Empirical Analysis on the Performance of Rated and Non-Rated Islamic Financial Institutions

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Empirical Analysis on the Performance of Rated and Non-Rated Islamic Financial Institutions

Yasmine Abdelsalam Omar Abdelghaffar

Abstract

Purpose – The purpose of this research is to provide insight into the gaps in financial performance that Islamic Financial Institutions (IFIs) decision-makers need to address prior to soliciting a Credit Rating (CR).

Design/methodology/approach – The researcher examines the effect of Capital adequacy, Asset quality, Management quality, Earnings management, and Liquidity management (CAMEL) on CR status (i.e., rated or not rated) using t-test, Mann-Whitney test, and binary logistic regression. The sample includes 143 IFIs operating across 29 countries over a ten-year span from the year 2010 to 2019.

Findings – The findings of this study confirm significant differences between non-rated and rated IFIs in terms of size, capital adequacy, asset quality, management quality, and liquidity management. The non-rated IFIs are smaller in size, more capitalised, and have lower credit risk. On the other hand, they experience managerial inefficiency in managing their operating income and expenses, and they are not utilising their assets as efficiently as rated IFIs.

Originality/value – Complements existing limited literature on IFIs' creditworthiness and identifying the key indicators that significantly affect the CR status will help managers modify their strategies to be engaged in the CR process, increase transparency, and reduce asymmetric information problem.

Keywords: Islamic Financial Institutions; Credit Rating; CAMEL rating methodology.

1. Introduction

Financial institutions act as a financial intermediary between savers (i.e., depositors) and lenders (i.e., drawers and producers) (Mishkin & Eakins, 2012). Maintaining an effective financial sector is fundamental for a strong and healthy economy (Öğüt et al., 2012; Kou et al., 2019; Zidan, 2019). Producers will not have funding sources if the financial intermediation process is not in action. This would lead to low economic performance. In other words, failure of the financial sector can lead to a decline in economic growth and, thus, a recession.

Needless to mention, the evolution of the Islamic financial system was constantly developing throughout the years (Cunningham, 1999; Nagaoka, 2011; Mohamed et al., 2018; Damak, 2023; Mohamed & Taitoon, 2023). It is clear that the Islamic financial system is growing fast and expanding geographically (IFSB, 2018; Mohamed & Taitoon, 2023). To gain credibility with clients and regulators while expanding into new markets, Islamic Financial Institutions (IFIs) would be better off if they were rated by one of the top Credit Rating Agencies (CRAs).

A Credit Rating (CR) is a symbol assigned by a CRA. It provides a benchmark to investors and regulators about the creditworthiness of institutions such as banks, corporations, or governments that issue debts (Li et al., 2020). Studying the early signs of financial institutions' failure is one of the ways to reduce credit risks. CRs are broadly used in the financial markets for various purposes, and their role in an efficient functioning market has received considerable scholarly attention (see, for example, Grassa et al., 2020; Li et al., 2020; Artha & Hertikasari, 2022; Dang et al., 2022).

The financial performance of IFIs is determined by their profitability, asset management like any other enterprise, as well as capital adequacy and credit risk management. In Moody's Rating Methodology report, Fanger et al. (2007, p. 22) stated that "financial fundamentals are a relatively easy way to compare banks' performance. Banks should be easily compared globally because they have two main businesses: borrowing and lending money. They are regulated institutions, and there are thousands of them around the world. The use of financial metrics helps to verify or falsify performance assumptions that were based on past trends." This means using a standardised financial rating system is the most effective and efficient way to identify performance.

In short, the growth of IFIs and heightened market share in the financial system have elevated the importance of their reputation and creditworthiness to ensure efficient money movement in the economy. Evaluating IFIs' creditworthiness is the objective of the CR. Nevertheless, only 36 IFIs were rated by Fitch, 24 by Capital Intelligence (CI), 20 by Moody's, and 8 by Standard and Poor's (S&P) (Moody's, 2020; Fitch Ratings, 2021; S&P, 2021; Capital Intelligence, 2022).

The lack of a sufficient number of rated IFIs makes the non-rated IFIs' creditworthiness unclear. Therefore, understanding why most IFIs are not rated is considered an essential matter for investors, regulators, and IFIs' decision-makers. It has been proven that the ongoing evaluation of CR is essential for the institution itself as well as investors and regulators in the country (IOSCO, 2003; Gonzalez et al., 2004; Arnoud et al., 2006; House of Commons, 2009; Li et al., 2020; Dang et al., 2022). Similarly, there were arguments around the CR quality. Such studies compare the CR quality of solicited and unsolicited CRs (see, for example, Bannier et al., 2010; Byoun & Shin, 2012; Fulghieri et al., 2014; Gibert, 2019; Hsiao et al., 2019; Agoraki et al., 2021; Zhao et al., 2021). Although IFIs gained attention from academics, policymakers, and other market practitioners since 2008, to the best of the researcher's knowledge, the literature primarily focuses on conventional financial institutions. The 2008 financial crisis made the importance of IFIs materialised globally (Bourkhis & Nabi, 2013; Tabash & Dhankar, 2014). Accordingly, there is growing literature related to IFIs' performance in terms of, but not limited to, efficiency (Sufian & Noor, 2009; Kamarudin et al., 2017), stability (Tabash & Dhankar, 2014; Danlami et al., 2022), capital adequacy (Ariss & Sarieddine, 2007; Abdul Karim et al., 2014; Al-Hunnayan, 2020), and asset quality (Al-Wesabi & Ahmad, 2013). Those studies have several drawbacks. Some focused on one country, and others focused on a region. Likewise, they focused on investigating one or two financial pillars. It is difficult to conclude the overall performance of IFIs and financial strength from one or two aspects of the five aspects, i.e., CAMEL rating methodology. The limited literature on IFIs' creditworthiness is practically reflected in IFIs' rating status, where a few IFIs are rated by one of the top CRAs.

On that account, the researcher attempts to close this literature gap by examining the main determinants from the five dimensions that influence IFIs' decision-makers to solicit ratings and the CRA's criteria to provide a rating across countries. The five dimensions are Capital adequacy, Asset quality, Management quality, Earnings management, and Liquidity management (CAMEL). Additionally, country-level proxies were controlled. Hence, the researcher examines the financial performance of 143 IFIs operating in 29 countries using univariate analysis (*t*-test and Mann-Whitney test) and multivariate analysis (binary logistic regression).

The study revealed a significant difference between non-rated and rated IFIs in terms of size, capital adequacy, asset quality, management quality, and liquidity management. The non-rated IFIs are smaller in size, more capitalised, and have lower credit risk. On the other hand, they experience managerial inefficiency in managing their operating income and expenses, and they are not utilising their assets as efficiently as rated IFIs. Identifying the key indicators that significantly affect the CR status will help managers modify their strategies to be engaged in the CR process, increase transparency, and reduce asymmetric information problem.

This paper is outlined as follows: Section 2 presents the literature review and the development of the hypotheses. Section 3 discusses the research methodology. Section 4 provides the results of univariate and multivariate analyses. Section 5 presents the discussion and conclusion, followed by the recommendations and implications in Section 6. Finally, Section 7 provides the research limitations and areas for future studies.

