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COVID-19 IMPLICATIONS FOR CORPORATE SOCIAL RESPONSIBILITY, CORPORATE GOVERNANCE AND PROFITABILITY IN BANKS: THE CASE OF EGYPT

Abstract

This paper aims to measure the relationship between Corporate Social Responsibility (CSR), Corporate Governance (CG), and profitability in listed Egyptian banks. COVID-19 is expected to affect this relationship if the year 2020 is taken. Profitability is measured by earnings per share (EPS), return on equity (ROE), and return on assets (ROA). CSR is measured as a dummy variable and CG is measured by the chief executive officer (CEO) duality. There are three control variables, such as the Islamic variable, which classifies a bank into Islamic or conventional, bank age, and bank size. The paper uses multiple regression and logistic regression models. The final sample is 12 banks consisting of 9 conventional banks and 3 Islamic banks (IBS). The results show no impact of profitability on CSR. The results prove a significant positive impact of profitability on CG; there is a significant negative relationship between CEO duality and EPS at a 0.05 level. CSR has a significant impact on CG at a 0.001 level. The results show a clear impact of COVID-19 on the impact of CSR on profitability only when measured by ROA at 0.001 in the period 2014–2019.

Keywords

earnings per share, return on equity, return on assets, chief executive officer duality, Egyptian market

JEL Classification

G21, G34, G41

INTRODUCTION

The global shift towards social and charity sustainability has encouraged financial firms and banks to adopt corporate social responsibility (CSR) practices in their strategies and operations to increase their reputation. Banks are heavily regulated institutions that strive to ensure sustainability and build a better society through CSR to restore their reputation and moral success, especially after the 2008 global financial crisis (Tulcanaza-Prieto et al., 2020). CSR is a shield against financial scandals and a self-regulation process for the corporations to ensure their ethical business conduction. Under Egyptian Vision 2030, CSR is given much more attention to meet the sustainable development requirements of the Egyptian community.

CSR should comply with environmental, social and governance (ESG) assessment criteria to achieve development, to highlight the role of all stakeholders, and to prepare responsible generations. CSR has attracted the attention of all stakeholders around the world to enhance corporate performance, as it is expected that more profitable firms are to be involved in CSR activities and to disclose more about them. CSR is a response to society demands and addressing stakeholders' expecta-



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tions for rewarding the society (Mohd & Kaushal, 2019). CSR implementation and arbitration requires the participation of regulatory authorities, civil societies, and non-governmental organizations (NGOs), along with the industry members (Szegedi et al., 2020).

At the end of 2019, a new coronavirus, identified as COVID-19, was reported, spreading rapidly from China and reaching all countries around the world. For the first time since several decades, the world became blocks of territories and the world trade stopped for months causing great changes for economy and firm actions. By the end of 2020, the impact of COVID-19 on firm performance and profitability was enormous due to lockdowns and closed countries' boundaries, and it is expected that COVID-19 would affect the relationship between profitability and CSR.

CSR and Corporate Governance (CG) are interrelated and complementary concepts to each other and recently become an integral part for any company. Although CG is mandatory and CSR is still optional and is based on the self-governance, yet both of them focus on the ethical and the reputational image of a company and are recommended to increase shareholder value and profit (Verma & Kumar, 2012).

The paper clarifies the contribution of the literature on CSR implementation in developing countries in response to the Egyptian banking sector and its relationship to profitability. It aims to evaluate the relationship between CSR and profitability and to further investigate which of them significantly affect the other. Both the impact of the recent pandemic and CG are investigated to clarify their implications for this relationship.

1. LITERATURE REVIEW

Recently after the spread of the COVID-19 pandemic, the world becomes eager to know whether this new coronavirus has affected financial performance of countries and companies. It is important to understand the implications of COVID-19 for CSR and performance. Many studies have investigated the impact of COVID-19 on financial performance (FP) all over the world within the years 2020 and 2021. Among the studies that proved that COVID-19 has a negative impact on firm performance are Aifuwa et al. (2020) in Nigeria, Khatib and Nour (2021) in Malaysia, Song et al. (2021) in USA, Zaremba et al. (2021) in Europe and USA, Bloom et al. (2020) in UK, in 14 countries, Devi et al. (2020) on the Indonesia Stock Exchange, and Orhan and Tirman (2020) in Turkey, and also Fu and Shen (2020), Rababah et al. (2020), Shen et al. (2020), and Zou et al. (2020) in China. From the studies that proved that COVID-19 has a negative impact on a bank's performance are Hassan et al. (2021) in the IBS in the Middle East and North Africa (MENA) region, Talbot and Ordonez-Ponce (2020) in 10 Canadian banks.

On the other hand, some studies tested the effect of COVID-19 in different sectors such as Gu et al.

(2020) in China who found that COVID-19 negatively affected manufacturing industry and other industries such as construction, information transfer, computer services, software, healthcare and social work positively, and Ahmed and Tahat (2020) in UK who found that all sectors' market returns have been severely affected except healthcare and basic materials sectors.

The relationship between CSR disclosure and performance in the financial sector became crucial nowadays, especially after the spread of COVID-19 around the world. CSR is explained by the enormous number of theories that are divided into four groups. The first group is ethical theories that focus on the ethical aspect of corporations to society, including sustainable development theory, stakeholder theory, common good approach, and universal rights theory. Stakeholder theory demonstrated that satisfying all companies' parties or stakeholders would achieve long-term success.

The second group is instrumental theories that go with the shareholder value theory that depicts the role played by CSR in competitive advantage and value creation. The third group is integrative theories that are concerned with social demand

satisfaction and their integration into a corporation's decisions. The fourth group is corporate citizenship theory and corporate social performance that are enhanced by political theories concerned with how powerful the companies are and how this would affect their societal responsibilities (Iwu-Egwuonwu, 2020). In addition, agency theory states that CSR affects FP negatively (Gangi et al., 2018).

Some studies considered the human dimension in studying CSR and bank performance. Mensah et al. (2017) examined the impact of commitment of 145 employees from 50 Rural and Community Ghanaian's Banks on CSR engagement through a self-reported questionnaire. The results showed a significant correlation between staff commitment and CSR. Adeleke (2014) studied the relationship between the level of satisfaction and CSR in 99 Nigerian banks using Pearson's correlation coefficient. Adeleke proved a significant relationship between satisfaction level and CSR.

