

# Governance boards of trustees: quality of higher education and the outputs of scientific research

Governance  
boards of  
trustees of  
universities

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## Abstract

**Purpose** – This study investigates whether there are relationships between the characteristics of the boards of trustees of universities in the Arab region, higher education quality assurance and the output of scientific research.

**Design/methodology/approach** – The descriptive analytical approach was used in this study. The study was conducted on the universities of the Arab region that are included in the classification of the British Institution for the Arab Region: QS Arab Region University.

**Findings** – The findings show that there is an effect of the characteristics of the trustees combined in the universities of the Arab region on ensuring the quality of higher education, other than the output of scientific research. The findings also indicate when measuring the characteristics individually that the trustee system is not effective in the Arab region and it is only formal for nominal purposes.

**Research limitations/implications** – Most universities in the Arab region do not disclose the data of boards of trustees, their roles, committees, rules of procedure and the nature of their work. A large number of universities also do not operate under the trustee system because the regulations and instructions do not allow this in the country.

**Practical implications** – This study seeks to improve practitioners knowledge, including boards of trustees, in ensuring the quality of higher education and the output of scientific research.

**Originality/value** – The research projected the governance model through the characteristics of the boards of directors of for-profit companies on the boards of trustees of universities in the Arab region. The study examines the nature of the characteristics of the boards of trustees that are compatible with its responsibilities, the most important of which is the supervision of the strategy to ensure the quality of higher education research.

**Keywords** University governance, Boards of trustees, Higher education quality assurance, Scientific research output

**Paper type** Research paper

## Introduction

The interest in moving from the traditional method of governance to following the methods of governance began more than two decades ago, especially with the development of



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convictions regarding the positive impact of governance methods on higher education and scientific research (Leisyte, 2007). Universities are considered a source of great development in human societies, especially in light of the rapid progress in our current era, as it has turned from a mere productive place for knowledge and science to institutions that seek to produce human resources capable of being a source of development and community development (Berqaan and Al-Qurashi, 2012). Higher education institutions must build an internal governance model that includes all the diverse elements associated with the university, to reach structures and processes that support effective decision-making and flexible and sustainable management (Estermann *et al.*, 2021).

Higher education in the Arab world is subjected to several criticisms by international institutions including the World Bank and the United Nations Development Program. This is because it is behind its counterparts in developed countries, and the gap between learning and employment (Sabri, 2010). Higher education in the Arab world faces many challenges, including funding, compared to population growth, the rate of enrolment in universities and the high costs of higher education (Mediani and Talhawi, 2018). It is believed that the classification of Arab countries is still lagging according to the classification: QS Arab Region University Rankings 2021, where King Abdulaziz University in Saudi Arabia ranked first among the Arab countries, while it ranked 143 globally (QS top universities, 2021).

Attempts to reform higher education and scientific research in Arab countries have not yet yielded actual results. Because it has not kept pace with the human capital requirements necessary for economic development efforts to the extent and type required. The percentage of universities allocated to individuals is still less than the global average (Mediani and Talhawi, 2018). The centralisation of power in the universities of the Arab world has caused several negative repercussions on the efficiency and effectiveness of these institutions. This is also related to the lack of spending on scientific research and the failure to give it the necessary attention (Boukraa and Boukassas, 2018). Hence, the issue of higher education reform in the Arab world has assumed great importance in the corridors of academic and scientific councils. This study focuses on highlighting the role of the characteristics of boards of trustees as indicators of governance and tries to monitor their impact on ensuring the quality of education and the output of scientific research.

### **Organisation of the paper**

The study is divided into eight parts including the problem of the study, the importance and objectives of the study, the theoretical framework, the methodology, the results, testing hypotheses, the discussion and finally the conclusions and recommendations.

### **The research problem**

The International Association of Universities Governing Bodies emphasises the need for institutions to constantly improve their management and align their governing model to meet challenges in higher education. It is also vital to discuss the autonomy of universities and which allows for development and competition. This remains subject to the higher education policies adopted by states, through their direct supervision, to ensure the quality of higher education (Hénard and Mitterle, 2010). Scientific research practices are affected by economic, social and political external influences. The most important of which is the quality of leadership in universities and the extent of their commitment to governance standards (Leisyte, 2007). Therefore, boards of trustees are necessary for the university management process, as they involve all stakeholders in the management of higher education and scientific research operations. Universities that are managed traditionally, through internal committees, and the academic side dominated most decisions from the failures in their

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outputs. As a result, the presence of the Board of Trustees gives universities a state of independence that provides a free atmosphere for scientific research and knowledge production (Razia *et al.*, 2019). This study seeks to ascertain the application of the principles of governance (represented by the characteristics of boards of trustees) in universities in the Arab region. This supports ensuring the quality of higher education and the output of scientific research.