2. Literature Review and Hypothesis Development

2.1. Literature Review

The CRAs offer two kinds of rating services: one is called solicited rating, and the other is called unsolicited rating. The main difference is that the issuer asks for a solicited rating and pays for the rating service, while unsolicited ratings are not asked for, yet the issuer will not pay for this service (Byoun & Shin, 2012; Hsiao et al., 2019). Some arguments were raised because it was found that agencies assign low unsolicited ratings as compared to solicited ratings. In the context of signalling theory, De and Kale (1993) argue that healthy and sound institutions are the ones that solicit CRs to benefit from the competitive advantage of their high CRs. In return, they will have easier access to the financial market and thus benefit from lower borrowing costs.

In this essence, sound institutions are incentivised to reduce adverse selection problems. On the contrary, unhealthy institutions take advantage of the asymmetric information problem (Olegario, 2001). Firms always have more information about their operations and performance than investors. Therefore, weak firms will choose not to solicit a CRA's service because they know the rating score will give negative signals to investors. Consequently, the CRAs issue an unsolicited rating for these firms, which tends to be deflated. This argument indicates that CRAs give low unsolicited ratings due to self-selection bias. According to the self-selection hypothesis, ratings that are not solicited are lower, yet they are not biased (Fulghieri et al., 2014; Gibert, 2019).

Banks are financial providers to firms who are also borrowers; they provide liquidity in the form of loans. An asymmetric information problem arises between firms/borrowers and banks in lending transactions, more evident when the borrower firm is not rated. Although bankers collect information and evaluate their clients'/borrowers' risk, a bank cannot fully mitigate the information asymmetry (Judge & Korzhenitskaya, 2022). In this way, the firm passes its risks to the bank, and banks pass it on to depositors. Subsequently, depositors bear the risk associated with loans provided to small non-rated firms. This emphasises that the banks should monitor their activity more and solicit ratings to decrease the asymmetric information problem. For instance, Agoraki et al. (2021) found that non-rated US banks' IPOs experienced the highest under-pricing compared to single and multiple-rated banks. This finding explains that non-rated banks experience a higher level of uncertainty due to the asymmetric information problem. They also found that those rated banks are bigger than their non-rated counterparts. This finding also reveals the importance of CRs to banks if they want to raise equity by going public. Moreover, Cunningham (1999) stated that a CR issued by an international rating agency is also essential for an international financial view. The rating given to a particular institution is critical in determining a financial institution's ability to operate in international financial markets. Butler (2008) confirmed the findings of Cunningham (1999) and Poon et al. (1999).

Nevertheless, some institutions do not solicit ratings for three main reasons, namely, the possibility of getting a low rating, a lack of motive to access international markets, and confidentiality concerns, as justified by Poon (2003) and Poon and Firth (2005). To elaborate, some institutions are afraid to get low CRs as they are not financially healthy. This reason supports self-

selection bias. There are strategic reasons behind not soliciting a rating. Some institutions do not rely on international markets to raise funds because they do not want foreign shareholders. In the context of information confidentiality and competition, the information given to the CRAs may be leaked to their competitors.

This implies that there are several unrelated reasons behind why unrated firms are interested in remaining unrated; they can be strategic reasons and are not necessarily related to the institution's risk. Supporting that argument, Coleman et al. (2006) revealed that non-rated banks are in the same category as high and medium-rated banks in terms of lending maturities and loan yield spread. The maturity of loans of non-rated, high, and medium-rated banks tends to be longer, and the loan yield spread is lower than that of low-rated banks. It can be concluded that non-rated banks are not as risky as low-rated banks.

CRAs offer solicited and unsolicited ratings. The difference is that the issuer did not ask for / "solicit" the rating process in the latter; accordingly, the issuer does not pay a fee to the CRA. Previous empirical studies found that unsolicited ratings are lower than solicited ones. This shed light on the differences between the two types of ratings, as well as why unsolicited ratings are lower than solicited ratings.

For instance, Poon and Firth (2005) examined the difference between solicited and unsolicited ratings for banks operating in 82 countries. The researchers examined Fitch ratings from 1999 to 2001. The study's main findings were based on the *t*-test and Mann-Whitney U test. Their findings include the following:

- Unsolicited ratings are generally lower than solicited ratings.
- Unsolicited rated banks are less profitable.
- Unsolicited rated banks have less capital, low asset quality, and are smaller in asset size than solicited rated banks.

The result supports the self-selection bias, where healthy firms solicit ratings and unhealthy ones do not. This explains the reason that unsolicited ratings are lower than solicited ratings. However, they found that unsolicited rated banks are more liquid than banks that solicit ratings. The findings of Poon and Firth (2005) were consistent with those of Poon (2003), who examined the difference between solicited and unsolicited ratings for 265 firms

operating in 15 countries using S&P ratings from the year 1998 to 2000. Poon (2003) found that firms that solicit ratings were financially stronger than those that did not seek ratings. Likewise, Gibert (2019) confirmed that unsolicited ratings are significantly lower than solicited ratings in the financial sector across all countries. However, the researcher found mixed evidence in the non-financial and government sectors, supporting the self-selection bias. Additionally, Zhao et al. (2021) also confirmed the self-selection hypothesis while investigating the differences between solicited and unsolicited rating qualities of firms rated by Moody's. They found that there was no difference in the rating quality, and those who received unsolicited ratings were financially weaker than those who received solicited ones.

Moreover, Hsiao et al. (2019) examined the lending behaviour of 902 banks before and after receiving a solicited and unsolicited rating. They found that banks with unsolicited ratings decrease their debt level before a rating change, which is the same behaviour of banks that expect their solicited rating to be downgraded. Meanwhile, if a bank receives a favourable unsolicited rating, it tends to offer more loans to benefit from cost reduction. This argument is also in favour of the self-selection argument.

Based on this discussion, the reason why a financial institution does not solicit a rate from a CRA is skewed to the self-selection bias. In other words, the institution does not see that it will get a good rating; thus, it prefers not to be transparent towards its credit risk and consequently passes it on more easily.

In the end, the purpose of this research is to provide insight into the gaps in financial performance that IFIs decision-makers need to address prior to soliciting a CR. Also, test the validity of the results of previous research conducted on non-Islamic financial institutions on IFIs, especially the findings that non-soliciting ratings are usually linked to poor financial performance and thus self-selection bias. The researcher aims to investigate why some IFIs are not rated (neither solicited nor unsolicited). Hence, rated IFIs are expected to be financially stronger than non-rated IFIs. In this essence, the research hypotheses are phrased in favour of the self-selection argument.

2.2. Hypothesis Development

2.2.1. Capital Adequacy Dimension

Capital is often viewed as an essential factor for a bank's creditworthiness. Saidenberg and Strahan (1999), Athanasoglou et al. (2008), Harkati et al.

(2020), and Danlami et al. (2022) explained that banks hold capital because capital is a shield against insolvency. Joudar et al. (2023) added that high capital is important to promote public trust. However, Barrios and Blanco (2003) stated that capital is a small percentage of the financial sources of banks. However, the researchers agreed that it plays a significant role in their long-term financing and solvency position and so in their public trustworthiness. Rahman and Masngut (2014) confirmed that large banks' capital is essential in maintaining their stability as a shield against any problem.

