The Impact of Audit Quality on Corporate Social Responsibility Disclosure and Their Impact on Financial Constraints

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Abstract:

In recent years, many financial crises have occurred around the world. Previous studies focused on analyzing these crises created new expressions, such as financial constraints. To identify determinants to minimize these constraints, this paper considers two of these determinants, audit quality and corporate social responsibility disclosure. Using a sample of 30 non-financial listed firms on the Egyptian Stock Exchange (EGX100) from 2016 to 2021 including 180 annual observations. The findings reveal that (1) audit quality provides stakeholders with sufficient information including corporate social responsibility disclosure. (2) corporate social responsibility disclosure reduces information asymmetry, accordingly, plays an important role in managing risks and complies with social requirements which enhances stakeholders trust and reduces financial constraints. (3) firms that have audit quality are better equipped to reduce information asymmetry, which leads to increasing reliability of financial information, hence, lowering financial constraints. (4) Audit quality has an indirect and positive effect on financial constraints through corporate social responsibility disclosure as a mediator.

Keywords : Audit Quality, Corporate Social Responsibility Disclosure, and Financial Constraints.

Introduction:

Firms have abundant objectives; many studies have confirmed the most important objective is increasing firms' market value. It can be achieved by some actions including minimizing the cost of capital. This minimization happens through managing or selecting suitable capital structure. These firms can get enough funds through internal sources such as retained earnings, and external finance such as borrowings and issuance of new equity. The optimal capital structure has the lowest cost of capital.

Regarding external finance, which has higher costs, some firms face difficulties getting needed finance, since they are financially constrained. The presence of financial constraints has therefore clear effects on the overall economy. For this reason, identifying financial constraints has been a crucial task for researchers to help policy assessment and prevent intervention. Financial Constraints (FC) are defined as *"firms are financially constrained if the cost or availability of external funds precludes the company from making an investment it would have chosen to make had internal funds been available. In other words, there is a wedge between internal funds (i.e. retained earnings) and external funds (i.e. debt and equity financing)"* (Kaplan and Zingales, 1995). Increasing FC prevents the firm from making an investment that it would have made. Since a firm was considered financially constrained, it had insufficient cash to undertake investment opportunities (Korajczyk and Levy ,2003). Moreover, a firm was considered financially unconstrained if it had unrestricted access to external financing (Almeida et al., 2004).

In Egypt, Egyptian firms suffer from having sufficient external finance. Since 17.4% of Egyptian firms have access to a bank loan or line of credit which is lower than the global average (37.1%). The proportion of loans required collateral (84.5%), and the proportion of investment financed internally (88.5%) remains at a high level. Egypt has a score of 6 on the depth of credit information index and score of 3 on the strength of legal rights index, with higher scores indicating more credit information and stronger legal rights index for borrowers and lenders. Finally. Egypt ranks 86 out of 189 economics (OECD, 2020).

Some studies were interested in factors that affected financial constraints. This paper contributes to investigating some financial constraints' factors or determinants, which are audit quality (AQ) and Corporate Social Responsibility Disclosure (CSRD). In addition, the paper investigates the joint effect of these variables on financial constraints.

The reminder of this paper is organized into five sections. Section 1 presents the research problem. Section 2 concern with literature review and hypotheses development; section 3 discusses the research method. Section 4 reports and discusses the empirical results. Finally, section 5 presents concluding remarks.

1. Research problem:

The research problem can be classified as follows:

1.1 Audit Quality and Financial Constraints:

Audit Quality (AQ) is an expression to maintain the professionals value and reduce litigation against others (Moeinadin et al., 2013). IAASB (2014) defines it as *"encompasses the key elements that create an environment which maximizes the likelihood that quality audits are performed on a consistent basis"*. AQ is one of the determinants that reflect with a high degree of assurance the credibility and fairness of the economic aspects of the firm. Accordingly, the added value generated through AQ and its reflection on the quality of financial reports' quality, and the discovery of significant misstatements and error accounting practices to contribute to satisfying the stakeholders' interests.

Regarding the direct effect of Audit Quality (AQ) on Financial Constraints (FC), there are two theories supporting a negative effect of AQ on FC; the first is ***agency theory***. According to this theory, increasing AQ contributes to reducing information asymmetry between managers and external related parties which increases reliability in financial information thereby lowering both cost of capital and FC. The second theory is ***signaling theory***. According to this theory, increasing AQ sends a positive signal to market participants about firm financial health and governance practices which increase chances to attract more investors and lenders, this means reducing FC.

There are three points to explain the negative effect of AQ on FC, they are (1) increasing AQ contributes to reducing information asymmetry between management and external parts which leads to increasing external parties trust and reducing FC. (2) increasing AQ enhances the credibility of financial reports, so increases trust of external parties. This trust is crucial for attracting external financing, particularly for firms facing FC. (3) Increasing AQ contributes to improving risk management by identifying and addressing financial misstatements and irregularities. This reduces the likelihood of financial distress and enhances the firm’s ability to secure external finance and reduce FC.

