Association between corporate governance and stock returns based on Fama and Macbeth two-stage regression (1973): A case study on companies in the Istanbul Stock Exchange

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Abstract

The present study aimed to assess the relationship between corporate governance factors and stock returns based on the capital asset pricing model and the Fama and French three-factor model. The statistical population included companies acting in the Istanbul Stock Exchange from 2010 to 2020. Using a systematic elimination sampling method, 70 companies were selected. The data panel method was used along with two-stage regression of Fama and Macbeth [16] and EViews11 software to estimate the models. The results represented a significant and positive relationship between the level of transparency in information disclosure, the structure of the directors' board, and the structure of ownership and shareholders' rights with stock returns based on the capital asset pricing equation. Moreover, there was a significant and positive relationship between the general index of corporate governance and the stock returns of companies based on the three-factor equation of Fama and French. This index is comprised of three sub-indices.

Keywords: corporate governance, capital asset pricing model, Fama and French three-factor model, stock returns
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1 Introduction

Stock return is one of the key criteria for making decisions on the stock exchange. Stock returns with especially informational content are used by most actual and potential investors in financial analysis and predictions. Several studies have been performed on the relationship between risk and return. In this regard, among the most important presented models are the capital asset pricing model and the three-factor model of Fama and French [23]. Ineffective markets, all available information is assumed to be reflected in the price of securities immediately or after a while not considering any personal opinion. In defining the efficient securities markets, it is assumed that the information is available to the public. This directly refers to the discussion that is undoubtedly the most important issue in financial accounting theory (i.e., asymmetry of information). Not hindering the proper functioning of the market is one of the advantages of asymmetric information. Thus, the rapid reaction of securities prices is prevented based on the new information [42]. Generally, in the studies investigating the information content of accounting variables, it is assumed

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that accounting data are completely reflected by the stock price. Then, the association between accounting variables and returns or stock returns is evaluated. It is worth noting that for various reasons, accounting information may affect the stock prices not immediately and without time delay [30].

Users of financial information are always dissatisfied with the asymmetry of accounting information and seek the information to use in making proper decisions. The reliable information, which can be used in the decision-making process will be considered relevant. Thus, it is very important to investigate and identify mechanisms to generate highly reliable criteria. This has caused several discussions, most importantly the issue of corporate governance. Indeed, corporate governance is a way to eliminate information asymmetry between managers and shareholders through modification of conflicts of interest. One of the most important mechanisms is to improve the structure of the board, increase transparency, and enhance the ownership structure. Corporate governance mechanisms can reduce profit management opportunities thus increasing the profit quality [36].

Considering the importance of assessing the effect of corporate governance factors on stock returns, in the present study, it was tried to investigate this impact in the form of capital asset pricing models and Fama and French three-factor model for companies listed on the stock exchange of Istanbul from 2014 to 2010. In the present work, followed by the introduction, sections 2 and 3 deal with the theoretical and experimental background of the research. In section 4, the research hypotheses are presented while introducing the model, data, and research method. The results are presented in section 5. Finally, conclusions and suggestions are provided in section 6.

2 Theoretical context and literature review

Correct measurement of risk is one of the most important factors affecting decision-making in financing and investment. The risk was a qualitative factor until the 1950s. Considering the quantitative definitions, Markowitz introduced a numerical index for risk. By presenting a quantitative model, he measured risk. He located the category of risk along with return as another variable for selecting assets for investment by introducing a model based on risk and return and presenting an efficient collection line, for the first time [32]. Following Markowitz [28]'s portfolio maximization theory, a capital asset pricing model was developed by Sharpe [38] and Lintner [26] known as the CAPM model, which is now the fundamental pricing model [43]. The capital market theory derives a model for pricing risky assets, by extension and generalization of the portfolio theory. The ultimate output of this theory, known as the capital asset pricing model makes it possible to determine the rate of return on each risky asset. The main factor leading to the expansion of the capital market theory is the concept of a risk-free asset. There will be zero correlation between such an asset and other risky assets. Moreover, its rate of return will be risk-free [7].

