

# **The Effect of Board Independence and Institutional Ownership on Earnings Quality: Evidence from Egypt**

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## **Abstract**

The Impact of Board Independence and institutional Ownership on Earnings Quality: Evidence from Egypt

The study aims to investigate the impact of board independence and institutional ownership on the Earnings Quality in the Egyptian environment. The study used data from companies listed on the Egyptian Stock Exchange, specifically the EGX 100. The researcher used a sample of 58 companies, representing 12 major sectors over a continuous five-year period from 2017 to 2021. The study used a regression model to test the research hypotheses. The results of the study revealed that both board independence and institutional ownership have a significant impact on Earnings Quality.

**Keywords:** Board independence, Institutional Ownership, Earnings Quality, Egyptian Listed Companies.

## المستخلص:

أثر استقلالية أعضاء مجلس الإدارة والملكية المؤسسية على جودة الأرباح: دليل من مصر  
يهدف هذا البحث الي دراسة تأثير استقلالية أعضاء مجلس الإدارة والملكية المؤسسية علي جودة الأرباح المحاسبية في البيئة المصرية. استخدم البحث بيانات من الشركات المدرجة في البورصة المصرية خاصة (EGX 100) ، حيث تكونت العينة من ٥٨ شركة والتي تضمن ١٢ قطاعا رئيسيا خلال ٥ سنوات متتالية لفترة تتراوح من ٢٠١٧ الي ٢٠٢١. ولاختبار فروض البحث استخدمت الدراسة نموذج الانحدار، حيث اظهرت نتائج الدراسة ان كلا من استقلالية أعضاء مجلس الإدارة والملكية المؤسسية لهما تأثير معنوي علي جودة الأرباح المحاسبية.  
**الكلمات المفتاحية:** استقلالية أعضاء مجلس الإدارة، الملكية المؤسسية، جودة الأرباح، الشركات المدرجة في البورصة المصرية

## 1 Introduction

Over the past twenty years, corporate governance has been a crucial business challenge. In fact, one of the key factors influencing how well a company is run is its corporate governance (Nekhili & Gatfaoui , 2013). The board of directors is considered the basis of an organization's monitoring and control system (Ahmed & Duellman ,2007). It is responsible for making crucial operational, monetary, and strategic decisions, so it is crucial to governance (Nekhili & Gatfaoui, 2013). The board of directors should apply ethical standards that guarantee the protection of the rights of shareholders and stakeholders, especially in carrying out the main tasks (Abo Ads et al., 2020). Furthermore, these tasks include setting up the business strategy with the management team, establishing policy objectives, and participating in resource planning and management. In this regard, the boards' characteristics are critical due to their essential role within governance (Nekhili & Gatfaoui, 2013). These characteristics may be

Board independence, Board size, gender diversity, and CEO Duality (Almomani et al., 2020).

The independence of the Board is an important element for the effectiveness of the Board's effective follow-up and oversight of executive management (Ahmed, 2023). It refers to the ratio of external managers to internal managers. The board of directors in the companies participating in the stock exchange consists of executive members who are responsible for the executive work of the company in addition to their membership in the board of directors, so they are called internal members, and non-executive members who do not undertake any executive work within the company, so they are called external members (Kandil, 2022). The stronger protection of shareholders' rights by law will enhance the independence of the board (Fan, 2018). Advocates of the agency theory contend that boards with a higher proportion of outside directors minimize agency conflicts by giving the board a powerful monitoring tool. Additionally, the study of (Hashim & Devi, 2008) believes that the presence of outside directors enables boards to monitor top management more accurately and ensures that there is no conspiracy on the part of top managers to misuse stockholder wealth since they have the motivation to establish themselves as experts in decision-making. Outside directors are typically experienced managers from other professional organizations, and because of their knowledge, independence, objectivity, and legal standing, they can be effective governance tools to reduce agency costs and protect shareholders' value.

The ownership structure of a company has a significant impact on how well the monitoring mechanisms employed to prevent earnings manipulation work. A strong ownership structure restricts EM practices (Nguyen et al., 2021). Different businesses have various ownership structures. Different ownership structures have an impact on how a firm performs, the level and type of management control, and other factors (Moradi & Nezami, 2011). The ownership structure is

determined by managerial ownership, institutional ownership (Alvin & Susanto, 2022), concentration ownership (Nguyen et al., 2021), and government ownership (Gaio & Pinto, 2018). Institutional ownership refers to shares held by corporate entities that will assist management in learning how to conduct itself professionally in accordance with accountability, equality, and transparency. This ownership may restrict management from practicing earning management, which in turn causes low earning quality (Alvin & Susanto, 2022).