1.2 Corporate Social Responsibility Disclosure and Financial Constraints:

Agency theory refers to a conflict of interest between management and firms' stakeholders. Academic studies used some new concepts to strengthen the relationship between these parties, such as corporate citizenship, sustainability development and Corporate Social Responsibility (CSR) (Wu and Hu, 2019).

Concerning Corporate Social Responsibility (CSR), many studies confirmed that CSR can solve many conflicting problems globally, e.g. the poverty gap, discrimination, and environmental pollution (Marrewilk, 2017).

Some academic studies defined CSR as" *A concept whereby firms integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis*" (El-Bassiouny & El-Bassiouny, 2019). Consequently, it has become a widely recognized term that expects firms to participate in enhancing their social position in the market besides their operating within the rules and regulations imposed by law. However, there are disclosure variations across countries due to differences in underlying environments, such as form of economy, size and operation of stock markets, and degree of economic growth (El-Bassiouny & El-Bassiouny, 2019). CSR combines some core principles that reflect some of the most significant advantages for stakeholders and society, these principles include the protection of human rights, employee's rights, transparency of information, environmental protection, consumer protection and community growth (Amodu, 2013).

Based on the importance of this corporate social responsibility, some definitions have been raised, such as ***Corporate social responsibility disclosure (CERD)***. It is defined as *"information that a firm makes public, typically within a stand-alone report, that relates to its performance, standards, or activities under the CSR umbrella"*. This CSRD may differ from one country to another (Brooks and Oikonomou, 2018).

CSRD has some advantages, such as creating a culture of doing the right thing that can result in mitigating the risks that the company may face in the market and giving the firm a positive reputation. However, it could have some disadvantages, such as increasing restrictions by legislation and standards by governments and accounting bodies, Moreover, this disclosure may be used to report positive information and withhold any negative environmental and social performance information to retain its position in the market (Crifo & Forget, 2015).

Regarding the direct effect of CSRD on FC, there are three opinions, *the first opinion* confirms a negative effect of CSRD on FC. This negative effect is due to (1) CSRD contributes to reducing information asymmetry, which increases stakeholders' trust which motivates them to invest in firms. (2) CRSD plays a role in managing risks and ensuring compliance with social requirements which builds stakeholders' trust, hence, reducing FC and encouraging them to invest in firms. *The second opinion* mentioned that the effect of CSRD on FC is not consistent and depends on various factors, including the nature of the CSR activities, the regulatory environment, and the specific characteristics of the firms, while CSRD can enhance financial performance and potentially reduce FC through improved reputation and stakeholders' trust. *The last opinion* though CSRD has a positive effect on FC**.** This opinion based on the assumption that CSRD leads to having additional costs, particularly that was related to mandatory CSR activities, which may increase financial pressures and, consequently, raise FC.

Regarding the indirect effect of ***Audit Quality (AQ) on Financial Constraints (FC) through Corporate Social Responsibility Disclosure (CSRD)*** this association is divided into two parts, the ***first part concerns with the association between AQ and CSRD***. Since there is a positive effect of AQ on CSRD. There are some reasons for this association, they are (1) Increasing AQ means auditors' success in providing stakeholders with enough information including CSRD. (2) having high AQ participates in ensuring compliance to avoid penalties for non-compliance. High-quality auditors help firms comply with such regulations by ensuring that their CSRD meets the required standards. The ***second part concerns the association between CSRD and FC*** was discussed in previous parts.

2. Literature Review and Hypotheses development:

The literature review can be classified as follows:

2.1 Audit Quality (AQ) and Corporate Social Responsibility Disclosure (CSRD):

Previous studies that examined the association between AQ and CSRD were divided into two groups; the ***first group of literature failed to confirm significant association between AQ and CSRD***. For example, Dewi and Monalisa (2016) examined the influence of CSRD on financial performance and firm value with testing AQ as a moderating variable on the association between CSRD and Firm value. Using a sample of 26 mining firms listed on the Indonesia Stock Exchange (IDX) from 2010 to 2012, the findings confirmed that AQ as a moderating variable did not affect the association between CSRD and both financial performance and firm value. Kolsi et al. (2020) highlighted the attributes of external auditors in voluntary CSRD, using a sample of 410 firm-year observations from 2010 to 2016 of firms listed on Abu Dhabi Securities Exchange (ADX). The results revealed that the magnitude of audit fees and auditor experience have no impact on the CSRD.