The validity of the capital asset pricing model based on the efficient market hypothesis has been extensively studied. Experimental studies on the model of capital asset pricing revealed that market risk was not the only risk factor affecting the expected rate of return. Over the 1980s, economists considered the factors questioning the market efficiency or the features of asset pricing models. These unconventional factors were based on both accounting and market data [29].

Undoubtedly, the return on an asset is related to its degree of risk to the market logically. However, it is a controversial point whether the net market risk is the sole determinant of return or whether other factors are involved. Another problem with this model was the assumptions, which were not tangible in the real world. Several studies have been performed so far to assess the relationship between the capital asset pricing model and stock returns, thus leading to the development of the proposed model.

In the 1990s, when the capital asset pricing model faced challenges, Fama and French presented evidence indicating the inefficiency of the asset pricing model. Then, they developed a three-factor model for risky asset pricing by the expansion of the asset pricing theory. In this model, stock returns were affected by 3 factors beta, company size, and the ratio of book value to market value. They also proved a significant relationship between the average, return, and beta of the stocks. This model can explain the changes in returns well. It can also justify almost all the known rules including the ratio of profit to price E/P, cash flow returns, sales growth, and previous long-term returns [15]. According to Fama et al.'s [15] theory, in the real world, investors consider various types of risk, the most important of which are the three factors of market risk, firm size risk, and book value risk to the market value. In this model, the expected return per share is based on the extent of these factors' effect on each criterion. According to several studies, there is a relation between the average stock return and the ratio of the book value of equity to the market value [35].

Nowadays, for companies seeking to benefit from the globalization of capital and the ability to offer their shares in world-renowned stock exchanges and thus attract low-cost and long-term capital, some factors are essential including

regular attendance and regular planning [19]. In the financial literature, corporate governance can be considered as a network of relationships existing between the company and its owners (shareholders) as well as between the company and numerous stakeholders, including employees, customers, sellers, and bondholders. Such a view can be placed in the framework of stakeholder theory. According to the general investigation of the definitions of corporate governance in scientific texts, these definitions have common and certain characteristics, one of the most important of which is accountability [21].

Financing decisions are among the strategic decisions in corporate governance that are affected by corporate governance mechanisms. In fact, the corporate governance system is one of the main factors in improving economic efficiency, which is comprised of some relationships between the company's management, the board of directors, shareholders, and other stakeholders. The corporate governance system provides a structure to determine the objectives of the firm, meet its goals and monitor its performance. This system creates the necessary motivation to satisfy the management goals of the firm while providing the basis for effective supervision. Thus, then companies can utilize the resources more effectively [41]. In the 1990s, when the capital asset pricing model faced challenges, Fama and French presented evidence indicating the inefficiency of the asset pricing model. Then, they developed a three-factor model for risky asset pricing by the expansion of the asset pricing theory. In this model, stock returns were affected by 3 factors beta, company size, and the ratio of book value to market value. They also proved a significant relationship between the average, return, and beta of the stocks. This model can explain the changes in returns well. It can also justify almost all the known rules including the ratio of profit to price E/P, cash flow returns, sales growth, and previous long-term returns [15]. According to Fama et al.'s [15] theory, in the real world, investors consider various types of risk, the most important of which are the three factors of market risk, firm size risk, and book value risk to the market value. In this model, the expected return per share is based on the extent of these factors' effect on each criterion. According to several studies, there is a relation between the average stock return and the ratio of the book value of equity to the market value [35].

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Internal mechanisms of corporate governance in a company include different types of organizational agreements as well as procedures for balancing the power and responsibilities between shareholders, board members, executives, and employees [31]. Within the structure of ownership and shareholders' rights, the board of directors and the transparency level of the information are among the most important determinants and influencing factors in the corporate governance mechanisms.