Some studies showed a positive relationship between performance and CSR (Tulcanaza-Prieto et al., 2020; Gangi et al., 2018; Kvasić et al., 2016; Nwanne, 2016; Ofori et al., 2014; Adeleke, 2014), while others could not find a relationship between them (Walker, 2019; El Moslemany & Etab, 2017). Therefore, there is still a debate regarding CSR and profitability, and it is important to dig more on this relationship to find out whether CSR affects profitability, or vice versa. Tulcanaza-Prieto et al. (2020) studied the relationship between CSR and bank performance in the Ecuadorian banking industry; the study used two models, one testing the FP and the other testing non-financial performance (NPF). The results showed a positive relationship between CSR and both financial and non-financial performance.

Walker (2019) examined if there is a significant relationship between CSR and FP in terms of net profit margin (NPM), return on equity (ROE), and return on assets (ROA). The sample included 173 companies for the years from 2012 to 2015. The results found no statistically significant relationship between CSR and FP indicators, NPM, ROE, and ROA.

Gangi et al. (2018) analyzed whether and how CSR affected the FP of the European banking indus-

try. The final sample contained 72 banks, for 504 bank-year observations. Gangi et al. (2018) proved a positive relationship between CSR and FP.

El Moslemany and Etab (2017) studied the relationship between the CSR disclosure and the performance for the finance in three Egyptian banks. El Moslemany and Etab used content analysis of reports provided by Egyptian banks from 2008 to 2011, in addition to descriptive analysis such as Pearson correlation method and the regression analysis. El Moslemany and Etab included two categories of variables; the independent variables (employee, customer, community and CSR toward environment) and dependent variables (earnings per share (EPS), ROE, ROA and NPM). The results showed that there are no clear relationships between the two categories of variables.

Kvasić et al. (2016) studied the online CSR in 28 Croatian banks through content analysis for their websites. The result showed a strong impact of the online CSR disclosure on the market shares. Nwanne (2016) examined the relationship between CSR and the profitability in the banks of Nigeria. The sample includes 35 banks in Nigeria. Nwanne used a multiple regression technique. The result showed that there is a positive correlation between CSR and profitability.

Ofori et al. (2014) investigated the relationship between CSR and performance in 22 Ghanaian banks. Ofori et al. used a questionnaire to collect primary data for the study and archival records used as secondary data. The result showed a positive correlation between the CSR and the performance of finance in Ghanaian banks, but there are some additional factors that control this correlation such as the debt ratio, the growth, the size and the origin.

In addition, other studies examined the impact of CG on CSR practices such as Hosain (2020), Poudel (2015), Sharif and Rashid (2014), and Berghe and Louche (2005) who agreed upon that effective CG supports CSR. Hosain (2020) investigated the relation between CSR expenditure and CG in Bangladeshi banking sector for 5 years from 2015 to 2019 in 35 banks. CG was measured by three variables such as board members' interrelationship, board size, and gender diversity.

Hosain found that board members' interrelationship had a negative relationship with CSR, while both board size and gender diversity had a positive relationship with CSR expenditure. Poudel (2015) studied the relationship between CG and CSR disclosure in 10 Nepalese commercial banks using T-test, content and regression analysis and found that effective CG supports CSR in banks.

Sharif and Rashid (2014) investigated the impact of CG factors in the disclosures of CSR in all Pakistani commercial banks within the 2005–2010 time period using both content analysis and multiple regression analyses. The result found that commercial banks had low CSR activities, while the level of CSR activities rises when they are performed voluntarily. Berghe and Louche (2005) explored the link between CSR and CG in financial and insurance sectors. Financial sectors require more relevant tools to assess environmental and social risks, and sustainability makes companies more resilient for risks and shocks that combining CSR and CG are cornerstone for risk management.

Some other literature studied the relationship between CSR, CG, and performance and concluded that the impact of CG on both CSR and profitability needs further investigation. Ali et al. (2019) studied the moderation role of CSR in the relationship between CG and firm performance and found that CG improved firm performance when a company practiced CSR. Ali et al. used a panel regression from 2009 to 2018 for 3,400 Shanghai Stock Exchange (SSE) listed firms and concluded that female directors and foreign institutional investors' presence improved firm performance when a company practiced CSR.

Selcuk (2019) examined the effect of CSR on FP with ownership concentration as a moderator factor in 100 firms listed on the Borsa Istanbul (BIST) from 2014 to 2018. Selcuk found a positive relationship between CSR and FP, which CSR moderated negatively through ownership concentration.

Kabir and Thai (2017) investigated the relationship between CSR and FP with CG as a moderator. The final sample consisted of 1,960 firm-year observations covering 524 Vietnamese firms in the period of 2008 to 2013. CG is measured by board size, board independence, state and foreign

ownership. The results showed a positive relationship between CSR and firm performance and that board size, board independence, and foreign ownership strengthen this relation.

Accordingly, the following hypotheses are to be tested to reach the objective of this paper:

H_1 : *There is a significant positive relationship between CSR and profitability in the banking sector.*

H_2 : *There is a significant positive relationship between CG and profitability in the banking sector.*

H_3 : *There is a significant positive relationship between CG and CSR in the banking sector.*

H_4 : *COVID-19 affects the relationship between banks' profitability and CSR involvement.*

2. METHOD

This paper follows the deductive approach to reach its main aim to test the relationship between bank CSR involvement and profitability in the banks listed in the Egyptian stock market (EGX). The paper scope is extended to study the effect of COVID-19 and CG on the relationship between profitability and CSR.

The methodology consists of two sections; the first is the theoretical part comprising the literature review discussing the relationship between CSR, CG, and profitability. The second part is empirical part that uses multiple regression and logistic regression models to analyze these relations. According to the previously discussed literature, the paper aims to fill four main gaps in Egyptian banks; the first is the gap in assessing the relationship between profitability and CSR, the second is the gap in measuring the effect of CG compliance on CSR, the third is measuring the effect of CG compliance on profitability, and finally, determining the impact of COVID-19 on the relationship between banking profitability and CSR involvement.

Data were collected from the annual reports, the banks' websites, and Mubasher and Investing web-

sites. CSR variable is found by content analysis. The population consists of the banks listed in the EGX within the sample period 2014 to 2020. The final sample is 12 banks consisting of 9 conventional banks – Commercial International bank (CIB), Credit Agricole (CAE), Egyptian gulf (EG), Export Development bank of Egypt (EDBE), Housing and developing (HDB), National Bank of Kuwait (NBK), Qatar National Bank (QNB), Société Arabe Internationale de Banque (SAIB), Suez Canal, Union National bank (NBE) and three Islamic banks (IBS); Faisal Islamic bank of Egypt (FIB), Abu-Dhabi Islamic bank (ADIB), and Al-Baraka (ABE). The banks selected in the sample must be registered in EGX for the 7 years under study.