Helda et al. (2022) examined the effect of earnings management on CSRD and the role of AQ as a moderator in the association between them. Using a sample of 69 manufacturing firms in the basic industry and chemical sectors listed on the IDX from 2017 to 2019, the results revealed the auditor industry specialist, as AQ proxy, did not moderate the association between earnings management and CSRD. Confirming no association Wahyuningtias et al. (2023) examined the effect of CSR and the board of directors on the firm's profitability with AQ as moderating variable. Using a sample of 56 food and beverage listed firms on the IDX from 2019 to 2021, the result showed that AQ did not affect the association between CSR and the company's profitability. In addition, AQ did not affect the association between the board of directors and the firm's profitability.

On the contrary, the ***second group confirmed a positive and significant association between AQ and CSRD***. Purba (2016) aimed to get empirical evidence about the influence of good corporate governance that consists of the proportion of institution ownership, board size, the proportion of independent commissioners, audit committee size and AQ on the CSRD. Using a sample of 59 listed firms on IDX in 2014, the results indicated that good corporate governance and AQ have an effect simultaneously on the CSRD. Bacha et al. (2021) investigated the effect of both CSR and AQ on the cost of debt. Using a sample of French non-financial firms over the period 2005 to 2016, the results showed that AQ, along with CSR performance, are relevant to banks in the pricing of debt. The Big 4 auditors are expected to play information and insurance roles, thereby enhancing the firm’s risk profile.

Confirming a positive association Handayati et al. (2022) investigated the impact of Big 4 auditors, corporate governance and firm characteristics on CSRD. Using a sample of top 80 listed firms in IDX from 2016 to 2020, the results suggested that reputable firms, diligent boards and firms audited by Big 4 auditors have a positive and significant effect on CSRD. IN addition, this study found that firms with diligent board audited by Big 4 auditors were positively associated with CSRD. Rawi and Muchlish (2022) investigated the influence of AQ, audit committee, and media exposure on CSR. Using a sample of 120 manufacturing firms listed on the IDX from 2015 to 2019, the results showed that AQ, Audit Committee, and Media Exposure had a partial positive effect on CSR.

On the same direction Hichri (2023) investigated the relationship between AQ and value relevance and subsequently ascertain the moderating effect of business ethics on integrated reporting. Using a sample of 510 European firms between 2010 and 2022. The results suggested that integrated reporting has significant explanatory power on value relevance, and that business ethics moderate the relationship between integrated reporting and value relevance in European ESG firms. Wang and Wang (2023) examined the causal association between mandatory CSRD and financial audit efficiency. Using sample of Chinese listed firms, the study found audit efficiency has been improved greatly after following mandatory CSRD. Moreover, this association is stronger when firms have better CSR performance. Moreover, neither AQ nor audit fees decrease when shorter audit lags occur for firms with mandatory CSRD. Overall, mandatory CSRD has a positive association with audit efficiency.

Pratiti et al. (2024) examined the moderating effect of AQ on the association between CSR and Good Corporate Governance on Firm value. Using a sample of 30 firms in the energy sector listed on the IDX from 2018 to 2023, the findings indicated that CSR does not affect firm value, while Good Corporate Governance has a positive impact on Firm value. AQ can moderate and weaken the positive relationship between CSR and Firm value. Yudha (2024) examined the influence of CSRD, acceptance of going concern audit opinion, and AQ on market reactions. Using a sample of 20 mining sector firms listed on the IDX in 2010-2013, the results showed that financial information was a reference for investors in making investment decisions; they need to pay more attention to CSRD information, considering audit opinion and AQ as tools for predicting the future.

To the best of researchers' knowledge, there is no agreement about the effect of AQ on CSRD. Therefore, the following hypothesis is formulated:

H_1: There is a significant impact of audit quality on corporate social responsibility disclosure.

2.2 Corporate Social Responsibility Disclosure (CSRD) and Financial Constraints (FC):

Several studies investigated the association between CSRD and FC. Nguyen and Nguyen (2021) investigated the link between CSR activities and bank risk-taking and test the effect of this association on levels of constraint. Using a sample of commercial banks in Vietnam from 2008 to 2017, the results suggested that CSR activities reduced bank risk-taking, and this association was found in the case of financially constrained banks. Moreover, Unconstrained banks were more likely to invest in unnecessary CSR, thus reducing bank performance and increasing bank risk-taking. Wang (2021) confirmed the negative association when it used the data of 540 A-share listed companies in Shanghai and Shenzhen stock exchanges from 2014 to 2019 to test the association between CSR, FC and corporate sustainable development, the results showed that CSR can inhibit FC and promote the sustainable development of firms in the Chinese context. FC restrained sustainable development of firms. FC played an intermediary role in CSR and sustainable development.