At present time, capital markets have been expanded and the acquisition of economic power has been structured beyond geographical boundaries making the capital markets a hotbed. Inevitably, the capital market is more prone to collusion, fraud, and corruption than ever by the various economic agents in this market [18]. Therefore, the decision-making will result in the allocation of resources to the most productive and efficient companies, and poor-performing companies can not gain profits by deceiving the market and providing non-transparent information. Moreover, well-performing companies will not face financial crises and problems in gaining financial resources, thus, continue their profitable activities. As a result, the market is stable in terms of transparency of the provided information and the optimality of made decisions. Moreover, the uncertainty about future events will be accompanied by fewer fluctuations [39]. In such a market, the content of the disclosed information is superior to the form of their disclosure. Thus, transparency as one of the characteristics of information content highly affects the improvement of the market efficiency level [18]. In fact, the information transparency index is one of the corporate governance indicators. The results of Koerniadi et al. [25] show that with increasing information transparency of companies, investors face less

information risk in their investment decisions and forecasting stock returns and lack of information. Thus, systematic risk and stock return volatility are reduced.

The formation of a limited liability company and opening the company ownership to the public on the management of companies are highly effective. The market system was organized in such a way that the companies' owners delegate the management to the managers. Separating the ownership from management leads to the generality of the representation issue [37]. The main issue in the discussion of the structure of the directors' board is representation since the conflict of interests between the directors and the shareholders results in the creation of representation costs. Scattered ownership raises the issue of representation as it will weaken the shareholders' ability and motivation to control management owing to their small share. Furthermore, shareholders typically invest in various companies to reduce the risks through diversification. While investing, they are hoped in the future profits of their stock portfolio, not the better future for a particular company. Furthermore, scattered shareholders are not able to control the management effectively owing to insufficient information and expertise to make the right decision [3]. Improvement of the directors' board structure as one of the corporate governance mechanisms assists investors and strengthens the reliance on financial information and the convergence of the financial reporting process, by aligning the managers' and shareholders' interests [36]. Hence, an efficient board of directors is expected to protect the company against risky investments endangering the future opportunities of the company. In this way, the investors will encounter less uncertainty in the estimation of stock returns, thus increasing the stock returns.

Separation of the management from ownership and the creation of conflicts of interest between managers and stakeholders caused the representation problems between the two groups. The ownership structure can be classified in terms of internal and external shareholders, which can affect the company's affairs and determine the extent of representation problems among shareholders as a result of their characteristics [6]. Today, considering the great emphasis on separating the ownership from management, the structure and composition of corporate ownership have been further concentrated to control and monitor the company and the shareholders' interests. To protect the shareholders' interests and rights, it is required to consider the dimensions of the ownership structure by the shareholders to control, monitor, and protect their rights in companies for increasing the company's value [34]. Adjaoud and Ben-Amar [1] argued that in companies with the appropriate ownership structure and shareholders' rights, the opportunistic and profiteering behavior of the managers is limited by the proper supervision by the shareholders, thus, the financial reporting reliance is improved. Therefore, the investors will be able to achieve more stable stock returns and increase their stock returns.

3 Research background

Rezaei and Mohammadzadeh [31] investigated the effect of corporate governance quality on the performance and financial crisis of the companies. To evaluate the corporate governance of the companies under study, four dimensions were used including disclosure and transparency, the composition of the board, shareholders' voting rights, ownership structure, and control. The sample included 102 companies listed on the Tehran Stock Exchange from 2009 to 2015. Tobin Q index, the total return on assets, and equity return were used to evaluate the performance. Z rating index was also used to assess the financial crisis. The multivariate linear regression model was utilized to investigate the relationship between the variables. The results indicate that the quality of corporate governance significantly affects the total return on assets, return on equity, and company value. Also, the quality of corporate governance has no considerable impact on the financial crisis. Deilami and Safari Graili [9] studied the relationship between corporate governance quality and corporate stock volatility fluctuations using a comprehensive index. The index included three general categories of the board, shareholder rights, and information transparency for assessing the quality of corporate governance. The statistical sample used in this research includes 96 companies listed on the Tehran Stock Exchange between 2010 and 2014. In the present work, using a multivariate regression model based on the panel data technique, the findings revealed a significant negative relationship between the fluctuation of companies' stock returns and the board and information transparency indices. However, no significant relationship was found between the fluctuation of companies' stock returns and the shareholders' equity index.

