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The Determinants of Investment Account Holders' Disclosure in Islamic Banks: International Evidence

Raoudha Saidani ¹, Neila Boulila Taktak ¹ and Khaled Hussainey ^{2,*}

¹ Department of Accounting, Institute of Advanced Business Studies (IHEC Carthage), University of Carthage, Carthage 1054, Tunisia; raoudha.saidani@ihec.ucar.tn (R.S.); neila.boulila@ihec.ucar.tn (N.B.T.)

² Department of Accounting and Financial Management, Faculty of Business and Law, University of Portsmouth, Portsmouth PO1 2UP, UK

* Correspondence: khaled.hussainey@port.ac.uk

Abstract: In this paper, we offer a novel contribution to Islamic accounting literature by examining the determinants of Investment Account Holder (IAH) disclosure in Islamic banks' annual reports. Using data from Islamic banks around the world, our regression analysis shows that the level of IAH funds, the return on IAH funds, adoption of AAOIFI standards, liquidity level, bank size and ownership have a positive significant relationship with IAHs' disclosure level. Our findings can be useful for IAHs, regulatory bodies and information users in general as they help them to understand IAH practices in Islamic banks and the main incentives of managers to disclose IAHs' information. The present study offers an original contribution to the Islamic accounting literature as it is the first one—to the best of our knowledge—that investigates the relationship between the specificities of Islamic banks and the extent of IAH disclosure.

Keywords: Investment Account Holders; AAOIFI standards; disclosure; Islamic banks



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1. Introduction

Disclosure is an important communication channel that reduces information asymmetry between insiders and outsiders and, hence, could improve stakeholders' decision-making process. Investment account deposits are the main sources of funds for Islamic banks. Investment Account Holders (IAHs) are important stakeholders in Islamic banks; however, they do not have the right to monitor the management of their funds. The only control mechanism for the IAHs is the information included in the annual report about IAHs. Therefore, it is necessary to examine what drives IAHs' disclosure.

Literature has focused extensively on factors affecting corporate social responsibility, corporate governance and ethical identity disclosures in Islamic banks (e.g., Farook et al. 2011; Abdullah et al. 2015; El-Halaby 2015; Rahman et al. 2016; Grassa et al. 2019; and Harun et al. 2020). These studies focused on the relation between some Islamic banks' characteristics and different types of corporate disclosure. However, to the best of our knowledge, the literature on the determinants of IAHs disclosure is very limited. This motivates us to conduct this study, especially since IAHs, as important stakeholders for Islamic banks, need relevant information to protect their rights. Therefore, our study addresses this major research gap in Islamic accounting literature. Our main research question is as follows: What drives IAHs' disclosure in Islamic banks? We use both content analysis and regression analyses to answer our research question.

We contribute to Islamic accounting literature by complementing a recent study by Saidani et al. (2020) and examining factors affecting IAHs disclosure for a sample of 49 fully fledged Islamic banks across 10 countries during the period 2011–2015. Our study offers regulatory implications as it informs regulators on the characteristics of Islamic banks that disclose (or not disclosure) IAHs' information in their annual reports; thus, regulators

could consider setting additional requirements to ensure an increase in the compliance level of AAOIFI standards related to IAHs.

Our regression analysis shows that the level of IAHs' funds, the return on IAHs' funds, the adoption of AAOIFI standards, the liquidity level, bank size and ownership are the main drivers for IAHs' disclosure.

The next section reviews the relevant literature and develops a set of research hypotheses. Section 3 discusses our sample selection criteria, the regression model and the variables' definitions and measurements. Section 4 presents and discusses descriptive analysis, correlation analysis and the regression analysis. Section 5 concludes our study.

2. Prior Research and Hypotheses Development

As stated by [Van Greuning and Iqbal \(2008, p. 225\)](#), "A major difference between Islamic banks and conventional banks relates to investment account deposits." Investment accounts are "funds received for the purpose of investment on a profit sharing or participation basis under Mudaraba arrangements" ([AAOIFI 2010, p. 15](#)). It is obvious that the relationship between Islamic banks and IAHs possesses a unique type of agency problem since they share profits but not losses ([Archer et al. 1998](#); [Safieddine 2009](#)). Due to the separation of ownership from management of funds, IAHs are not allowed to monitor the management of their funds ([Archer et al. 1998](#)). This is why Islamic banks are expected to provide comprehensive IAHs information in their reports in order to describe the financial conditions of their investments ([Hamza 2016](#)). Therefore, IAH disclosures in the annual reports of Islamic banks are essential for both Islamic banks and IAHs. Indeed, by disclosing relevant information to IAHs, the latter protects their rights while the Islamic bank ensures resources stability and sustainability of their business. We find that the literature on the determinants of IAHs disclosure is very limited. The present study fills this research gap. Our hypotheses are developed using agency, stakeholder and signaling theories following prior research ([Al-Baluchi 2006](#); [Farook et al. 2011](#); [Abdullah et al. 2015](#); [El-Halaby 2015](#); [Rahman et al. 2016](#); [Grassa et al. 2019](#); [Harun et al. 2020](#)).