Moreover, Farooq and Noor (2023) examined the impact of CSR on FC by examining the moderating effect of ownership variables and institutional ownership. Using a sample of 137 nonfinancial Pakistan Stock Exchange listed firms from 2010 to 2019, the study confirmed that CSR has a negative impact on FC. Attig (2024) investigated the impact of relaxing FC on CSR. Using sample of U.S. firms, the study suggested that relaxing FC leads to higher CSR especially for financially constrained firms. In addition, this study found that the most impacted firms were those with increased post-shock debt financing. Liang and Chen (2024) investigated the impact of mandatory CSRD on FC in China. The study found that mandatory CSR reporting firms with political connections or located in more marketized regions/ provinces can alleviate their FC.

Based on agreement about the negative effect of CSRD on FC. So, the researcher develops the following hypothesis:

H_2: There is no significant impact of corporate social responsibility disclosure on financial constraints.

2.3 Audit Quality (AQ) and financial Constraints (FC):

Previous studies that examined the association between AQ and FC were divided into two groups; the ***first group confirmed a significant and negative association between AQ and FC***. Mahdavi and Rastegari (2018) studied the association between AQ and FC. Using a sample of 100 firms listed on The Tehran Stock Exchange from 2006 to 2013, the results revealed that there was a significant and negative association between auditing firm size and auditor`s tenure, as AQ proxies, and FC. Benjamin (2019) examined the effects of FC on audit fees, as a proxy of AQ, and the mediating effects of corporate cash holdings, discretionary accruals and corporate tax avoidance activities. Using sample of U.S. listed firms from 2000 to 2016, the results revealed that there was a positive and significant effect of FC on audit fees. Moreover, the effects of FC on audit fees are mediated by cash holdings, discretionary accruals and corporate tax avoidance.

Confirming a negative association, Ashrafi and Kazemi (2023) investigated the association between FC, AQ and external financing. Using a sample of 105 firms listed on The Tehran Stock Exchange from 2015 to 2022, the findings showed that there was a negative and significant relationship between FC and AQ. Moreover, the results indicated that AQ leads to a positive and meaningful association between FC and external financing. Mohamed (2024) investigated the association between FC and audit fees using a sample of 93 nonfinancial listed firms on the Egyptian Stock Exchange during the period from 2018 to 2022, the results concluded a negative association between FC and Audit fees. It is necessary for professional and regulatory bodies to issue financing programs and establish special funds to assist financially constrained firms.

On the other hand, the ***second group confirmed a significant and positive association between AQ and FC***. Mulamula et al. (2023) tested the relationship between tax planning and FC with the moderated role of AQ. Using a sample of listed firms in East African Countries from 2009 to 2019, the results showed no significant moderated role of AQ on the association between tax planning and FC.

To the best of researchers' knowledge, there is no agreement about the effect of AQ on FC. Therefore, the following hypothesis is developed:

H_3: There is a direct and significant impact of audit quality on financial constraints.

Regarding the indirect effect of CRSD on the association between AQ and FC, the researcher formulated the following hypothesis as follows:

H_4: There is an indirect and a significant impact of audit quality on financial constraints through tax avoidance as a mediator.

3. Research Method:

This part has included the following sections:

3.1. Research Variables and Measurements:

The research variables are:

3.1.1. Independent variable: Audit Quality (AQ):

There are many proxies that can be used to express AQ, they are:

1. **Audit fees (Aud.Fees):** Clinch et al. (2012) argues that higher audit fees indicate higher audit effort, then greater AQ. This proxy is measured by natural logarithm of auditors' fees.
2. **Auditor size (Big 4):** many studies confirmed the larger auditors reduce AQ opportunistically, since many literature reviews show that the auditor size is one of AQ proxies. In addition, Park et al. (2017) and Masrouki and Houcine (2019) and Shahzad and Rehman (2019) confirm that depending on auditing by one of Big 4 increases investment efficiency. Since auditor size gets value one when the auditor is one of Big 4 auditors otherwise zero for non-big 4 auditors.
3. **Audit tenure (Aud.ten):** According to Chen et al. (2004), the longer the audit tenure, the better auditors' understanding of the client's activities with the passage of time which increases their abilities to do auditing jobs efficiently. In addition, auditors' long-term period pushes auditors to make more efforts to maintain their reputation. This leads to improving AQ. Almutairi et al. (2009) mention that longer tenure enhances the economic association between the auditor and client, which considers auditor tenure as one of AQ proxies. In addition, Dashtbayaz and Mohammadi (2016) confirm that audit tenure has a positive effect on investment efficiency. Since this proxy is measured by natural logarithm of auditors' period.