It is expected that the pandemic has affected the relationship between CSR and profitability if the year 2020 is taken into account; then test and reach a conclusion for whether COVID-19 would have any impact for COVID-19 pandemic on the performance of the sample banks, the regression model is tested in two periods of time; the first one from 2014 to 2020 and the second one from 2014 to 2019, excluding the impact of the COVID-19 pandemic year. 2021 financial reports are not released yet to extend the test.

Profitability is measured by three measures such as EPS, ROE, and ROA with a separated model for each measure. EPS is an indicator for how much the market is willing to pay for each share. ROE is as indicator for profitability from the stockholder’s perspective, which excludes financial leverage and focuses only on equity, while ROA takes financial leverage into consideration. There are three control variables, which are Islamic variables that classify banks into Islamic or Non-Islamic, i.e. conventional, age of the bank, and size of a bank’s revenues.

Data collection is illustrated in Appendices A to J. The correlation matrices are shown in Appendices K and L. The multiple regression models 1, 2, and 3 and the logistic regression models 4 and 5 are illustrated below, and the model variables and their measurements are illustrated in Table 1.

$$EPS_{i,t} = \alpha_i + \beta_{1i,t} Islamic_{i,t} + \beta_{2i,t} CSR_{i,t} + \beta_{3i,t} AGE_{i,t} + \beta_{4i,t} SIZE_{i,t} + \beta_{5i,t} CEO_CHAIR_{i,t} + \epsilon \quad (1)$$

$$ROE_{i,t} = \alpha_i + \beta_{1i,t} Islamic_{i,t} + \beta_{2i,t} CSR_{i,t} + \beta_{3i,t} AGE_{i,t} + \beta_{4i,t} SIZE_{i,t} + \beta_{5i,t} CEO_CHAIR_{i,t} + \epsilon \quad (2)$$

$$ROA_{i,t} = \alpha_i + \beta_{1i,t} Islamic_{i,t} + \beta_{2i,t} CSR_{i,t} + \beta_{3i,t} AGE_{i,t} + \beta_{4i,t} SIZE_{i,t} + \beta_{5i,t} CEO_CHAIR_{i,t} + \epsilon \quad (3)$$

$$CSR_{i,t} = \alpha_i + \beta_{1i,t} Islamic_{i,t} + \beta_{2i,t} EPS_{i,t} + \beta_{3i,t} AGE_{i,t} + \beta_{4i,t} SIZE_{i,t} + \beta_{5i,t} CEO_CHAIR_{i,t} + \beta_{6i,t} ROE_{i,t} + \epsilon \quad (4)$$

$$CSR_{i,t} = \alpha_i + \beta_{1i,t} Islamic_{i,t} + \beta_{2i,t} EPS_{i,t} + \beta_{3i,t} AGE_{i,t} + \beta_{4i,t} SIZE_{i,t} + \beta_{5i,t} CEO_CHAIR_{i,t} + \beta_{6i,t} ROA_{i,t} + \epsilon \quad (5)$$

where *EPS*, *ROA*, and *ROE* are the indicators for Profitability; *CSR* is the Corporate Social Responsibility; *CEO_CHAIR* is an indicator for corporate governance; *Islamic*, *AGE*, and *SIZE* are control variables; α and β are constants; and ϵ is the error.

Table 1. Model variables and their measurements

Variables	Definition	Measurement
Profitability variables		
EPS	Earnings per share	Diluted normalized Earnings per share
ROE	Return on Equity	Net Income before tax divided by Total Equity
ROA	Return on Assets	Net Income before tax divided by Total Asset
Corporate Social Responsibility variable		
CSR	Corporate Social Responsibility	Dummy variable, “1” if the Bank has CSR in its annual reports or website, and “0” otherwise.
Corporate Governance variable		
CEO_CHAIR	CEO Duality occurs when CEO is the chairman of the BOD (indicator of absence of CG)	Dummy variable, “1” if the Bank’s CEO is the chairman of the BOD, and “0” otherwise
Control variables		
Islamic	Classify the bank to whether Islamic or Non-Islamic (Conventional)	Dummy variable, “1” if the Bank is Islamic and “0” otherwise
AGE	Age of the bank	Number of operating years since the bank was established
SIZE	Size of bank’s revenues	Log of annual Revenue (sum of interest and non-interest income)

3. RESULTS

Table 2 shows the results for testing the multiple regression model (1) (see Appendices A to D for descriptive statistics).

As shown in Table 2, there is a significant negative relationship between *CEO* duality and *EPS* at 0.01 and 0.05 levels, respectively; when the *CEO* duality increases by one, the profitability declines by 2.112 and 2.0, respectively. Strong *CG* reduces the *CEO* influence and decreases the *CEO* duality as well. The model did not find any relationship between *EPS* and both *CSR* and *Islamic*. Accordingly, COVID-19 has not affected the relationship between *EPS* and *CSR*, *CG*, and the control variables, *Islamic*, *Age*, and *Size*. It is found that bank age has a significant impact on *EPS* at the 0.05 level, regardless of the 2020 effect, when the bank age increases by one year, profitability increases by .08 and .079, respectively. The results show a significant positive relationship between bank size and *EPS* at 0.05; when the size increases by one, the profitability declines by 1.339 and 1.344, respectively.

Table 3 shows the results of testing the multiple regression model (2) (see Appendices B and E for descriptive statistics).

As shown in Table 3, there is a significant negative relationship between *CEO* duality and *ROE* at a 0.05 level; when the *CEO* duality increases by one, the profitability declines by 0.044 and 0.047, respectively. Strong *CG* reduces the *CEO* influence and decreases the *CEO* duality as well. The model did not find any relationship between *ROE*, *CSR* and the control variables, *Islamic* and *Bank age*. Accordingly, COVID-19 has not affected the relationship between *ROE* and *CSR*, *CG*, *Islamic*, *Age*, and *Size*. The results show that bank size has a significant impact on *ROE* at 0.05, regardless of the 2020 effect; when the bank age increases by one year, profitability increases by .082 and .085, respectively.

Table 4 shows the results of testing the multiple regression model (3) (see Appendices C to F for descriptive statistics).

The model did not find any relationship between *ROA* and all the dependent variables in the model; *CSR*, *CG*, and the control variables; *Islamic*, *Bank age*, *Bank size*. Accordingly, COVID-19 has not affected the relationship between *ROA*, *CSR*, and the control variables; *CG*, *Islamic*, *Age*, and *Size*.

