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How do financial regulations and economic freedoms affect bank profitability? Empirical Evidence from the OIC Region

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ABSTRACT

Banks operating within a free economic environment and with constructive regulatory frameworks can function with enhanced efficiency, augmenting their profitability. This study aimed to examine the influence of economic freedom and financial restrictions on banks' profitability within the Organization of Islamic Cooperation member nations. The study used a sample of 1453 banks, collecting panel data spanning 13 years. The System-MM methodology was justified based on the enduring characteristics of the data and the profitability metrics. The dependent variables, namely the Net Income Margin, Return on Average Assets, and Return on Average Equity were individually examined. The research findings indicate that most economic freedom indicators, except for investment freedom, harm bank profitability. The influence of the rule of law on profitability indicators is mostly adverse, although regulatory quality within the financial system has a comparatively favorable effect on profitability. Furthermore, bank-specific performance indicators had a negative impact on profitability, except for bank size. Moreover, country-specific variables substantially impact banks' profitability, including inflation, tax, and interest rates. The presence of Islamic banking has been shown to substantially impact the profitability performance of banks within the Organization of Islamic Cooperation. OIC banks' profitability is adversely impacted by the ongoing health crises, including the Covid-19 pandemic.

KEYWORDS

Economic Freedom; Profitability; Banking; Islamic Banking

1. Introduction

According to Kassim (2016), there is a consensus among scholars on the crucial role of financial institutions in promoting economic progress at both local and global levels. According to Zarrouk et al. (2017), expanding the financial sector can enhance the efficient allocation of capital towards productive endeavors, hence stimulating economic development. Financial institutions contribute significantly to the success of connecting money streams with relation to investing, aiming to promote economic growth and reduce wealth inequalities, particularly in emerging and developing countries (Harbi, 2019). Banks play a crucial role as key financial intermediaries in facilitating the flow of funds between suppliers and users of credit. Banks function as intermediaries between financial providers and individuals or entities seeking financing to support and stimulate economic development. Banks may also play a role in facilitating the execution of financial and economic policy.

According to Masrizal and Trianto (2022), banks that generate profits play a crucial role in ensuring the sustained progress of economic growth. Financial institutions that consistently generate profits have several options for growing their activities, mitigating potential risks, and providing returns to their constituents. Consequently, for a bank to sustain its role as a financial intermediary and a significant driver of the nation's economic development, it is imperative that its management possess a strong command of and consistently stay informed about the factors that impact its profitability. Therefore, investigating variables affecting bank profitability remains a prominent subject for scholars, bank managers, market analysts, and policymakers (Shahidul and Shin, 2016). The measures used to evaluate profitability are return on assets, equity, and net interest margin. Banks and other financial entities utilize the profitability statistic, as Hardianto and Wulandari (2016) noted. The profitability of banks influences the economic implications. Banks' use of new technology to reduce costs is expected to lead to decreased pricing for customers and shareholders, thereby enhancing accessibility to finance. This, in turn, is anticipated to drive significant profit increases (Kumankoma et al., 2017). Much literature demonstrates substantial profitability differences between conventional and Islamic banks across various periods and geographic locations (Johnes et al., 2012).

Therefore, identifying the determining elements contributing to bank profitability is one of the most essential challenges. Addressing these inquiries might perhaps support politicians and corporate executives in enacting measures that foster the long-term sustainability and advancement of the industry (Dietrich & Wanzenried, 2011). Bank-specific features and macroeconomic factors are the primary categories that have emerged from the current research on profitability drivers (Dietrich et al., 2011; Short, 1979; Athanasoglu et al., 2008; Bourke, 1989). The CAMEL model, which refers to internal variables, is a well-recognized tool used for evaluating the performance of banks and its consequential effects on profitability. As an essential component of the macroeconomic and institutional framework, governance significantly influences banks' profitability bottom lines. The micro-level components that promote bank profitability include management efficiency, capital adequacy, liquidity provision, and asset quality. Other variables that affect bank profits include economic development, financial sector regulation, firm autonomy, government engagement in the financial system, anti-corruption efforts, inflationary pressures, interest rates, and currency exchange rates (Lohano & Kashif, 2019). On the other hand, the economic freedom index is a tool used to evaluate the perceived level of flexibility in a country's economic policy (Harkati et al., 2020). Rules pertaining the banking play a crucial role in facilitating governmental efforts to manage and navigate through economic crises effectively, hence aiding in the process of recovery. The economic freedom index examines four key dimensions of economics and entrepreneurship: regulation, government size, profitability of regulatory bodies, and market openness (Kassim, 2016). Economic freedom, regulatory profitability, and market openness are essential principles that regulate property and labor rights.