Furthermore, the company management is under the control of institutional investors. Institutional investors include large institutions like banks, insurance companies, investment firms, and others. Different companies have a variety of stockholder combinations. Every business has minor stockholders, or natural people, and major professional stockholders. The minor stockholders mostly depend on information that is made publicly accessible, such as published financial statements, to monitor management performance. While the major stockholders have some privileges, such as direct communication with the management, they have access to important internal information regarding the future viewpoint, business strategies, and other topics. It is generally believed that the existence of institutional stockholders could alter how other investors behave (Moradi & Nezami, 2011). Since the failures and financial scandals of many of the largest firms throughout the world, particularly in the United States of America, interest in the subject of earnings quality has intensified (Al-Maini, 2011), such as the collapse of Enron. It was one of the top 10 American corporations. In the months that followed, more and more information exposing the flaws and dishonest behaviour of corporate governance came to light. Enron's corporate governance was generally lacking in practically every way. As a result, the board of directors is made up of a lot of morally deficient individuals. Additionally, they frequently accept participation in fraud. The lack of corporate governance at the corporation has its true source in this

(Dibra, 2016). Additionally, according to the shareholders, the company's profit distribution policy is considered one of the most important indicators that demonstrate the efficiency of companies for operational operations due to its direct impact on maximising their wealth (El-Taai & Ali, 2018).

## **2 Literature Review and Hypothesis Development**

This part discusses the most significant earlier studies that are related to the current study, which investigated the Relationship between Board Independence, Institutional Ownership, and Earnings quality. To achieve this, the researcher will categorize it into two groups, as follows:

### **2.1 The effect of board independence on Earnings Quality**

There has been a lot of prior research on the effect of board independence on earnings quality. The findings were mixed; some research showed a positive correlation, others found a negative one, and others did not find a statistically significant relationship. The study of (Mohammed & Kurawa, 2021) examined the effect of earnings quality on the relationship between corporate board characteristics including board independence and the value of listed insurance companies in Nigeria. The study used a sample of 15 insurance companies that are listed on the Nigerian stock exchange. The researcher used descriptive data analysis and Monte Carlo's test. The results indicate that board independence has significant positive effects on earnings quality. The study concludes that the earnings quality of Nigerian insurance firms is positively influenced by the rise in the proportion of independent directors on the board.

In the same context, Almomania et al (2020) attempted to investigate the relationship between board independence and earnings quality. A sample of 38 companies was used between 2010 and 2019 with a total of 380 observations. The researchers used a modified Jones model to measure earnings quality. The study results revealed that board independence has a significant positive effect on earnings quality, which means that it helps reduce earnings management

practices. Unlike the study of (Al-Othman & Al-Zoubi, 2019) investigated the effect of the board of directors' characteristics on earnings quality. The researcher used a sample of 33 industrial companies listed on the AES between 2011 and 2017 with a total of 231 observations to support the study. This study examined the board of directors' characteristics, including board independence and other characteristics. The researcher used the total accruals to calculate earnings quality. The SPSS data analysis is used, including (Multiple regression analysis, Skewness, and kurtosis test) coupled with descriptive analysis, to analyze the data. The findings show that board independence did not affect earnings quality. While the study of (Alqatan et al., 2019) examined how a board's independence may impact earnings management following the adoption of International Financial Reporting Standards (IFRS). The regression analysis is used for this study. Considering a sample of Chinese-listed firms from 2003 to 2013, except 2007, for the four years before and the six years after the adoption of IFRS. The findings indicate that board independence significantly decreased earnings management in China following the adoption of IFRS. However, the study of (El-shahid & EL Kurdi, 2018) provided evidence that there was no significant correlation between board independence and earnings quality. The study was supported by a sample of 13 Jordanian commercial banks with a total of 91 observations from 2007 to 2013.

Unlike the study of (Al-dhamari & Ku Ismail, 2014) who studied the relationship between Board Characteristics and Earnings Quality in Malaysia. The researchers used board independence as one of the Board Characteristics. The study sample consists of 330 companies listed on Bursa Malaysia's primary market between 2008 and 2009. The researchers used the pooled models to measure the earnings proxies, such as earnings persistence, earnings predictability, and earnings informativeness. The findings indicate a positive relationship between board independence and earnings quality as investors in companies with an independent chairperson

are more capable of assessing the sustainability, predictability, and usefulness of earnings numbers. While, the study of (Koevoets, 2017) aimed to analyze the relationship between board independence and earnings quality in the USA. The study sample is based on data from American firms between 2007 and 2015. The researcher used the McNichols (2002) model to measure earnings quality. According to the findings, board independence and earnings quality are negatively correlated. The findings suggest that excessive board independence results in a deficiency of inside information, which reduces the board's monitoring quality. As a result, businesses with a high percentage of independent directors and poor profit quality may decide to add additional dependent directors in an attempt to enhance their quality.