### **The importance and objectives of the study**

This study came to shed light on the characteristics of boards of trustees, their role in ensuring the quality of education and the output of scientific research in universities in the Arab region. This contributes to strengthening institutional reform in Arab universities, which is positively reflected in the efficiency and effectiveness of performance and the quality of services provided in these universities. This can be achieved through the development of administrative and leadership systems within Arab universities. These patterns, in turn, help develop the outputs of higher education institutions and ensure the achievement of efficiency in the quality of education and the output of scientific research. The outputs of this study also help decision-makers and practitioners in the ministries of higher education to apply the best indicators of governance of boards of trustees.

### **Theoretical framework**

Higher education and scientific research occupy an important place in all countries of the world, especially in developed countries. It is noticeable that they occupy an advanced position in financing and investment, and many emerging countries have begun in recent years, such as India, China, Malaysia and Brazil. This leads to an increase in their interest in universities and various research centres. China recently became the second largest country after the United States, in terms of higher education, creativity and scientific innovation. Among the most important systems used in the development of the higher education sector is the so-called university governance, which is characterised by a set of foundations and principles that allow advancement and development of university institutions (Masoudi, 2018).

The university's governance constitutes a general framework through which the institution seeks to achieve its goals and policies in a state of coherence and homogeneity. It controls the direction of the daily procedures and activities of the institution's executive branch and generates interest in certain aspects. This includes aspects of the quality assurance system that are difficult to implement, due to its reliance on evaluation, which resulted in an approximate match with the desired university quality characteristics (Shibli and Mohsen, 2020). Therefore, advisory bodies were set up at different levels, to provide expertise to university governance. Some councils have set them up, in response to a project logic, and include a quality assurance component (Razia *et al.*, 2019; Estermann *et al.*, 2021).

The administration undertaken by the Board of Trustees is considered the most powerful tool for managing modern universities. Universities are granted autonomy, which creates a free environment for scientific research and knowledge production. Key Functional Activities is one of the most important policy functions of Boards of Trustees, in addition to the Board of Trustees' emphasis on university research, is consistent with taking into account future strategic innovations (Mathies and Slaughter, 2013).

Most educational policies in developed and developing countries at present focus on developing a system of educational and administrative policies and programmes, to achieve excellence and quality in education (Sabri, 2010). The role of the Board of Trustees, in the educational field, is challenging due to harsh economic fluctuations, rapid development in

methods of government, and regulatory concerns (Hermalin, 2004). It is noted that universities and companies are very similar in terms of the structure, the organisational form and the legal role of the boards of trustees in universities and the boards of directors of companies (Brown, 2014).

Many international institutions have pointed out the need for universities to improve their management, and to follow the style of governance in education. The International Association of University Governing Bodies 2008 “emphasised the need for institutions to continually improve their governance and align their governance model to meet challenges in higher education” (Hénard and Mitterle, 2010). The development of education is associated with the requirements of the times and the needs of the market, and the development of higher education from the elite system to the global system, to meet Societal Demand and Quality Assurance (Çetinsaya, 2014).

As a result, there is a need for distinguished university leaders at the academic and administrative levels. This is vital to play their role in coordination with the rest of the stakeholders in the educational process. This has the potential to give them additional strength that enables them to lead the wheel of excellence. The Board of Trustees is mostly a body whose members are independent. This board is concerned with the planning of the university, providing financial support and formulating educational and research policies for the trustees providing autonomy to universities and creating an appropriate climate for scientific research and knowledge production (Awwad and Razia, 2021).

Several studies have dealt with some of the characteristics of boards of directors (in profit organisations), where the researcher carried out the process of projecting these characteristics on boards of trustees (in non-profit organisations). Several studies dealt with the issue of the link between the characteristics of boards of directors and boards of trustees, this is due to the similarity and overlap The greatness in its composition, role and nature of its formation, as what applies to boards of directors also applies to boards of trustees in terms of characteristics, form and purpose (Awwad and Razia, 2021; Xiaoxu, 2015; Brown Jr, 2014; de Andrés *et al.*, 2010).