For further investigation regarding testing the relationship between *CSR* and profitability; Tables 5

Table 2. Results from the impact of *CSR* on *EPS*, Model (1)

Variables	Expected sign	Period 2014–2020, including the COVID-19 pandemic effect		Period 2014–2019, excluding the COVID-19 pandemic effect	
		Sign from model	P-value	Sign from model	P-value
CSR	+ve	+ve	.625	+ve	.748
CEO_CHAIR	–ve	–ve	.006**	–ve	.018*
Islamic	+ve	–ve	.505	–ve	.481
Age	+ve	+ve	.022*	+ve	.039*
Size	+ve	–ve	.038*	+ve	.049*

Note: * correlation is significant at the 0.05 level (2-tailed); ** correlation is significant at the 0.01 level (2-tailed); *** correlation is significant at the 0.001 level (2-tailed).

Table 3. Results from the impact of *CSR* on *ROE*, Model (2)

Variables	Expected sign	Period 2014–2020, including the COVID-19 pandemic effect		Period 2014–2019, excluding the COVID-19 pandemic effect	
		Sign from model	P-value	Sign from model	P-value
CSR	+ve	+ve	.676	+ve	.589
CEO_CHAIR	–ve	–ve	.035*	–ve	.055*
Islamic	+ve	–ve	.877	–ve	.816
Age	+ve	+ve	.973	–ve	.930
Size	+ve	+ve	.000***	+ve	.000***

Note: * correlation is significant at the 0.05 level (2-tailed); ** correlation is significant at the 0.01 level (2-tailed); *** correlation is significant at the 0.001 level (2-tailed).

Table 4. Results from the impact of *CSR* on *ROA*, Model (3)

Variables	Expected sign	Period 2014–2020, including the COVID-19 pandemic effect		Period 2014–2019, excluding the COVID-19 pandemic effect	
		Sign from model	P-value	Sign from model	P-value
CSR	+ve	–ve	.863	+ve	.132
CEO_CHAIR	–ve	+ve	.542	–ve	.111
Islamic	+ve	+e	.420	–ve	.232
Age	+ve	+ve	.950	–ve	.887
Size	+ve	+ve	.099	+ve	.180

Note: * correlation is significant at the 0.05 level (2-tailed); ** correlation is significant at the 0.01 level (2-tailed); *** correlation is significant at the 0.001 level (2-tailed).

Table 5. Results from the impact of *ROE* and *EPS* on *CSR*, Model (4)

Variables	Expected sign	Period 2014–2020, including the COVID-19 pandemic effect		Period 2014–2019, excluding the COVID-19 pandemic effect	
		Sign from model	P-value	Sign from model	P-value
EPS	+ve	+ve	.401	–ve	.152
ROE	+ve	+ve	.322	+ve	.195
CEO_CHAIR	–ve	–ve	.001***	–ve	.002*
Islamic	+ve	–ve	.657	+ve	.845
Age	+ve	+ve	.001***	+ve	.003*
Size	+ve	+ve	.926	+ve	.308

Note: * correlation is significant at the 0.05 level (2-tailed); ** correlation is significant at the 0.01 level (2-tailed); *** correlation is significant at the 0.001 level (2-tailed).

and 6 show the results for testing the logistic regression models (4) & (5) for the period 2014 to 2020 including COVID-19 pandemic effect and for the period 2014 to 2019, see Appendices G–J for descriptive statistics.

As shown in Table 5, there is a significant negative relationship between *CEO* duality and *CSR* at 0.001 and 0.05 levels, respectively; when the *CEO* duality increases by one, *CSR* declines by 3.357 and 2.936, respectively. Accordingly, the results prove a significant relationship between *CG* and *CSR* at 0.001 and 0.05 levels, respectively. The results found that bank age has a significant impact on *CSR* at 0.001

and 0.05 levels, respectively; when the bank age increases by one year, *CSR* increases by .144 and .141, respectively. The P-values for *Islamic*, *EPS*, *Size*, and *ROE* are .657, .401, .926, and .322, thus, there is no relationship between *Islamic*, *Size*, *EPS*, and *ROE* and the *CSR*. Accordingly, COVID-19 has not affected the relationship between *CSR* and *EPS*, *ROE*, *CG*, *Islamic*, *Age*, and *Size*.

As shown in Table 6, there is a significant negative relationship between *CEO* duality and *CSR* at a 0.001 level; when the *CEO* duality increases by one, the *CSR* declines by 3.471 and 3.488. Accordingly, the results prove a significant relationship between

Table 6. Results from the impact of *ROA* and *EPS* on *CSR*, Model (5)

Variables	Expected sign	Period 2014–2020, including the COVID-19 pandemic effect		Period 2014–2019, excluding the COVID-19 pandemic effect	
		Sign from model	P-value	Sign from model	P-value
EPS	+ve	+ve	.129	–ve	.001***
ROA	+ve	–ve	.705	+ve	.001***
CEO_CHAIR	–ve	–ve	.001***	–ve	.001***
Islamic	+ve	–ve	.560	+ve	.349
Age	+ve	+ve	.002*	+ve	.000***
Size	+ve	+ve	.643	–ve	.200

Note: * correlation is significant at the 0.05 level (2-tailed); ** correlation is significant at the 0.01 level (2-tailed); *** correlation is significant at the 0.001 level (2-tailed).

CG and CSR at the 0.001 level. When excluding the year 2020 – the pandemic year, *EPS* and *ROA* have a significant negative impact on *CSR* at 0.001. When *EPS* increases by 1, *CSR* decreases by .622, and when *ROA* increases by 1, *CSR* increases by 260.824. It is concluded that bank age has a significant impact on *CSR* at 0.05 and 0.001 levels, respectively; when the bank age increases by one year, the *CSR* increases by .151 and .31, respectively. There is no relationship between bank size and *CSR*. Accordingly, COVID-19 has affected the relationship between *CSR* and both *EPS*, and *ROA*.

The summary for paper results and related literature is illustrated in Table 7.

4. DISCUSSION

Regarding the multiple regression models 1, 2, and 3 (Tables 2-4), it is concluded that the impact of

CSR on profitability is not confirmed, thus, the first hypothesis is rejected H_1 : There is a significant positive relationship between *CSR* and profitability in banking sector. Regarding the logistic regression models 4 and 5 that measured the impact of profitability on *CSR*, the results from the logistic model 4 that measured the impact of *ROE* and *EPS* on *CSR* did not find any impact of *ROE* and *EPS* on *CSR* before or during COVID-19. The results from logistic model 5 confirmed the impact of *ROA* and *EPS* on *CSR* when excluding 2020 – the pandemic year. *EPS* has a significant negative impact on *CSR* at 0.001; when *EPS* increases by 1, *CSR* decreases by .622, and *ROA* has a significant positive impact on *CSR* when *ROA* increases by 1, *CSR* increases by 260.824. Accordingly, COVID-19 has affected the relationship between *CSR* and both *EPS* and *ROA*. Thus, the first hypothesis is accepted H_1 : There is a significant positive relationship between *CSR* and profitability in banking sector.