2.1. The Level of IAH Funds

IAHs are the main sources of financing the Islamic banking industry ([Al-Deehani et al. 1999](#); [Archer et al. 2010](#); [AlShattarat and Atmeh 2016](#)). Nevertheless, IAHs have no right to monitor the management of their funds. Therefore, moral hazards and conflicts of interest may arise between Islamic banks (agent) and IAHs (principal) due to the separation of ownership and control which underlies agency theory ([Fama and Jensen 1983](#); [Jensen and Meckling 1976](#)). This generates a unique fundamental agency problem since Islamic banks' managers might extract personal benefits at the expense of IAHs' interests by engaging in high-risk investments ([Archer et al. 1998](#); [Karim 2001](#); [Archer and Karim 2006](#); [Safieddine 2009](#)). Therefore, this may affect the bank's ability to attract more IAHs. Moreover, according to stakeholder theory, all stakeholders and especially IAHs, as major stakeholders, have the right to be informed about the Islamic bank's performance. Therefore, Islamic banks should be responsible for the wellbeing of all stakeholders ([Al-Shamali et al. 2013](#)). Therefore, Islamic banks have to disclose relevant information pertaining to IAHs' issues in order to mitigate agency problems and to protect IAHs' rights.

[Al-Baluchi \(2006\)](#) found that the level of IAHs positively affects voluntary disclosure. [Farook et al. \(2011\)](#) also found that IAH's rights have a positive impact on CSR disclosure in Islamic bank annual reports. They concluded that Islamic banks report CSR information to bond their activities to their investors. [El-Halaby \(2015\)](#) found a positive association between IAH funds size and the level of sharia, social and financial disclosures. He noted that the overall disclosure level increases with the increase in IAH funds. The same results found by [Rahman et al. \(2016\)](#) demonstrated that IAHs positively affect ethical identity disclosure in Islamic banks in Malaysia and Bahrain.

Drawing on stakeholder theory, [Rahman et al. \(2016\)](#) argued that IAHs could actively monitor Islamic banks activities in order to ensure the appropriate management of their

funds. They also argued that the amount of investment account deposits can serve as a control mechanism to enforce the Islamic banks to comply with Sharia requirements including increasing the levels of disclosure.

Grassa et al. (2018) provided empirical evidence that IAH funds have a positive impact on the levels of Islamic product and service disclosures. They concluded that increasing disclosure might maintain IAHs, which could in turn maintain the position of the Islamic banks by avoiding massive fund withdrawals. The same conclusion is found by Grassa et al. (2019). The authors found that the size of IAH funds affects corporate governance disclosure in Islamic banks, which means that disclosure increases with increases in IAH funds.

Abdullah et al. (2015), however, showed that IAH equities do not affect voluntary corporate governance disclosures due to the lack of demand for corporate governance disclosure by IAHs that seemed inactive in demanding relevant information to them. These studies focused on the relationship between some Islamic banks' characteristics and different types of corporate disclosure such as corporate governance and CSR disclosures, but there is no study that has explored the determinants of the level of a new category of disclosure in Islamic banks, which is IAH disclosures.

Based on agency and stakeholder theories, this study expects that the level of IAH funds increases IAH disclosure levels in Islamic banks in order to mitigate agency problems and to strengthen IAHs' confidence in dealing with Islamic banks. Thus, we set our first research hypothesis as follows.

Hypothesis 1 (H1). *The level of IAH funds positively affect the level of IAHs disclosure in Islamic banks.*

2.2. Return on IAHs Funds

IAHs have no right to monitor the management of their funds. Moreover, it is argued by IMF Working Paper of November (IMF 2002, p. 12) that "in an Islamic environment, the expected rate of return on the investment deposits is an important consideration in depositor's choice of a particular bank." Thus, neither their funds nor their returns are fixed and guaranteed, which creates a unique agency problem between Islamic banks and IAHs. This situation does not exist in conventional banks since they guarantee the funds of their depositors by a predetermined interest rate (Chapra and Ahmed 2002; Abdullah et al. 2015). Likewise, IAHs are not able to observe the method for calculation and distribution of profits. This may provide the managers of an Islamic bank the opportunity to manipulate the returns at the expense of IAHs. Thus, disclosures, such as the method of calculation and distribution of the profits, are necessary in order to reduce information asymmetry between Islamic banks and IAHs holders and, hence, to protect their rights (Abdullah et al. 2013).

