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Financial inclusion disclosure, internal governance quality, and bank ownership structure: An exploratory study in Egyptian banks

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Abstract

The purpose of this study is to enhance sustainability and investigate the effectiveness of internal governance mechanisms in enhancing financial inclusion (FI) disclosure quality in Egyptian banks. Pooled ordinary least squares (OLS) regression analysis is employed, using data from Egyptian banks listed over an eight-year period, from 2014 to 2021. Two indices are constructed: a FI disclosure quality index and an internal governance quality index. The findings of the study indicate that compliance with corporate governance best practices strengthens the monitoring quality of internal governance mechanisms in Egyptian banks. This, in turn, has a significant positive impact on the levels of FI disclosure. Results further show that ownership structure influences this relationship. Overall, the study findings support the notions of agency, stakeholders, and moral legitimacy theories. The study's originality lies in its focus on emerging FI practices in less-developed economies, and its relevance to regulators, policymakers, and professional bodies seeking to enhance FI practices and disclosures. The research also highlights the importance of the banking sector in achieving the national sustainable development goals (SDGs) by 2030 and facilitating informed decision-making by various stakeholder groups. The study's findings are supported by the robustness of the empirical analysis.

Keywords: Financial sustainability, Internal governance, Audit committee, Ownership structure, Financial disclosure

1. Introduction

Financial inclusion (FI) is one of the most important issues raised recently by international organizations as an essential mechanism for achieving the 2030 Sustainable Development Goals (SDGs). Ending poverty and other deprivation promotes equality, education, health, and economic progress [1]. Egypt's 2030 Vision goals include supporting small and medium-sized enterprises (SMEs), formalizing the informal economy, increasing employment, and achieving sustainable economic growth.

FI aims to increase the availability, accessibility, and use of all formal financial services (e.g., bank accounts, savings, credit, digital payments, etc.) by all households and businesses, regardless of income, geographic location, gender, race, activity, or financial illiteracy [2, 3]. The International Finance Corporation (IFC), International Monetary Fund (IMF), Alliance for Financial Inclusion (AFI), and Group of 20 (G20) are drafting

standards to strengthen FI. It is a social responsibility component because it shows the banking sector's ethical commitment to provide services to previously unbanked populations, including low-interest loans, to achieve the SDGs.

Individual banks' FI efforts can considerably impact country-level FI practices [4]. Roy, et al. [5] state that FI demands substantial resources and stakeholder communication [6]. Meanwhile, Financial inclusion disclosure (FID)—a novel type of non-financial disclosure in the banking sector that can affect performance—should be promoted. Hence, accounting profession should set appropriate guidelines for measuring and disclosing FI activities [7]. Meanwhile, banks must have an effective monitoring system to meet stakeholder information needs. Hence, given the scarcity of research investigating FI in general and its related disclosures in particular, accounting researchers should consider this emerging practice.

For many reasons, the Egyptian market is ideal for studying and driving conclusions that could be applicable to other emerging markets. First, the Central Bank of Egypt (CBE) has participated in several global and regional initiatives to improve national FI practices. Digital finance and unbanked/underbanked financial services are examples. The CBE recently launched the FinTech Centre as a global Arab and African Centre for next-generation financial services [8]. Second, FI is predicted to have more elusive impact in emerging countries, making it challenging to implement in Egypt, where banks provide over 80% of household finance [9]. Third, stakeholders need FID to properly assess financial inclusion-related risks and effects on Egyptian banks' performance, even though the CBE does not yet enforce financial inclusion. Accordingly, this study contributes to the still-emerging FID-related literature. Fourth, the Egyptian Code of Corporate Governance developed in 2011 and mandated on listed firms in 2014 to globalize the Egyptian capital market was modified in 2016 to further comply with international best practices essential to high-quality reporting through effective monitoring. Given the CBE's ongoing disciplinary measures to address Egyptian banks' transparency discrepancies, FID should benefit. To our knowledge, no study has examined how internal governance monitoring affects FID quality in the Egyptian banking sector. This study also examines whether ownership structure affects such a relationship. This analysis covers one emerging market as a cross-country investigation of such an emerging practice may be perplexed by differences in size, institutional background, and best practice enforcement. Another contribution is the development of a comprehensive index to measure the quality of FID by Egyptian banks. Employed index can be used to measure FID in countries with similar institutional context and FI agendas.

The study could examine the role of Egyptian banks in promoting sustainable finance and investing in environmentally and socially responsible projects. This research promotes non-financial disclosure, FID, corporate governance, and emerging economies related-literatures. The study reveals that internal governance quality positively affects FID and bank ownership structure has a positive influence on such relationship. The robustness checks further support this. These findings support agency, stakeholders', and moral legitimacy theories. Given the importance of assessment of the various impacts of economic reforms especially in emerging markets, study findings have consequences for Egyptian policy makers, regulators, banks' directors, investors, and other stakeholders due to the necessity of reviewing economic reforms. FI is crucial to Egypt's 2030 SDGs of social justice, life quality, and poverty reduction; hence this study has social consequences. International organizations encouraging FI globally and regionally and accounting standards setters may consider issuing an accounting standard to guide reporting such an emerging practice should also reflect the study's conclusions. The remaining part advances as follows: Section 2 reviews the theoretical background and related literature to develop study hypotheses. Section 3 covers research design. Section 4 addresses empirical results. Section 5 presents additional sensitivity and robustness checks, and finally concluding the paper and its limitations are discussed in Section 6.