Table 7. Summary of results and their relation to literature

The paper's hypotheses	Method used	Expected sign	Results' sign	Result	Proponents from literature	Opponents from literature
H_1 : There is a significant positive relationship between <i>CSR</i> and profitability in banking sector	Multiple Regression (Tables 3-5), Logistic Regression (Tables 6&7) and (Appendices A-J)	+ve Significant positive relationship between <i>CSR</i> and profitability in Banking sector	Insignificant relationship N/A	Reject H_1 (but H_1 is accepted when <i>ROA</i> as indicator for profitability in Banking sector. +ve significant relationship between <i>CSR</i> and profitability in Banking sector (after excluding Covid-19 effect)	Tulcanaza-Prieto et al. (2020), Gangi et al. (2018); Nwanne (2016); Ofori et al. (2014); Margolis et al., (2009); Orlitzky (2008); Orlitzky et al. (2003)	Walker (2019); El Moslemany and Etab (2017)
H_2 : There is a significant positive relationship between CG and profitability in the banking sector	Multiple Regression (Tables 2-4), and (Appendices G-J)	+ve significant positive relationship between CG and profitability in the banking sector (-ve relationship between CEO duality and profitability)	+ve significant positive relationship between CG and profitability in the banking sector (-ve relationship between CEO duality and profitability)	Accept H_2	Ali et al. (2019); and Selcuk (2019)	
H_3 : There is a significant positive relationship between CG and <i>CSR</i> in the banking sector	Logistic Regression (Tables 5 and 6) and (Appendices A-F)	+ve significant positive relationship between CG and <i>CSR</i> in the banking sector (-ve relationship between CEO duality and <i>CSR</i>)	+ve significant positive relationship between CG and <i>CSR</i> in the banking sector (-ve relationship between CEO duality and <i>CSR</i>)	Accept H_2	Hosain (2020); Ali et al. (2019); Selcuk (2019); Kabir and Thai (2017); Poudel (2015); and Berghe and Louche (2005)	

Table 7 (cont.). Summary of results and their relation to literature

The paper's hypotheses	Method used	Expected sign	Results' sign	Result	Proponents from literature	Opponents from literature
H_4 : COVID-19 affects the relationship between banks' profitability and CSR involvement	Analysis at two different period (Tables 2-4) and (Appendices A-F)	Difference in the multiple regression results when excluding the year 2020 from the model, which represents the COVID-19 adverse factor on the relation	No effect of COVID-19	Reject H_4	Hassan et al. (2021); Khatib and Nour (2021); Song et al. (2021); Zaremba et al. (2021); Ahmed and Tahat (2020); Aifuwa et al. (2020); Bloom et al. (2020); Devi et al. (2020); Fu and Shen (2020); Orhan and Tirman (2020); Rababah et al. (2020); Shen et al. (2020); Talbot and Ordonez-Ponce (2020); Zou et al. (2020)	Gu et al. (2020)
	Analysis at two different period (Tables 5 and 6) and (Appendices G-J)	Difference in the logistic regression results when excluding the year 2020 from the model, which represents the COVID-19 adverse factor on the relation	In the time period 2014 to 2019 after excluding the COVID-19 impact period, the results show a significant positive relationship between profitability measured by ROA and CSR	Accepts H_4		

Results from the multiple regression model 1 that measured the impact of CSR on EPS find a significant negative relationship between CEO duality, which is considered an indicator for the absence of CG and profitability. Results found a significant negative relationship between CEO duality and EPS at 0.01 and 0.05 levels, respectively; when the CEO duality increases by one, the profitability declines by 2.112 and 2.0, respectively. Results from the multiple regression model 2 that measured the impact of CSR on ROE find a significant negative relationship between CEO duality and ROE at a 0.05 level; when the CEO duality increases by one, the profitability declines by 0.044 and 0.047, respectively. This means that CG has a significant impact on profitability, as strong CG reduces the CEO influence and decreases the CEO duality as well. Thus, the second hypothesis is accepted H_2 : There is a significant positive relationship between CG and profitability in the banking sector. On the other hand, the results from the multiple regression model 3 that measured the impact of CSR on ROA could not find any relationship between CG and ROA.

Results from logistic model 4 that measured the impact of ROE and EPS on CSR show a signifi-

cant negative relationship between CEO duality and CSR at 0.001 and 0.05 levels, respectively; when the CEO duality increases by one, CSR declines by 3.357 and 2.936, respectively. Results from logistic model 5 that measured the impact of ROA and EPS on CSR show a significant negative relationship between CEO duality and CSR at a 0.001 level; when the CEO duality increases by one, the CSR declines by 3.471 and 3.488. Accordingly, the results proved that CG affects CSR significantly, as they show a significant negative relationship between CEO duality and CSR, which proves a significant relationship between CG and CSR. Thus, the second hypothesis is accepted H_2 : There is a significant positive relationship between CG and profitability in the banking sector

Regarding the multiple regression models, the results do not show a clear impact of COVID-19 on profitability, thus, the fourth hypothesis is rejected H_4 : COVID-19 affects the relationship between banks' profitability and CSR involvement. Regarding the logistic regression models 4 and 5 (Tables 5 and 6), the results show a clear impact of COVID-19 on profitability, as it is found in the time period 2014 to 2019,

and a significant positive relationship between CSR and profitability when measured by ROA. The results in the same period found a negative significant impact of EPS on CSR. The results could not find similar evidence for ROE on CSR. Thus, the fourth hypothesis is partially accepted H4: COVID-19 affects the relationship between banks' profitability and CSR involvement.

CONCLUSION

At the end of 2019, a novel coronavirus, identified as COVID-19, was reported, spreading rapidly from China and reaching all countries around the world, and by the end of 2020, the impact of COVID-19 on firm performance and profitability was significant. The results show a clear effect of COVID-19 on the impact of profitability on CSR as it is found in the time period 2014 to 2019; COVID-19 affected the impact of profitability on CSR when the profitability is measured by ROA. This enhances the idea that before the spread of COVID-19, the management of a bank's inside assets, leverage, operations and processes were heading for CSR activities. The results show that CSR is not a factor in enhancing a bank's profitability, which may be due to the negative reaction of stockholders to CSR expenditure. It is important to raise the awareness of social and economic sustainability. In contrast, banks' profitability encourages their involvement in CSR. CG plays an important role in enhancing the relationship between CSR and profitability; it is found that CG affected both profitability and CSR positively. CG helps CEOs to work for the strategic and social benefit of the company.