Al-Baluchi (2006) found that IAHs profitability negatively affects the level of voluntary disclosure in Islamic banks. He argued that this finding was unexpected and could be explained by weak information environment, weak capital market and dependency of Islamic banks on IAH funds. On the other hand, Lahrech et al. (2014) revealed a significant positive relationship between disclosure of IAH information and the profit allocation ratio. The authors noted that enhancing transparency is important due to the existence of profit-sharing arrangements in Islamic banks. They argued that enhancing disclosure about IAHs will result in more profit distribution to depositors. According to Haniffa (2002, as cited in El-Halaby 2015, p. 122), "a corporation may provide full disclosure in any situation whether it is making a profit or otherwise." Islamic banks are then responsible for ensuring full disclosure for all stakeholders and more especially for IAHs as major stakeholders. They have to fully disclose information regardless of whether or not they record profit in order to reduce information asymmetry and conflicts of interest between Islamic banks and IAHs. Therefore, based on agency and stakeholder theories, we set our second hypothesis as follows.

Hypothesis 2 (H2). *IAH returns positively affect the level of IAH disclosure in Islamic banks.*

2.3. The Adoption of AAOIFI Standards

It is said that “accounting standards regulate the reporting choices available to managers in presenting the firm’s financial statements. This type of regulation potentially reduces processing costs for financial statement users by providing a commonly accepted language that managers can use to communicate with investors” (Healy and Palepu 2001, p. 412). Although IAS/IFRS standards are considered as the most globally accepted business language, it was argued that these standards are not appropriate for Islamic banks. More especially, IAS/IFRS standards do not take into account the specific accounting treatment of IAH funds such as disclosure about the distribution of profits between shareholders and IAHs and smoothing practices of profit payouts to IAHs, including PER and IRR (Maali and Napier 2010; Suandi 2017).

Similarly, as noted by Safieddine (2009), it was argued that “the financial reporting rules set by the International Accounting Standards and the Generally Accepted Accounting Principles do not reliably reflect the true performance of Islamic banks” (p. 144). Hence, AAOIFI standards were developed to improve the transparency of Islamic banks that would allow satisfying shareholders and IAHs’ information needs for decision making processes (Al Sadah 2007).

Moreover, Karim (2001) highlighted the need of adopting AAOIFI accounting standards since these standards specifically cater to the unique characteristics of Islamic banks. Indeed, AAOIFI provides Islamic accounting standards (AAOIFI FAS) on how to report investment accounts and makes some disclosure requirements to them such as FAS N°5 “Disclosure of Bases for Profit Allocation between Owners’ Equity and Investment Account Holders” and FAS N°6 “Equity of Investment Account Holders and Their Equivalent,” which present a more uniform and transparent manner of accounting practice for IAH funds (Suandi 2017).

Al-Baluchi (2006) found that the level of voluntary disclosure in the annual reports of Islamic banks increased after the implementation of AAOIFI standards. El-Halaby (2015) showed that the adoption of AAOIFI standards has a significant positive association with financial disclosure rather than other kinds of disclosure, which reflects the importance of the implementation of these standards in all Islamic banks. According to Sarea and Hanefah (2013), AAOIFI accounting standards address the unique characteristics of products and services of Islamic financial institutions. These standards enable them to enhance the credibility and reliability of their financial reports. Following Sarea and Hanefah (2013), this study uses a stakeholder theory that may explain the need of specific accounting standards (i.e., AAOIFI accounting standards) to determine the needs of IAHs as major stakeholders of Islamic banks. We, therefore, set our third hypothesis as follows.

Hypothesis 3 (H3). *The adoption of AAOIFI standards positively affects the level of IAH disclosures in Islamic banks.*

2.4. The Liquidity Level

The level of liquidity is also an important indicator of banking solvency. Lahrech et al. (2014) found in their study that bank liquidity has a significant positive impact on profit distribution to IAHs. The authors noted that higher liquidity will help Islamic banks to manage less profit-sharing ratios and distribute more profit to IAHs. There are limited studies that examined the relationship between liquidity and corporate disclosure. According to Watson et al. (2002), agency and signaling theories provide mixed results regarding the relationship between liquidity and ratio disclosure. Indeed, agency theory predicts a negative relationship between liquidity and ratio disclosure. Thus, weak liquidity ratios can result in an increase in its disclosure in order to reduce agency costs and reassure investors (Wallace et al. 1994). On the other hand, signaling theory suggests a positive association between disclosure and liquidity according to which managers will be motivated to disclose more information if the liquidity ratio is high. Elzahar and Hussainey (2012) found that company liquidity has no significant relationship with the level of corporate

risk disclosure in UK interim reports. Similarly, Bin Harun (2016) reported no significant relationship between liquidity and CSR disclosure in the annual reports of Islamic banks. Elgattani and Hussainey (2020) also found a positive but insignificant association between liquidity and the level of AAOIFI governance disclosure.