However, Hermawan & Adinda (2012) investigated the effect of board characteristics on earnings quality. The researchers used a sample of 111 Indonesian State-Owned Enterprises during 2009 and 2010. The researchers used the Jones model (1991) as a measurement of earnings quality in the study. The study provided evidence that board independence increases earnings quality, which means that the effectiveness of the board's supervisory role increases with board independence, allowing for a decrease in earnings management.

On the contrary, the study of (Hashim & Devi, 2008) examined the relationship between board characteristics including board independence and earnings quality. The study sample consists of 280 non-financial firms listed on Bursa Malaysia's Main Board for the year 2004. The findings indicate that there is no significant relationship between board independence and earnings quality.

Considering the previous studies that analyzed the relationship between board independence and earnings quality, the researcher recognized that the connection between board independence and earnings quality varied based on the earlier studies' results. The researcher expects that board

independence has a significant effect on earnings quality. consequently, the first research hypothesis can be written as follows:

H1: There is a significant relationship between board independence and earnings quality

## **2.2 The relationship between Institutional Ownership and Earnings Quality**

The study of (Alvin & Susanto, 2022) revealed that institutional ownership has no effect on earnings quality. The study used a sample consisting of 45 companies listed on the Indonesia Stock Exchange between 2014 and 2020. While, the study of (Oyebamiji, 2021) aimed to test the effect of ownership structure on earnings quality in Nigeria. The study sample consists of 10 financial firms listed on the Nigerian Stock Exchange between 2009 and 2018. The researcher used pooled ordinary least squares and random effect estimation techniques to analyze the data. The study involved institutional ownership as a proxy of ownership structure to examine its association with earnings quality. The study concluded that institutional ownership has a significant positive relationship with earnings quality which means that institutional ownership enables the improvement of earnings quality.

However, the study of (Abd Alhadi et al., 2020) investigated the effect of institutional ownership on earnings quality after the implementation of IFRS. The study used 2090 observations between 2007 and 2016 in Malaysia to support the study. The results revealed that there is no relationship between institutional ownership and earnings quality.

On the contrary, the study of (Hassan, 2017) investigated the effect of ownership structure including institutional ownership on earnings quality. The researcher used the modified Jones model to calculate earnings quality. The study was supported by a sample of 70 Egyptian companies. The empirical findings revealed that there is a significant positive relationship between institutional ownership and earnings quality. This demonstrates the



long-term nature of institutional investments, which in turn creates an incentive for corporate supervision, controls managing behavior, lowers manager manipulation, and improves earnings quality.

While, the study of (Sadjiarto et al., 2019) provided evidence that institutional ownership has a positive impact on earnings management. The study was applied to a sample of 344 listed banks in Indonesia between 2010 and 2017.

In the same context, the study of (Alexander, 2019) intended to test the effect of ownership structure involving institutional ownership on earnings management. The study was supported by a sample of 36 companies between 2014 and 2016. The empirical results provide evidence that there is a positive relationship between institutional ownership and earnings management and in return a negative relationship with earnings quality, which means that the likelihood that management will engage in earnings management to maximize the value of its investment in a company increases with the amount of institutional ownership in that company.

On the contrary, the study of (Farouk & Bashir, 2017) provided evidence that institutional ownership has no significant effect on earnings management. The study was supported by a of sample the full group of six conglomerates that were listed on the Nigerian Stock Exchange between 2008 and 2014. While, the study of (Amos et al., 2016) examined how institutional ownership affected the earnings quality of publicly traded food, beverage, and tobacco companies in Nigeria. The study used the Pearson correlation technique and Multiple regression techniques to analyze the data. The sample size includes 16 firms between 2005 and 2013. The study results revealed that there is a significant positive impact of Institutional ownership on earnings quality. The researcher concludes that institutional investors who own stock in a company serve as a crucial monitoring and control mechanism that aids in preventing manager abuses and other

irregularities; it has improved the firms' earning quality; reduced fraud; maximized shareholders' wealth; and increased the value of the firms.

Also, the study of (Saleem Salem Alzoubi, 2016) provided evidence that institutional ownership has a negative effect on earnings management and it aids in enhancing earnings quality, this is because institutional investors invested a huge amount of money, and it was assumed that they would actively monitor their assets. The study was supported by a sample of 69 companies listed on ASE between 2006 and 2013.