Zalloum and Baqila (2021) examined some characteristics, such as the diversity of the gender of the members of the board of directors, and the size of the board of directors, and it was found that there is an adverse effect of the diversity of the gender of members on innovation, as well as the absence of an effect due to the size of the company. Maghribi (2020) found that there is a statistically significant effect of the independence of the council on the level of voluntary disclosure. The study also showed the presence of statistically significant differences due to the size of the council. Zabhoud (2019) indicated that there is a direct relationship between the size of the board and earnings management.

Abu Aqoula and Al-Daoud (2019) identified a positive statistically significant impact for each of the board members’ independence, the board members, and the gender of the board members on the delay in issuing the financial reports. Ali and Oudat (2021) indicated that there is a substantial relationship between the size of the board of directors, the independence of the board, the size of the bank and the performance of intellectual capital, while there is a marginal relationship between the number of board meetings, the diversity of the board of directors, the board’s experience and the performance of intellectual capital in Bahraini commercial banks.

There is a correlation between some characteristics of the board of directors (the independence of the board of directors, the size of the board, board meetings and duplication of roles) and the level of voluntary disclosure of banks in the annual reports listed on the Istanbul Stock Exchange. Milad and Bicer (2020) indicated that the independence of the board of directors and the size of the board meetings of the board of directors were positively and significantly related to the level of voluntary disclosure. To achieve the effectiveness of board meetings and whether they modify the relationship between the diversity of the board (in

terms of educational level and nationality) and the performance of intellectual capital. Al-Musali and Ismail (2015) showed that there was no effect of board diversity by increasing the number of board meetings. On the performance of intellectual capital and learning how gender diversity, ethnic diversity, the board size, board composition and foreign principals affect the financial performance of insurance companies listed on the Nigerian Stock Exchange.

Garba and Abubakar (2014) indicated that gender diversity and foreign managers have a positive impact on the performance of insurance companies and that there is a negative and important relationship between the composition of the board of directors and the performance of insurance companies in Nigeria. These results have positive repercussions in increasing the number of female directors on boards. Managing insurance companies in Nigeria will enhance their performance, but an increase in the proportion of external directors on the board will reduce performance (Abdulkareem *et al.*, 2023).

Regarding the possibility of managing public universities through the establishment of a Board of Trustees, the majority of participants believe that it will be successful in state universities with checks and balances. Trakman (2008) found that there is an increasing controversy between public universities in many language-speaking environments. One fear is that the crisis of governance will cause staff and students to flee to universities elsewhere, and the opposite fear is that if the crisis of governance is not revealed, the university will collapse from within, and “good” university management simply does not happen. It is usually the result of painstaking efforts to arrive at appropriate governance structures, protocols and processes related to “good” governance also timing and governance: require governing boards to understand when the governance model is not working, and why and how it is being reformed.

Shafee *et al.* (2020) indicated that there is a wide gap in the dimensions of quality and implementation between the two universities studied, so academic institutions and colleges must collect data on themselves and evaluate the educational process based on quality assurance standards for use in policymaking. Nasreddin (2012) stated that the reality of the application of governance in the University of the Middle East was generally high. With the presence of differences according to the different job positions, it was in favour of the faculty members. De Andrés *et al.* (2010) illustrated that board size and independence are not determinants of organisational efficiency, in contrast, managers’ ability to create value for the organisation is directly related to group participation or critical discussion derived from group members with heterogeneous knowledge.