For future research, it is recommended to use more sophisticated CSR variables and other performance measures such as sustainability balanced scorecard (BSC) to study the whole Egyptian economy and to apply international comparisons across different countries, taking the impact of COVID-19 into a broader scope. It is important to extend the time frame used to test the impact of COVID-19 on CSR or profitability.

AUTHOR CONTRIBUTIONS

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APPENDICES

APPENDIX A. Multiple regression model of EPS using the period from 2014 to 2020, including the COVID-19 pandemic effects

Table A1. Variables entered/removed^a

Model	Variables entered	Variables removed	Method
1	<i>CEO, Islamic, Size, Age, CSR^b</i>	–	Enter

Note: a. dependent variable: *EPS*; b. all requested variables entered.

Table A2. Model summary

Model	R	R square	Adjusted R square	Std. error of the estimate
1	.463 ^a	.215	.167	3.03813

Note: a. predictors: (constant) *CEO, Islamic, Size, Age, CSR...*

Table A3. ANOVA^a

Model	Sum of squares	df	Mean square	F	Significance
1					
Regression	206.894	5	41.379	4.483	.001 ^b
Residual	756.880	82	9.230	–	–
Total	963.774	87	–	–	–

Note: a. dependent variable: *EPS*; b. predictors: (constant) *CEO, Islamic, Size, Age, CSR.*

Table A4. Coefficients^a

Model	Unstandardized coefficients		Standardized coefficients	t	Significance
	B	Std. error	Beta		
1					
(Constant)	–2.899	2.509	–	–1.155	.251
CSR	.373	.759	.054	.491	.625
Islamic	–.530	.791	–.068	–.669	.505
Age	.080	.034	.250	2.339	.022
Size	1.339	.635	.214	2.109	.038
Ceo	–2.112	.753	–.314	–2.805	.006

Note: a. dependent variable: *EPS*.

APPENDIX B. Multiple regression model of ROE using the period from 2014 to 2020, including the COVID-19 pandemic effects

Table B1. Variables entered/removed^a

Model	Variables entered	Variables removed	Method
1	<i>CEO, Islamic, Size, Age, CSR^b</i>	–	Enter

Note: a. dependent variable: *ROE*; b. all requested variables entered.

Table B2. Model summary

Model	R	R square	Adjusted R square	Std. error of the estimate
1	.549 ^a	.302	.259	.083593557633224

Note: a. predictors: (constant) *CEO, Islamic, Size, Age, CSR.*

Table B3. ANOVA^a

	Model	Sum of squares	df	Mean square	F	Significance
1	Regression	.248	5	.050	7.093	.000 ^b
	Residual	.573	82	.007	–	–
	Total	.821	87	–	–	–

Note: a. dependent variable: ROE; b. predictors: (constant) CEO, Islamic, Size, Age, CSR.

Table B4. Coefficients^a

Model		Unstandardized coefficients		Standardized coefficients	t	Significance
		B	Std. error	Beta		
1	(Constant)	-.058	.069	–	-.835	.406
	CSR	.009	.021	.043	.420	.676
	Islamic	-.003	.022	-.015	-.156	.877
	Age	3.233E-005	.001	.003	.034	.973
	Size	.082	.017	.451	4.717	.000
	CEO	-.044	.021	-.226	-2.147	.035

Note: a. dependent variable: ROE.

APPENDIX C. Multiple regression model of ROA using the period from 2014 to 2020, including the COVID-19 pandemic effects

Table C1. Variables entered/removed^a

Model	Variables entered	Variables removed	Method
1	CEO, Islamic, Size, Age, CSR ^b	–	Enter

Note: a. dependent variable: ROA; b. All requested variables entered.

Table C2. Model summary

Model	R	R square	Adjusted R square	Std. error of the estimate
1	.223 ^a	.050	-.008	.032935122506869

Note: a. predictors: (constant) CEO, Islamic, Size, Age, CSR.

Table C3. ANOVA^a

	Model	Sum of squares	df	Mean square	F	Significance
1	Regression	.005	5	.001	.859	.512 ^b
	Residual	.089	82	.001	–	–
	Total	.094	87	–	–	–

Note: a. dependent variable: ROA; b. predictors: (constant) CEO, Islamic, Size, Age, CSR.

Table C4. Coefficients^a

Model		Unstandardized coefficients		Standardized coefficients	t	Significance
		B	Std. error	Beta		
1	(Constant)	-.015	.027	–	-.554	.581
	CSR	-.001	.008	-.021	-.174	.863
	Islamic	.007	.009	.091	.811	.420
	Age	2.316E-005	.000	.007	.062	.950
	Size	.011	.007	.186	1.670	.099
	CEO	-.005	.008	-.075	-.612	.542

Note: a. dependent variable: ROA.

APPENDIX D. Multiple regression model of EPS using the period from 2014 to 2019, excluding the COVID-19 pandemic effects

Table D1. Variables entered/removed^a

Model	Variables entered	Variables removed	Method
1	CEO, Islamic, Size, Age, CSR ^b	–	Enter

Note: a. dependent variable: EPS; b. All requested variables entered.

Table D2. Model summary

Model	R	R square	Adjusted R square	Std. error of the estimate
1	.439 ^a	.193	.135	2.96720

Note: a. predictors: (constant) CEO, Islamic, Size, Age, CSR.

Table D3. ANOVA^a

	Model	Sum of squares	df	Mean square	F	Significance
1	Regression	147.171	5	29.434	3.343	.009b
	Residual	616.298	70	8.804	–	–
	Total	763.469	75	–	–	–

Note: a. dependent variable: EPS; b. predictors: (constant) CEO, Islamic, Size, Age, CSR.

Table D4. Coefficients^a

Model		Unstandardized coefficients		Standardized coefficients	t	Significance
		B	Std. error	Beta		
1	(Constant)	–2.904	2.662	–	–1.091	.279
	CSR	.264	.817	.040	.323	.748
	Islamic	–.592	.835	–.079	–.709	.481
	Age	.079	.038	.255	2.102	.039
	Size	1.344	.671	.224	2.002	.049
	CEO	–2.000	.827	–.307	–2.418	.018

Note: a. dependent variable: EPS.