Along the same line, in 2015 (Alaryan) investigated the relationship between ownership structure and earnings quality. The researcher used institutional ownership as a measure of ownership structure. The study used a sample of 48 companies listed at ASE between 2009 and 2013. The study found that institutional ownership and earnings quality are positively correlated, the findings demonstrate that firms with higher institutional ownership are better at influencing management's behavior and improving earnings quality.

Also, the study of (Moradi & Nezami, 2011) analyzed the effect of ownership centralization and institutional ownership on earnings quality. The research sample includes listed 114 firms on the Tehran stock exchange between 2006 and 2010. The researcher used institutional ownership as a measure of ownership structure. According to the findings, there is a negative relationship between institutional ownership and earnings management which means that there is a positive relationship between institutional ownership and earnings quality.

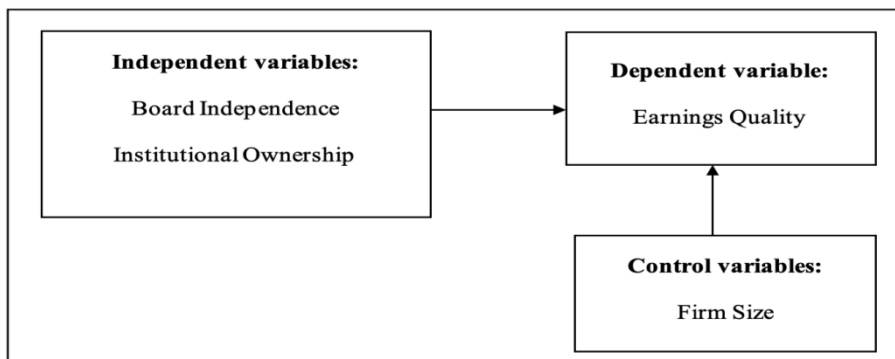
Considering the previous studies that examined the relationship between institutional ownership and earnings quality, the researcher can expect that there is a relationship between the two variables in addition to the existence of conflicting results regarding the direction of the association between them in previous studies. The researcher intends to investigate the study in the Egyptian Stock Market by formulating the following fourth hypothesis:

H2: There is a significant relationship between institutional ownership and earnings quality.

### 3 Research Design and Methodology

#### 3.1 Research Conceptual Framework

The following figure shows the conceptual framework of the research which clarifies the relationship between the independent variables and the dependent variable:



**Figure 1: The relationship between Board Independence, Institutional ownership, and earnings quality.**

#### 3.2 Data Collection and Study Sample

The research data was collected from Mubashir Egypt website (<https://www.mubasher.info/countries/eg/stock-prices>) and the Egyptian Stock Exchange website (<https://www.egx.com.eg/en/ListedStocks.aspx>), and the company websites. The data was gathered using the company's annual reports including corporate governance reports, BOD reports, and financial statements. The research population consists of EGX100 from 2017 to 2021. The study sample includes 58 Egyptian companies that are listed on the Egyptian Stock Exchange and the total number of observations is 290 observations. however, the other companies have been excluded due

to the missing data. Banks, insurance companies, and businesses in the financial services industry are not included in the study sample due to the unique nature that regulates their institutions, they must adhere to certain criteria and regulatory regulations. The study will use the Spearman correlation coefficient and pooled panel model to analyze the data.

### 3.3 Research Model

The following equations will represent the relationship between the independent and dependent variables:

Model (1) to test the effect of board independence on earnings quality (H1):

$$EQ_{it} = \beta_0 + \beta_1 BI_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \varepsilon_{it}$$

Model (2) to test the effect of institutional ownership on earnings quality (H2):

$$EQ_{it} = \beta_0 + \beta_1 INSTOWN_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \varepsilon_{it}$$

As;

$\beta_0$ : refers to the estimated constant term.

$\beta_1, \beta_2, \beta_3$ : Parameters to be estimated, namely Beta

BI: board independence

INSTOWN: Institutional Ownership

$t$ : refers to the year.

$i$ : refers to the company.