Babaloyan and Mozaffari [5] studied the explanatory power of stock returns using the five-factor models of Fama and French, four-factor Carhart, and q-factor Hu, Xu, and Zhang (HXZ). Using the monthly information of companies listed on the Tehran Stock Exchange from 2011 to 2015, their results indicated that the five-factor Fama and French model has a higher ability to explain stock returns than the Carhart and HXZ models. In contrast to the results of Fama and French on US stock exchanges, a significant HML was found on the Tehran Stock Exchange, which is not recognized as a redundant factor. According to the results, the momentum factors and investment in the Tehran Stock Exchange did not affect the stock returns, among the factors of beta, size, value, the tendency to past performance

(momentum), profitability, and investment. Using four indicators, Hassanzadeh et al. [20] investigated the effects of corporate governance mechanisms on the company's performance to examine corporate governance mechanisms. Their results indicate that the separation of the CEO's duties from the head of the board and the auditing reference also reduces the number of clauses followed by the comment clause. On the other hand, reducing the number of non-compliance clauses by the institutional owners and the audit authority, along with the independence of the board of directors also increased the number of non-compliance clauses.

Hezbi and Salehi [22] compared the explanatory power of the four-factor model of Carahart and the five-factor model of Fama and French to predict the expected return on the shares of companies listed on the Tehran Stock Exchange. Their results revealed that by the addition of two factors of profitability and investment to the Fama and French three-factor model, the power of the model is increased in explaining the companies' stock returns.

Fallah Shams et al. [12] studied the relationship between liquidity risk and market risk with abnormal returns in the three-factor model of Fama and French in the Tehran Stock Exchange. In the present work, we eliminated the stock returns affected by SMB and HML in the Fama and French three-factor model. Moreover, the characteristics of the company and market were considered as market risk and liquidity risk variables. The results revealed an acceptable fit for the model. Sedighi [36] investigated the relationship between the structure of the managers' board and the information content of accounting profit for 2004-2008 in Iran. They sought to investigate the effect of improving the board structure on increasing the information content of the accounting profit. In the present study, the structure of the board was investigated using four variables to obtain the information content of accounting profit via profit reaction coefficients. The four variables of the board structure included the size of the board, the membership of the CEO in the board, the duality of the CEO's responsibility, and the independence of the board. To assess, the relationship between board structure and accounting profit information content, the model proposed by Stone and Harris was used. Multivariate linear regression, generalized least squares method, and parent test were used to examine the model. The results indicated that there was no significant relationship between the variables of the board structure and the information content of accounting profit.

Haghighat and Alavi [18] studied the relationship between accounting profit transparency and abnormal stock returns. To test the research hypotheses, they used the financial information of 92 companies listed on the Tehran Stock Exchange from 2005 to 2010. Their findings revealed a significant and negative relationship between accounting profit transparency and abnormal stock returns in the Tehran Stock Exchange.

Saeedi and Shiri Ghahi [33] studied the effect of ownership structure on the performance of companies presented on the Tehran Stock Exchange. They considered the ownership structure as an independent variable and the Q-Tobin ratio (corporations' financial performance criterion) as a dependent variable and a criterion for the performance measurement. Examining the research hypotheses through the combined regression method with fixed effects indicated no relationship between different types of ownership and performance. However, the generalized regression method revealed a significant and inverse linear relationship between the owners of more than 5% of company shares and its performance. However, the effect of other indicators of ownership structure including the degree of ownership of real and legal shareholders and the largest shareholder on the performance of the company was not confirmed.

Gloria and Mantovani [17] investigated the association between corporate governance mechanisms on company performance. Their findings revealed that in private companies, there is no significant relationship between corporate governance mechanisms and the performance of the company. However, there is a strong and significant relationship between these two aspects in large companies.