Evidence of financial firms' profitability by banks indicates the economy's overall performance. Economic freedom facilitates the establishment of an open market, including several aspects such as investment and finance. The presence of an open, competitive, and free market facilitates opportunities for those facing disadvantages to initiate entrepreneurial endeavors, contributing to the enhancement of salaries and prices. According to Heritage (2022), an increase in income among impoverished persons may lead to the repayment of debts and an improvement in their financial circumstances. overnment regulations, particularly those about the administration of justice and the protection of property rights, play a crucial role in facilitating economic prosperity by creating an environment of stability conducive to economic growth. The influence of government legislation on financial institutions, which serve as crucial economic hubs, has been noted by Haque and Brown (2017). Financial institutions and banks incur higher costs due to the fulfillment of regulatory obligations and the magnitude of government involvement. Several indicators, such as government expenditure, tax burden, and fiscal stability, may assess the magnitude of a government. overnment policies a nd programs have a crucial role in driving economic growth.

Economic openness and the implementation of effective policies facilitate the reduction of government authority. According to Hussain et al. (2021), the imposition of higher taxes by the government may have negative consequences for some banks. Several studies have shown a positive association between the level of economic freedom and the performance of banks in terms of profitability. Research by Asteriou et al. (2021) on industrialized economies, including China, the United States, and European Union members, finds a strong association between economic freedom and the financial success of banks. According to Sufian and Habislamic Banksullah's (2011) research, encouraging economic growth is critical to improving a bank's bottom line. Katsiampa et al. (2022) found that the Chinese banking system is more profitable when business and monetary flexibility are available. Chortareas et al. (2013) conducted research showing that political openness and strong governance frameworks contribute more to a country's economic freedom and, by extension, its profitability (Zarrouk et al., 2016). There is a link between a bank's capacity to be financially independent and its profitability since financially autonomous banks are more efficient at managing costs and allocating resources (Boukhatem & Moussa, 2017). Four primary variables have impacted the rationale for doing this inquiry. One notable observation is the scarcity of research studies examining the impact of financial independence on profitability. An additional factor to consider is the inclusion of all three profitability indicators in the poll, which will be analyzed to ascertain the presence of a significant disparity among them.

One of the key motivating factors is the provision of a conference venue by the Organization of Islamic Cooperation (OIC) for a total of 57 nations, including a wide range of economic levels, spanning from least developed countries (LDCs) to developed countries (DCs). This research contributes significantly to the banking literature by comparing macroeconomic conditions' impact on bank profitability across countries. Islamic banks in the area are an additional incentive for me to do this study. Although over 90% of banks in this sector adhere to Islamic principles, there is a scarcity of comprehensive study that encompasses their operations and characteristics. A total of 1453 organizations, including both conventional and Islamic banks, from the Organization of Islamic Cooperation had data analyzed for this research (OIC). Because of this, the authors of this research want to look at how monetary flexibility and restrictions affect the bottom lines of banks in the Organization of Islamic Cooperation (OIC) area. The following are the main research questions addressed by this investigation. (1) Do economic freedom and financial regulation significantly affect profitability? (2) Is Islamic banks' profitability affected by these factors different from conventional banks?