2. Theoretical background, literature review, and hypotheses development

2.1. Institutional setting of the Egyptian banking sector

Through its funding policy, the banking sector helps sustain economic growth by allocating resources [10]. The same applies to Egypt, where the Egyptian banking sector is significant in fulfilling the Egyptian 2030 SDGs. Egypt had 37 banks in 2022, starting in 1856. Commercial, business and investment, and specialized banks are classified under CBE Law No. 88 of 2003. The CBE regulates and monitors all Egyptian banks and sets monetary system laws to maintain fiscal stability.

In recent years, the Egyptian banking sector has seen significant regulatory and operational developments to support the FI initiative. The CBE joined AFI at the end of 2013. Since 2014, the CBE has issued various

financial inclusion instructions to banks. That was part of the national economic reform initiated in 2014. The CBE's 2014 digital financial services regulation promoted financial inclusiveness [8]. In 2016, the National Council for Payments (NCP) was established to guarantee that the government or citizens implement FI properly [11].

In January 2016, the CBE began directing banks to increase SMEs' share of their loan portfolios to 20% at competitive interest rates. SME funding rose to EGP 49 billion in a year. The CBE passed the "Mobile Payment Services Regulations" in November 2016 to simplify mobile payments. The CBE also introduced mortgage finance to reduce cash transactions. The World Bank Group's Financial Inclusion Global Initiative named Egypt a model country in 2017 [3]. This work improved unbanked and underbanked financial services and built a digital finance policy. The programs above and the CBE's recent economic empowerment of Egyptian women raised financial inclusion rates by 131%, with 60.6% of 65.4 million eligible adults having a transaction account. Finally, in 2022, the CBE established Egypt's first FinTech Hub to support global and regional FI initiatives and become a globally recognized Arab and African Centre for next-generation financial services [12].

These innovations achieved increased geographical and segment coverage and lower banking costs. FID is needed to inform stakeholders how Egyptian banks support the social and economic goals of the Egyptian sustainable development plan 2030 and how FI practices affect bank performance. Over the past two decades, Egyptian regulators and policymakers have developed the regulatory and institutional framework for bank governance [13]. The 2005 Egyptian corporate governance code follows the Anglo-Saxon paradigm of mature markets. It was amended in 2011 and, most recently, in 2016 to further comply with international best practices. Since 2014, all listed firms, including banks, must disseminate corporate governance reports and board of directors' reports. As a result, Egyptian banks' corporate governance frameworks should ensure timely and accurate disclosures [14].

Banks need a suitable monitoring mechanism to improve FID; this aids stakeholders and CBE compliance for banks and will help banks meet national SDGs and perform better. However, we agree with Makhaiel (2018) that ownership structure has a significant impact on managerial oversight [15]. This seems more justified in Emerging economies.

2.2. The theoretical underpinning of FIDs

Conflict of interest between the agent (management) and the principal (capital provider) as a result of ownership and control separation, as well as information asymmetry, are two important aspects of agency theory [4]. Bank information asymmetry raises agency costs [16]. Accordingly, Corporate governance monitoring can decrease information asymmetry and agency costs [17] . Inclusion finance disclosure, a non-financial social disclosure, requires bank management to share FI practices to narrow the knowledge gap and lower agency costs. Thus, corporate governance best practices should improve internal governance mechanism monitoring and FID.

Freeman (2010) defines the firm as interconnected interactions relationships [18]. All parties affected by the company's operations are stakeholders. This definition raises stakeholder satisfaction and potential conflict of interest among interest groups [19]. Hashmi et al. (2022) state that a solid governance framework with effective mechanisms increases stakeholder trust in the organization and managerial credibility [17]. Thus, following corporate governance best practices improves FID to help stakeholders make more informed decisions.

To win stakeholder support and reduce information gaps and agency costs between managers, stockholders, and other stakeholders, FID must meet their needs. Deegan (2017) advocates incorporating social responsibility into corporate planning [20]. Applying to FID, as global awareness of banks' role in financial inclusion grows, stakeholders want more information about bank engagement in such activities to better evaluate banks' performance. This improves bank's image and competitiveness [7].

Management, institutional, and stakeholder theories underpin this theoretical and disciplinary framework [21]. To obtain social legitimacy from stakeholders, including the public, the firm must consider socially valued ethics that support substantive justice and the common good for everyone [22]. Due to the social contract between the firm and its environment, firms must act in the public's best interests and develop their non-financial social disclosure to demonstrate their accountability to society, enabling recognition and continuity [21].

To meet the national SDGs, banks must apply FID and promote their efforts to provide inclusive financial services to all. Thus, internal corporate governance mechanisms can support this goal by ensuring that banks

faithfully disclose information about their FI activities to give bank report users a complete picture of banks' performance. This image supports the moral legitimacy of banks offering inclusive financial services, improving their competitive position.