### 3.4 Variables Measurement

Table 1: clarifies the measurement of the variables as follows:

Variables	Abbreviation	Measurement	Ref.
Board independence	BI	no of independent members\ no of board members	(Abo Ads et al.,2020)
Institutional ownership	INSTOWN	Percentage of shares held by institutional investors to the total number of a firm's shares.	(Alghadi et al., 2021)
Earnings quality	EQ	Total Accruals (TAC)= Discretionary accruals (ANAC) + Non-discretionary accruals (NAC)	Measured by the modified Jones model (Alsunaidi &

		<p>And that will be calculated using 3 steps:</p> <p><u>Step1:</u>  <math>TAC_t = NIBX_{it} - CFO_{it}</math></p> <p><u>Step2:</u></p> <p>a) to calculate the estimation values of <math>\alpha</math></p> $\frac{TAC_t}{A_{it-1}} = \beta_0 + \beta_1 \left( \frac{1}{A_{it-1}} \right) + \beta_2 \frac{(\Delta REV_T - \Delta REC_T)}{A_{it-1}} + \beta_3 \left( \frac{PPE_{it}}{A_{it-1}} \right) + \varepsilon$ <p>b) <math>NAC_{it} = \beta_1 \left( \frac{1}{A_{it-1}} \right) + \beta_2 (\Delta REV_T - \Delta REC_T) + \beta_3 (PPE_{it})</math></p> <p><u>Step3:</u>  <math>ANAC_{it} = TAC_{it} - NAC_{it}</math></p> <p>“The lower the absolute value of earnings quality based on its average, the higher the profit quality”.</p>	Mohammed, 2022)
<b>Control Variables</b>			
Firm size	SIZE	Natural logarithmic of TA=Ln(TA)	(Asiriwa et al ., 2019)
Leverage	LEV	Total liabilities / TA	(Soliman, 2019)

**Source: by the researcher**

## 4 Results and Discussion

The main study variables will be analyzed in order to determine measures of central tendency like mean, maximum and minimum values, and their measures of dispersion, standard deviation and coefficient of variation for each variable.

**Table (2): Variables descriptive analysis.**

Variable	N	Minimum	Maximum	Mean	Standard Deviation	Coefficient of Variation
Institutional Ownership	290	0.00	0.79	0.20	0.23	1.12
Board independence	290	0.00	0.86	0.25	0.20	0.81
Earnings Quality	290	0.00	0.63	0.06	0.08	1.39
Company Size	290	0.00	24.86	21.26	2.19	0.10
Leverage	290	0.00	30.12	0.59	1.97	3.34

**Source: prepared by the researcher from E-views software output.**

From Table (2) it is concluded that:

- All study variables have 290 observations which means that there is no missing data.
- The independent variable Institutional Ownership has a minimum value of 0.00 and maximum value of 79 with an arithmetic mean of 0.20, and its standard deviation is 0.23 and coefficient of variation of 112% which indicates a high level of dispersion of values around the arithmetic mean.
- The independent variable Board independence has a minimum value of 0.00 and maximum value of 0.86 with an arithmetic mean of 0.25, and its standard deviation is 0.20 and coefficient of variation of 80% which indicates a moderate level of dispersion of values around the arithmetic mean.
- The dependent variable Earnings Quality has a minimum value of 0.00 and maximum value of 0.63 with an arithmetic mean of 0.06, and its standard deviation is 0.08 and coefficient of variation of 139% which

indicates a high level of dispersion of values around the arithmetic mean.

- The control variable Company Size has a minimum value of 0.00 and maximum value of 24.86 with an arithmetic mean of 21.26, and its standard deviation is 2.19 and a low coefficient of variation of 10% which indicates a low level of dispersion of values around the arithmetic mean.
- The control variable Leverage has a minimum value of 0.00 and maximum value of 30.12 with an arithmetic mean of 0.59, and its standard deviation is 1.97 and coefficient of variation of 334% which indicates a high level of dispersion of values around the arithmetic mean.

#### 4.1 Correlation Matrix

After applying test of normality for the main dimensions of the independent, control and the dependent variables of study and founding the study variables don't follow the normal distribution, So Spearman correlation coefficient will be the most appropriate coefficient for determining the relation strength and direction between each two variables, then the correlation coefficient is tested by a t-test which its null hypothesis states that correlation does not exist if the test *p-value* is greater than 0.05.

**Table (3): Spearman correlation coefficient matrix**

Variable	Institutional Ownership	Board independence	Earnings Quality	Company Size	Leverage
Institutional Ownership	1				
P-value	-				
Board independence	-0.153**	1			
P-value	0.009	-			
Earnings Quality	-0.148*	0.154**	1		

P-value	0.012	0.009	-		
Company Size	0.057	-0.119*	-0.003	1	
P-value	0.331	0.044	0.964	-	
Leverage	0.164**	0.033	0.237**	-0.084	1
P-value	0.005	0.576	0.000	0.155	-

**Source: prepared by the researcher from E-views software output.**

From Matrix (3) it is concluded that:

- There is a significant, inverse and weak relation between Institutional Ownership and Earning Quality of correlation value -0.148 and *P-value* 0.012.
- There is a significant, direct and weak relation between Board independence and Earning Quality of correlation value 0.154 and *P-value* 0.009.
- There is an insignificant, inverse and weak relation between Company Size and Earning Quality of correlation value -0.030 and *P-value* 0.964.
- There is a significant, direct and weak relation between Leverage and Earning Quality of correlation value 0.237 and *P-value* 0.000.