2. Literature Review

2.1. Banking In The Organization for Islamic Cooperation Region

OIC plays a crucial role in fostering economic stability on a global scale. According to data from The International Monetary Fund (2018), these entities own a significant proportion of the global natural resources, including around 66% of reserves and 75% of the world's oil production and related supplies. In the context of the prevailing landscape, the primary financial institutions have a prominent influence on the sector (Naceur & Omran, 2011). Private credit as a percentage of DP hovers around 65% on average. Notably, oil exporters tend to present a higher ratio than oil importers. Moreover, many countries have implemented a dual banking system that allows for the coexistence of Islamic banks, including Islamic windows, alongside conventional banks.

Nevertheless, these two banking methods across the region have an unequal popularity distribution. The average share of Islamic banking assets in CC countries was 42% in 2017, according to the Islamic Financial Services Board (2018). The number drops significantly to 29% when the ulf Cooperation Council (CC) is excluded from the territory covered by the Organization of Islamic Cooperation (OIC). An important empirical issue has emerged: evaluating the effectiveness of banking systems in countries belonging to the Organization of Islamic Cooperation (OIC). Many areas of their efficiency were examined in the earlier research. Researchers Beck et al. (2013) analyzed data from 510 banks from 22 OIC member states between 1995 and 2009. The study aimed to learn more about these financial institutions' organizational structures, financial health, and viability.

Concerning their commercial focus, there are few notable distinctions between these financial institution categories. Islamic banks have a comparatively lower cost-benefit analysis than traditional banks while demonstrating a greater intermediation ratio. Moreover, Islamic banks possess greater capital and more robust assets, reducing the probability of eliminating them from the financial system in times of crisis. The study conducted by Louati et al. (2015) investigates and evaluates the conduct of Islamic banks and conventional banks (CBs) concerning their capital adequacy in many member nations in the Organization of Islamic Cooperation (OIC) and Southeast Asia. The analysis covers the period from 2005 to 2012. The findings indicate a statistically significant inverse association between the liquidity of commercial banks (CB) and the level of credit risk.

In contrast to commercial banks (CBs), Islamic banks' market dominance does not directly influence the association between capital levels and bank conduct. In their study, Lassoued et al. (2017) examine the varying effects of ownership structure on profit management in financial institutions, specifically focusing on conventional and Islamic banks. Based on the available data, Islamic banks exhibit a comparatively lower level of proficiency in managing their profits when compared to commercial banks (CBs). However, it is noteworthy that Islamic banks do make efforts to improve the trustworthiness of their financial reporting. Both banks use discretionary loan loss provisions to effectively manage their profitability, demonstrating a growing trend of concentrated ownership. Numerous empirical studies have been done to investigate the impact of the current financial crisis caused by the pandemic on the performance of international banks (Olson and Zoabi, 2011).

2.2. Bank Profitability, Economic Freedom, and Financial Regulation

The correlation between profitability and freedom in the economy has garnered attention from several researchers and has emerged as a prominent research subject (Chortareas et al., 2013; Sufian et al., 2011). There are many reasons why economic independence might potentially enhance bank profitability. Claessens and Laeven (2004) believe that increased financial independence can augment commodities production, bolstering bank profitability. Enhanced financial autonomy is expected to provide a more advantageous operational environment for corporations and expedite economic progress while enhancing bank profitability and stability. Moreover, it has

been shown that countries characterized by greater levels of economic freedom tend to exhibit higher levels of actual income (Holmes et al., 2008). This finding suggests a heightened need for banking services in such nations. ropper et al. (2015) research ed the political affiliations of the banking industry in the United States and found a strong link between the performance of banks, the degree of financial autonomy within states, and the prevalence of political affiliations.