It is noted that the boards of trustees express the extent of commitment to the application of governance in universities, and despite the importance of the subject, according to the researcher’s knowledge, there are no studies that address all its aspects, in terms of studying the combined characteristics in-depth. Arab studies do not study the boards of trustees in a specialised way. In addition to rooting the concept related to the characteristics of boards of trustees (in non-profit institutions), which were imported from boards of directors (in for-profit institutions). The hypotheses of the study are formulated as follows:

- H01.* There is no statistically significant effect of the characteristics of the Board of Trustees with its dimensions (the size of the board, the composition of the board, independence, the proportion of foreigners, diversity in specialisations, academic degree and work environment), in ensuring the quality of higher education in universities in the Arab region.
- H02.* There is no statistically significant effect of the characteristics of the Board of Trustees in its dimensions (the size of the board, the composition of the board, independence, the proportion of foreigners, the diversity in specialisations, the

## Methodology

### *Study population and sample*

The study population is represented in the universities of the Arab region. These universities are included in the classification of the British Institution for the Arab Region (QS Arab Region University Rankings, 2021), which are 160 universities. The purposeful sample of the study consisted of 50 universities distributed over nine Arab countries, which provided sufficient information for the characteristics of the boards of trustees for the year 2021.

### *Methods for measuring study variables*

The descriptive analytical approach is the most appropriate for the nature of the subject of the study and its variables. This is because the data used for statistical analysis, which are the characteristics of the boards of trustees in their dimensions, will be collected from the official websites of the universities of the Arab region, the subject of the study for the year 2021 (Garba and Abubakar, 2014; Mokhtar, 2016; Al-Khadash and Al-Washli, 2019; Maghribi, 2020). Data of QS Quacquarelli Symonds according to the classification of the QS Arab Region University Rankings was used to ensure the quality of higher education. The product of scientific research will be extracted from the Scopus database, and accordingly, the model function is formulated as follows:

$$Y_1 = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon$$

$$Y_2 = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon$$

whereas

$Y_1$ : Quality of higher education

$Y_2$ : The product of scientific research

$X_1$ – $X_7$ : Board of Trustees characteristics (the size of the board, the composition of the board, the independence of the board, the proportion of foreigners on the board, the academic degree of the board members, the background of the work environment for the board members and the diversity of specialisation for the board members)

$\beta_1$ – $\beta_7$ : The slop

$\varepsilon$ : Random error

### *Descriptive statistics for the study data*

Table 1 shows the descriptive analysis of the data, where the Skewness index appears for all variables with values less than 3, and the Kurtosis index for all variables with values less than 7. These are considered good indications since there are no problems with the data.

### *The statistical methods used in the study*

To conduct the appropriate analysis and answer the study questions and hypotheses, cross-section data was used. This type of data is collected by observing many subjects, at one point or period. The analysis may not give any consideration to the differences in time. The analysis consists of cross-section data, usually from a comparison of differences between

**Table 1.**  
Results of the descriptive analysis of the study variables

Variable	Mean	Median	Minimum	Maximum	Std. dev.	Skewness	Ex. kurtosis
Bsize	0.02	0.017	0.009	0.052	0.008	1.833	4.526
BComposition	0.12	0.1	0	0.5	0.128	0.977	0.359
Independence	0.901	0.92	0.62	1	0.088	-1.784	3.116
Nationality	0.138	0	0	0.9	0.248	1.918	2.681
Bachelor	0.293	0.28	0	0.67	0.150	0.404	-0.345
Master	0.11	0.07	0	0.42	0.134	1.131	0.184
Phd	0.597	0.59	0.22	1	0.193	-0.04	-0.931
Academic	0.437	0.425	0.12	0.8	0.157	0.288	-0.172
Business	0.315	0.3	0.00	0.8	0.198	0.364	-0.278
Legalpersons	0.409	0.395	0.00	0.92	0.241	0.191	0.571
Diversity	0.732	0.73	0.5	1	0.109	0.105	-0.188
QS	1	1.007	0.013	2.08	0.629	0.019	-1.208
Scopus	2.012	1.961	0	3.622	0.651	-0.214	1.142

**Note(s):** The data was collected from the websites of Arab universities, the Scopus and the QS for the year 2021

**Source(s):** Authors' work

selected subjects, which was statistically processed with a multi-platform software package for econometric analysis (Gretl), written in the programming language "C". The validity of the general model hypotheses and multiple linear regression analysis will be tested.