3.1.2 Mediating Variables: Corporate Social Responsibility Disclosure (CSRD):

In June 2007, Environmental, Social and Governance (SEG) index was lunched in Egypt to obtain data for corporate social responsibility. It measures the quality of information that firms make available concerning their corporate social responsibility. This Index is designed to track the performance of the top 100 listed firms on the Egypt Stock Exchange (EGX100) that demonstrates leadership on environmental, social and

Governance issues. All the EGX100 listed firms are evaluated on an annual basis to select the top 30 that can be listed on the ESG index. Index constituents are ESG score weighted, since two screening processes take place to rank the listed firms, one focusing on environment and social indicators and the other one focusing on CG indicators (Indices and Methodology, 2021). To determine the weight that each firm will be given in the index, a quantitative score and a qualitative score is assigned to evaluate the actual Corporate Social Responsibility performance of the firm on a scale of 1 to 5 (Indices and Methodology, 2021). A composite score is calculated for each firm by summing the qualitative score and the quantitative score. In the current research the two screens of the index (Environmental and social screen, corporate governance screen) are used separately (Indices and Methodology, 2021). To homogenate among variables, researchers use natural logarithms for this index.

3.1.3. Dependent variable: Financial Constraints (FC):

There are many proxies that can be used to express FC, they are:

1. **Altman Z-Score:** Altman (1968) introduced model to measure FC, which represented it Z-Score. It can be represented in the following equation:

   Altman Z-Score = -0.012 X1 - 0.014 X2 - 0.033 X_3 - 0.006 X4 - 0.999 5

   Where:

Z-Score	:	Overall Index
X1	:	Working capital / Total assets
X2	:	Retained earnings / Total assets
X3	:	Earnings before interest and tax / Total assets
X4	:	Market value equity / Book value of total debts
X5	:	Sales / Total assets

The Altman Z-Score index is classified into three sections, the first section is safe area when this index is higher than -1.88. The second section is neutral area when this index is between -1.88 and -2.99. The third section is at risk area in which this index is lower than -2.99. This classification means that increasing Altman Z-score increases FC.

2. **Kaplan and Zingales:** Kaplan and Zingales (1997) introduced a model to measure FC, which represented it KZ-index. Hu and Lui (2015) and Meng et al. (2020) made some modifications by Kaplan and Zingales (1997) model. The modified KZ-index is represented in the following equation:

KZ-index = -1.002 (CF t /At-1) - 39.368 (DIV t /At-1) - 1.315 (C t /At-1) + 3.139 LEV t

Where:

KZ-index	:	Overall Index
CF t	:	Cash flow from operation in year t
At-1	:	Total assets in year t-1
D t	:	Total paid dividends in year t
C t	:	Cash holdings in year t
LEV t	:	Leverage in year t which is computed through dividing total debts by total debts and capital

KZ-index gives an indicator for FC. Since increasing this index increases FC.

3.2 The Model:

Describe the mediating role of CSRD on the association between AQ and FC is represented in the following figure:

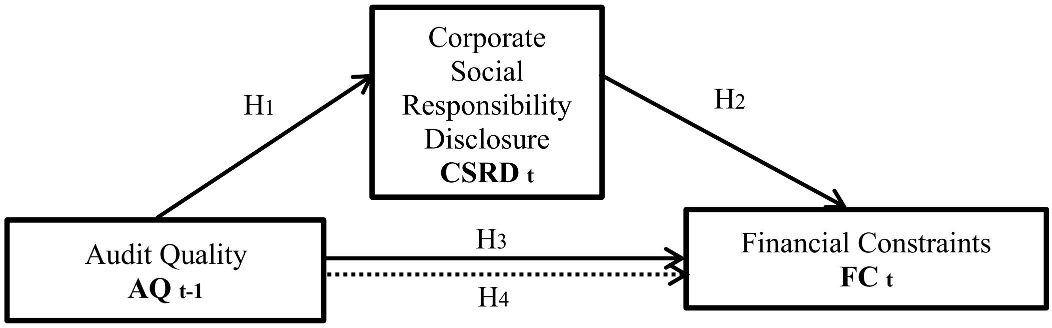

Figure 1: Research Model to test hypotheses

3.3 Data Description:

Published annual reports in Mubasher database were used. The sample begins from 2016 to 2021. The sample includes 30 listed firms on EGX 100 with 180 completed annual observations. All banks and financial institutions since this sector are affected by rules issued by Central Bank of Egypt (CBE) that could have a significant effect of research results. Moreover, the sample stopped in 2021 since the Egyptian financial crisis hit Egypt by the end of 2022 that led the Egyptian government devaluing the Egyptian pound.

3.4 Descriptive statistics:

Table 1 introduces descriptive statistics for all study variables as follows:

Table 1: Descriptive Statistics of the variables

Var.	N	Mean	Min.	Max.	STDEV	Kurtosis	Skewness
Big 4	180	0.511	0.000	1.000	0.500	-2.021	-0.045
Aud.Fees	180	2.263	1.544	2.892	0.350	-0.636	0.013
Aud.Ten	180	0.867	0.000	1.362	0.409	-0.488	-0.752
CSRD	180	2.094	2.035	2.187	0.032	-0.194	0.539
Altman Z-Score	180	-0.706	-1.602	-0.007	0.562	-1.343	-0.290
KZ- index	180	-0.699	-5.421	1.772	2.170	0.210	-1.106

Source: Data Processed 2025.