Accordingly, Capital Adequacy Ratio (CAR) measures the extent to which a bank has sufficient capital to absorb unexpected losses that may arise in the future. Thus, it reflects the financial health of a bank (Dincer et al., 2011; Misra & Aspal, 2013; Alnajjar & Othman, 2021). The bank's CAR is also necessary for the bank's regulators to ensure the safety and soundness of banking operations. Cantor (2001) highlighted that bank regulators are sometimes forced to absorb bank losses to maintain the banking system's stability. Therefore, regulators may impose certain capital adequacy rules to protect banks from bankruptcy and gain stakeholders' trust. Nevertheless, Alnajjar and Othman (2021) found that Islamic Banks (IBs) with too high capital, which exceeded the minimum capital requirements, negatively impacted the banks' profitability. They argued that those banks have a high level of funds tied up in their capital.

Highly capitalised banks imply wider shareholder engagement in monitoring bank portfolios and allowing them to take corrective action to deal with problems resulting from unexpected losses. Athanasoglou et al. (2008), Ben Naceur and Kandil (2008), Ramlall (2009), Olson and Zoubi (2011), and Menicucci and Paolucci (2016) confirmed that a higher capital level leads to higher profitability. This positive relationship reflects the reliability of financial performance, which in turn will reflect on the bank's creditworthiness. Athanasoglou et al. (2008), Dincer et al. (2011), and Ahokpossi (2013) mentioned that well-capitalised banks are less exposed to the risk of bankruptcy, as well as they face lower cost of borrowing and, consequently, higher profitability. Gardener et al. (2011) also examined the efficiency of banks operating in Indonesia, Malaysia, Philippines, Thailand, and Vietnam. The researchers found that banks with higher capital ratios are more technically efficient and better in cost reduction than banks with lower capital ratios.

Additionally, Harkati et al. (2020), Danlami et al. (2022), and Joudar et al. (2023) examined the effect of IBs' capital adequacy on default risk. Danlami et al. (2022) examined banks operating in Southeast Asia and Gulf Cooperation Council (GCC) countries, while Joudar et al. (2023) examined banks operating in the Middle East and North Africa (MENA) region. They confirmed that the higher the CARs, the less likely the bank will fail. Although Harkati et al. (2020) compared the risk-taking behaviour of conventional and IBs operating in Malaysia, they found that conventional banks with high capital ratios are less exposed to moral hazard behaviour. However, this was not the case for IBs; they found no relationship between risk-taking behaviour and CAR; they attributed their conflict in the findings to the Profit-and-Loss Sharing (PLS) feature of IBs.

Based on this argument and the self-selection hypothesis, highly capitalised IFIs are considered financially stronger than low-capitalised IFIs. Thus, the researcher hypothesises the following:

H_1: There is a positive association between Islamic financial institutions' capital adequacy and credit rating status.

2.2.2. Asset Quality Dimension

Asset quality reflects the bank's credit risk and strategy in employing assets to generate profits. Nabella et al. (2023) and Gjeçi et al. (2023) found that low asset quality with high Non-Performing Loans (NPLs) will limit the banks from expansion and asset growth. They explain that low NPLs increase banks' financing activities and loan growth, leading to an increase in profits that will be reallocated to banks' assets. Therefore, maintaining high asset quality is crucial to the bank's stability and growth.

Avoiding low asset quality is the most significant problem for a bank. Danlami et al. (2022) confirmed that IBs with low asset quality have a high possibility of failing. Low asset quality will not only expose a bank to credit risk but also negatively affect a bank's profitability. Bernstein (1996) claims that asset quality is shown to affect the level of bank costs. The researcher finds that an increase in NPL increases costs. Moreover, Kwan and Eisenbeis (1996) found that banks with non-bankruptcy problems exhibit a negative relationship between efficiency and NPL. Since high asset quality reduces the banks' costs, it will consequently lead to higher profits. In this essence, Muljawan (2007), Achou and Tenguh (2008), Abata (2014), Khan et al. (2020), and Roihan (2023) proved that the higher the quality of the assets,

i.e., low NPL ratio, the higher the net profit of the bank. Likewise, high asset quality is a key factor that affects the creditworthiness of a given bank. One of the key features of a healthy bank is holding good quality assets (Marshall, 1999).

In this essence, asset quality is considered a significant factor that affects the financial soundness of any bank. The better the IFIs' asset quality, the higher their creditworthiness, and thus solicit ratings. Hence, the researcher hypothesises the following:

H_2: There is a positive association between Islamic financial institutions' asset quality and credit rating status.

2.2.3. Management Quality Dimension

Low management quality has a negative impact on overall bank performance. For instance, Al-Wesabi and Ahmad (2013) aimed to examine the factors that affect the credit risk of IBs in GCC countries. The researchers found that high management quality leads to low credit risk. Moreover, Ilhomovich (2009) and Sangmi and Nazir (2010) found that the higher the percentage of operating profits to total income, the more effective management is in terms of operational efficiency and revenue generation. Moreover, Kamaruddin and Mohd (2013), Rozzani and Rahman (2013), and Misra and Aspal (2013) concluded that high management quality is a sign of good performance and will lead to the growth and continuation of the bank in the future. Moreover, Danlami et al. (2022) and Joudar et al. (2023) tested the impact of management efficiency on banks' stability. Danlami et al. (2022) confirmed that operating expenses to total assets is an important dimension that the bank's managers should consider. Meanwhile, Joudar et al. (2023) contradicted this finding when measuring the efficiency of banks and found that the cost-to-income ratio does not affect banks' stability.

As management efficiency is one of the key internal factors determining the bank's efficiency, it also affects its asset quality. Accordingly, IFIs that have high management quality are the ones that solicit ratings. Therefore, the researcher hypothesises the following:

H_3: There is a positive association between Islamic financial institutions' management quality and credit rating status.

2.2.4. Earnings Management Dimension

IFIs are like any other firm; their objective is to optimise their profits and sustain their revenue (Belkhaoui et al., 2020). Moreover, earning management ratios are positively related to the bank's financial performance and negatively associated with the possibility of failure. For instance, Danlami et al. (2022) examined the effect of Return on Assets (ROA) on IBs' stability and default risk, and they confirmed that the higher the ratios, the better the bank will be, and thus, the bank becomes more stable. Moreover, high profitability ratios mitigate shocks that could affect its current capital ratio (Gambetta et al., 2019).

Noting that Athanasoglou et al. (2008) proved that banks with lower leverage (higher equity ratio) would generally report higher income generated from assets (ROA) but lower income generated from equity (ROE). They argued that the ROE ignores the risks of high leverage, and regulators often determine financial leverage. Therefore, ROA is more relevant for evaluating bank profitability. However, Rahman and Masngut (2014) find that IBs operating in Malaysia have low ROA, which means that the banks are not efficiently using their assets to generate earnings that are not good for the institution. The researchers suggest that all banks must use their financial products and services more efficiently to attract more investors, and the existing shareholders will gain more trust in the bank's performance. On the contrary, Cunningham (1999) found that IBs have a lower cost of funds than conventional banks because many of their deposits are 'qard-hassan', i.e., non-interest bearing and thus free to the bank. This means IBs have low operating costs but do not utilise their assets well compared to conventional banks.

It can be concluded that if IFIs' earnings management is not strong enough to generate high profits, they would not solicit CR. This supports the self-selection hypothesis, which means that most IFIs do not solicit CR due to their low earning management ratios. Thus, the researcher hypothesises the following:

H_4: There is a positive association between Islamic financial institutions' earnings management and credit rating status.

