13}	Institutional shareholder ownership		
(8)	0/0704	(3)	0/326	C_{21}	Voting procedures and assembly meetings	0/216 (4)	equity (CGI_2)
(5)	0/0721	(2)	0/333	C_{22}	Dividend rights		
(4)	0/0736	(1)	0/341	C_{23}	Equal treatment with shareholders		
(7)	0/0712	(2)	0/256	C_{31}	Compliance with the information disclosure regulations	0/278 (1)	Transparency (CGI_3)
(9)	0/069	(3)	0/248	C_{32}	Quality and adequacy of information disclosure		
(6)	0/0715	(1)	0/257	C_{33}	Information about the auditor		
(10)	0/0662	(4)	0/238	C_{34}	Disclosure related to remuneration and shares of board members		
(12)	0/0598	(2)	0/25	C_{41}	The structure and arrangement of the board of directors	0/24 (3)	The board of directors effectiveness (CGI_4)
(11)	0/0631	(1)	0/264	C_{42}	Board meetings		
(13)	0/0589	(3)	0/246	C_{43}	Reward and performance evaluation		
(14)	0/0577	(4)	0/241	C_{44}	Governance structure		

As shown in the above table, the highest weight is related to the "Ownership Transparency" sub-factor, which won the first priority. The sub-factors of "ownership of institutional shareholders", "concentration of ownership", "equal treatment with shareholders" and "dividend rights" received the second, third, fourth and the fifth priority among 14 factors, respectively, which is approximately 21.41% of the total weight of the sub-factors. This shows the great importance of these sub-factors.

According to the obtained results, the corporate governance rank (CGI) will be obtained at the dimension level through the equation (1).

$$CGI= 0.26\ CGI1 + 0.21\ CGI2 + 0.27\ CGI3 + 0.24\ CGI4 \quad (1)$$

Also, according to the coefficients obtained for the components, the related equations at the level of the components will be as follows:

$$CGI1= 0.0818\ C_{11} + 0.0924\ C_{12} + 0.0922\ C_{13} \quad (2)$$

$$CGI2= 0.0704\ C_{21} + 0.0721\ C_{22} + 0.0736\ C_{23} \quad (3)$$

$$CGI3= 0.0712\ C_{31} + 0.069\ C_{32} + 0.0715\ C_{33} + 0.0662\ C_{34} \quad (4)$$

$$CGI4= 0.0598\ C_{41} + 0.0631\ C_{42} + 0.0589\ C_{43} + 0.0577\ C_{44} \quad (5)$$

By combining equation (1) with equations (2), (3), (4) and (5), the equation of corporate governance rank based on the components can be obtained as follows:

$$CGI= 0.0212\ C_{11} + 0.0240\ C_{12} + 0.0239\ C_{13} + 0.0147\ C_{21} + 0.0151\ C_{22} + 0.0154\ C_{23} + 0.0192\ C_{31} + 0.0186\ C_{32} + 0.0193\ C_{33} + 0.0178\ C_{34} + 0.0143\ C_{41} + 0.0151\ C_{42} + 0.0141\ C_{43} + 0.0138\ C_{44}$$

And the variables Size, Lev, and Profit used in the research models are also control variables
and measured as follows:

Size indicates the size of the company. In this research, we use the natural logarithm of company sales as a measure of company size (Tazik and Mohammad, 2014). LEV represents financial leverage and is calculated by dividing total debt by total assets (Tazik and Mohammad, 2014). Profit indicates profitability and is used to divide net profit by total assets at the end of the period (Tazik and Mohammad, 2014).

6-2-Results

6-2-1- Estimation of the model by the combined data method

In order to test the hypotheses of the research, first the time-fixed effects model is estimated, then to see whether these widths of origins are statistically significantly different from each other, the Chow test is used, which in case of accepting the panel-based model (combined), we have to determine the type of pattern using the Hausman test.