2.3. Literature review and hypotheses development

According to prior studies, FID, its causes, and its effects are gaining recent attention from researchers. There is a scarcity in empirical studies testing this issue [23, 24]. Additionally, few studies investigate this issue on a firm level, with very scarce evidence regarding the influence of corporate governance practices on FID [4, 7, 24]. Bose, et al. [4] conducted a groundbreaking firm-level exploratory investigation on FID in Bangladeshi banks' annual reports and its causes [4]. After the Central Bank of Bangladesh issued its financial inclusion directive, disclosure increased dramatically, research shows. The data also indicates that Bank size, development potential, institutional investors, audit committee size, and religiously based activities increase financial services access. At the same time, female directors' percentage, and firm age decrease. In a 2017 study by Bose et al., FID improved bank performance, with market competition and government ownership moderating this relationship [7]. Bank engagement in FI operations increases market share, and FID reduces information asymmetry between managers and capital-market players.

Compared to non-financial enterprises, banks require a substantial governance structure due to their capital magnitude, opaqueness, stakeholder diversity, and the banking sector's role in mobilizing savings, investing them, and financing enterprises and individuals. A country's economic crisis might result from banking sector governance failure [25].

In broad terms, FID is considered a type of social responsibility-related disclosure. According to prior research [26]. Due to improved internal controls and disclosures, corporate governance significantly impacts corporate monitoring efficacy [27]. Internal administration best practices' impact on banks' FIDs is a novel problem that needs additional study. This study is the first to analytically examine the relationship between FID and Egyptian bank monitoring function quality. It also analyses bank ownership structure and such ties. Despite being a leading capital market in the Middle East and North Africa (MENA) region, corporate governance best practices' impact on Egyptian banks' disclosures has been understudied. Samaha and Dahawy [28] report that the audit committee is the most dominant factor affecting voluntary disclosure by the largest 100 EGX-listed firms, including banks. The audit committee as internal governance mechanism, reduces agency cost and bridges management-stockholder information gap [29]. It is mainly responsible for implementing, monitoring, and verifying internal controls [30]. The Organization for Economic Co-operation and Development (OECD) recognizes its power to ensure corporate reports' credibility and transparency.

Although the findings of Hashmi, et al. [17] suggest a negative association between effective audit committees and banks' voluntary disclosures in Asian banks, the majority of prior studies [31-34], claim the monitoring effectiveness of the audit committee is influenced by its attributes [17]. Othman, et al. [35] claims that a company's audit committee size significantly affects its disclosure. Similarly, Bose, et al. [4] found that audit committee size increases FID. Previous studies show that the audit committee improves monitoring through improved resource and authority utilization, the potential of having members with expertise and special competencies, and more effective monitoring [33, 36]. Additionally, audit committees that meet frequently are more likely to effectively perform their duties [37].

To boost efficacy, Li, et al. [33] suggest the audit committee meet at least three-times a year. Allegrini and Greco [36] propose that audit committee independence boosts its expertise and effectiveness in minimizing management's chance to hide information. Additionally, accounting and financial knowledge are highlighted as important determinants of the quality of work carried out by the audit committee [38], as well as its role in solving any conflict between the external auditor and management [39]. Finally, the audit committee's power and diligence boost its efficacy, even though the board selects its members [40]. Therefore, the audit committee members need to choose the chairperson. Accordingly, the first research hypothesis can be stated as follows:

H1: The extent of FID is significantly influenced by the internal governance monitoring quality.

Prior research suggests the existence of interaction among different governance mechanisms [29]. The company's ownership structure affects governance controls [41]. For banks, ownership structure has a deeper impact on governance implementation because it influences stockholder and creditor rights not only finance of bank assets [42]. Bose, et al. [7] found that ownership structure moderates the FID-bank performance link [7].

The ownership structure should enhance the audit committee's monitoring function since the governance system's primary goal is to resolve agent-principal conflict and reduce information asymmetry.

Ownership concentration affects audit committee monitoring quality [29]. Major stockholders want the audit committee to strengthen management controls to further protect their interests [29]. However, Some academics embarrass this, assuming concentrated ownership may not boost business performance [43, 44]. Similarly, Abdallah and Ismail [41] applying to Gulf Cooperation Council (GCC) stock exchanges support the Anglo-Saxon dispersed ownership structure whereas governance role is to align the conflict of interest between minority and controlling stockholders (Principal-Principal conflict), which ownership concentration makes difficult [41, 45]. Therefore, internal monitoring mechanisms will monitor FID to provide a more complete bank performance picture. Accordingly, the second research hypothesis is:

H2: Ownership structure moderates the relationship between internal governance monitoring quality and the extent of FID.

3. Method

Egypt has 37 commercial, corporate, investment, and specialized banks. We sampled all Egyptian banks from 2014 to 20211. Due to the lack of complete data for all banks, we limited our sample to the listed banks with all the data we needed; this resulted in the exclusion of 24 banks. Hence, the final sample includes 13 banks with 104 banking firm-year observations. This criterion met balanced panel data analysis requirement. Financial inclusion and corporate governance data was manually collected from banks' annual reports and websites. The financial data was collected from the Refinitiv Eikon and BankFocus databases.