## Results

### *Multiple regression model validity tests*

Building a multiple linear regression model, which corresponds to the nature of the data cross-section data, requires several assumptions and conditions to ensure the ability to generalise the results. This includes the condition of the independence of the independent variables from each other (multicollinearity). This means that there is no high correlation between the independent variables about each other. The imbalance of this condition causes the problem of coupling linearity. This condition was also verified using the Variance Inflation Factor (VIF) test. As the VIF is less than. This indicates that there is no problem with coupling linearity in the model and therefore supports the quality of the proposed model. The condition of the normal distribution of the study variables was also verified using the Kolmogorov–Smirnov test. The results indicated that the statistical significance (SIG) for all study variables is greater than the significance level of 0.05. Thus, the distribution of the data follows a normal distribution, and the Breusch–Pagan test was used for heteroscedasticity. The results show that the statistical significance (SIG) for all study variables is greater than the significance level of 0.05. Thus the distribution of data for these variables follows a random and heterogeneous distribution of variance (see [Table 2](#)).

### *Correlation test*

The Bivariate Pearson Correlation test was used to ascertain the degree of correlation of each variable with the other variables. This test enhances the degree of ascertainment of the independence of the variables and their non-interference with each other, and thus their validity and readiness for regression analyses. [Table 3](#) shows that the strength of the correlation between the study variables does not exceed 80%. Therefore, there is no indication of problems in the data.



**Table 2.**  
Results of tests for the validity of the multiple regression model hypotheses

Variables	Test value	SIG	VIF	
Board size	1.234	0.095	1.956	
Female proportion	0.425	0.994	1.398	
Percentage of freelancers	0.727	0.665	1.105	
Percentage of foreigners	0.682	0.741	2.108	
Diversity rate in specialisation	0.526	0.945	1.626	
Degree	Bachelor's degree or less	0.876	0.427	1.471
	Master's	0.810	0.528	1.324
	Ph.D. and above	0.878	0.423	2.768
Work environment background	Academic	0.602	0.862	1.256
	Business	0.432	0.992	1.331
	Legal persons	0.747	0.632	1.348
Breusch-Pagan	<i>Unadjusted R<sup>2</sup></i>	<i>F</i>	<i>SIG</i>	
	0.351	17.598	0.613	

**Source(s):** Authors' work from the results of the SPSS program

### Hypothesis testing

To answer the first main hypothesis, a multiple regression test was used to study the effect of all the characteristics of the Board of Trustees on the dependent variable which is the quality of higher education. The results can be clarified through [Table 4](#).

[Table 4](#) shows that there is an effect of the two variables closest to the level of statistical significance only from the independent variables, namely the percentage of foreigners and the background of the work environment of the (academic) council on ensuring the quality of higher education. This indicates that these two variables have an effect with a negative regression coefficient of  $-0.8911$  and  $-0.9328$ , respectively. A statistical significance of  $0.0527$  and  $0.0949$ , respectively, which are among the accepted error rates in social sciences and fall below the level of significance of  $0.10$ .

The overall interpretation coefficient  $R^2$  was equal to  $0.3909$ , which means that the independent variables were affected by  $39\%$  in the dependent variable, the adjusted interpretation coefficient  $R^2$  was equal to  $0.2348$  and the  $p$ -value ( $F$ ) is  $0.0197$ . It means that it is less than the significance level of  $0.05$ , that is, there is an effect of the independent variables on ensuring the quality of higher education. Below is an analysis of the regression effect of each of the independent variables separately on the dependent variable (see [Table 5](#)).

[Table 5](#) shows that there is no effect on the size of the Board of Trustees, the composition of the Board of Trustees, the independence of the Board of Trustees, the percentage of diversity in the specialisation of the Board of Trustees, the degree of master's and doctorate degrees, and the background of the work environment, while there was an effect for foreigners in the Board of Trustees and academic degree (Bachelor's degree or less) to achieve the quality of higher education in universities in the Arab region. To answer the second main hypothesis, a multiple regression test was used to study the effect of all the characteristics of the Board of Trustees on the dependent variable the product of scientific research (see [Table 6](#)).

[Table 6](#) shows that there is an effect of the two variables closest to the level of statistical significance only from the independent variables, which are the background of the work environment of the council (Legal personalities) and the background of the work environment of the council (Academic) on the output of scientific research. This indicates that these two variables have an effect with a negative regression coefficient of the value of  $0.8691$  and  $1.00058$ , respectively. The statistical significance amounted to  $0.0549$  and  $0.0950$ , respectively, which is within the accepted error rates in social sciences and falls below the