In this study, based on signaling theory, it is expected that higher liquidities can lead Islamic banks to improve their performance and, therefore, to disclose more information to IAHs in their annual reports, as a positive signal on their secure financial position. Hence, we set our fourth hypothesis as follows.

Hypothesis 4 (H4). *Liquidity levels positively affect the level of IAH disclosures in Islamic banks.*

2.5. Bank Performance

Bank performance or profitability is an important indicator that should be disclosed in the annual reports of banks in order to achieve the objectives of diverse stakeholders such as shareholders, IAHs, borrowing customers and employees. Hamza (2016) found a significant positive relationship between Islamic bank profitability (ROA) and the return on investment deposit. The author added that profit retention can lead Islamic banks to improve their relation with IAHs by offering them competitive returns. Arshad et al. (2012) found that CSR disclosure is positively and significantly related to the performance of Islamic banks. Similarly, Bukair and Raman (2013) showed, in their study, that bank performance has a significant positive impact on CSR disclosure in Islamic banks. Based on signaling theory, by disclosing more information on profitability in their annual reports, Islamic banks can improve IAHs' confidence and encourage them to invest their funds. Thus, a positive relationship between bank performance and IAHs' disclosure level in Islamic banks is expected. Hence, the fifth hypothesis can be formulated as follows.

Hypothesis 5 (H5). *Bank performance positively affects the level of IAH disclosure in Islamic banks.*

2.6. Control Variables

We control for bank characteristics such as bank size, bank age and ownership and country-specific characteristics (macroeconomic factors) such as GDP growth following prior research (Farag et al. 2014; El-Halaby and Hussainey 2015).

3. Research Methodology

3.1. Our Sample

We use the sample of Saidani et al. (2020) to extend their work and examine factors affecting AIHs disclosure. Based on "IBISONLINE" (www.ibisonline.net, accessed on 1 January 2014) and countries' central banks' websites, we identify a list of Islamic banks around the world. We then download annual reports for each bank in our sample, which are available on the websites of Islamic banks. Some missing data were collected from Thomson Reuters Eikon. Our initial sample comprised 154 Islamic banks around the world. We excluded a number of banks from our sample if the annual reports are incomplete or data were not available. Furthermore, we excluded Islamic banks that do not have websites because they were closed or merged. Thus, the final sample consists of balanced panel of 49 full-fledged Islamic banks from 10 countries over the period 2011–2015 (245 observations). As for the GDP growth rate variable, data were collected from the World Development Indicators database, which is accessible on the website of the World Bank. Table 1 shows the sample selection criteria.

Table 1. Sample selection.

Selection Criteria	Number of Islamic Banks
Total number of Islamic banks during the conduction of the study.	154
Number of Islamic banks with unavailable annual reports for the five years (2011–2015) of the study	(49)
Number of Islamic banks closed, merged or not found on the internet site	(23)
Number of Islamic banks with unavailable data related to independent variables	(14)
Number of Islamic banks that publish only interim or financial statements	(19)
Final sample	49

We used the IAH disclosure index developed by [Saidani et al. \(2020\)](#) as the measure of our dependent variable. Thus, we kept the same period studied by the authors. This period is explained by the fact that the items of the adopted index were inspired by the AAOIFI standards of the 2010 edition. Thus, according to [Saidani et al. \(2020\)](#), the year 2011 is the year of the application of these standards, while the year 2015 is the last year of their application since a new edition of AAOIFI standards appeared in 2015.

3.2. Regression Model Specification

We use panel data analysis since it considers two dimensions: one for banks (individual), indicated by *i*, and the other dimension for time, indicated *t*. We use the following regression model (Table 2 shows the definitions of our variables):

$$Disc_IAHs_{it} = \beta_0 + \beta_1 IAHs_{it} + \beta_2 R_IAHs_{it} + \beta_3 AAOIFI_{it} + \beta_4 LIQ_{it} + \beta_5 ROA_{it} + \beta_6 SIZE_{it} + \beta_7 AGE_{it} + \beta_8 OWN_{it} + \beta_9 GDP_{it} + \epsilon_{it}$$

where

Disc_IAHs_{it}: the level of IAHs disclosure in Islamic bank *i* at year *t*;

β₀: the intercept; β₁ . . . β₉: the regression coefficients;

i: the individual Islamic bank *i* (*i* = 1, 2, 3 . . . 49); *t*: The year *t* (*t* = 2011, 2012, . . . 2015);

ε: the error term.