Based on the findings, heightened regulatory interference in the banking sector has been seen to diminish bank profitability and impose constraints on economic freedom. Moreover, according to Blau (2017), income equality protects against market failures by facilitating freer commerce and travel and cutting down on bureaucracy. According to the notion, banks' bottom lines and stability should improve when economic freedom is present. Increasing economic freedom is hypothesized to improve competitiveness, reduce inflation, and create a more favorable macroeconomic climate. The Sufian & Habibullah (2011) study analyzes how China and Malaysia's economies might react to more financial and economic autonomy. It was found that firms improved their success rate when afforded more operational freedom. According to a study conducted by Chortareas et al. (2013), there has been a correlation between a robust banking sector and economic autonomy among the 27 member states of the European Union since 2000. Papanikolaou (2019) conducted a recent study that suggests that heightened competition in the loan market might lead to decreased interest rates. This, in turn, may provide more access to Islamic banks to loans for those with lower incomes, thus diminishing profitability. The reduction potential might be mitigated by implementing enhanced credit-checking processes by financial institutions. His research findings suggest that more economic freedom might influence overall bank profitability since it correlates with heightened competition within the banking sector.

The potential outcome of this action might increase the sector's net interest margin, yielding advantageous consequences for the business. However, this would increase the expenses associated with corporate borrowing and a rise in the percentage of nonperforming bank loans, both of which would have detrimental effects on the business sector. Ultimately, it is widely anticipated that financial independence will have a mostly favorable impact on profitability. On the contrary, more economic freedom may potentially influence the performance of the banking sector. The heightened competition and reduced barriers to entry in the banking industry pose a potential threat to banks' overall profitability. As the level of economic freedom increases, there is a likelihood of a rise in the presence of various financial intermediaries, including hedge funds, shadow banks, and private equity firms, who may compete for bank deposits. Financial intermediaries also engage in lending activities to companies, potentially reducing banks' profitability. The impact of the state on bank lending choices in developing nations has been seen.

Hypothesis 1: The presence of economic freedom has the potential to have a significant influence on the profitability of banks.

The study conducted by Pelster et al. (2016) examined the effects of regulatory measures and supervisory practices on the performance of banking institutions. Before the lobal Financial Crisis (FC), there was a consensus that reducing regulatory measures would positively impact the banking sector's profitability. Additionally, there was a fallacious notion that financial self-regulation had a higher efficacy level than external control. The financial crisis served as a compelling illustration of the potential consequences that may arise when bankers operate without regulatory constraints, posing a significant threat to the banking industry's stability and jeopardizing financial gains. After a crisis, the existing body of literature has focused on implementing regulatory measures to enhance financial stability within the banking sector. These measures primarily include the adoption of more stringent economic regulations and the promotion of greater transparency.

Chortareas et al. (2013) analyzed data from 22 different EU countries to determine the connection between bank legislation, supervision, and profitability. The study's findings suggest that an enhanced regulatory and supervisory framework positively impacts banks' profitability, mitigating financial stress, agency problems, and

market dominance. Numerous studies have shown that implementing regulatory measures, namely those on capital sufficiency, mitigates bank failures and safeguards the interests of consumers and the whole economy from potential economic externalities. While acknowledging the advantages, it is important to note that many regulations may adversely affect banks' profitability. This is mostly due to the escalating expenditures and limitations on productive activities. Banks engage in riskier activities and investments to alleviate the regulatory load, potentially compromising their profitability and stability (Jalilian et al., 2007).

The findings of Barth et al. (2004) were derived from examining survey data collected from over 100 countries. The objective of their study was to investigate the impact of regulatory and supervisory strategies on the growth and profitability of banks. The findings of their study suggest that engagement in banking activities has a negative impact on profitability and raises the likelihood of experiencing a financial catastrophe. Dermirgüc-Kunt et al. (2004) conducted a comprehensive analysis using a large-scale dataset including more than 1400 banks from 72 countries. Their study aimed to investigate the influence of bank laws, market structure, and organizational factors on net interest margin (NIM) while exploring the costs associated with financial intervention. The proliferation of banking regulations leads to an increase in transaction costs associated with money transfers, potentially resulting in adverse effects on both the net interest margin and the overall stability of banks. The study by Barth et al. (2012) examined the evolutionary trajectory of bank regulation and its subsequent effects on banking institutions across 125 nations.