	Scopus	QS	Diversity	Legalpersons	Business	Academic	Ph.D.	Master	Bachelor	Nationality	Independence	BComposition	Bsize
Bsize	0.158	-0.187	-0.493	0.137	0.355	-0.148	-0.268	0.372	0.013	0.456	0.075	0.451	1
BComposition	0.295	-0.257	-0.284	0.089	0.147	0.055	-0.173	0.279	-0.026	0.172	0.161	1	
Independence	-0.035	-0.107	0.075	0.221	0.081	-0.049	-0.106	0.206	-0.047	0.127	1		
Nationality	0.258	-0.468	-0.29	0.237	0.234	-0.156	0.002	0.398	-0.358	1			
Bachelor	-0.246	0.283	-0.182	0.241	-0.135	-0.235	-0.724	-0.075	1				
Master	0.197	-0.271	-0.209	0.225	0.240	-0.046	-0.634	1					
Phd	0.054	-0.032	0.285	-0.342	-0.061	0.214	1						
Academic	0.260	-0.195	0.029	-0.236	0.043	1							
Business	0.170	-0.186	-0.356	-0.292	1								
legalpersons	0.163	-0.205	-0.067	1									
Diversity	-0.287	0.258	1										
QS	-0.798	1											
Scopus	1												

Source(s): Authors' work from the results of the SPSS program

**Table 3.**  
Results of the Pearson  
correlation matrix test

**Table 4.**  
The value of the constant and the multiple regression coefficients for the effect of the characteristics of the Board of Trustees on the quality assurance of higher education

Study variables	Non-standard transactions		Value (t)	Sig.
	$\beta$	Standard error		
Constant value	0.770	1.195	0.644	0.523
Board size	14.301	13.652	1.048	0.301
Board composition	-0.807	0.711	-1.135	0.263
Board independence	0.024	0.959	0.025	0.979
Percentage of foreigners	-0.891	0.446	-1.998	0.052 *
Academic degree of the board (Bachelor's degree or less)	0.702	0.671	1.047	0.301
Board academic degree (Master)	-0.156	0.688	-0.228	0.820
Academic degree of the council (Ph.D. and above)	0.156	0.688	0.228	0.820
Work environment background for the council (Academic)	-0.932	0.544	-1.712	0.094 *
Business environment background of the board (Business)	-0.357	0.491	-0.728	0.470
The work environment background of the council (Legal persons)	-0.632	0.409	-1.544	0.130
Diversity in specialisation	1.0	0.919	1.087	0.283
Interpretation coefficient R2	0.390			
Adjusted interpretation coefficient R2	0.234			
F statistic	2.503			
p-value (F)	0.019			

**Note(s):** \*\* Statistically significant at the significance level ( $\alpha = 0.05$ )  
\*Statistically significant at the significance level ( $\alpha = 0.10$ )  
**Source(s):** Authors' work from the results of the SPSS program

significance level of 0.10. The overall interpretation coefficient R2 was 0.3449. This means that the independent variables were affected by 34% of the dependent variable, the modified interpretation coefficient R2 was 0.1770 and the p-value (F) was 0.0533.

This also means that it was higher than the significance level of 0.05, meaning that the independent variables did not affect the dependent variable, the product of scientific research. The following table is an analysis of the regression effect of each of the independent variables separately on the dependent variable.

Table 7 shows that there was no effect on the size of the Board of Trustees, the independence of the Board of Trustees, the percentage of foreigners, the academic degree of the Board of Trustees or the background of the work environment. However, there was an effect on the composition of the Board of Trustees, and the percentage of diversity in the specialisation Board of Trustees on the output of scientific research in universities in the Arab region.

### Discussion

The study sought to clarify the role of the characteristics of the boards of trustees with their dimensions (the size of the board, the composition of the board, the independence of the board, the proportion of foreigners on the board, the academic degree of the board, the background of the work environment of the board and the diversity of the board's specialisations) in ensuring the quality of higher education and the output of scientific research in universities in the Arab region. The results showed that there is an impact of the characteristics of the boards of trustees collectively on ensuring the quality of higher education, while it did not affect the outcome of scientific research. When conducting a unilateral analysis of the variables, it was not found that there was a statistically significant effect of the size of the Board of Trustees on ensuring the quality of higher education and the outcome of scientific