3.1. Measurement of variables

This study examines the effectiveness of internal corporate governance mechanisms in enhancing FID quality in Egyptian banks, as well as how different levels of ownership structure moderate this relationship. Hence, this section discusses the operational definitions and measurements of the study variables.

The dependent variable in this study is the extent of FID. To date, there is no one common set of FI measures. Kebede, et al. [2] credit this to the novelty of such practices, the unapproachability of cross-country data, and the multidimensional nature of this notion, making it challenging to identify which dimensions to include and their weights [2]. Researchers used several approximations for FID indices. Chattopadhyay [46] identifies three financial inclusion traits: banking penetration, banking service availability, and banking system utilization [46]. Whereas Demirgüç-Kunt and Klapper [47] calculated their study index using insurance, payment, borrowing, and savings provisions [47]. Bose, et al. [7] indexes involve 13 dimensions derived from the Bangladeshi central bank directive. On the other hand, Adalessossi and Kaya [48] use the Global Findex Database to measure the FI index of 41 African countries, while Vo, et. al. [49] . estimate the level of FI using only the number of branches and the number of agents.

This study classifies FI activities by demand and supply, following Wang and Luo [50]. Thus, we measure bank FID using a multidimensional composite index with 35 dimensions, integrating the demand side (23 dimensions to measure bank product and service usage) and the supply side (12 dimensions to measure bank product and service availability). We seek to identify whether the monitoring role of the internal governance mechanisms, namely, the audit committee, is linked to disclosures regarding demand and supply of FI services.

This study's self-constructed FID index is based on G20 financial inclusion indicators, IMF Financial Access Survey, World Bank Global Findex, and World Bank Global Payments Systems Survey indices, CBE indicators, and prior literature [4, 7, 50, 51]. In addition, to ensure its reliability, one researcher applied the index to all sample banks following prior research [52]. After twenty days, the same researcher scored again to compare. Another researcher compared the index's results to thirty randomly selected bank year observations.

Content analysis quantifies banks' FID, following Bose et al. (2017). We employ a dichotomous unweighted disclosure index to prevent subjectivity [53]. Accordingly, a bank is awarded a score of 1 if an item is disclosed and 0 otherwise. The FID score is then calculated for each bank as its total disclosure score, divided by 35. A

[1] 2014 is chosen as the initial study year as it witnessed the issuance of the new digital financial services regulation, as well as mandating the issuance of corporate governance reports by all listed firms by the Egyptian Financial Supervisory Authority, and 2021 represents the most recent year for which data is available.

higher score suggests that the bank management is keen to disclose such activities in addition to a stronger implementation of FI.

Furthermore, in line with prior literature, Cronbach's alpha coefficient was used to assess the internal consistency of the disclosure index. The findings demonstrate that the disclosure index has an alpha value of 0.752, indicating that the index's components reflect the same underlying notion[2]. Appendix A contains a list of the FID index elements.

Internal governance quality, as measured by audit committee monitoring quality (AudCom), is the key independent variable in this study [54]. Verriest, et al. [55] suggest that indices better assess corporate governance than single metrics. Accordingly, to better capture the monitoring quality of the audit committee at Egyptian banks, an index that is derived from the Egyptian corporate governance code was constructed. This procedure agrees with the one applied in well-established literature [56]. This procedure supports the index's validity and reliability because it follows corporate governance best practices that emphasize accountability, fairness, independence, integrity, openness, responsibility, and transparency, as well as capturing the audit committee's quality based on a list of attributes [56]. This study measures audit committee monitoring quality using six attributes in Appendix B.

In line with Ajili and Bouri [57] study, to calculate the internal governance monitoring quality score for each bank, each audit committee attribute is treated as a binary variable, with "1" indicating adherence with the attribute and "0" indicating non-adherence. Each bank's final unweighted audit committee monitoring quality score is a percentage of the attribute scores. Cronbach's alpha demonstrates that the disclosure index has an alpha value of 0.704, indicating that the index's components reflect the same underlying notion. For robustness check, we further consider one alternative measure for internal governance quality, the board of directors monitoring quality (see Appendix B). Ownership dispersion is used as a proxy for ownership structure. It is measured as free float, calculated by the number of outstanding shares available for public trading in the secondary market [29].

The bank's audit committee's monitoring quality and the FID's quality may be affected by other variables we must regulate. To avoid variable omission bias, we use five control variables. Bose, et al. [4] measure bank size (LSZ) using the natural logarithm of total assets, which considerably affects FID. Bank performance (ROA)—the ratio of net income before extraordinary items to total average assets—has been demonstrated to strongly affect FI practices. Bank leverage (LVG), measured as total liabilities to total assets, lowers FI bank involvement [58]. Bank liquidity risk (LR), measured as the ratio of total loans to total assets, has been used to control for individual banks' liquidity risk [59], as it is proven to have a significant influence on FI [60]. Finally, bank risk is due to the ambiguous impact of off-balance-sheet operations (NNI), measured as the ratio of non-interest income to total operating income [59]. It is used because it substantially impacts banks, especially FI activities, which affect banks' risk exposure and FID. Additionally, in further analysis, we use the internal audit function's quality total score as an instrumental variable, as Appendix B indicates.