Fama and French [14] used a Five-Factor Model to explain the abnormalities and examine the effects of adding two factors of profitability and investment to their three-factor model. The results revealed a positive relationship between returns and profitability and investment. It was associated with the repurchase of stocks with fluctuations in returns and low beta, published by profitable companies investing conservatively. On the other hand, the negative relationship between returns and profitability and investment is caused by the stocks released with the large beta and volatile returns by non-profit companies that invest aggressively.

Mardi et al. [27] examined the performance of the five-factor model in Australian stock pricing using an extensive sample from 1982 to 2013. Their results revealed that the five-factor model further explains the pricing anomalies than the three-factor model.

Coenen [8] in a study examined the relationship between ownership structure and firm performance. He used the ratios of the return on assets and market value to book value and sales growth to measure the performance. He also utilized the variables of the amount of the largest shareholder's capital and the volume of capital held by the largest shareholder to measure the ownership structure. His results revealed no strong evidence on the effect of the ownership structure on the companies' performance.

Koerniadi et al. [25] studied the relationship between the quality of corporate governance and stock fluctuations in New Zealand capital markets. The statistical sample of the research included 385 companies of companies existing in the New Zealand Stock Exchange during 2004-2008. They utilized a comprehensive index including three general categories of the board of directors, shareholder rights, and information transparency as a measure of the corporate governance quality. Using multivariate regression model, their findings indicated that companies with higher quality corporate governance experience less stock risk.

Fama and French [13] examined their new 5-factor model in the US stock companies and concluded that the model explains the cross-sectional changes of 69-93% in expected returns for portfolios of B/ M size, profitability, and investment.

Elliott et al. [11] assessed the effect of accounting transparency on analysts' expectations of incorrect pricing. They provided empirical and theoretical evidence indicating that the characteristics of corporate institutional investors can increase the transparency of accounting and stimulate professional investors' expectations. They indicated that analysts' expectations are affected by the accounting profits transparency. Moreover, greater transparency of the financial statements also reduces the expectation of incorrect pricing and also stimulates incorrect pricing expectations.

Andrade et al. [4] studied the relationship between financial statement transparency and the cost of debts. Their evidence revealed that by increasing corporate debt transparency, the cost of corporate debt is reduced. It was indicated that improving the quality of financial reporting perceived by investors would considerably save the company's costs.

Vafeas [40] examined the relationship between corporate governance and stock returns. In this study, the ratio of non-executive directors and the size of the board were studied as corporate governance mechanisms. It was argued that the non-linear role of non-executive directors in increasing the information, moreover, there may be an optimal number of non-executive directors on the board. The results showed that the composition of the board has no relationship with usefulness and profit awareness. Also, there was no relationship between the ratio of independent board members and the information content of profit.

4 Hypotheses

Regarding the theoretical foundations of the research, the following hypotheses were considered in the present work:

- There is a significant relationship between the transparency level in information disclosure and stock returns.

- A considerable relationship exists between the structure of the board and stock returns.

- There is a significant relationship between the ownership structure and shareholders' rights and stock returns.

- A significant relationship also exists between the integrated corporate governance index and stock returns.

4.1 Method

The descriptive-correlation method was used in the present study. The required data and information were provided from the databases of the Stock Exchange Organization and the financial reports of the listed companies.

To determine the risk factors in the capital asset pricing model and the Fama and French three-factor model, Dimson et al.'s method [10] was used. In this method, to determine the risk factor caused by the size of the company, first companies are sorted from small to large each year, based on their size. Then, they are divided into three categories (portfolio) of small, medium, and large to calculate the average stock return of all three portfolios. Ultimately, the average portfolio return of the small companies is subtracted by the average portfolio return of the large companies. The obtained value is a risk factor caused by the size of the company in that year. The risk factor resulting from firm growth, investment and profitability, quality of accruals, earnings stability, relevance, and stock liquidity is calculated in the same way. However, the average portfolio returns of the high-growing companies are subtracted by the average return of the portfolio of low-growing companies.