Table 2. The dependent and independent variables measurement.

Variables	Definition	Measurement	Data Source
Disc_IAHs	IAHs disclosure level	IAHs disclosure index adopted from Saidani et al. (2020)	Annual report
IAHs	Level of IAH funds	The ratio of IAH funds to total assets	Annual report
R_IAHs	Return on IAH funds	IAHs’ return to total IAHs funds	Annual report
AAOIFI	Adoption of AAOIFI standards	1 if the Islamic bank adopts the AAOIFI standards and 0 otherwise	Annual report
LIQ	Liquidity level	Liquid assets to total assets	Annual report
ROA	Return on Assets	Net income/total assets	Annual report Thomson Reuters Eikon Database
SIZE	Bank Size	The natural logarithm of total assets in millions of US dollars.	Annual report
AGE	Bank Age	The number of years since the creation of the bank	Annual report
OWN	Ownership	1 if the bank is publicly held Islamic bank and 0 if it is private Islamic bank	Annual report
GDP	Gross Domestic Product growth	Gross Domestic Product growth rate of the sampled countries	World Bank Database

3.3. Variables Measurement

3.3.1. Our Measure of the Level of IAHs Disclosure

In a recent study, [Saidani et al. \(2020\)](#) used AAOIFI standards and developed a new self-constructed index to measure the levels of IAH disclosure in Islamic banks' annual reports. Their index comprised 53 items covering three main categories: Investment Account Holders, Products and IAHs' Risk Management. They use a dichotomous approach that codes the disclosure item as 1 if the information exists in the annual report and 0 otherwise. They provided evidence that their disclosure measure is reliable and valid. We used the same index and the same disclosure score produced by [Saidani et al. \(2020\)](#). The disclosure index is not reported in our paper for the sake of brevity, but it is available in [Saidani et al. \(2020\)](#).

3.3.2. Measure of the Independent and Control Variables

Our independent variables correspond to the specificities of Islamic Banks. The level of IAH funds is measured by the ratio of total IAHs funds¹ to total assets. Return on IAHs funds (R_IAHs) is measured by IAHs' return to total IAH funds. The adoption of AAOIFI standards (AAOIFI) is measured as a dichotomous variable: It takes the value 1 if the Islamic bank adopts AAOIFI standards and 0 otherwise. The liquidity ratio (LIQ) is measured by liquid assets to total assets. Bank performance (ROA), also called bank profitability, is measured by net income to total assets. ROA is considered as a more powerful measure of performance ([El-Halaby 2015](#)).

As for control variables, bank size (SIZE) is measured by the natural log of total assets. Bank age (AGE) is measured by the number of years since the creation of the bank. Ownership (OWN) is measured by a dichotomous variable: It takes the value 1 if bank is public Islamic bank and 0 if it is private Islamic bank. GDP Growth (GDP) is measured by the Gross Domestic Product rate of the sampled countries.

4. Findings

4.1. Descriptive Statistics

Our descriptive analysis is quite similar to [Saidani et al. \(2020\)](#). Table 3 shows that IAH disclosure levels for the sampled Islamic banks are very low (the average is 27.9%). The average ratio of total IAHs funds to total assets is also 0.416, while the average ratio of return on IAHs funds is 3%. The ratio of return on IAHs funds ranges from a minimum of 0% to 19.3%. The zero return ratio was a result of our observation that some Islamic banks in Bahrain do not have profit sharing investment accounts such as ABC Islamic bank, Alkhair bank, First energy bank, International investment bank, Investors bank and Seera investment bank. The Kuwait Finance House bank has the highest ratio of return on IAH funds (19.3%). We also noted that about one-third of our sample used AAOIFI standards. The rest of the banks used either IAS/IFRS or local standards. The liquidity level has a mean ratio of 26%, while the average profitability (measured by ROA) is 0.007. The average bank size (measured by the log total assets) is 14.978. The average bank age is around 19 years. The average GDP growth rate is 4.836%. Finally, we observed that around 78% of the sampled Islamic banks are publicly held Islamic banks.

Table 3. Descriptive statistics of independent variables.