#### 4.2 Testing the First Hypothesis:

The researcher will use the panel regression techniques to test the first hypothesis which states that: There is a significant relationship between board independence and earnings quality.

#### 4.3 Model Diagnostics:

The following table presents the diagnostics of the three-panel models to determine the most appropriate model for forecasting earning quality.



**Table (4): The pooled panel model diagnostics for the first hypothesis.**

Test	Purpose	Test-statistic result	p-value	Fitted panel model
<b>F-test</b>	Comparing between Pooled panel and Fixed Effect Panel	$F = 1.57178$	0.2075007	Pooled panel
<b>Breusch-Pagan test</b>	Comparing between Pooled panel and Random Effect Panel	$LM = 1.2669$	0.158626	Pooled panel
<b>Hausman test</b>				

**Source:** Prepared by the researcher depending on E-views software output.

From the previous table shows that the pooled panel model is the most fitted model to explains the impact of the independent on the dependent variables.

#### **4.4 Pooled Panel:**

The following table presents the pooled panel linear regression model for earning quality as a dependent variable and board independence as an independent variable in the presence of firm value and leverage as control variables to obtain the most fitted linear relation that can forecast the earnings quality on the long run.

**Table (5): The pooled panel model of earnings quality for the first hypothesis.**

Model	Pooled Panel	Dependent variable		Earning Quality
Independent variables	Coefficient	t-ratio	p-value	Significance
Constant	0.0132764	0.1674	0.8672	Insignificant
Board independence	0.0592096	2.584	0.0103	Significant
Company size	0.00111913	0.3070	0.7591	Insignificant
Leverage	0.00949248	4.034	<0.0001	Significant
F-test	7.912925	p-value		0.000044
Adjusted R-squared			6.7832%	

**Source:** Prepared by the researcher depending on E-views software output.

From table (5) it is concluded that:

- The overall pooled panel model is significant as the overall F-test for significance has a value of 7.912925 and *P-value* 0.000044 which is less than 0.05, with adjusted R-squared value of 6.7832% which means that the independent variables and the constant explain the change in the earnings quality by 6.7832%.
- Board independence and leverage have a direct and significant impact on earnings quality.
- Constant and firm size have an insignificant impact on earnings quality.
- The overall equation for forecasting the earnings quality is:

$$\begin{aligned} \widehat{\text{Earning Quality}}_{it} &= 0.0592096 \text{ Board independence}_{it} \\ &+ 0.00949248 \text{ Leverage}_{it} \end{aligned}$$

#### 4.5 Heteroscedasticity Test for Residuals Stability:

The regression models and the OLS method are based on several assumptions, including the constancy of homoscedasticity by which the mean should be equal to zero, and if the Heteroscedasticity variation is used,

some methods are used to overcome this problem, such as the White test. The null hypothesis is that the model has a problem of random error instability if *p-value* is less than 0.05.

**Table (6): Heteroscedasticity test for the first hypothesis.**

Overall test of Heteroscedasticity	Chi-square	P - value
	4.04916	0.908147

**Source: Prepared by the researcher depending on E-views software output.**

The above table shows that the chi-squared test of value 4.04916 has a *p-value* of 0.908147 which means accepting the null hypothesis which means that the study model does not suffer from the problem of random error instability.

#### **4.6 Ramsey Reset Test:**

This test is used to determine whether the model contains all the appropriate variables and excludes all irrelevant variables to ensure that the model estimated coefficients are not biased. This is done through the Ramsey RESET Test, and the decision criterion is to accept the null hypothesis that the study model includes all the appropriate variables *P-value* was greater than (0.05).

**Table (7): Ramsey Reset test for the first hypothesis.**

Ramsey RESET overall Test	F-test	P – value
	4.6965	0.985829

**Source: Prepared by the researcher depending on E-views software output.**

The above table shows that P-value for the F test is greater than (0.05), which means that the study model does not contain any inappropriate variables included in the model.

#### 4.7 Variance Inflation Factor (VIF) Test:

Minimum possible value equals to 1.0 and the values greater than 10.0 indicate a collinearity problem.

**Table (8): VIF of the independent and control variables for the first hypothesis.**

Variable	VIF
Board independence	1.015
Company size	1.047
Leverage	1.033

Source: Prepared by the researcher depending on E-views software output.