APPENDIX E. Multiple regression model of ROE using the period from 2014 to 2019, excluding the COVID-19 pandemic effects

Table E1. Variables entered/removed^a

Model	Variables entered	Variables removed	Method
1	CEO, Islamic, Size, Age, CSR ^b	–	Enter

Note: a. dependent variable: ROE; b. all requested variables entered.

Table E2. Model summary

Model	R	R square	Adjusted R square	Std. error of the estimate
1	.557 ^a	.310	.261	.086249833953703

Note: a. predictors: (constant) CEO, Islamic, Size, Age, CSR.

Table E3. ANOVA^a

	Model	Sum of squares	df	Mean square	F	Significance
1	Regression	.234	5	.047	6.299	.000 ^b
	Residual	.521	70	.007	–	–
	Total	.755	75	–	–	–

Note: a. dependent variable: ROE; b. predictors: (constant) CEO, Islamic, Size, Age, CSR.

Table E4. Coefficients^a

Model	Unstandardized coefficients		Standardized coefficients	t	Significance	
	B	Std. error	Beta			
1	(Constant)	-.060	.077	–	-.770	.444
	CSR	.013	.024	.062	.543	.589
	Islamic	-.006	.024	-.024	-.233	.816
	Age	-9.627E-005	.001	-.010	-.088	.930
	Size	.085	.020	.451	4.356	.000
	CEO	-.047	.024	-.228	-1.949	.055

Note: a. dependent variable: ROE.

APPENDIX F. Multiple regression model of ROA using the period from 2014 to 2019, excluding the COVID-19 pandemic effects

Table F1. Variables entered/removed^a

Model	Variables entered	Variables removed	Method
1	CEO, Islamic, Size, Age, CSR ^b	–	Enter

Note: a. dependent variable: ROA; b. all requested variables entered.

Table F2. Model summary

Model	R	R square	Adjusted R square	Std. error of the estimate
1	.417 ^a	.174	.115	.018678484398632

Note: a. predictors: (constant) CEO, Islamic, Size, Age, CSR.

Table F3. ANOVA^a

	Model	Sum of squares	df	Mean square	F	Significance
1	Regression	.005	5	.001	2.941	.018 ^b
	Residual	.024	70	.000	–	–
	Total	.030	75	–	–	–

Note: a. dependent variable: ROA; b. predictors: (constant) CEO, Islamic, Size, Age, CSR.

Table F4. Coefficients^a

Model	Unstandardized coefficients		Standardized coefficients	t	Significance	
	B	Std. error	Beta			
1	(Constant)	.005	.017	–	.279	.781
	CSR	.008	.005	.192	1.524	.132
	islamic	-.006	.005	-.137	-1.204	.232
	Age	-3.380E-005	.000	-.018	-.143	.887
	Size	.006	.004	.153	1.353	.180
	CEO	-.008	.005	-.207	-1.614	.111

Note: a. dependent variable: ROA.

APPENDIX G. Logistic regression model of ROE and EPS using the period from 2014 to 2020, including the COVID-19 pandemic effects

Table G1. Omnibus tests of model coefficients

Step		Chi-square	df	Sig.
1	Step	30.367	6	.000
	Block	30.367	6	.000
	Model	30.367	6	.000

Table G2. Model summary

Step	-2 Log likelihood	Cox & Snell R square	Nagelkerke R square
1	75.301 ^a	.313	.429

Note: a. estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table G3. Variables in the equation

Step	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)		
							Lower	Upper	
1 ^a	<i>x1Islamic(1)</i>	-.312	.702	.197	1	.657	.732	.185	2.896
	<i>X2Eps</i>	.144	.171	.707	1	.401	1.155	.825	1.616
	<i>X3age</i>	.161	.049	10.580	1	.001	1.174	1.066	1.294
	<i>X4SIZE</i>	.060	.646	.009	1	.926	1.061	.299	3.765
	<i>X5CEOchairman(1)</i>	-3.357	1.046	10.292	1	.001	.035	.004	.271
	<i>X6ROE</i>	4.033	4.076	.979	1	.322	56.405	.019	166172.015
	Constant	-4.307	2.357	3.337	1	.068	.013	–	–

Note: a. variable(s) entered on step 1: *x1Islamic*, *X2Eps*, *X3age*, *X4SIZE*, *X5CEOchairman*, *X6ROE*.

APPENDIX H. Logistic regression model of ROA and EPS using the period from 2014 to 2020, including the COVID-19 pandemic effects

Table H1. Omnibus tests of model coefficients

Step		Chi-square	df	Sig.
1	Step	30.169	5	.000
	Block	30.169	5	.000
	Model	30.169	5	.000

Table H2. Model summary

Step	-2 Log likelihood	Cox & Snell R square	Nagelkerke R square
1	76.175 ^a	.305	.419

Note: a. estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table H3. Variables in the equation

Step	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
<i>x1Islamic(1)</i>	-.410	.703	.339	1	.560	.664	.167	2.634
<i>X2Eps</i>	.241	.159	2.303	1	.129	1.273	.932	1.738
<i>X3age</i>	.151	.049	9.620	1	.002	1.163	1.057	1.280
1 ^a <i>X4SIZE</i>	.283	.609	.215	1	.643	1.327	.402	4.376
<i>X5CEOchairman(1)</i>	-3.471	1.079	10.344	1	.001	.031	.004	.258
<i>X7ROA</i>	-2.931	7.744	.143	1	.705	.053	.000	208423.219
Constant	-3.979	2.289	3.021	1	.082	.019	-	-

Note: a. variable(s) entered on step 1: *x1Islamic*, *X2Eps*, *X3age*, *X4SIZE*, *X5CEOchairman*, *X7ROA*.

APPENDIX I. Logistic regression model of ROE and EPS using the period from 2014 to 2019, excluding the COVID-19 pandemic effects

Table I1. Omnibus tests of model coefficients

		Chi-square	df	Sig.
Step 1	Step	21.136	6	.002
	Block	21.136	6	.002
	Model	21.136	6	.002

Table I2. Model summary

Step	-2 Log likelihood	Cox & Snell R square	Nagelkerke R square
1	75.092 ^a	.254	.345

Note: a. estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Table I3. Variables in the equation

Step	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
<i>x1Islamic(1)</i>	.136	.696	.038	1	.845	1.146	.293	4.484
<i>X2Eps</i>	-.171	.119	2.050	1	.152	.843	.668	1.065
<i>X3age</i>	.141	.047	9.082	1	.003	1.152	1.051	1.262
1 ^a <i>X4SIZE</i>	.700	.687	1.038	1	.308	2.013	.524	7.736
<i>X5CEOchairmanmoderator(1)</i>	-2.936	.943	9.690	1	.002	.053	.008	.337
<i>X6ROE</i>	5.147	3.971	1.680	1	.195	171.908	.072	412161.810
Constant	-5.681	2.528	5.049	1	.025	.003	-	-

Note: a. Variable(s) entered on step 1: *x1Islamic*, *X2Eps*, *X3age*, *X4SIZE*, *X5CEOchairmanmoderator*, *X6ROE*.