Variable	N	Mean	Std. Dev.	Min	Max
Disc_IAHs	245	0.279	0.182	0.038	0.736
IAHs	245	0.416	0.251	0.000	0.794
R_IAHs	245	0.030	0.032	0.000	0.193
AAOIFI	245	0.367	0.483	0	1

Table 3. *Cont.*

Variable	N	Mean	Std. Dev.	Min	Max
LIQ	245	0.259	0.126	0.000	0.873
ROA	245	0.007	0.047	−0.303	0.246
SIZE	245	14.978	1.641	10.416	18.248
AGE	245	18.551	12.688	1	58
GDP	245	4.836	2.294	0.500	13.400
OWN	245	0.776	0.418	0	1

N: number of observations. Variable definitions (see Table 2).

4.2. Correlation Analysis

In order to estimate a linear regression model, the absence of multicollinearity among independent variables is one of the required conditions. [Gujarati \(2004\)](#) indicates that multicollinearity is a serious problem if the correlation coefficient between two regressors (independent variables) exceeds 0.8. The more highly correlated the independent variables are with each other, the greater the standard errors and the instability of the estimation of the regression coefficients become. The correlation matrix is the main tool to detect multicollinearity. In addition, we can also use test VIF as an additional test for multicollinearity. According to [Kennedy \(1998\)](#) and [Gujarati \(2004\)](#), if the VIF value of the independent variable exceeds 10, there will be a problem of multicollinearity.

The correlation matrix (Table 4) shows that the highest correlation coefficient (0.4391) is less than 0.8. Furthermore, the VIF values of all independent variables are far below the limit value of 10. Thus, there is no problem of multicollinearity in the present study.

Table 4. Correlation matrix.

	IAHs	R_IAHs	AAOIFI	LIQ	ROA	SIZE	AGE	GDP	OWN	VIF
IAHs	1.0000									1.68
R_IAHs	0.4176 *	1.0000								1.45
AAOIFI	−0.4150 *	−0.3359 *	1.0000							1.55
LIQ	0.1800 *	−0.0347	−0.0982	1.0000						1.10
ROA	0.0606	0.0016	−0.1748 *	0.0260	1.0000					1.20
SIZE	0.2937 *	−0.0283	−0.3830 *	−0.0290	0.3740 *	1.0000				1.74
AGE	0.2397 *	−0.0183	−0.1569 *	−0.1284 *	0.0295	0.4391 *	1.0000			1.36
GDP	0.1372 *	0.2341 *	−0.2952 *	0.0159	0.0727	0.1257 *	−0.0013	1.0000		1.13
OWN	0.3681 *	0.0556	−0.3002 *	0.0617	0.0953	0.2512 *	0.2436 *	0.0747	1.0000	1.25

Variable definitions (see Table 2). * Correlation is significant at the 5% level.

4.3. Multivariate Analysis

We used STATA 14 to perform the endogeneity test, the homogeneity test, the Hausman specification test, the normality of residuals test, the heteroscedasticity test and the autocorrelation test. Endogeneity is defined by [Roberts and Whited \(2013, p. 494\)](#) as “a correlation between the explanatory variables and the error term in a regression.” They noted that the first step in addressing endogeneity is identifying the problem and finding which variables are endogenous. In performing this, we conducted the Hausmann test involving the comparison of OLS and 2SLS regressions to determine if both methods provide similar coefficients ([Navatte 2016](#)). In our study, all explanatory variables have p-value more than 5%. Hence, there is no endogeneity problem. Furthermore, as our sample includes Islamic banks from different countries around the world observed over a period of five years, we used panel data analysis since it takes into account two dimensions: one for the individuals and the other for time. Before choosing between fixed and random effect

models, it is necessary to first check whether there are individual-specific effects in our data. To conduct this, we use the Chow test which compares between a fixed effect model and an OLS regression (Moumen 2015). It indicates the homogeneity or heterogeneity among individuals. In the current study, the Chow test shows that our regression model includes individual effects. In detecting the presence of individual effects, the question that arises is whether these effects are fixed or random? In order to discriminate between the two models, we will perform the Hausman specification test. The latter indicates that the fixed effects model is the appropriate model for our sample. However, it is necessary to check for normality, heteroscedasticity and autocorrelation of residuals. In the presence of a problem with one of the latter, we cannot use the fixed effects method. In this case, OLS regression will not be the best unbiased linear estimation. The Shapiro–Wilk test for normality indicates that the residuals are not normally distributed.

The heteroscedasticity of the residuals assumes that the variance of residuals is not constant in a regression model. Thus, it could make the OLS regression estimation inefficient and inconsistent. The Breush–Pagan test indicates that there is a problem of heteroscedasticity. As for the autocorrelation test, we used the Wooldridge test and we concluded the presence of an autocorrelation problem between the error terms.