Table 1 indicates that Skewness and Kurtosis values are within accepted ranges for all variables, this means the deviations are normal and will not have any significant effect on the results. Moreover, according to the mean of the Altman Z-score (-1.602) confirms that firms' sample is in neutral area.

3.5 Data Analysis:

Data was processed by using Structural Equation Modeling (SEM) through running "Smart PLS 4" software. The researcher examines model and proxies' validity through the following tests:

3.5.1 Model goodness of fit:

To make sure the model has trusted and generalized results as follows, the researcher uses the following table:

Table 2: Model goodness of fit

Test of model fit	Accepted level	Default model	Decision
SRMR	**SRMR < 0.08**	0.078	The results of the model are easy to interpret
NFI	**NFI ≥ 0.95**	0.961	The models improve the fit.

Source: Data Processed 2025

Table 2 indicates the model is fit and easy to interpret.

3.5.2 Inner Model Assessment:

R-squares are presented in table 3 to judge model relevance:

Table 3: R-Square Value

Constructs	R-Square	Adjusted R-Square
CSRD	**0.345**	**0.341**
FC	**0.373**	**0.366**

Source: Data Processed 2025.

The models used two variables influenced by others. AQ is influenced by CSRD. Similarly, FC is also influenced by AQ and CSRD. Q^2 represents predictive relevance. Since the higher Q^2, the model fits more with the data. Q^2 is calculated by using the following equation:

$$Q^2 = 1 - [(1 - R^2) \times (1 - R^2)] = 1 - [(1 - 0.345) \times (1 - 0.373)] = 0.589$$

Based on table 3, the amount of variability of data which was explained by the structural model was 58.9%. So, the structural model has a good fit.

3.5.3 Discriminant Validity:

To assure that the association between proxies and latent variables. The results obtained from the discriminant validity test are as follow:

Table 4: Values of discriminant validity (Cross Loading)

	AQ	CSRD	FC
Big 4	**0.803**	0.445	-0.487
Aud.Fees	**0.838**	0.520	-0.495
Aud.Ten.	**0.674**	0.392	-0.374
CSRD	0.587	**1.000**	-0.480
Altman Z-score	-0.525	-0.405	**0.874**
KZ-index	-0.499	-0.432	**0.869**

Source: Data Processed 2025.

Table 4 indicates that all proxies make up each variable (the values in bold) and meet the discriminant validity. It has the largest outer loading value for the variable it formed only.

3.5.4 Outer Model Assessment:

The convergent validity tests are presented in the following table:

Table 5: Outer weights

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Big 4 <- AQ	0.441	0.441	0.033	13.368	0.000
Aud.Fees <- AQ	0.480	0.479	0.023	20.964	0.000
Aud.Ten. <- AQ	0.362	0.363	0.031	11.610	0.000
CSRD <- CSRD	1.000	1.000	0.000	n/a	n/a
Altman Z-score <- FC	0.580	0.579	0.034	16.845	0.000
KZ-index <- FC	0.568	0.569	0.031	18.175	0.000

Source: Data Processed 2025.

Table 5 shows the value of the loading factor (convergent validity) of each proxy, since having a statistical *t*-value of $\geq$ 1.96 means valid proxies and all *t*-values in this table, so all proxies are valid. Since Big 4, audit fees and audit tenure are accepted as proxies for AQ. Moreover, Altman Z-score and KZ-index are accepted as proxies for FC.

3.5.5 Correlation:

The following table presents the correlation table:

Table 6: Correlations of the variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) Altman Z-Score	1.000					
(2) KZ- index	**0.759****	1.000				
(3) CSRD	**-0.420***	**-0.417****	1.000			
(4) Big 4	**-0.413****	**-0.410***	**0.472****	1.000		
(5) Aud.Fees	**-0.431****	**-0.428*****	**0.492***	**0.673****	1.000	
(6) Aud.Ten	**-0.346***	**-0.344****	**0.396****	**0.541****	**0.565***	1.000

Source: Data Processed 2025 ****** p<0.01, ** p<0.05, * p<0.1***

Table 6 provides a correlation matrix of all variables comprising Pearson correlation coefficient among all variables with a concentration on the main variables of interest. The correlation is between -0.431 and 0.759 which indicates that all variables are not suffering from multicollinearity problems.

4. Results:

Using bootstrapping of the PLS analysis, the results are presented in the following table:

Table 7: Path Analysis

		Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
1	AQ -> CSRD	0.587	0.589	0.044	13.459	0.000
2	AQ -> FC	-0.466	-0.469	0.071	6.575	0.000
3	CSRD -> FC	-0.206	-0.202	0.084	2.446	0.014
4	AQ -> CSRD -> FC	-0.121	-0.119	0.051	2.395	0.017

Source: Data Processed 2025.