From the previous table it is concluded that there is no variable suffers from multi-collinearity as the VIF values don't exceed 10.

#### 4.8 Normality of Residuals:

The following table presents the normal distribution of residuals as the model residuals must follow the normal distribution in the long run with mean equals zero and variance equals one.

**Table (9): Normality of residuals for the first hypothesis.**

Chi-square test of Normality	Test	P – value
	1.23	0.28101170

**Source: Prepared by the researcher depending on E-views software output.**

From the previous table shows that the chi-square test of normality its p-value is 0.28101170 which is greater than 0.05 which means that residuals are normally distributed.

#### 4.9 Testing the second Hypothesis:

The researcher will use the panel regression techniques to test the second hypothesis which states that: There is a significant relationship between Institutional Ownership and earnings quality.

#### 4.10 Model Diagnostics:

The following table presents the diagnostics of the three-panel models to determine the most appropriate model for forecasting earning quality.

**Table (10): The pooled panel model diagnostics for the second hypothesis.**

Test	Purpose	Test-statistic result	p-value	Fitted panel model
F-test	Comparing between Pooled panel and Fixed Effect Panel	F = 2.0113	0.000161891	Fixed effect
Breusch-Pagan test	Comparing between Pooled panel and Random Effect Panel	LM = 15.3264	9.04427e-005	Random effect
Hausman test	Comparing between Fixed effect and Random Effect Panel	H = 1.67347	0.642849	Random effect

**Source: Prepared by the researcher depending on E-views software output.**

From the previous table shows that the Random model is the most fitted model to explains the impact of the independent on the dependent variables.

#### 4.11 Random Panel:

The following table presents the pooled panel linear regression model for earning quality as a dependent variable and Institutional Ownership as

an independent variable in the presence of firm value and leverage as control variables to obtain the most fitted linear relation that can forecast the earnings quality on the long run.

**Table (11): The Random panel model of earnings quality for the second hypothesis.**

Model	Random effect	Dependent variable		Earning Quality
Independent variables	Coefficient	Z	p-value	Significance
Constant	0.0603141	1.290	0.1972	Insignificant
Institutional Ownership	-0.0682531	-2.733	0.0063	Significant
Company size	0.000219358	0.1006	0.9199	Insignificant
Leverage	0.0103886	4.431	<0.0001	Significant
F-test	9.765550	p-value		3.74e-06
Adjusted R-squared			8.3403%	

**Source: Prepared by the researcher depending on E-views software output.**

**From table (11) it is concluded that:**

- The overall Random effect panel model is significant as the overall F-test for significance has a value of 9.765550 and *P-value* 3.74e-06 which is less than 0.05, with adjusted R-squared value of 8.3403% which means that the independent variables and the constant explain the change in the earnings quality by 8.3403%.
- Institutional Ownership has negative and significant impact on earnings quality.
- Leverage have a direct and significant impact on earnings quality.
- Constant and firm size have an insignificant impact on earnings quality.
- The overall equation for forecasting the earnings quality is:

$$\begin{aligned}\widehat{\text{Earning Quality}}_{it} &= -0.0682531 \text{ Institutional Ownership}_{it} \\ &+ 0.0103886 \text{ Leverage}_{it}\end{aligned}$$

#### 4.12 Heteroscedasticity Test for Residuals Stability:

The regression models and the OLS method are based on several assumptions, including the constancy of homoscedasticity by which the mean should be equal to zero, and if the Heteroscedasticity variation is used, some methods are used to overcome this problem, such as the White test. The null hypothesis is that the model has a problem of random error instability if *p-value* is less than 0.05.

**Table (12): Heteroscedasticity test for the second hypothesis.**

Overall test of Heteroscedasticity	Chi-square	P - value
	9.12949	0.425408

**Source: Prepared by the researcher depending on E-views software output.**

The above table shows that the chi-squared test of value 9.12949 has a *p-value* of 0.425408 which means accepting the null hypothesis which means that the study model does not suffer from the problem of random error instability.

#### 4.13 Ramsey Reset Test:

This test is used to determine whether the model contains all the appropriate variables and excludes all irrelevant variables to ensure that the model estimated coefficients are not biased. This is done through the Ramsey RESET Test, and the decision criterion is to accept the null hypothesis that the study model includes all the appropriate variables *P-value* was greater than (0.05).

**Table (13): Ramsey Reset test for the second hypothesis.**

Ramsey RESET	F-test	P – value
overall Test	3.93695	0.0505815

**Source: Prepared by the researcher depending on E-views software output.**

The above table shows that P-value for the F test is greater than (0.05), which means that the study model does not contain any inappropriate variables included in the model.