After conducting a comprehensive analysis of many legislative measures, it was determined that financial organizations' excessively stringent bottom line would not improve under stricter restrictions. On the other hand, some experts contend that in countries with less developed financial regulations, regulatory agencies may mitigate the propensity of bank managers to engage in risky behavior, reducing the likelihood of declining profitability (Fernandez & onzalez, 2005). In their study, Increased capital r equirements, activity constraints, and market dominance contributed to a negative link between credit risk and default risk in 546 European banks, as Agoraki et al. (2011) reported. In the end, regulations directly impact the profitability and sustainability of banks.

Hypothesis 2: The impact of financial regulation on bank profitability is negative.

The significance of many macroeconomic factors on the profitability of Islamic banks, including economic freedom and financial regulation, has seen an increase in relevance. In contrast, it should be noted that the OIC region is a prominent hub for Islamic banks, which present notable distinctions in terms of their economic autonomy and regulatory standards compared to conventional banks (rassa, 2014). Consequently, investigating the impact of economic freedom and regulation on the functioning of Islamic banks has emerged as a crucial field of scholarly inquiry. According to the findings of Srairi (2015), an analysis of data obtained from 141 Islamic financial institutions operating within the Organization of Islamic Cooperation (OIC) area reveals a positive correlation between economic freedom, regulation, and the performance of these institutions. One of the primary limitations of these investigations is the very little period of observation, which compromises the validity of the findings and exacerbates potential biases. hosh (2016) investigated the issue by analyzing information collected from more than a hundred Islamic and conventional banks in twelve OIC member countries. The data included the years 2002 through 2012.

The study's findings imply that Islamic and traditional banks are not significantly different regarding the impact of financial services independence or regulatory changes on profitability. Safiullah and Shamsuddin's (2018) research aimed to compare and contrast the risk profiles of conventional and Islamic financial institutions. The risk profile of Islamic banks was investigated, focusing on the role that a dual board economic flexibility and regulatory structure may play. Bankruptcy and operational risk in Islamic banks may be reduced by increasing the Shariah Supervisory Board (SSB) membership and the proportion of members possessing advanced degrees. However, if the number of SSB members with stellar reputations increases, the likelihood of these threats also increases.

However, further research is needed to determine whether the quality of institutions has a discernible impact on the success of Islamic banks in the countries that make up the Organization of Islamic Cooperation (OIC). As a result, the following hypotheses have been constructed based on the premises mentioned above.

Hypothesis 3: The profitability of Islamic banks is influenced by economic freedom and financial rules in a manner distinct from that seen in conventional banks.

The onset of the Covid-19 epidemic has severely hampered countries' social and economic performance. There were several ways in which the pandemic impacted financial institutions, particularly banks, negatively. In this field, researchers have done many studies to quantify and analyze the financial effect of the pandemic on banking institutions. Financial institutions voiced concerns about the continuity of credit operations during the pandemic lockdown. reenwald et al. (2020) discovered stricter guidelines for issuing loans to small and medium -sized businesses (SMEs) while investigating US banks' loan policies. In addition, Beck and Keil (2021) found that most banks have seen a rise in nonperforming loans, which might spell trouble for their finances. Additionally, a flaw in the credit system was discovered by Hasan et al. (2021). Extensive research on this phenomenon has shown consistent results (Olak & Ztekin, 2021; Demirgüç-Kunt et al., 2021). Elnahas et al. (2021) found that bank profitability dropped in the first quarter after the pandemic's outbreak. Consistent with the results of Dong (2021), which demonstrated that the pandemic significantly reduced the return on assets of Chinese banks, the present analysis reaches the same conclusion. Hladika (2021) found that once the pandemic began, the quality of loans in Croatia dropped. The major goal of this research was to provide academically sound Islamic banking substitution to the current literature on the Organization of Islamic Cooperation (OIC) area. As a result, a working hypothesis has been developed to guide future studies.