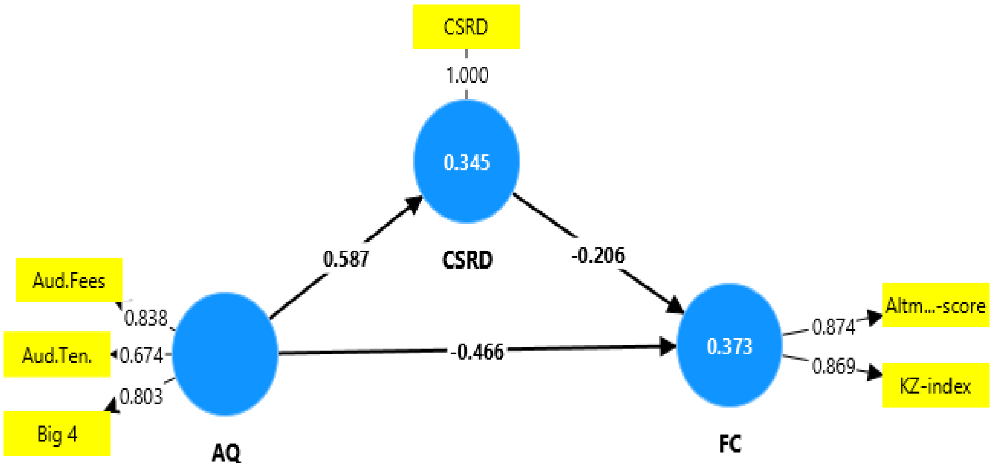

Figure 2: Research Model to test hypotheses

Results of table 7 are presented as follows:

1) The association between AQ and CSRD is obtained from line 1, the path coefficient is 0.587 with t-value 13.459 This means AQ has a significant and positive effect on CSRD at a significant level of 1%. So, the **first hypothesis (H_1) is accepted**. The result supports Purba (2016), Bacha et al. (2021), Handayati et al. (2022), Rawi and Muchlish (2022), Hichri (2023), Wang and Wang (2023), Pratiti et al. (2024) and Yudha (2024). However, this result is not consistent with Dewi and Monalisa (2016), Kolsi et al. (2020), Helda et al. (2022), and Wahyuningtias et al. (2023).

2) The association between CSRD and FC is obtained from line 2, the path coefficient is -0.466 with t-value 6.575 This means CSRD has a significant and negative effect on FC at a significant level of 1%. So, the **second hypothesis (H_2) is rejected**. The result supports Nguyen and Nguyen (2021), Wang (2021), Farooq and Noor (2023), Attig (2024) and Liang and Chen (2024).

3) The direct association between AQ and FC is obtained from line 3, the path coefficient is -0.266 with t-value 2.446 This means AQ has a significant and negative effect on FC at a significant level of 5%. So, the **third hypothesis (H_3) is accepted**. The result supports Mahdavi and Rastegari (2018), Benjamin (2019), Ashrafi and Kazemi (2023) and Mohamed (2024). However, this result is not consistent with Mulamula et al. (2023).

4) The indirect association between AQ and FC through CSRD is obtained from line 4, the path coefficient is -0.121 with t-value 2.395 This means there is an effect of integration between AQ and CSRD on FC at a significant level of 5%. So, the **fourth hypothesis (H_4) is accepted**.

5. Discussion and Conclusion:

5.1 Discussion:

Regarding the discussion about financial constraints (FC) determinants, this paper aims to analyze the effect of Audit Quality (AQ) and Corporate Social Responsibility Disclosure (CSRD) on FC. This objective is divided into three sub-objectives; the first is testing the effect of AQ on CSRD, the second is testing the effect of CSRD on FC, the third is testing the direct association between AQ and FC, the fourth objective concerns indirect association between AQ and FC through CSRD as a mediator variable.

Regarding objective (1), table (7) line (1) provides evidence that there is a positive and significant association between AQ and CSRD. Since having a high AQ means auditors contribute to providing stakeholders with enough information including CSRD. Moreover, having high AQ participates in ensuring compliance to avoid penalties for non-compliance. High-quality auditors help firms comply with such regulations by ensuring that their CSRD meet the required standards.

Regarding objective (2), table (7) line (2) provides evidence that there is a negative and significant association between CSRD and FC. Since having a high level of CSRD contributes to reducing information asymmetry which increases market participants' trust and motivates them to invest in firm. Moreover, having a high level of CSRD plays an important role in managing risks and complying with social requirements which enhance market participants' trust, so reducing FC and encouraging them to invest in these firms.