Considering that the results related to the acceptance or non-acceptance of each of the research hypotheses are determined from the test of four regression models, therefore, at first, we must check the status of each model in terms of the type of model, which is fixed effects or random effects. If the significance level of Limer's F test is less than 0.05, then the panel model is chosen for them, and by performing the Hausman test, we have to test random effects against fixed effects. If the probability obtained in the Hausman test is greater than 0.05, then the panel model with random effects is chosen, and if the Hausman test is smaller than 0.05, then the panel model with fixed effects is selected for it. .

Table (3): Leimer and Hausman's F test

Fourth regression		Third regression		Second regression		First regression		Hypothesis number
Model type	Model	Model type	Model	Model type	Model	Model type	Model	
Fixed effects	Panel	Fixed effects	Panel	Random effects	Panel	Fixed effects	Panel	1
Fixed effects	Panel	Fixed effects	Panel	Random effects	Panel	Fixed effects	Panel	2
Fixed effects	Panel	Fixed effects	Panel	Random effects	Panel	Fixed effects	Panel	3
Fixed effects	Panel	Fixed effects	Panel	Random effects	Panel	Fixed effects	Panel	4
Fixed effects	Panel	Fixed effects	Panel	Random effects	Panel	Fixed effects	Panel	5

6-2-2-The result of the hypothesis test

The results of model 1 in the above table, considering that the Matching variable (income-cost matching) has a t-statistic (-3.36) and a significance level of (0.00), so there is a negative and significant relationship between the principle of matching and stock price volatility. Therefore, model 1 is statistically accepted. The coefficient of the independent variable of income-cost matching (-0.40) shows that if the income-cost matching increases by one percent, the stock price volatility decreases by 0.40 percent.

The results of model 2 in the above table, considering that the Matching variable (income-cost matching) has a t-statistic (4.98) and a significance level of (0.00), so there is a positive and significant relationship between income-cost matching and corporate governance rating. Therefore, model 2 is statistically accepted. The coefficient of the variable of income-cost matching (-0.03) shows that if the income-cost matching increases by one percent, the corporate governance rating increases by 0.03 percent.

Table (4): Hypothesis test results

Fourth model	Third model	Second model	First model	Sig.level	
-0/04	-	0/03	-0/40	coefficient value	Matching
(0/36)		(0/00)	(0/00)	Sig.level	(income-cost matching)
1/001	-0/12	-	-	coefficient value	CGI
(0/04)	(0/02)			Sig.level	(Corporate governance rating)
0/41	0/40	0/0002	0/41	coefficient value	Size
(0/00)	(0/00)	(0/47)	(0/00)	Sig.level	(size of the company)
-0/09	-0/08	0/0006	-0/08	coefficient value	Lev
(0/73)	(0/75)	(0/67)	(0/75)	Sig.level	(Leverage)
0/65	0/64	0/03	0/65	coefficient value	Profit
(0/08)	(0/08)	(0/00)	(0/08)	Sig.level	
-7/66	-7/51	0/13	-6/09	coefficient value	C
(0/00)	(0/00)	(0/00)	(0/00)	Sig.level	(intercept)
3/09	3/10	60/65	3/07	coefficient value	F- statistic
(0/00)	(0/00)	(0/00)	(0/00)	Sig.level	
0/53	0/53	0/42	0/53	Adjusted coefficient of determination	
1/85	1/85	1/89	1/85	Durbin-Watson statistics	

The results of model 3 in the above table, considering that the CGI variable (corporate governance rating) has a t-statistic (-2.30) and a significance level of (0.00), so there is a negative and significant relationship between the corporate governance rating and stock price volatility. Therefore, model 3 is statistically accepted. The coefficient of the variable of corporate governance rating (-0.12) shows that if the corporate governance rating increases by one percent, the stock price volatility decreases by 0.12 percent.