2.2.5. Liquidity Management Dimension

According to the Financial Times, banks are machines for taking liquidity risk – borrowing – short-term deposits and extending long-term loans (Golin & Delhaise, 2001). Rahman and Masngut (2014) found that the higher the liquid assets to total deposits and short-term funding, the more liquid the IBs are. Therefore, the bank will be less likely to face financial distress. Misra and Aspal (2013) and Chowdhury et al. (2023) also remarked that liquidity risk could affect the bank's image if it failed to meet customers' requirements. Furthermore, Sarker (2005) describes liquidity management as studying the institution's liabilities, like interest rates and payment terms. Therefore, managing liquidity is overly critical for the bank to survive and avoid liquidity risk, and, at the same time, boost its revenue. To maintain low liquidity risk, banks hold liquid assets to secure sudden withdrawals by depositors or drawdowns by borrowers (Saidenberg & Strahan, 1999) or through increasing deposits (Gulia, 2014). Take into consideration that both contracts allow customers to receive cash on short notice (Gatev et al., 2009). Although banks will have inadequate cash to meet unexpected calls from their depositors and borrowers, this risk is unrelated to customers (Gatev et al., 2007).

It is worth noting that the way IFIs manage their liquidity differs from that of conventional banks (Widarjono et al., 2022). For instance, Rahman and Masngut (2014) and Harkati et al. (2020) found that IBs operating in Malaysia have a higher percentage of loans than conventional banks, which affects a bank's liquidity position. Rahman and Masngut (2014) argue that IBs attract customers by providing easy loans without doing proper due diligence, which can easily turn into NPLs.

On the other hand, Joudar et al. (2023) found a weak relationship between banks' stability and liquidity risk; they justified this by the nature of IBs' specific nature of practice. Another explanation for this weak relationship could be justified by Widarjono et al. (2022), who examined the impact of PLS and non-PLS contracts on liquidity risk. They found that IBs that offer only non-PLS are exposed to higher liquidity risk than those who offer the two types of contracts.

Moreover, Cunningham (1999) pointed out that the asset structures in IBs tend to be shorter-term than those of conventional banks, implying that they are less liable to risk. However, the researcher believes that part of their assets are less liquid than those of conventional banks because they have less access to a deep secondary market, and that would imply higher risk. Cunningham (1999) and Chowdhury et al. (2023) claimed that IFIs have a different approach to managing their liquidity, in which IFIs cannot use the

international interbank market[1]. Therefore, they must develop alternative sources of short-term funding to manage their liquidity to have adequate money. Meanwhile, Obaidullah (2005) mentioned that the IBs are in the way of developing an active interbank money market. Moreover, the researcher added that there are restrictions on IBs to borrow or invest in the short term, leading to an imbalance in the maturities of the two sides of the balance sheet. Generating either a cash surplus that has to be invested or a cash deficiency that needs to be funded. This mismatch creates liquidity risk that affects the performance of IFIs.

Accordingly, most IFIs are not rated because they experience liquidity risk. Thus, the researcher hypothesises the following:

H_5: There is a negative association between Islamic financial institutions' liquidity risk and credit rating status.

3. Research Design

3.1. Sample and Data Sources

The research examines 143 IFIs operating across 29 countries over a ten-year span, from the year 2010 to 2019 inclusive. The result is a balanced dataset of 1,430-year observations. The detailed distribution of IFIs included in the dataset is exhibited in the Appendix, which shows the frequencies and percentages of rated and non-rated IFIs per country.

The research examines the impact of IFIs' financial performance on CR status (rated vs. non-rated) across countries. Therefore, there are three levels of information needed. First, the defining parameter, which is whether the data point belongs to a rated or non-rated IFI, micro-level data on IFIs' financial information, and macro-level country specific-economic data. The researcher collected data for IFIs' financials and CRs from Fitch Connect and CI websites. The country-level data were collected from the World Economic Outlook (WEO) and World Bank databases. The data collected were organised as a balanced panel dataset.

3.2. Variables

The response variable is the annual rating status of a given IFI, i.e., whether it is rated or not. Considering that there were IFIs rated by one or more CRAs, thus, a value of '1' is given to the IFI that was provided with a rate from one or more CRAs (Fitch, Moody's, or CI) and '0' otherwise. Therefore, the

[1] The interbank market is the market through which conventional banks borrow or deposit money in the short term.

response variable is binary, where the rated IFI for a given year is coded '1' and '0' for non-rated ones.

Each hypothesis stands for a different performance aspect, i.e., CAMEL, and each aspect has multiple proxies to assess it. These proxies were appraised in previous literature such as Poon et al. (1999), Dincer et al. (2011), Caporale et al. (2012), Öğüt et al. (2012), Beck et al. (2013), Rahman and Masngut (2014), Waemustafa and Sukri (2015), Chodnicka-Jaworska (2017), Rahman and Islam (2018), and Zhao et al. (2021), among others.

In this essence, these five pillars are the main explanatory variables. The researcher also controlled IFIs' size and country-level factors. Table 1 reviews the proxies representing the different dimensions of IFIs' financial performance.

Table 1: List of Explanatory Variables Used for Statistical Analysis

Variable Code	Brief Description and Hypotheses	Expected Sign	Category
ETA	Equity / Total Assets (%)	+	**C**apital Adequacy Proxies
DTE	Debt to Equity	-	
TITA	Total Investments to Total Assets	+	**A**sset Quality Proxies
GNPL	Growth of Non-Performing Loans	-	
NPLTA	Non-Performing Loans / Total Assets	-	
NPLGL	Non-Performing Loans / Gross Loans (%)	-	
LLPAGL	Loan Loss Provisions / Gross Loans (av) (%)	-	
NCOAGL	Net Charge-Offs / Gross Loans (av) (%)	-	
LLRGL	Loan Loss Reserves / Gross Loans	-	
LLRIL	Loan Loss Reserves / Impaired Loans	-	
GLCD	Gross Loans / Customer Deposits	+	**M**anagement Quality Proxies
GTA	Growth of Total Assets	+	
CIR	Cost-to-Income Ratio (%)	-	
NIEGR	Non-Interest Expenses / Gross Revenues	-	
NIEAA	Non-Interest Expenses / Avg. Assets	-	
IILAGL	Interest Income on Loans / Avg. Gross Loans	+	
IECDACD	Interest Expenses on Customer Deposits / Avg. Customer Deposits	-	
IIAEA	Interest Income / Avg. Earning Assets	+	
IEAAIBL	Interest Expenses / Avg. Interest-Bearing Liabilities	-	
NIIGR	Non-Interest Income / Gross Revenues	+	
ROE	Return on Average Equity (%)	+	**E**arnings Management Proxies
ROA	Return on Average Assets (%)	+	
NIM	Net Interest Margin	+	
LADD	Liquid Assets / Demand Deposits	+	**L**iquidity Management Proxies
LATA	Liquid Assets / Total Assets (%)	+	
LADSTF	Liquid Assets / Deposits and Short-Term Funding (%)	+	
GLDSTF	Gross Loans / Deposits and Short-Term Funding	-	

Regardless of how big or small the IFI is, the study bridges all IFIs' performance across countries; thus, the researcher controls the systematic risk proxied by the Human Development Index (HDI), Unemployment Rate (UR), and Broad Money as a percentage of GDP (BM %GDP), the IFI's asset size (TA$) measured by the log of total assets, and the economic cycle (Year).

4. Empirical analysis

4.1. Univariate Analysis

The difference between the two groups of IFIs (rated and non-rated) may be attributed to the difference in financial performance and country-level proxies. Accordingly, the Mann-Whitney U-test and *t*-test were used to investigate the differences between rated and non-rated IFIs in terms of their financial performance and the countries in which they operate in.