Variable	B	Adj R2	R Square	T	Sig.
<i>Hypothesis 1</i>					
Board size	-14.717	0.014	0.035	-1.321	0.192
<i>Hypothesis 2</i>					
Board composition	-1.258	0.046	0.066	-1.847	0.07 *
<i>Hypothesis 3</i>					
Board independence	-0.767	-0.009	0.011	-0.750	0.456
<i>Hypothesis 4</i>					
Percentage of foreigners	-1.184	0.202	0.219	-3.671	0.00 ***
<i>Hypothesis 5</i>					
Diversity rate in specialisation	1.493	0.047	0.066	1.854	0.069 *
<i>Hypothesis 6</i>					
Academic degree of the board (Bachelor's degree or less)	1.187	0.061	0.080	2.050	0.045 **
Board academic degree (Master)	-1.272	0.054	0.073	-1.951	0.056*
Academic degree of the council (Ph.D. and above)	-0.105	-0.019	0.001	-0.225	0.822
<i>Hypothesis 7</i>					
Work environment background for the council (Academic)	-0.779	0.018	0.038	-1.382	0.173
Business environment background of the board (Business)	-0.591	0.014	0.034	-1.317	0.194
The work environment background of the council (Legal persons)	-0.535	0.022	0.042	-1.451	0.153

**Source(s):** Authors' work from the results of the SPSS program

**Table 5.** Results of testing the variables associated with the first main hypothesis

research. The explanation for this is that 72% of the boards of trustees, on which the study was conducted, include members of a size of 11–20.

Thus, it is neither very large nor small. Some literature has been critically reviewed and suggested that in non-profit organisations' boards of trustees, the impact of size on board effectiveness is less clear and more complex (Belcher, 1960; Alagla and Habash, 2018; Nour *et al.*, 2020; Ali and Oudat, 2021). A board with a larger number of members allows for more control over operational issues and the processing of larger amounts of data (Dato *et al.*, 2019). On the other hand, the board is small in size and is unable to issue accurate and comprehensive decisions, and it cannot monitor all aspects of activities related to its duties in an optimal manner.

As for the composition of the council (namely, the percentage of females in the council), it was not clear that there was a statistically significant effect of it on ensuring the quality of higher education in universities in the Arab region, other than the output of scientific research. This means that 34% of the councils under study do not include a single female among their members, while 66% include females, even at low rates sometimes.

The diversity of the council's gender provides new values and knowledge, attracts new and different perspectives in the council's discussions on university-related strategies and encourages creativity (Arzubiaga *et al.*, 2018). It was also not found that there was a statistically significant effect of the independence of the council on ensuring the quality of higher education and the output of scientific research in the universities of the Arab region. However, the percentage of independents in the study sample is 68%. De Andrés *et al.* (2010) indicated that it is difficult to describe the characteristics of effective councils in general terms since it is not always desirable to increase the number of independent members of the council.

Study variables	Non-standard transactions		Value (t)	Sig.
	$\beta$	Standard error		
Constant value	3.486	1.282	2.719	0.009 ***
Board size	-11.619	14.648	-0.793	0.432
Board composition	1.135	0.763	1.488	0.144
Board independence	-1.02	1.029	-0.991	0.327
Percentage of foreigners	0.131	0.478	0.275	0.784
Academic degree of the board (Bachelor's degree or less)	-1.176	0.720	-1.634	0.110
Board academic degree (Master)	0.145	0.738	0.196	0.845
Academic degree of the council (Ph.D. and above)	-0.145	0.738	-0.196	0.845
Work environment background for the council (Academic)	1.0	0.584	1.711	0.095 *
Business environment background of the board (Business)	0.456	0.526	0.865	0.392
The work environment background of the council (Legal persons)	0.869	0.439	1.979	0.054*
Diversity in specialisation	-1.482	0.987	-1.502	0.141
Interpretation coefficient R2	0.344			
Adjusted interpretation coefficient R2	0.177			
F statistic	2.054			
p-value (F)	0.053			

**Table 6.**

The value of the constant and the multiple regression coefficients for the impact of the characteristics of the Board of Trustees on the outcome of scientific research

**Note(s):** \*\* Statistically significant at the significance level ( $\alpha = 0.05$ )

\*Statistically significant at the significance level ( $\alpha = 0.10$ )

**Source(s):** Authors' work from the results of the SPSS program

It is clear from the results that there is a statistically significant effect of the presence of foreigners in the council, on ensuring the quality of higher education and the output of scientific research in universities in the Arab region. This links with 36% of the council members of the study sample including foreign members. In other words, members of nationalities and others from outside the country foster different cultures and the exchange of ideas and perspectives, leading to organisational productivity (Ali and Oudat, 2021). For this reason, having a Board of Trustees that understands how different countries work, business environments and people are essential. This assists more people from different countries with different lifestyles, cultures and backgrounds to deal with potential challenges (Jhunjunwala and Mishra, 2012).