In summary, the results of the endogeneity test reveal that there is no endogeneity problem. After performing the above specification tests, the results reveal the presence of heteroscedasticity and autocorrelation problems. Hence, we cannot use the fixed effects method that is identified by the Hausman specification test. Moreover, heteroscedasticity and autocorrelation problems render the OLS regression inefficient. According to Gujarati (2004), in order to overcome these problems, we use the Generalized Least Squares (GLS) regression, which is the most appropriate method in this case.

4.4. Regression Results and Discussions

Table 5 presents the results of GLS method, which indicates IAHs' disclosure determinants in the sampled Islamic banks over the period 2011–2015. As shown in Table 5, the regression model is highly significant as the Wald Chi 2 test is significant at a level of 1%.

Table 5. Results of GLS estimation.

Variables	Exp. Sign	Coef.	Std. Err.	z	p > z
IAHs	+	0.148	0.021	6.940	0.000 ***
R_IAHs	+	0.408	0.116	3.500	0.000 ***
AAOIFI	+	0.288	0.014	20.110	0.000 ***
LIQ	+	0.051	0.024	2.130	0.033 *
ROA	+	−0.020	0.080	−0.250	0.802
SIZE		0.023	0.004	5.120	0.000 ***
AGE		0.000	0.001	0.840	0.403
OWN		0.094	0.019	4.960	0.000 ***
GDP		−0.001	0.001	−0.810	0.415
constant		−0.333	0.065	−5.130	0.000
Wald chi2(9)			491.87		0.000
N of observations		245			
N of Islamic Banks		49			

Variable definitions (see Table 2). The significance levels are as follows: *** $p < 0.01$, * $p < 0.1$.

The results show a significant positive relationship between the level of IAH funds and the IAH disclosure level in the sampled Islamic banks. Therefore, hypothesis H1 is

accepted. This expected result supports the predictions of both the agency and stakeholder theories. According to these theories, IAHs, as major stakeholders, have the right to be informed about the performance of a particular Islamic bank's (Al-Shamali et al. 2013). Thus, Islamic banks have to disclose relevant IAH information in order to mitigate information asymmetry and to protect the IAHs rights. This can result in strengthening IAHs' confidence in dealing with Islamic banks. This result is consistent with those of Al-Baluchi (2006), Farook et al. (2011) and Grassa et al. (2018), who found a positive significant association between the level of IAHs and corporate disclosure level in Islamic banks. The return on IAHs funds has also a positive and highly significant relationship with the level of IAHs disclosure at a level of 1%. Hence, we accept hypothesis H2. This means that the more the return on IAH funds, the more IAH disclosures in Islamic banks. As mentioned earlier in the level of IAHs funds, this finding is also consistent with both agency and stakeholder theories. Indeed, disclosing more adequate information about IAHs, such as the return on IAHs funds, the method of calculation and distribution of the profits, may reduce information asymmetry. This leads IAHs to monitor the manager's opportunistic behavior and, therefore, to protect their rights.

The results reported in Table 5 show also that the adoption of AAOIFI standards is positive and highly significant at a level of 1% with the level of IAH disclosure. Therefore, hypothesis H3 is accepted. This finding supports the stakeholder theory whereby AAOIFI accounting standards determine the needs of IAHs as major stakeholders in Islamic banks. These standards address the unique characteristics of products and services of Islamic banks and enhance the credibility of their financial statements (Sarea and Hanefah 2013). This finding is consistent with Al-Baluchi (2006), who found that the level of voluntary disclosure in the annual reports of Islamic banks increased after the implementation of AAOIFI standards. Moreover, our finding is in line with that of El-Halaby (2015) who revealed that the adoption of AAOIFI standards has a significant positive association with financial disclosure, which reflects the importance of the adoption of these standards in all Islamic banks. The level of liquidity has a positive and significant relationship at the 5% level with the level of IAH disclosure in the sampled Islamic banks. Hence, hypothesis H4 is accepted. This means that higher levels of liquidity in an Islamic bank result in higher levels of IAH disclosures in their annual reports. This result supports the signaling theory, where higher liquidity can lead Islamic banks to improve their performance and, therefore, to disclose positive signals on their secure financial positions. This result is inconsistent with those of Bin Harun (2016) and Elgattani and Hussainey (2020), who found no significant relationship between liquidity and corporate disclosure in the annual reports of Islamic banks. Bank profitability has a negative and insignificant impact on IAH disclosure levels. Therefore, hypothesis H5 is rejected. This means that banks with higher profitability disclose less adequate IAH information. This result is inconsistent with the signaling theory, suggesting that managers tend to disclose more detailed information as positive signal to investors. Consequently, they can increase investors' confidence and attract other potential investors. This result is in contrast with those of Arshad et al. (2012) and Bukair and Raman (2013), who found a significant positive relationship between bank performance and CSR disclosure in Islamic banks.