#### **4.14 Variance Inflation Factor (VIF) Test:**

Minimum possible value equals to 1.0 and the values greater than 10.0 indicate a collinearity problem.

**Table (14): VIF of the independent and control variables for the second hypothesis.**

Variable	VIF
Institutional Ownership	1.012
Company size	1.047
Leverage	1.033

**Source: Prepared by the researcher depending on E-views software output.**

From the previous table it is concluded that there is no variable suffers from multi-collinearity as the VIF values don't exceed 10.

#### **4.15 Normality of Residuals:**

The following table presents the normal distribution of residuals as the model residuals must follow the normal distribution in the long run with mean equals zero and variance equals one.



**Table (15): Normality of residuals for the second hypothesis.**

Chi-square test of Normality	Test	P – value
	1.74	0.81705165

**Source: Prepared by the researcher depending on E-views software output.**

From the previous table shows that the chi-square test of normality its *p-value* is 0.81705165 which is greater than 0.05 which means that residuals are normally distributed.

The researcher concluded the results by the following points:

- As the study variables are not normally distributed, the Spearman correlation coefficient is the most suitable coefficient for determining the linear relationship between the independent, dependent, and control variables.
- There is a significant direct relationship between board independence and earnings Quality
- There is a significant negative relationship between institutional ownership and Earnings Quality.

## 5 Conclusion

This research investigated the effect of Board Independence and Institutional ownership on Earnings Quality. The study used a sample that consists of the most active 58 Egyptian companies that are listed on the stock exchange between 2017 and 2021 with 290 observations. The sample compromise of many sectors includes real estate, food and beverage, construction material, chemicals, tourism, basic resources, personal and household, health care, media, oil and gas, travel, and capital goods.

The study findings of the H1, show a significant positive relationship between board independence and Earnings Quality. This result is consistent with the

results of (Mohammed & Kurawa, 2021) & (Almomania et al, 2020), (Al-dhamari & Ku Ismail, 2014), (Hermawan & Adinda, 2012), as they concluded that board independence and earnings quality have a significant positive relationship. Whereas, the studies of (Alqatan et al., 2019) & (Koevoets, 2017) show a significant negative relationship between Board Independence and Earnings Quality. While, the findings of (Al-Othman & Al-Zoubi, 2019), (El-shahid & EL Kurdi, 2018), And (Hashim & Devi, 2008) disagreed with our findings as they agreed that there is an insignificant relationship between Board Independence and Earnings Quality.

Additionally, the empirical findings of H2 indicated that Institutional Ownership has a significant negative relationship with earnings Quality. This result is consistent with the results of (Sadjiarto et al., 2019) & (Alexander, 2019). The researchers clarify that, as the more institutional ownership in a company, the more likely it is that management will engage in earnings management to obtain a higher return from its investment.

Whereas, the studies of (Oyebamiji, 2021), (Hassan, 2017), (Amos et al., 2016), (Saleem Salem Alzoubi, 2016), (Alaryan, 2015) & (Moradi & Nezami, 2011) show a significant positive relationship between Institutional Ownership and earnings Quality. While, the studies of (Alvin & Susanto, 2022), (Abd Alhadi et al., 2020) & (Farouk & Bashir, 2017) 2018; Khalil et al., 2016) contradicted our findings as they showed that there is an insignificant relationship between Institutional Ownership and Earnings Quality.

## **6 The study limitation**

The research focuses mainly on one particular aspect of the board of director characteristics, which is Board Independence. Similarly, The research focuses on one type of ownership structure which is Institutional ownership. To fulfill the research objectives, the study is restricted to a sample of listed companies on the Egyptian Stock Exchange from 2017 to 2021.

The study's sample comprises companies listed on the Egyptian Stock Exchange, with the exclusion of banks, insurance institutions, and financial service providers due to the distinctive regulatory framework governing these industries due to the lack of access to information. Additionally, the researcher employed the modified Jones model only as a method for the analysis and calculation of Earnings Quality. Furthermore, as the results only apply to Egyptian companies, they cannot be applied to other countries.

## **7 Recommendation**

The results of the study on board characteristics and earnings quality may be useful to the Egyptian regulatory bodies to place more enhancement of corporate governance effectiveness. Additionally, it might draw attention to the importance of the board of directors' role in the quality of financial reports among professionals (investors, bankers, etc.) in industrial businesses.

## **8 Future researches**

After reviewing the findings of the current investigation, the researcher suggests a number of additional studies that might be undertaken in order to further the current study.

- The effect of board duality and family ownership on earnings quality
- The impact of governmental ownership on earnings quality
- The relationship between board diversity and earnings quality

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