Table 2 illustrates the differences between rated and non-rated IFIs. It presents the descriptive statistics (mean, median), *t*-test (*t*-value), and Mann-Whitney test (*Z*-value) results.

Table 2: Descriptive Statistics, t-test, and Mann-Whitney Test Results

Category	Variables	Entire Dataset			Rated			Non-Rated			*t*-test		Mann-Whitney test	
		Mean	Median	N	Mean	Median	N	Mean	Median	N	*t*-value	Sig.	*Z*-value	Sig.
Capital Adequacy Proxies	ETA	20.42	12.28	1430	13.22	12.53	270	22.10	12.03	1160	-10.33	0.00	-1.04	0.30
	DTE	7.07	6.91	1430	7.83	6.98	270	6.90	6.77	1160	1.22	0.22	1.99	0.05
Asset Quality Proxies	TITA	79.33	84.66	1430	85.21	86.66	270	77.96	83.81	1160	9.07	0.00	4.77	0.00
	GNPL	20.55	0.00	1430	21.69	3.27	270	20.29	0.00	1160	0.09	0.92	3.49	0.00
	NPLTA	3.05	1.19	1430	2.67	1.68	270	3.13	1.04	1160	-1.36	0.17	5.97	0.00
	NPLGL	6.21	1.93	1430	4.79	2.82	270	6.55	1.63	1160	-2.89	0.00	4.98	0.00
	LLPAGL	1.59	0.46	1430	0.97	0.74	270	1.74	0.38	1160	-0.72	0.47	4.75	0.00
	NCOAGL	0.41	0.00	1430	0.37	0.01	270	0.42	0.00	1160	-0.33	0.74	2.60	0.01
	LLRGL	5.45	2.39	1430	3.81	3.05	270	5.83	2.20	1160	-4.17	0.00	3.22	0.00
	LLRIL	77.09	58.29	1430	104.27	84.34	270	70.76	51.06	1160	1.19	0.23	10.37	0.00
Management Quality Proxies	GLCD	182.72	85.39	1430	97.40	92.80	270	202.58	82.96	1160	-4.91	0.00	6.57	0.00
	GTA	18.07	11.42	1430	13.98	10.56	270	19.03	11.74	1160	-2.01	0.04	0.02	0.98
	CIR	145.77	54.28	1430	47.84	47.37	270	168.57	57.51	1160	-0.58	0.56	-6.37	0.00
	NIEGR	143.53	54.61	1430	48.18	47.43	270	165.73	57.63	1160	-0.56	0.57	-6.31	0.00
	NIEAA	3.74	2.35	1430	1.89	1.78	270	4.18	2.59	1160	-9.74	0.00	-9.52	0.00

	IILAGL	61.60	5.90	1430	5.92	5.39	270	74.56	6.23	1160	-0.90	0.37	-3.41	0.00
	IECDACD	2.92	1.80	1430	2.07	1.49	270	3.11	1.95	1160	-4.24	0.00	-0.95	0.34
	IIAEA	7.47	5.47	1430	5.83	4.91	270	7.85	5.88	1160	-5.55	0.00	-3.33	0.00
	IEAAIBL	3.53	2.69	1430	2.43	1.77	270	3.79	2.94	1160	-8.22	0.00	-6.43	0.00
	NIIGR	57.82	27.68	1430	28.04	22.42	270	64.75	31.22	1160	-0.81	0.42	-5.24	0.00
Earnings Management Proxies	ROE	6.56	8.40	1415	9.87	10.43	270	5.77	7.72	1145	2.92	0.00	4.56	0.00
	ROA	1.18	0.97	1430	1.16	1.24	270	1.18	0.90	1160	-0.08	0.94	3.55	0.00
	NIM	4.01	3.05	1430	3.28	3.24	270	4.18	2.94	1160	-3.05	0.00	3.01	0.00
Liquidity Management Proxies	LADD	307.24	69.97	1430	99.02	48.98	270	355.71	75.12	1160	-0.98	0.33	-4.14	0.00
	LATA	21.53	17.08	1430	17.25	16.55	270	22.53	17.25	1160	-7.23	0.00	-1.82	0.07
	LADSTF	218.76	21.34	1430	22.54	20.39	270	264.44	21.77	1160	-0.59	0.55	-1.98	0.05
	GLDSTF	107.81	76.96	1430	83.05	82.05	270	113.57	74.09	1160	-2.30	0.02	7.00	0.00
Size Proxy	TA$	3.27	3.35	1430	4.02	4.05	270	3.09	3.14	1160	25.77	0.00	17.49	0.00
Country-level Proxies	HDI	0.74	0.78	1430	0.80	0.82	270	0.72	0.76	1160	12.82	0.00	11.63	0.00
	UR	6.37	4.19	1430	4.97	2.75	270	6.69	4.30	1160	-5.42	0.00	-5.37	0.00
	BM %GDP	76.40	72.72	1430	76.09	73.27	270	76.47	72.36	1160	-0.21	0.83	0.79	0.43

Source: SPSS statistical output.

With respect to the *t*-test and Mann-Whitney test, the results show that rated and non-rated IFIs differ in capital adequacy ratios (p<0.05), where ETA is higher for the non-rated IFIs, with mean ranges from 22.10% for non-rated IFIs to 13.22% for rated IFIs, with an overall mean of 20.42% for the entire dataset. Also, DTE is lower for non-rated IFIs, with mean ranges from 7.83% for rated IFIs to 6.90% for the non-rated ones, with an overall mean of 7.07%. This shows that non-rated IFIs are more capitalised than rated IFIs.

Regarding asset quality, the results show that rated IFIs have better asset quality and manage credit risk more efficiently than non-rated IFIs. For instance, the rated IFIs' NPLTA, NPLGL, LLPAGL, and NCOAGL are significantly lower than non-rated IFIs. The mean of NPLTA, NPLGL, LLPAGL, and NCOAGL ranges from 3.13, 6.55, 1.74, and 0.42 for the non-rated IFIs to 2.67, 4.79, 0.97, and 0.37 for rated IFIs, with an overall mean of 3.05, 6.21, 1.59, and 0.41, respectively. Moreover, the average of TITA is significantly higher when compared to those of non-rated IFIs, varying from 85.21% to 77.96%. Higher TITA indicates that rated IFIs are better at utilising their assets to generate profits, while lower NPLTA, NPLGL, LLPAGL, and NCOAGL signal better loan quality and the institutions' managers' efficiency in assessing credit risk and dealing with distressed borrowers. However, the results also show that non-rated IFIs have a lower average of GNPL (20.29%) compared to their counterparty (21.69%), which means that there is a reduction in the growth of non-performing loans. On the other hand, it can be observed that rated IFIs responded to the high GNPL by increasing LLRIL. This response also proves that rated IFIs' managers are more cautious at predicting borrowers' financial distress. LLRGL mean in non-rated IFIs rendered a score of 5.83, which is higher than that of rated IFIs mean of 3.81. This may be explained by either a more active credit process for rated IFIs that enables them to reduce reserves or write off loans more quickly. Also, this may be explained by the lack of disclosure of non-rated IFIs compared to what the management already knows with respect to the credit risk of its portfolio.