4.2 Population and statistical sample

The statistical population of this study included all companies listed on the Istanbul Stock Exchange. Sampling was performed using the systematic elimination method while considering the following conditions:

1) Existing the company on the stock exchange before 2014 and acting in the stock exchange until the end of 2020

2) The company is not among the investment and financial intermediation companies

3) Ending the financial year of the company on December 31 with no financial year change during the research period

4) No trading interruption of the company for more than 4 months

5) Availability of the financial information of companies

6) The index of their corporate governance graded by ISS Corporate Services (Institutional Shareholder)

Considering all the above criteria, 70 companies were selected as the screened community.

4.3 Testing the hypothesis

To estimate the research models, the two-stage regression method of Fama and Macbeth [16] was used through EViews11 software. It is an estimation method for capital asset pricing models. In this method, the amount of risk is calculated for each risk factor. The parameters are estimated in two steps:

1) Fitting the return on assets of each portfolio (or company) on the desired risk factors, the coefficient value is determined for the risk factor.

2) Then, in each period, the return on assets is fitted to the coefficients estimated in the previous step to determine the net risk associated with each factor.

In this method, for each portfolio (or company) there is an estimated model with a special intercept line and its coefficients for each risk factor. By averaging the intercept line and coefficients of each factor, the overall results are obtained as the average of the model estimation results for each portfolio (company) [2].

4.4 Experimental model

The CAPM model was used to solve hypotheses 1 to 3. The Fama and French three-factor model was also utilized for solving the fourth hypothesis.

4.5 Capital asset pricing model

The capital asset pricing model with variables of transparency in information disclosure, board structure, and structure of ownership and shareholders' rights can be mathematically written as:

$$R_{it} - R_{ft} = \beta_i + \beta_{iM}(R_{Mt} - R_{ft}) + \beta_{iT}(TRANS) + \beta_{iB}BOARD_t + \beta_{iO}OWN_t + \epsilon_{it} \tag{4.1}$$

where

R_{it} is the assets returns (such as stocks),

R_{ft} is the risk-free returns as the interest rate declared on the account of government participation bonds, ie 17%,

R_{Mt} is the monthly market returns,

$R_{it} - R_{ft}$ is the net company stock risk, and

TRANS: Transparency Indicator in Information Disclosure. This index was prepared using 19 governing factors, all of which are nominal and accepted as 0 or 1 for valuation. Summing up the scores of these factors, an index score is obtained.

BOARD: Indicator representing the structure of the board. To prepare this index, 14 governance factors were used, all of which are nominal and accepted as 0 or 1 for valuation. By summation of the scores of these factors, an index score is obtained.

OWN: Index representing the ownership structure and shareholder rights. This index was prepared using 8 governance factors, all of which are nominal and accepted as 0 or 1 for valuation. By summing up the scores of these factors, an index score is obtained.

4.6 Fama and French three-factor model

Considering the presence of the variable corporate governance index, the three-factor model of Fama et al. [15] can be expressed as follows:

$$R_{it} - R_{ft} = \beta_i + \beta_{iM}(R_{Mt} - R_{ft}) + \beta_{iSMB}SMB_t + \beta_{iHML}HML_t + \beta_{iC}CGI_t + \epsilon_{it} \qquad (4.2)$$

where

SMB is the risk factor caused by the company's size

HML is the risk factor for company growth

CGI: is the combined corporate governance index as the measure of the effectiveness of the corporate governance structure and the sum of the transparency index in disclosure of information, the structure of the board index, and the structure of ownership index.

$$CGI = TRANS + BOARD + OWN$$

5 Results

In Table 1, the descriptive statistics related to the research variables are provided.

Table 1: The descriptive statistics

Variable	Mean	Maximum	Minimum	Standard deviation
Net market risk	-0.151	-0.104	-0.188	-0.27
Net company size risk	-0.072	-0.111	-0.276	0.124
Net company growth risk	0.382	0,521	0.115	0.144
Transparency Index	12.34	17	9	0.125
Index of the board	11.28	13	7	0.690
Ownership structure index	6.89	7	4	0.301
Combined index	30.51	3	7	0.283

According to Table, the average net risk caused by the market is -0.151, the average net risk of the company size is -0.072, the average net risk of the company growth is -0.382, the average transparency index is 12.34, the average of the board index is 11.28, the average index of ownership structure is 6.89, and the average of the composite index is 30.51. The estimation results of models (4.1) and (4.2), estimated through two-stage Fama-Macbeth regression [16], are presented in Tables 2 and 3.