3.2. Model specifications

To test the formulated hypotheses, the following model in Eq. 1 is used:

$$FID_{it} = \beta_1 + \beta_2 \mathrm{AudCom}_{it} + \beta_3 \mathrm{FF}_{it} + \beta_4(\mathrm{AudCom}_{it} * \mathrm{FF}_{it}) + \beta_5 \mathrm{ROA}_{it} + \beta_6 \mathrm{LR}_{it} + \beta_7 \mathrm{LSZ}_{it} + \beta_8 \mathrm{LVG}_{it} + \beta_8 \mathrm{NNI}_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

where FID_{it} represents FID quality of bank i in period t; β_1 denotes the intercept; $\beta_2, \beta_3, \ldots . \beta_n$ denote the estimated beta coefficient for each independent variable; AudCom is the audit committee monitoring quality; FF is the ownership structure; ROA is the bank profitability; LR is the liquidity risk; LSZ is the bank size; LVG is the leverage ratio; NNI is the bank risk; $\mathrm{AudCom}_{it} * \mathrm{FF}_{it}$ is the interaction of the Audit committee monitoring quality and ownership structure; and ε_{it} is the error term.

Both AudCom and FF variables are mean-centered to avoid the problem of multicollinearity [61]. Breusch-Pagan - Cook-Weisberg test for heteroskedasticity is used, and the results show homoscedastic characters (Prob > 0.05). In addition, Pesaran scaled Language multiplier (LM) test by Pesaran [62] is used to detect the possibility of a cross-section dependency. As a result, Beck and Katz [63] Panel Corrected Standard Error (PCSE) estimation is employed to correct the dataset's cross-section dependence problem. This estimation approach is

[2] Cronbach's value should be above 0.7 if items are greater than or equal ten and 0.5 is acceptable if items are less than ten.

suitable for panel data where N > T [64]. Additionally, Pearson correlation coefficients are used to assess the possibility of multicollinearity.

4. Empirical results and discussions

4.1. Descriptive and correlation analyses

Table 1 presents the descriptive statistics for the study variables. The mean for the FID score is 0.427, indicating that, on average, Egyptian banks have participated in and disclosed 42.7% of the financial inclusion activities specified in our index, with a minimum of 25.7% and a maximum of 62.8%. This implies that Egyptian banks are involved in financial inclusion practices at varying degrees. Compared to the results reported by Bose, et al. [7] applying to the Bangladeshi context (30.9% and 30.2%, respectively), the average FID in Egyptian banks is much higher. This highlights the role of the new digital financial services regulation in improving banks' engagement in financial inclusion activities [4, 7]. The mean of AudCom is 0.651, indicating that, on average, the sampled Egyptian banks follow 65% of corporate governance best practices relating to the audit committee mechanism, with a minimum of 16.6% and a maximum of 100%. This implies that Egyptian banks know the importance of complying with best practices in improving the quality of the internal governance monitoring mechanisms. With respect to ownership structure FF, results indicate that the mean is 0.340, implying that, on average, 34% of the bank's shares are available to the public by trading in the stock market. The results also reveal that regarding control variables, the average performance ROA is .020, the average liquidity risk is 0.338, and the average size is 9.694. The mean value of LVG is 0.911, indicating that banks are highly leveraged, which is normal due to the nature of banking operations. Finally, the average of NNI is 0.288.

According to Hair et al. (2010), data is approximately normal if skewness and kurtosis are between -1 to +1. The current study reveals that the skewness is between -.201 and 1.142, while the kurtosis value is between -.1.069 and .058. As a result, in broad terms, our data is assumed to be normally distributed.

Table 1. Descriptive statistics

Variable	Mean	Std. Deviation	Minimum	Maximum	Skewness	Kurtosis
FID	.427	.107	.257	.628	.272	-.1.02
AudCom	.651	.240	.1667	1	-.046	-.552
FF	.340	.327	.029	1	1.142	-0.183
ROA	.020	.010	-.004	.045	.305	-.012
LSZ	9.694	.295	9.189	10.402	.891	.004
LR	.338	.157	.007	.758	.144	-.161
LVG	.911	.030	.853	1.004	-.201	-.483
NNI	.288	.118	.084	.575	.719	.058

As shown in Table 2, FID is positively and significantly correlated with the audit committee monitoring quality, liquidity risk, bank size, and performance. On the other hand, Leverage negatively affects FID. Notably, the problem of multicollinearity exists when the correlation coefficient is higher than 0.8 between two independent variables [65]. The highest correlation exists between LVG and ROA (.661), suggesting that the study variables are not highly correlated. Thus, the regression model is not suffering from the problem of multicollinearity.