Regarding the diversity of specialisation of the council members, it was found that there is no impact on ensuring the quality of higher education in the universities of the Arab region, other than the output of scientific research. At least 36% of the sample of councils under study had a diversity rate of 71–80%, which is considered a good diversity rate but not to the required level. Alonso *et al.* (2010) indicated that the diversity of disciplines leads to the highest benefit that the council achieves from the different types of knowledge brought by members. However, the heterogeneity of this knowledge is more important, as formations with diverse perspectives can determine the best solution for each problem.

### Conclusions and recommendations

Regarding the academic degree of the board members, the results show that there is an impact of the bachelor's degree variable only for council members on ensuring the quality of higher education in universities in the Arab region, other than the output of scientific

Variable	B	Adj R2	R Square	T	Sig.
<i>Hypothesis 1</i>					
Board size	12.879	0.004	0.025	1.111	0.271
<i>Hypothesis 2</i>					
Board composition	1.491	0.068	0.087	2.140	0.037**
<i>Hypothesis 3</i>					
Board independence	-0.26	-0.019	0.001	-0.245	0.807
<i>Hypothesis 4</i>					
Percentage of foreigners	0.675	0.047	0.066	1.852	0.07*
<i>Hypothesis 5</i>					
Diversity rate in specialisation	-1.715	0.063	0.082	-2.075	0.043**
<i>Hypothesis 6</i>					
Academic degree of the board (Bachelor's degree or less)	-1.067	0.041	0.06	-1.761	0.084*
Board academic degree (Master)	0.960	0.019	0.039	1.398	0.168
Academic degree of the council (Ph.D. and above)	0.182	-0.017	0.002	0.377	0.707
<i>Hypothesis 7</i>					
Work environment background for the council (Academic)	1.074	0.048	0.067	1.869	0.067 *
Business environment background of the board (Business)	0.56	0.008	0.029	1.201	0.235
The work environment background of the council (Legal persons)	0.441	0.006	0.026	1.147	0.257

**Source(s):** Authors' work from the results of the SPSS program

**Table 7.**  
Results of testing the  
variables related to the  
second main  
hypothesis

research. [Bathula \(2008\)](#) suggested considering qualified and skilled members as a strategic resource that provides a link with external resources different, ensuring an effective board. This requires high levels of intellectual ability, experience and integrity. The results did not show any significant statistical effect of the background of the work environment on ensuring the quality of higher education and the output of scientific research in the Arab League. [Taylor \(1987\)](#) indicated that the presence of faculty members on boards of trustees is unnecessary because their membership is not considered useful in attracting appropriate support. However, the board can consult with faculty members, which establishes the council's internal legitimacy. [Belcher \(1960\)](#) considered that the diversity of background adds a wide range of educational and research activities and their impact and interests at the general level. For this reason, great diversity in the membership of the Board of Trustees, in terms of scientific background, professional experience and geographical location, is required.

Therefore, this study recommended that there is a need to activate the role of boards of trustees by increasing the number of members by involving stakeholders, raising the number of females and focusing on independence, increasing the number of periodic meetings, activating administrative follow-up, and auditing quality reports and the output of scientific research. It is also recommended to conduct further studies on boards of trustees and add other characteristics such as the number of board meetings. The majority of universities in the Arab region do not disclose the data on the boards of trustees, their roles, committees, rules of procedure and the nature of their work. There are a large number of universities that do not even operate under the trustee system because the regulations and instructions of those countries do not support this.

This paper highlights the importance of the role of boards of trustees for the quality of higher education and the output of scientific research. Investigating and proposing better conditions for better and reliable relationships between higher education institutions and the Board of Trustees lead to reflections on the role of the universities' engagement with society and create more value for practitioners and stakeholders. Future research could also investigate the Board of Trustees' role and their impact on universities' performance in terms of strategic planning, governance and establishing policy-related issues.

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