Regarding objective (3), table (7) line (3) provides evidence that there is a direct and negative effect of AQ on FC. Since (1) firms that have a high level have enough opportunity to reduce information asymmetry which leads to increased reliability in financial information thereby lowering both cost of capital and FC. (2) having a high level of AQ contributes to sending a positive signal to market participants about firm financial health and governance practices which increase the chances of attracting more investors and lenders. (3) increasing AQ enhances the credibility of financial reports, therefore increases trust of external parties. This trust is crucial for attracting external financing. (4) having a high level of AQ participates in improving risk management by identifying and addressing financial misstatements and irregularities. This reduces the likelihood of financial distress and enhances the firm's ability to secure external finance and reduce FC.

Regarding objective (4), table (7) line (4) provides evidence that AQ has an indirect and positive effect on FC through CSRD as a mediator. In other words, an increase in CSRD works with increasing AQ and contributes to decreasing CSRD. Management uses the effect of integration between increasing AQ and increasing CSRD to decrease FC.

5.2 Conclusion:

In the last two decades, several universal financial crises have happened. Many previous studies innovated some expressions related to these crises, such as Financial Constraints (FC). The research is interested in investigating some determinants of FC, such as Audit Quality (AQ) and Corporate Social Responsibility Disclosure (CSRD). Besides, this research concerns the mediation effect of CSRD on the association between AQ and FC. This paper relies on 30 Egyptian non-financial listed firms in EGX 100 from 2016 to 2021, which include 180 annual observations.

Findings indicate that: (1) AQ contributes to providing stakeholders with enough information including CSRD. Since high AQ help firms comply with such regulations by ensuring that their CSRD meets the required standards. (2) CSRD contributes to reducing information asymmetry which increases market participants' trust and motivates them to invest and plays an important role in managing risks and complies with social requirements which get market participants trust, so reducing FC. (3) firms that have a high level of AQ have enough opportunity to reduce information asymmetry which leads to increased reliability in financial information thereby lowering both cost of capital and FC. In addition, having a high level of AQ contributes to sending a positive signal to market participants about firm to attract more investors and lenders. Finally, having a high level of AQ participates in improving risk management by identifying financial misstatements and irregularities which reduces the likelihood of financial distress and enhances. (4) AQ has an indirect and positive effect on FC through CSRD as a mediator. In other words, an increase in CSRD works with increasing AQ and contributes to decreasing CSRD. Management uses the effect of integration between increasing AQ and increasing CSRD to decrease FC.

This research presents three contributions: 1) firms that have AQ have good chances to increase CSRD 2) increasing CSRD contributes to reduce FC; 3) increasing AQ contributions alone to reduce FC; 4) There is a partial mediation role of CSRD on the association between AQ and FC.

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أثر جودة المراجعة على الإفصاح عن المسئولية الاجتماعية وانعكاسهما على القيود المالية

المستخلص:

في السنوات الأخيرة حدث عدد من الازمات المالية على المستوى العالمي. بعض من الدراسات السابقة اهتمت بتحليل تلك الأزمات كما ساهمت في ابتكار بعض المصطلحات الخاصة بهذه الأزمات مثل القيود المالية، حيث اهتمت العديد من هذه الدراسات بتحليل أسباب هذه القيود ودراسة المحددات التي من شأنها التقليل من تعرض المنشأة لها. اهتمت هذه الدراسة بعدد من هذه المحددات وهم جودة المراجعة والافصاح عن المسئولية الاجتماعية. قامت الدراسة بالتطبيق على عينة من المنشأة المسجلة في سوق الأوراق المالية المصرية مع التركيز على EGX100 لعدد ٣٠ منشأة غير مالية متضمنة ١٨٠ مشاهدة سنوية خلال الفترة من ٢٠١٦ إلى ٢٠٢١. توصلت الدراسة إلى عدد من النتائج وهم (١) تساهم جودة المراجعة في إمداد الأطراف ذوي العلاقة بالمنشأة بتوفير معلومات عن المنشأة، لعل منها الإفصاح عن المسئولية الاجتماعية. (٢) يساهم الإفصاح عن المسئولية الاجتماعية في تقليل مستويات عدم تماثل المعلومات، كما أنها تلعب دور في إدارة المخاطر وبشكل يتلاءم مع المتطلبات الاجتماعية بالشكل الذي يزيد ثقة كافة المشاركين في سوق الأوراق المالية في النتائج المقدمة ويقلل القيود المالية التي تتعرض لها المنشأة. (٣) المنشآت التي لديها جودة مراجعة عالية يكون لديها الفرصة لتقليل مستويات عدم تماثل المعلومات بالشكل الذي يزيد من مستويات الثقة في المعلومات المالية المقدمة وبالتالي تقليل التعرض للقيود المالية. (٤) جودة المراجعة لها تأثير إيجابي في تخفيض القيود المالية من خلال زيادة مستويات الإفصاح عن أنشطة المسئولية الاجتماعية كمتغير وسيط.

الكلمات المفتاحية: جودة المراجعة، الافصاح عن المسئولية الاجتماعية، القيود المالية.