Table 2. The Pearson correlation matrix

Variable	1	2	3	4	5	6	7	8	
FID	0								
AudCom	.430**	0							
AQ	-.109	.583**	0						
FF	088	-.043	-.556**	0					
LR	.354**	.297**	.079	-.294**	0				
ROA	.549**	.254**	-.196*	.085	.265**	0			
LSZ	.371**	-.024	-.429**	.399**	-.063	.202*	0		
LVG	-.468**	-.113	.213*	.014	-.053	-.661**	-.272**	0	
NNI	-.112	-.264**	-.233*	.239*	-.117	-.143	-.027	.170	0

Note: **p < 0.01 *p < 0.05

4.2. Multivariate analysis

Table 3 displays the regression analysis results using the pooled OLS with Beck and Katz [63] PCSE estimation to correct for cross-section dependence. This estimation approach is suitable for panel data where N > T [64]. The empirical results show that audit committee monitoring quality and the control variables explain 65% of the variation in the FID quality.

Table 3. Regression results

Dependent variable: FID	Pooled OLS regression	Two-stage regression	
		First stage	Second Stage
Variables		**Coefficients**	
Intercept	0.020(0.263)	-1.091(0.784)	0.142(0.394))
AudCom	0.180**(0.020)		0.200**(0.036)
FF	0.019(0.016)	0.303**(0.050)	0.011(0.023)
AudCom*FF	0.467** (0.084)	-1.017**(0.180)	0.393**(0.105)
ROA	2.260** (0.555)	4.239**(1.601))	2.247**(0.858)
LR	0.120**(0.029)	0.481**(0.083)	0.136**(0.045)
LSZ	0.085**(0.013)	0.156**(0.047)	0.089**(0.024)
LVG	-0.619**(0.215)	-1.043*(0.540)	-0.828**(0.280)
NNI	0.239**(0.063)	-0.196(0.104)	0.323**(0.057)
AQ		.600**(.041)	
R^2	0.650	0.782	0.670
		first-stage F-statistic = 210.838	

Note: **p < 0.01 *p < 0.05 and robust SE between parentheses

The first study hypothesis examines the relationship between internal governance quality measured as audit committee monitoring quality and FID. Results reveal a positive and significant relationship ($\beta2=0.180$, $p<0.05$), thus supporting the first hypothesis (H1). Accordingly, results imply that compliance with best corporate governance practices empowers the internal monitoring function within banking institutions, resulting in better disclosures regarding FI activities carried out by the banks. This supports the findings of Bose, et al. [4] that show an association between FID and audit committee attributes.

Additionally, these findings align with the notions of agency, moral legitimacy, and stakeholders' theories. Compliance with corporate governance best practices supports the effectiveness of the internal governance monitoring function. This, in turn, can improve FID levels, thus helping to reduce the information gap between preparers and users of bank reports and reducing agency costs. On the other hand, the significant positive association between internal governance quality and FID reflects how effective internal governance mechanisms enhance bank disclosures of FI activities to meet the information needs of different stakeholder groups. This also enables portraying a complete image of the various facets of bank practices and their contribution to achieving SDGs. Hence, this supports the moral legitimacy of the banks that perform FI services.

The second hypothesis examines the moderating effect of ownership structure FF on the relationship between AudCom and FID. If the interaction term coefficient (AudCom*FF) is positive, the ownership structure is suggested to enhance the AudCom-FID relationship. The findings show that the ownership structure moderates the relationship ($\beta3=0.467$, $p<0.05$) between audit committee monitoring and FID quality, supporting H2. As a result, the effective oversight function of the audit committee is more pronounced among banks with a higher percentage of their stock available for public trading. Consequently, this result supports various studies [41, 45], which implies that ownership structure reduces agency costs that result from agent-principal conflict. Results also align with stakeholders' and moral legitimacy theories. Effective internal governance mechanisms enhance banks' comprehensive disclosures to meet the information needs of different user groups likely keen to know about banks' FI practices.

4.3. Robustness test

Three further tests were conducted to examine the robustness of the results. First, the sample size is changed by covering only 2014 to 2018 (65 observations). The results in Table 4 show that all variables' significance and

signs are the same, although the coefficients are slightly lower. Second, rather than the total index (demand and supply), we use the demand side of the financial inclusion index as a measure of the dependent variable. Overall, the results are qualitatively similar to the original results in Table 4. Third, alternative measures of corporate governance monitoring practices and bank performance are used. Corporate governance monitoring practices are measured by the board of directors' monitoring quality (see Appendix B). Bank performance is measured by return on equity (ROE), calculated by dividing a bank's net income by its stockholders' equity. The results in Table 4 are consistent with the study's main findings, indicating that the study's results are robust. Although the LR and LVG coefficients are slightly higher than the original findings, and the LSZ and NNI coefficients are slightly lower, the significance level and sign of the coefficients remain the same. Further, R^2 is slightly lower than the original results. Moreover, the significance level of FF changed to significant.