With respect to management quality proxies, the results show that non-rated IFIs have higher operating and non-operating income. This was reflected in the IILAGL, IIAEA, and NIIGR ratios. Although non-rated IFIs have higher operating and non-operating expenses (CIR, NIEGR, NIEAA, IECDACD, and IEAAIBL), they have a higher average of earnings management proxied by NIM as compared to that of rated IFIs, with mean ranges from 4.18% for

the non-rated IFIs to 3.24% for the rated IFIs. Furthermore, non-rated IFIs have a higher GLCD ratio, implying that they are more capable of converting a higher percentage of deposits to loans. Hence, these results indicate that non-rated IFIs tend to provide more risky loans, and so they charge borrowers a higher interest. Additionally, non-rated IFIs are directed towards expansion, reflected in a higher GTA. This is consistent with their smaller size in terms of total assets, indicating their growth potential.

The analysis of earnings management proxies (ROA and ROE) indicates that non-rated IFIs generate more profits from their assets than rated IFIs, as evidenced by a mean of 1.18% and 1.16%, respectively, which is a marginal difference. However, the ROE of rated IFIs has a mean of 9.87%, which is significantly higher than the 5.77% mean of non-rated IFIs. This could be justified by the higher capitalisation of non-rated IFIs and the better ability of rated IFIs to deploy their balance sheets. Although the NIM of non-rated IFIs is higher, reflecting higher profitability, when taking into consideration the higher NCOAGL variable and management quality's income and expense proxies, it could be indicated that they have a higher risk compared to rated IFIs.

Regarding liquidity management, the results show that non-rated IFIs have more liquid assets than rated IFIs in terms of LADD, LATA, and LADSTF. The means of LADD, LATA, and LADSTF range from 99.02, 17.25, and 22.54 for rated IFIs to 355.71, 22.53, and 264.44, respectively, for their counterparty. Although non-rated IFIs appear to have the ability to provide liquidity to depositors if they suddenly want to withdraw their deposits, the ratio of illiquid assets (loans) to stable sources of funding (GLDSTF) is high. This inconsistency in the results of liquidity management proxies could be explained by the fact that non-rated IFIs are more highly capitalised compared to rated IFIs; thus, the value of their deposits is lower. Also, the expectation of a deposit runoff is higher in a non-rated IFI than in a rated one. Thus, non-rated IFIs are keener to keep more liquidity.

When country-level proxies were analysed, the results showed that rated IFIs operate in countries with higher economic development levels. This may be attributed to the notion that the more developed a country is economically, the less systematic risk the institution will assume when operating in this country.

In conclusion, based on the Mann-Whitney and *t*-test results, there is a difference between rated and non-rated IFIs in terms of financial characteristics and the economic condition in which IFIs operate. In line with the self-selection hypothesis, non-rated IFIs avoid sending negative signals to market participants; accordingly, they avoid participating in the rating process.

4.2. Multivariate Analysis

At this stage, the researcher models the IFIs' rating status in terms of the institutional-level and country-level proxies. The researcher employed binary logistic regression to explain the effect of these proxies on the rating status and predict the performance for future years using three sets of models.

The first Model (A) includes the main explanatory financial proxies related to IFIs' financial performance categories without controlling IFI size, country-level proxies, or the economic cycle. IFIs' financial performance categories are classified into Capital adequacy, Asset quality, Management quality, Earnings management, and Liquidity management (CAMEL). The dataset includes IFIs operating in 29 countries, and their size ranges from $1.9 million to $102,423 million. Thus, the researcher controlled the effect of IFI size and country. Accordingly, the second Model (B) includes the financial proxies in addition to controlling IFI's size (TA$) and country-level proxies (HDI, UR, and BM%GDP). Finally, in the third Model (C), the researcher controlled for size, country-level proxies, and the economic cycle (Year).

The forward stepwise method was employed to ensure the inclusion of the significant variables in each subsequent run. Accordingly, the following final models have the following forms:

$$\textbf{Model A: } \log(CR\ status) = \beta_0 + \beta_1 \mathrm{ETA} + \beta_2 \mathrm{TITA} + \beta_3 \mathrm{GLCD} + \beta_4 \mathrm{NIEAA} + \beta_5 \mathrm{IIAEA} + \beta_6 \mathrm{IEAAIBL} + \beta_7 \mathrm{LATA}$$

$$\textbf{Model B: } \log(CR\ status) = \beta_0 + \beta_1 \mathrm{NPLGL} + \beta_2 \mathrm{NIEAA} + \beta_3 \mathrm{IIAEA} + \beta_4 \mathrm{IEAAIBL} + \beta_5 \mathrm{LATA} + \beta_6 \mathrm{TA\$} + \beta_7 \mathrm{HDI} + \beta_8 \mathrm{UR} + \beta_9 \mathrm{BM\%GDP}$$

$$\textbf{Model C: } \log(CR\ status) = \beta_0 + \beta_1 \mathrm{NPLGL} + \beta_2 \mathrm{NIEAA} + \beta_3 \mathrm{IIAEA} + \beta_4 \mathrm{IEAAIBL} + \beta_5 \mathrm{LATA} + \beta_6 \mathrm{TA\$} + \beta_7 \mathrm{HDI} + \beta_8 \mathrm{UR} + \beta_9 \mathrm{BM\%GDP} + \sum_{t=1}^{T} \beta_t Year$$

Table 3 reports the three models' parameters estimates, model summary, and Hosmer and Lemeshow's test of the goodness of fit, which suggests the model is a good fit to the data if the p>0.05.

Table 3: Binary Logistic Regression Models

Parameters	Model A				Model B*				Model C			
	Parameter Estimates											
	β	Wald	Exp(B)	Sig.	β	Wald	Exp(B)	Sig.	β	Wald	Exp(B)	Sig.
ETA	-0.013	11.376	0.987	0.001								
TITA	0.019	7.342	1.019	0.007								
NPLGL					0.024	5.103	1.024	0.024	0.025	5.808	1.025	0.016
GLCD	-0.002	6.394	0.998	0.011								
NIEAA	-0.598	64.084	0.550	0.000	-0.513	27.668	0.599	0.000	-0.518	27.597	0.595	0.000
IIAEA	0.138	39.926	1.147	0.000	0.129	11.439	1.138	0.001	0.136	16.494	1.145	0.000
IEAAIBL	-0.404	82.662	0.668	0.000	-0.469	63.124	0.626	0.000	-0.471	70.395	0.624	0.000
LATA	-0.026	14.082	0.974	0.000	-0.036	18.022	0.965	0.000	-0.034	16.271	0.967	0.000
TA$					2.276	121.465	9.735	0.000	2.314	122.355	10.115	0.000
HDI					6.822	23.467	917.641	0.000	7.238	25.914	1391.789	0.000
UR					0.038	2.746	1.039	0.097	0.035	2.378	1.036	0.123
BM %GDP					-0.033	82.356	0.967	0.000	-0.036	85.278	0.965	0.000
Year										10.933		0.280
Constant	-0.374	0.268	0.688	0.604	-10.173	62.983	0.000	0.000	-10.240	62.166	0.000	0.000
Model Summary -R^2-												
Cox & Snell	0.169				0.336				0.341			
Nagelkerke	0.273				0.541				0.550			
Hosmer and Lemeshow Test												
Chi-square	11.556				11.019				16.727			
Sig.	0.172				0.201				0.033			

Outcome variable: Rating Status.

Size is measured by the log of Total Assets (TA$).

Sig. indicates a statistically significant relationship at a 95% degree of confidence.

*Best predicting model

Source: Originated by the researcher based on SPSS statistical output.