Based on the regression method of Baron and Kenny (1986) to test the hypothesis of this research (model 4) (the rank assigned to corporate governance has a mediating role on the relationship between income-cost matching and stock price volatility), the following conditions must prevail:

1) Income- cost matching (independent variable) in the first model should have a significant relationship with stock price fluctuation (dependent variable). 2) Income-cost matching (independent variable) in the second model should have a significant relationship with the corporate governance rating (mediating variable). 3) The rank of corporate governance (mediating variable) in the third model should have a significant relationship with stock price fluctuations (dependent variable). The results of the above table indicate that the above three conditions are met. The role of the mediator can be complete or partial. If the variable coefficient of income-cost matching (independent variable) on stock price volatility (dependent variable) in the fourth model is lower than the first model, the corporate governance rating will have a relative mediating role. That is, both the income-cost matching variable and the corporate governance rating can estimate the stock price volatility (dependent variable). If the relationship between income-cost matching (independent variable) on stock price volatility in the fourth model is not significant, the corporate governance rating will play a full mediating role, that is, the income-cost matching variable can estimate stock price volatility only through the corporate governance rating. Otherwise,

the corporate governance rating does not play a mediating role. Since the results in the above table show that the relationship between income-cost matching and stock price volatility in the fourth model according to the mediating variable of corporate governance rank has a t-statistic (-0.91) and a significance level (0.36). , is not significant, therefore, the corporate governance rating has a full mediating role in the relationship between income-cost matching and stock price volatility. Therefore, the income-cost matching variable can estimate the stock price fluctuation only by the corporate governance rating.

7- Discussion and conclusion

In order to evaluate the stock price, it is necessary to announce the company's profit for investors and financial analysts. Profit volatility is one of the time series variables of profit quality. More volatility is associated with higher risk and is caused by several factors. Although various factors may affect profit fluctuations, but the two main reasons for profit fluctuations are based on the conducted researches; It consists of: economic factors and accounting practices (Dichev and Tang, 2008; Donelson et al., 2011). Measuring the factors affecting the price and its fluctuations is risky for investors and is considered one of the vital issues of the capital market.

One of the accounting factors that affects the volatility of the stock price and consequently the volatility of profit is income-cost matching. Dichev and Tang (2008) considered the decrease in the relationship between revenues and cost to be caused by economic and accounting factors. They showed that the disorder that has arisen between the relationship between the current period's income and the current period's cost has caused an increase in profit fluctuations. Similar to Dichev and Tang's (2008) research, in this research we have come to the conclusion that an increase in income-cost matching leads to a decrease in stock price volatility, and the role of corporate governance cannot be ignored. The mechanism for protecting the interests and rights of the beneficiaries, which tries to establish justice in the capital market through the existing structures, demands a positive impact on all the operational processes of the companies. Corporate governance, as the most important structure for establishing and protecting the rights of the beneficiaries, always tries to prevent the harming of the interests of the beneficiaries. Good corporate governance as a strong regulatory mechanism controls the opportunistic behavior of managers in not disclosing and hiding bad news accumulated in the company, which in turn reduces price fluctuations in the stock market.

In companies that have a higher corporate governance rating, stock price fluctuations are less observed. Considering the two characteristics of corporate governance rating and income-cost matching in relation to stock price fluctuations, it can be said that the corporate governance rating acts as a mediator and precedes income-cost matching. Companies that have both characteristics together, income-cost matching alone has not been successful in reducing stock price volatility, and the corporate governance rating as a mediator along with income-cost matching will be effective in reducing stock price volatility.

Based on the findings of this research, investors and financial analysts are suggested to consider the corporate governance measures presented in this research, along with other financial variables, when making investment decisions and consider them in their decisions. In addition, it is suggested to the capital market legislators, especially the Securities and Exchange Organization, that while ranking listed companies based on the corporate governance model presented in this research, they should comply more closely with the components of corporate governance in The presented model obliges them to take steps towards the prosperity of the capital market. Because the improvement of corporate governance by complying with income-cost matching as much as possible leads to a decrease in stock price fluctuations

Investors in the country's capital market are advised to make investments, in addition to considering a set of political, economic, behavioral and financial factors, to pay attention to the fact that the more companies tend to lead business strategies, the more income-cost matching will increase. Therefore, more companies following the business strategy of costs can be considered as a positive criterion for investment. It is also suggested to the aforementioned investors that the increase in the level of the company's agency costs, which is a negative indicator affects and weakens the increasing effect of the leadership strategy on income-cost matching, consider as a negative indicator for the quality of the information included in the financial statements.

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