Table 4. Robustness results

Dependent variable: FIDQ	Pooled OLS regression Years: 2016-2018 Y = Demand and Supply Side	Pooled OLS regression Years: 2016-2022 Y = Demand Side	Pooled OLS regression Years: 2016-2022 Y = Demand and Supply Side
Variables	**Coefficients**	**Coefficients**	**Coefficients**
Intercept	-0.109(0.279)	-0.463(0.150)	0.381(0.298)
AudCom	0.158**(0.021)	0.180**(0.017)	
BODQ			0.139**(0.018)
FF	0.015(0.010)	0.018(0.013)	0.032*(0.015)
AudCom*FF	0.420** (0.087)	0.474** (0.056)	
BODQ*FF			0.571**(0.073)
ROA	1.824* (0.783)	2.673**(0.602)	
ROE			0.176**(0.059)
LR	0.106**(0.029)	0.059**(0.017)	0.145**(0.034)
LSZ	0.097**(0.011)	0.087**(0.012)	0.079**(0.014)
LVG	-0.543*(0.289)	-0.235*(0.107)	-0.912**(0.226)
NNI	0.137*(0.066)	0.084*(0.026)	0.109**(0.037)
R^2	0.591	0.671	0.580
n	65	104	104

Note: **p < 0.01 *p < 0.05 and robust SE between parentheses

4.4. The endogeneity checks

Several accounting studies emphasize the importance of accounting for endogeneity [66, 67]. Following the logic described inKoomson, et al. [68], we use the Hausman [69] specification test to find endogenous variables in the regression model [68]. The results reveal that all variables in the model are exogenous except for the audit committee quality (χ^2 =28.457706, p<0.05). Pooled OLS is biased and inconsistent when independent variables are endogenous. As a result, the instrumental variable in the two-stage least squares regression (2SLS) model is conducted to solve a potential endogeneity concern, as Lucchetti (2019) suggested [70]. It is considered one of the most commonly used methods to overcome endogeneity bias. To implement 2SLS, one or more instruments (IV) for the endogenous variable (AudCom) should be identified. The IV should not be correlated with the error term and should be associated with the endogenous variable [71]. The internal audit function (IAF) is an instrumental variable in the regression model. IAF performs internal audits and enhances internal controls in all essential processes and operations to assist the AC in effectively carrying out its functions and responsibilities [72]. At the first stage, the AudCom variable is regressed on the IAF, which is considered IV in the model, and the new "fitted" regressor is obtained in Eq. 2.

$$\mathrm{AudCom}_{it} = \beta_1 + \beta_2 \mathrm{AQ}_{it} + \beta_3 \mathrm{FF}_{it} + \beta_4(\mathrm{AudCom}_{it} * \mathrm{FF}_{it}) + \beta_5 \mathrm{ROA}_{it} + \beta_6 \mathrm{LR}_{it} + \beta_7 \mathrm{LSZ}_{it} + \beta_8 \mathrm{LVG}_{it} + \beta_8 \mathrm{NNI}_{it} + \varepsilon_{it} \quad \text{……..(2)}$$

In the second stage, the "fitted" regressor is substituted for the original regressors in Eq. 3

$$FID_{it} = \beta_1 + \beta_2 Fit\widehat{AudCom}_{it} + \beta_3 FF_{it} + \beta_4 (AudCom_{it} * FF_{it}) + \beta_5 ROA_{it} + \beta_6 LR_{it} + \beta_7 LSZ_{it} + \beta_8 LVG_{it} + \beta_8 NNI_{it} + \mu_{it} \quad \text{.....(3)}$$

Where FitAudCom is the fitted regressor derived from the first stage. The first-stage F-statistic was used to test for weak instruments [73]. The null hypothesis states that the instrument is weak. According to Hansen and Kozbur [74], the instrument is weak if the first-stage F-statistic is less than 10. Hence, OLS results are preferred over 2SLS results [75]. Table 4 shows that the estimated F ratio is 210.838, which means that the instrumental variable (AQ) is strong and will give accurate estimates of the coefficients. Table 4 shows that when the results of the 2SLS model are compared with those of the pooled OLS model, the two models produce consistent results. The sign and significance of the coefficients remain the same even though FF, LVG, and ROA coefficients are slightly lower and AudCom, LR, LSZ, and NNI coefficients are slightly higher than the OLS regression results. The results remain consistent, making the study's conclusions resilient to 2SLS [76].

5. Conclusion

The study fills a literature gap by scrutinizing the role of internal governance monitoring in influencing the quality of FID. Results emphasize the crucial role of compliance with governance best practices in enhancing internal governance monitoring function at Egyptian banks and how that improves FID. Accordingly, this highlights the extent to which best governance practices contribute to achieving SDGs in transitional economies. Our novel analysis demonstrates that internal governance quality-FID relationship is stronger among banks with a higher percentage of their stock publicly traded. To further ascertain the accuracy of our results, we have employed many robust estimation techniques, all of which confirmed our conclusion. Study results lend support to the notions of agency, stakeholders' and moral legitimacy theories by emphasizing the important role of internal monitoring mechanisms in reducing the management-stockholders and other stakeholders' information gap, and how this reduces agency costs and improves the bank's image and reputation, and hence its moral legitimacy.