Hosmer and Lemeshow test results suggest that only two Models (A and B) are a good fit to the data where $p>0.05$, while Model C, after the inclusion of year as a control variable, violated the Hosmer and Lemeshow test ($p<0.05$). Yet, it has an insignificant effect on IFI's rating status. However, the strength of the relationship between explanatory variables and the response variable, Models B and C, shows a similar Nagelkerke R^2 that explains more variance in rating status than Model A. The R^2 of Models B and C are 54.1% and 55%,

respectively, while Model A is 27.3%. Table 4 presents the classification matrix for the three models and the Average Correct Classification rate (ACC). It shows that Models B and C better predict CR status. Models B and C correctly predict 88.3% and 88.4%, respectively, of the observations. This is consistent with the Nagelkerke R^2.

Table 4: Classification Matrix–

Observed		Predicted		Percentage Correct
		Non-rated	Rated	
Model A	Non-rated	1139	21	98.2
	Rated	231	39	14.4
	ACC			**82.4**
Model B	Non-rated	1109	51	95.6
	Rated	116	154	57
	ACC			**88.3**
Model C*	Non-rated	1108	52	95.5
	Rated	114	156	57.8
	ACC			**88.4**
Total sample size: 1430 year-observations (1160 non-rated & 270 rated)				
*Best predicting model				

Source: Originated by the researcher based on SPSS statistical output.

The main difference between Model A and the others is that Model A includes only the financial proxies of IFIs without controlling IFI size, country-level proxies, or the economic cycle. Model A shows that ETA as a proxy of capital adequacy significantly affects rating status. The β coefficient is negative, indicating that decreasing capital is associated with increased odds of achieving CR. The Exp(B) column presents the Odds Ratio, which tells us that with an increase in ETA, the odds of the outcome (i.e., solicit rating) decrease by a factor of 0.987. This means a 1.3% (1-0.987) decrease in the odds of being rated. However, in Models B and C, capital adequacy is insignificant.

In terms of asset quality, Model A shows that TITA significantly affects rating status. The β coefficient is positive, showing that increasing the utilisation of assets is associated with increased odds of achieving CR. The Exp(B) tells us that with an increase in TITA, the odds of the outcome increase by a factor of 1.019, i.e., 1.9% (1.019-1) increase in the odds of being rated. In Models B

and C, the significant proxy for asset quality is NPLGL. The β coefficient of NPLGL is positive in both models, indicating that an increase in non-performing loans is associated with increased odds of achieving CR. The Exp(B) tells us that with an increase in NPLGL, the odds of the outcome increase by a factor (%) of 1.024 (2.4%) and 1.025 (2.5%) in Models B and C, respectively. NPLGL measures the credit risk associated with loans. A higher NPLGL means that IFIs have low credit quality.

The three Models show consistency in the results associated with management quality proxied by NIEAA, IIAEA, and IEAAIB, and this was not the case when management quality was proxied by GLCD. The β coefficients of GLCD, NIEAA, and IEAAIBL are negative. The Exp(B) tells us that with an increase in GLCD, the odds of the outcome decrease by a factor (%) of 0.998 (0.2%) in Model A. This outcome means that a decrease in the utilisation of customer deposits is associated with a higher probability of having a CR. Yet, it was insignificant in Models B and C. In terms of expenses, Exp(B) indicates that with an increase in NIEAA and IEAAIBL, the odds of the outcome decrease by a factor (%) of 0.55 (45%) and 0.668 (33.2%) in Model A, 0.599 (40.1%) and 0.626 (37.4%) in Model B, and in Model C, the odds of the outcome decrease by a factor (%) of 0.595 (40.5%) and 0.624 (37.6%), respectively. Moreover, rated IFIs generate more income from earning assets than non-rated IFIs. The β coefficients of IIEAA are positive in the three models, where an increase in IIEAA is associated with an increase in the odds of the outcome by a factor (%) of 1.147 (14.7%), 1.138 (13.8%), and 1.145 (14.5%) in Models A, B, and C, respectively. This means that the better the cost and income management are, the higher the chance of having a CR.

With respect to liquidity management, the only significant proxy in the three models is LATA. The three models display negative β coefficients, indicating an increase in non-rated IFI's liquidity. A higher liquidity of an IFI is an indication of not having a rate. The Exp(B) shows us that with an increase in liquid assets to total assets (LATA), the odds of outcome decrease by a factor (%) of 0.974 (2.6%), 0.965 (3.5%), and 0.967 (3.3%) in Models A, B, and C, respectively. This result suggests that non-rated IFIs are more liquid than their rated counterparts.

The controlling variables were the Human Development Index (HDI), Unemployment rate (UR), and Broad Money as a percentage of GDP (BM %GDP). HDI is used as a proxy of the development level of the nation and, thus, the level of sophistication of the market and clients. UR is a proxy for the systematic risk of a country. The BM %GDP shows the amount of money out of the local banking system. It is thus a proxy to show the efficiency of the banking system and the overall economic performance. It was revealed that the bulk of rated IFIs operate in economies of high HDI and low BM %GDP. Despite that, the rating is more evident in economies with higher employment rates, with this controlling variable not significant enough to draw conclusions.

In conclusion, the test results show asset quality, liquidity management, and efficiency proxies, and by controlling size, economic proxies, and economic cycle (i.e., Models B and C), are consistent in the test results. Also, they are better at predicting the CR status of IFIs. Rated IFIs mostly operate in countries with less systematic risk and bigger in size. They can manage their assets and operations better than non-rated counterparties, as evidenced by the negative impact of NIEAA and IEAAIBL and the positive impact of IIAEA on rating status. However, non-rated IFIs use their deposits/assets and convert deposits to loans more efficiently than rated IFIs, as evidenced by the high ratios of GLCD and LATA. Finally, earnings management, proxied by ROE and ROA, showed an insignificant effect on CR status in the three models. This means that earnings management does not affect the decision to solicit CR.

5. Discussion and Conclusion

The main aim of this study is to identify the determinants of CR status. CR is key in signalling information about the rated institution (Moon & Stotsky, 1993; Gan, 2004; Li et al., 2020; Dang et al., 2022), which decreases the adverse selection problem (Pottier & Sommer, 1999). Based on the signalling theory, rated IFIs send signals through CRs; consequently, both borrowers and lenders assume that rated IFIs are less risky, especially since they provide some level of transparency by giving a mere rating or even the level of their creditworthiness is known. In essence, lenders (depositors and financial institutions) actively deposit their funds in rated IFIs over non-rated IFIs due to adverse selection and moral hazard problems. Similarly, borrowers actively seek to borrow from rated IFIs rather than non-rated ones to minimise counterparty risk. Therefore, institutions need to solicit ratings to decrease the

asymmetric information problem about their financial health and performance. The presented analysis captures the flows of IFIs' performance that are estimated to be among the reasons for their non-rated status. Therefore, the outcome of this study will be beneficial to IFIs managers in altering their strategies to enable them to solicit ratings and expect favourable ones.