Table 2: The results of estimating the first model

Variable	Significant coefficient	Significance level
Intercept line	-0.165	0.000
Net market risk	0.036	0.003
Transparency level in information disclosure	0.075	0.000
Board structure	0.058	0.001
Ownership structure and shareholder rights	0.034	0.004
Determination coefficient: 0.682	Statistical value of F: 12.598 Significance level value: 0.000	Watson's camera statistics: 1.985

Table 3: The results of estimating the second model

Variable	Significant coefficient	Significance level
Intercept line		
Net market risk		
Combined corporate governance index		
Net risk of company size		
Net risk of company growth		
Determination coefficient: 0.679	Statistical value of F: 11.798	Watson's camera statistics: 1.9857

According to Table 2, the coefficient of determination for the first model is 0.682, which is a good value. Thus, it is concluded that the independent variables have the ability to explain about 68% of stock returns. Based on the significant levels obtained for the independent variables, a significant and positive relationship is concluded between the level of transparency, ownership structure, and shareholder rights with stock returns. In other words, the first to third hypotheses of the research are accepted. According to Table 3, it is also concluded that the fourth hypothesis is accepted since the value of the significant level between the combined corporate governance index with stock returns is less than the critical value of 5%.

6 Discussion and conclusion

The present work aimed to investigate the relationship between corporate governance and stock returns of companies listed on the Istanbul Stock Exchange from 2014 to 2010. For this purpose, four indicators were considered including transparency in information disclosure, the composition of the board of directors, ownership structure and shareholders' rights, and a combined index for corporate governance. Two models of capital asset pricing and the three-factor model of Fama and French were used to assess the relationship with stock returns. Our results represented a significant and positive relationship between corporate governance indicators and stock returns. The estimated coefficient for the board index was 0.058, indicating that there is a positive relationship between the board structure and stock returns. Our results were consistent with the results of Koerniadi et al. [25], Vafeas [40], Sedighi [36]. In fact, enhancing the structure of the board as one of the corporate governance mechanisms aligns the interests of managers and shareholders. Thus, it helps investors and strengthens the reliance on financial information and the convergence of the financial reporting process. The more efficient the board, the more secure the investment and the more profitable the company will be. Therefore, the company's stock returns will be higher. Furthermore, the estimated coefficient for the transparency level in information disclosure is a positive and significant value. This was also consistent with the studies of Deilami and Safari Graili [9], Haghighat and Alavi [18], Gloria and Mantovani [17], Elliott et al. [11], and Andrade et al. [4]. Hence, by the higher transparency in the disclosure of information of the company, the shareholders will be more interested in investing in the desired share, therefore, the right decisions will be made. In fact, as indicated by Koerniadi et al. [25], with increasing the information transparency of the companies, the investors will face the risk of less information and lack of information in their investment decisions and estimation of the stock returns, thus increasing the company's stock returns. Ultimately, there was a significant and positive relationship between ownership structure and shareholder rights with stock returns of the listed companies. The results were consistent with the findings of Vafeas [40], Koerniadi et al. [25], Hassanzadeh et al. [20], and Rezaei and Mohammadzadeh [31]. As stated by Adjaoud and Ben-Amar [1], by the appropriate ownership structure in companies and respecting the shareholders' rights, the opportunistic and profiteering behavior of the managers will be limited as a result of the proper supervision of shareholders. Therefore, investors will be able to make more stable stock returns, thus increasing their stock returns.

Based on our findings, it is concluded that corporate governance has a key role in the rate of return on the companies' shares. Therefore the actual and potential investors can more accurately estimate the financial situation, analyze the company's profitability, make the necessary predictions to make relevant and sensible decisions about using the financial statements, and assess the corporate governance to choose the right stocks.

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