This study has practical and social implications for policymakers, government authorities, bank boards, management, stakeholders, international organizations, and accounting standard setters. First, policymakers should constantly evaluate national corporate governance guidelines to verify compliance with international best practices. Additionally, policymakers should take the necessary actions to improve the public's awareness of the importance of inclusive financial services in improving their lives, mainly through ending poverty and inequality, and hence the role of banks offering such services in meeting the SDGs. The CBE should further strengthen the enforcement of digital financial services regulation and encourage banks to develop their inclusive finance practices and improve their related disclosures. Banks' boards and management are urged to consider the role of compliance with best governance practices in improving banks' governance systems and IFD quality, and hence in achieving banks' strategic goals by gaining the trust of different stakeholder groups by satisfying their information needs.

Study results are important to stockholders and other groups of stakeholders in improving their understanding of the importance of disclosing financial inclusion activities alongside other financial and non-financial activities in gaining a more comprehensive image of a bank's performance. The findings show investors and stakeholders how FI and other financial and non-financial operations reveal a bank's success. Study results can help international bodies supporting FI practices evaluate the progress of such practices in less-developed markets. Additionally, results are important enough for accounting standards setters to consider issuing an accounting standard to guide the reporting of such an emerging practice.

6. Limitations

The first limitation is that the study's sample is confined to a single country. Future research can replicate the same study in other contexts and compare the results. Second, this study is limited to publicly listed banks due to data limitations. Future research could extend this to non-listed ones and compare the results. Third, this study investigates the effect of internal governance quality on FID. Future studies may extend their analysis by investigating other factors that affect the quality of FID, such as the quality of earnings or the effectiveness of

external governance mechanisms. Fourth, this study employs ownership structure as a moderator. Future research may employ other variables, such as board gender diversity. Finally, this study is limited to quantitative analysis using actual bank data. Future research may gather more information about the different perceptions of stakeholders of the importance of FID.

Authors' Contributions

The first and third authors have contributed to the designing, execution, analyses, and writing of this manuscript. The second author has contributed to the data collection.

Declaration of competing interest

The authors have no conflicts of interest to declare.

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Appendix A: IFD index

Usage Indicators (Demand side)	
1	Number of adults formally banked
2	Number of deposit accounts
3	Number of requests for new services
4	Total amount of Deposits
5	Adults credit at regulated financial institutions
6	Total amount of real estate financing for low-income people
7	Number of adults holding life insurance policies
8	Insurance policies amount

Usage Indicators (Demand side)	
9	Retail payments amount using prepaid cards
10	Retail payments amount using credit or debit bank cards
11	Payments using online or internet banking
12	Mobile phone usage in payments transactions
13	Number of internet/online payment transactions per capita
14	Number of SMEs with formal bank accounts
15	Total deposits by SMEs
16	Number of outstanding loans to SMEs
17	Amount of outstanding loans to SMEs
18	Total depository savings
19	Funding programmes for agricultural activities
20	Funding programmes for farming activities
21	Funding programmes for traditional handicrafts activities
22	Financial products and services to encourage unbanked and under-banked groups
23	Special programmes to enable rural/remote households to receive remittances from family members living overseas
Access Indicators (Supply side)	
24	Branches number
25	ATMs number
26	Availability of agents of payment service providers: Agents of banks money transfer operators and mobile agent outlets.
27	Existence of point of sale (POS) terminals
28	Offering Mobile banking operations
29	Offering Phone banking services
30	Offering Internet banking services.
31	Availability of prepaid cards
32	Availability of debit cards
33	Existence of credit cards
34	ATMs interoperability
35	POS terminals interoperability

Appendix B: Internal governance quality index

Audit committee monitoring quality index:	
1	The audit committee includes at least one member from outside the company.
2	The chairperson of the audit committee is independent.
3	The audit committee includes at least one member with financial/accounting background.

Audit committee monitoring quality index:	
4	The audit committee consists of at least three members.
5	The audit committee holds regular meetings at least 4 times per year.
6	The majority of audit committee members are independent.
Board of directors' monitoring quality index:	
1	The board of directors is made up of 5 to 9 members [76]
2	The chairperson and managing director positions are separated.
3	The board holds regular meetings at least 4 times during the year.
4	The board composition reflects diversity (e.g., gender/religion/both).
5	The majority of board members are non-executives.
6	In case of role duality (the same person holds the chairman, and the managing director positions), an independent deputy chairperson for the board should be appointed.
7	At least two of independent non-executive members have technical/analytical skills.
Internal audit function quality index	
1	The functions and responsibilities of the internal audit department are clearly defined and disclosed.
2	Bank internal audit team hold a professional internal audit certificate.
3	Internal audit report accompanies the bank annual report.

Appendix C: List of banks in the study sample

Abu Dhabi Commercial Bank	Faisal Islamic Bank of Egypt SAE
Abu Dhabi Islamic Bank Egypt SAE	Housing and Development Bank SAE
Al Baraka Bank Egypt SAE	National Bank of Kuwait Egypt SAE
Commercial International Bank Egypt SAE	Qatar National Bank Alahly SAE
Credit Agricole Egypt SAE	Societe Arabe International De Banque SAE
Egyptian Gulf Bank SAE	Suez Canal Bank SAE
Export Development Bank of Egypt SAE	