According to Rozzani and Rahman (2013), Misra and Aspal (2013), and Danlami et al. (2022), who emphasised the importance of high-efficiency ratios for banks' growth and continuation, it can be concluded that non-rated IFIs are less efficient than rated ones, and this limits their growth. However, in our case, the low efficiency of non-rated IFIs is attributed to the asymmetric information problem. Agreeing with Agoraki et al. (2021), non-rated IFIs are highly exposed to asymmetric information problem. In our case, this is because there is a lack of information between non-rated institutions and expected customers (depositors and lenders). It was evident from the significant impact of IEAAIBL and IIAEA on CR status, and this result was robust across all models. Although there is evidence that non-rated IFIs are utilising their deposits better than rated IFIs, they offer a high rate of return to attract more deposits. On the other side, they utilise these deposits in the form of loans but with a low rate of return to offset the counterparty risk. Meanwhile, rated IFIs benefit from the signalling approach and self-selection bias – by sending positive signals via CRs – to offer a lower rate of return on deposits and a higher rate of return to borrowers.

Given this, the analysis revealed that rated IFIs are bigger in asset size than non-rated ones. This is consistent with Poon and Firth (2005) and Agoraki et al. (2021) findings. Accordingly, they benefit from economies of scale. This was reflected in all models, where NIEAA significantly affects CR status negatively.

LATA and NPLGL had a significant impact on CR status. The test results of the three models showed that non-rated IFIs are more liquid and have better asset quality than rated IFIs. Lower credit risk shows that non-rated IFIs perform better than rated ones. According to Danlami et al. (2022), institutions with low asset quality are at higher risk of failure. Therefore, non-rated IFIs would face less financial distress than rated IFIs. Despite that, the liquidity of non-rated IFIs looks better than that of rated IFIs; however, it is affected by the smaller size (fixed assets) of non-rated IFIs since it is measured by liquid assets to total assets.

When considering the size of rated IFIs, they have illiquid assets tied up in fixed assets. From a different notation, it was found that there is a positive effect of TITA on CRs only in Model A when IFI size and country-level proxies were not controlled, which means that rated IFIs are utilising their assets more efficiently than non-rated IFIs. This suggests that the high liquidity position of non-rated IFIs could be attributed to their strategy of financing short-term rather than long-term projects. This behaviour is also justified by the effect of the asymmetric information problem, where borrowers who seek long-term funds that exceed one year would seek rated IFIs; the longer the maturity dates, the higher the counterparty risk would be. This finding is in line with Custódio et al. (2013), who found that non-rated firms have short-term debts and are inconsistent with Coleman et al. (2006) findings. The short-term lending strategy of non-rated IFIs justifies the positive impact of NPLGL on CR status. Rated IFIs provide longer-term loans to high-credit risk borrowers, depending on their asset size, seeking a higher rate of return. This is reflected in the positive association between IIAEA and CR status.

In line with Hsiao et al. (2019), there is evidence in Model A that non-rated IFIs are more capitalised than rated IFIs. According to Saidenberg and Strahan (1999), Cebenoyan and Strahan (2004), Athanasoglou et al. (2008), Cole and White (2011), Rahman and Masngut (2014), Harkati et al. (2020), and Danlami et al. (2022), a higher equity ratio is a shield against insolvency. It is also important to increase public trust (Joudar et al., 2023). This indicates that non-rated IFIs are more protected from bankruptcy in case of a market correction than rated IFIs. In agreement with Ben Naceur et al. (2018) and Fidrmuc and Lind (2020), the high capitalisation of non-rated IFIs has had a negative impact on their primary activity. Given its smaller size, the positive association between TITA and CR status in Model A resulted from high ETA. The high capital ratio decreased the ability to mobilise savings, i.e., reduced deposits, and, in return, decreased the ability to offer more loans.

According to Gambetta et al. (2019) and Danlami et al. (2022), high earnings management is important for institutions' sustainability. Therefore, ROE was expected to positively impact CR status, especially since rated IFIs were found to be more profitable. Nevertheless, ROA and ROE were found to have an insignificant effect on CR status in all models. This implies that H_4 is rejected and that earnings management is not a crucial aspect that IFIs need to consider in order to solicit a CR.

In conclusion, it was expected that non-rated IFIs are not financially stronger than rated ones based on self-selection theory. Nevertheless, it was found that non-rated IFIs are stronger in some dimensions, such as capital adequacy, asset quality, and liquidity. Thus, H_1, H_2, and H_5 are rejected. On the other hand, H_3 is accepted, where the test results showed that non-rated IFIs are less efficient than their counterparty; they experience managerial inefficiency in managing their operating income and expenses and are smaller in size. Accordingly, it can be concluded that rated IFIs are the ones that benefit from the signalling approach, and the non-rated ones are highly exposed to asymmetric information problem. The asymmetric information problem limited the activity of non-rated IFIs and provided more room for rated ones to grow and finance long-term projects.

6. Recommendations and Implications

The study provided a comprehensive assessment of IFIs' financial performance to provide a road map for them to follow. The outcome revealed the main KPIs that influence the IFIs' decision-makers to solicit CR. The key factors that allow the institution to solicit CR and achieve high CR are the size of the institution, effective cost management, and efficient asset and liability management. Managing these pillars will give the institution a margin for having low liquid assets on hand. Thus, this will create a liquid economy with a high production level as the cost of money will decrease, and at the same time, the institution will generate a high ROE.

7. Research Limitations and Areas for Future Research

The main limitations of this study are the research scope and methodological approaches. The first limitation is related to the scope of the study in terms of the differences between different geographic and economic zones. The research did not address in detail differences between areas, such as geographic locations, different economic zones, or differences between markets of certain ethnicities like Arab countries and the Far East, which may have a noteworthy difference. Accordingly, this study opened several areas for research, which the researcher sees as under-covered. Similar studies need to be performed for separate geographic regions and may be compared to see the differences in rating status between IFIs among different regions. The second limitation is related to the methodology. Despite that, the researcher considered the assumptions of binary logistic regression, such as model fitting, multicollinearity, sensitivity to outliers, and the assumption of independence of observations. Nevertheless, another technique, such as the generalized linear mixed models and comparing the results, is also recommended for future research.

Appendix

Frequency of Rated vs. Non-rated IFIs Across Countries

ISO Code	Non-Rated IFIs		Rated IFIs		Total IFIs	
	No. of observations	%	No. of observations	%	No. of observations	%
MYS	183	96.3	7	3.7	190	13.3
BHR	137	85.6	23	14.4	160	11.2
IRN	91	82.7	19	17.3	110	7.7
SDN	78	97.5	2	2.5	80	5.6
IDN	70	87.5	10	12.5	80	5.6
KWT	40	50	40	50	80	5.6
ARE	35	43.8	45	56.3	80	5.6
PAK	70	100		0	70	4.9
BGD	68	97.1	2	2.9	70	4.9
SAU	26	43.3	34	56.7	60	4.2
IRQ	50	100		0	50	3.5
GBR	47	94	3	6	50	3.5
QAT	15	30	35	70	50	3.5
EGY	30	100		0	30	2.1
SYR	30	100		0	30	2.1
TUN	30	100		0	30	2.1
JOR	20	66.7	10	33.3	30	2.1
TUR		0	30	100	30	2.1
MDV	20	100		0	20	1.4
PSE	20	100		0	20	1.4
THA	20	100		0	20	1.4
YEM	10	50	10	50	20	1.4
BRN	10	100		0	10	0.7
DEU	10	100		0	10	0.7
DZA	10	100		0	10	0.7
KEN	10	100		0	10	0.7
MRT	10	100		0	10	0.7
PHL	10	100		0	10	0.7
ZAF	10	100		0	10	0.7
Total	**1160**	**81.12**	**270**	**18.88**	**1430**	**100**

Source: SPSS statistical output.

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