Table 5 also shows that bank size and ownership have positive and highly significant relationships with the level of IAH disclosure at the level of 1%. However, both bank age and GDP growth have no effect on the IAHs disclosure level in Islamic banks.

4.5. Robustness Analysis

Following Gujarati (2004), we used GLS estimation in the previous section to overcome heteroscedasticity and autocorrelation problems. However, this estimation has been criticized by Beck and Katz (1995). The latter has shown that GLS estimation produces highly overconfident coefficient standard errors. They proposed the use of the Panel Corrected Standard Errors (PCSE) method as a more appropriate method for providing accurate coefficient standard errors. Thus, we proceed in this section to check the robustness of our GLS

results by employing the PCSE method, and we compare the two estimations. As shown in Table 6, the results are almost the same for all the independent variables, except ownership, in comparison with our previous GLS regressions results. For the two estimations, the variables IAHs, R_IAHs, AAOIFI, LIQ and SIZE are positively and significantly related to IAH disclosure level.

Table 6. Results of PCSE estimation.

Variables	Coef.	Std. Err.	z	p > z
IAHs	0.165	0.027	6.140	0.000 ***
R_IAHs	0.698	0.213	3.280	0.001 ***
AAOIFI	0.304	0.014	21.060	0.000 ***
LIQ	0.054	0.030	1.830	0.067 *
ROA	−0.069	0.083	−0.840	0.403
SIZE	0.032	0.005	6.950	0.000 ***
AGE	0.001	0.001	0.980	0.328
GDP	0.000	0.001	0.420	0.673
OWN	−0.009	0.029	−0.320	0.752
constant	−0.405	0.069	−5.860	0.000
Wald chi2(9)	783.91			0.000
Number of obs	245			
Number of IBs	49			

Variable definitions (see Table 2). The significance levels are as follows: *** $p < 0.01$, * $p < 0.1$.

5. Conclusions

In our paper, we provided new empirical evidence that the level of IAH funds, the return on IAH funds, the adoption of AAOIFI standards and the liquidity level have positive significant relationships with the level of IAH disclosure in the sampled Islamic banks. We found also that both bank size and ownership have a positive significant relationship with the level of IAH disclosure.

The findings of this study suggest a number of important implications. First, this research extends the knowledge about disclosure and transparency issues in relation with IAH information in Islamic banks by examining the main IAH disclosure determinants. The results of this study provide strong support for the predictions of agency, stakeholder and signaling theories, which suggest that Islamic banks that adopt AAOIFI standards with high levels of IAH funds, high return on IAH funds and high liquidity level are more likely to disclose relevant IAH information. Second, regulatory bodies in all countries should impose IAH disclosure requirements issued by the AAOIFI in order to improve IAH reporting and enhance comparability between Islamic banks from different countries around the world. Third, the findings can be useful for IAHs as they help them to understand IAH practices in Islamic banks from the studied countries and the main incentives of managers for IAH disclosure. Thus, they help them to make better investment decisions. Moreover, Islamic banks should pay particular attention to IAH reporting in order to boost IAHs' confidence and avoid massive withdrawal of their funds. For that, they should provide more relevant IAHs information in their annual reports. This study yields new insights for regulatory bodies and information users about the main incentives of managers for increased IAH reporting. Indeed, it seems that high level of IAHs funds, high return on IAHs funds, adopting AAOIFI accounting standards, high level of liquidity, larger and publicly held Islamic banks are the main factors that motivate the managers of Islamic banks to report high levels of relevant IAH information.

This study contributes to Islamic accounting literature as it is the first study to empirically investigate the determinants of IAH disclosure. However, our sample is limited to 10 countries due to data availability. Therefore, the generalization of our study is quite limited. Finally, the study focuses mainly on financial variables except one regulatory variable (i.e., the adoption of AAOIFI standards). Thus, in addition to these variables, future research could also consider some specific corporate governance variables such as Sharia board characteristics that could affect the levels of IAH disclosure. Future research could also consider deriving a bank performance measure by means of frontier efficiency methods such as Data Envelopment Analysis by using balance sheet data and other non-financial data. We limit our analysis to disclosure based on AAOIFI 2010. Future research could also consider AAOIFI standards of 2015 and test to see if the level and the determinants of IAHs disclosure will change. Thus, a comparative study on the determinants of AAOIFI 2020 and 2015 could offer interesting academic and regulatory implications.

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Note

¹ There are a number of Islamic banks that called these funds as profit sharing investment accounts or Mudharaba funds.

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