APPENDIX J. Logistic regression model of ROE and EPS using the period from 2014 to 2019, excluding the COVID-19 pandemic effects

Table J1. Omnibus tests of model coefficients

Step		Chi-square	df	Sig.
1	Step	41.257	6	.000
	Block	41.257	6	.000
	Model	41.257	6	.000

Table J2. Model summary

Step	-2 Log likelihood	Cox & Snell R square	Nagelkerke R square
1	54.971 ^a	.436	.592

Note: a. estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Table J3. Variables in the equation

Step	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)		
							Lower	Upper	
1 ^a	<i>x1Islamic(1)</i>	.785	.837	.878	1	.349	2.192	.425	11.314
	<i>X2Eps</i>	-.622	.181	11.760	1	.001	.537	.377	.766
	<i>X3age</i>	.310	.088	12.290	1	.000	1.363	1.146	1.621
	<i>X4SIZE</i>	-1.353	1.056	1.643	1	.200	.258	.033	2.046
	<i>X5CEOchairmanmoderator(1)</i>	-3.488	1.028	11.512	1	.001	.031	.004	.229
	<i>X7ROA</i>	260.824	76.796	11.535	1	.001	1.880E+113	8.047E+047	4.394E+178
	Constant	-6.613	3.604	3.366	1	.067	.001	-	-

Note: a. Variable(s) entered on step 1: *x1Islamic*, *X2Eps*, *X3age*, *X4SIZE*, *X5CEOchairmanmoderator*, *X7ROA*.

APPENDIX K

Table K1. Using the period from 2014 to 2020: Correlation matrix

Variables		YCSR	<i>x1Islamic</i>	<i>X2Eps</i>	<i>X3age</i>	<i>X4SIZE</i>	<i>X5CEOchairman moderator</i>	ROE	ROA
<i>X2 CSR</i>	Pearson Correlation	1	.066	.135	.164	.192	-.307**	.179	.276*
	Sig. (2-tailed)	-	.583	.259	.169	.106	.009	.132	.019
	N	72	72	72	72	72	72	72	72
<i>x1Islamic</i>	Pearson Correlation	.066	1	-.095	.153	-.064	-.049	-.096	-.168
	Sig. (2-tailed)	.583	-	.429	.201	.591	.682	.422	.159
	N	72	72	72	72	72	72	72	72
Eps	Pearson Correlation	.135	-.095	1	.016	.383**	-.340**	.576**	.379**
	Sig. (2-tailed)	.259	.429	-	.894	.001	.004	.000	.001
	N	72	72	72	72	72	72	72	72
<i>X3age</i>	Pearson Correlation	.164	.153	.016	1	.099	.426**	-.275*	-.239*
	Sig. (2-tailed)	.169	.201	.894		.407	.000	.019	.043
	N	72	72	72	72	72	72	72	72
<i>X4SIZE</i>	Pearson Correlation	.192	-.064	.383**	.099	1	.013	.496**	.281*
	Sig. (2-tailed)	.106	.591	.001	.407	-	.917	.000	.017
	N	72	72	72	72	72	72	72	72
<i>X5CEOchairman moderator</i>	Pearson Correlation	-.307**	-.049	-.340**	.426**	.013	1	-.297*	-.307**
	Sig. (2-tailed)	.009	.682	.004	.000	.917	-	.011	.009
	N	72	72	72	72	72	72	72	72
ROE	Pearson Correlation	.179	-.096	.576**	-.275*	.496**	-.297*	1	.421**
	Sig. (2-tailed)	.132	.422	.000	.019	.000	.011	-	.000
	N	72	72	72	72	72	72	72	72
ROA	Pearson Correlation	.276*	-.168	.379**	-.239*	.281*	-.307**	.421**	1
	Sig. (2-tailed)	.019	.159	.001	.043	.017	.009	.000	-
	N	72	72	72	72	72	72	72	72

Note: * correlation is significant at the 0.05 level (2-tailed); ** correlation is significant at the 0.01 level (2-tailed).

APPENDIX L

Table L1. Using the period from 2014 to 2019: Correlation matrix

Variables		YCSR	x1Islamic	X2Eps	X3age	X4SIZE	X5CEOchairman	ROE	ROA
X2CSR	Pearson Correlation	1	.030	.273*	.153	.192	-.374**	.238*	.060
	Sig. (2-tailed)		.787	.014	.173	.085	.001	.032	.596
	N	81	81	81	81	81	81	81	81
x1Islamic	Pearson Correlation	.030	1	-.085	.151	-.050	-.042	-.087	.062
	Sig. (2-tailed)	.787	–	.444	.170	.652	.708	.434	.577
	N	81	84	84	84	84	84	84	84
Eps	Pearson Correlation	.273*	-.085	1	.042	.370**	-.361**	.522**	.261*
	Sig. (2-tailed)	.014	.444		.704	.001	.001	.000	.017
	N	81	84	84	84	84	84	84	84
X3age	Pearson Correlation	.153	.151	.042	1	.139	.366**	-.266*	-.085
	Sig. (2-tailed)	.173	.170	.704		.208	.001	.014	.443
	N	81	84	84	84	84	84	84	84
X4SIZE	Pearson Correlation	.192	-.050	.370**	.139	1	-.038	.478**	.211
	Sig. (2-tailed)	.085	.652	.001	.208	–	.732	.000	.054
	N	81	84	84	84	84	84	84	84
X5CEOchairman	Pearson Correlation	-.374**	-.042	-.361**	.366**	-.038	1	-.278*	-.094
	Sig. (2-tailed)	.001	.708	.001	.001	.732	–	.010	.393
	N	81	84	84	84	84	84	84	84
ROE	Pearson Correlation	.238*	-.087	.522**	-.266*	.478**	-.278*	1	.223*
	Sig. (2-tailed)	.032	.434	.000	.014	.000	.010	–	.041
	N	81	84	84	84	84	84	84	84
ROA	Pearson Correlation	.060	.062	.261*	-.085	.211	-.094	.223*	1
	Sig. (2-tailed)	.596	.577	.017	.443	.054	.393	.041	–
	N	81	84	84	84	84	84	84	84

Note: * correlation is significant at the 0.05 level (2-tailed); ** correlation is significant at the 0.01 level (2-tailed).