Hypothesis 4: The profitability of banks has a detrimental impact as a result of the Covid-19 pandemic.

3. Research Methodology

3.1. Overview of Data

The present research has used a panel dataset of 13 years, including data from 57 member nations of the Organization of Islamic Cooperation (OIC). Panel data is a suitable choice when the available data encompasses both time-series and cross-sectional data components. Using panel data in this analysis is advantageous as it allows for managing individual variation in the dataset. The dataset employed in this study comprises yearly end-of-year data for banks operating within the Organization of Islamic Cooperation (OIC) area. To achieve the objective, 1453 banks were included in the study. Out of the total, 1292 banks were categorized as conventional banks, and the remaining 161 institutions were identified as Islamic banks, functioning inside 56 member countries of the Organization of Islamic Cooperation (OIC).

The data has been gathered from several reputable sources. The bank data was obtained from Fitch Connect for the period spanning from 2008 to 2020 (Available only for these years). The data at the macro level were gathered from several sources, including the World Development Indicator (WDI), the Worldwide overnance Indicator (WI), and the Heritage Foundation. The data was gathered yearly using the most up -to-date banking information available. The data analysis aims to ascertain the influence of economic freedom and financial regulation on the profitability of Islamic and conventional banking organizations.

3.2. Study Variables

Here, we'll look at what the Organization of Islamic Cooperation looks at when determining a bank's safety and soundness (OIC). Existing studies agree that internal and external elements within the banking sector each have a

role in determining bank profitability. Macroeconomic (external) factors, including financial, commercial, labor, and investment freedoms, are utilized to evaluate the focal points. Financial rules and regulations are considered, too. Internal determinants of bank profitability are also included in the research as control variables based on bank-specific criteria. Size, capitalization, efficient management, asset quality, and liquidity are all important aspects of a bank. This analysis also includes government participation factors like tax burden, government integrity, and political stability as external control variables.

3.2.1. Dependent Variables

Net interest margin (NIM), return on average assets (ROAA), and return on average equity (ROAE) are three measures that have been established as indicators of bank performance based on past research (arcia et al., 2009; Phan et al., 2020; Dietrich & Wanzenried, 2011; Katsiampa et al., 2022). Several academic studies have shown a correlation between financial results and profits (Kanas et al., 2012). The return on Assets Earned formula uses investment income earned on the bank's assets. In contrast, Net Interest Margin (NIM) evaluates the real interest disparity between profits and payments, whereas Return on Average Equity (ROAE) measures income as a ratio to total equity. To assess the system's robustness, we use all three measures of financial performance. It is common practice for financial institutions to utilize the first two variables as indicators of profitability ratios to calculate the return on their investments (Naceur & Omran, 2011; Dermirgüc et al., 2004; Chortareas et al., 2013). This analysis examined indicators' impact on a bank's profitability.

3.2.2. Independent Variables

The Heritage Index, also known as HER-INDit, was created to investigate the value of financial autonomy (EF). Business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, financial independence, and full economic freedom are all phrases that crop up often in academic literature (OV). Seven different factors-"business freedom," "labor freedom," "monetary freedom," "trade freedom," "investment freedom," "financial freedom," and "total economic freedom" are combined into a single index in the academic world (OV). The value of this index might be anything from 0 to 100. We may construct an index with points from 0 to 100 by giving each of the seven factors the same value. A higher number signifies a higher level of Islamic economic stability. Angerer et al. (2019) consulted databases for the material in their research, including information on financial institution rules and oversight surveys. These datasets were developed using a variety of scholarly sources. The information was used to assess the designated countries' banking regulatory and supervisory systems properly. The study used a pair of regulatory indicators. The following chart shows the rule of law (RL) and regulatory quality (RQ) rankings. According to Barth et al.'s research, the characteristics mentioned earlier significantly affect the profitability of banks (2012).

3.2.3. Control Variables

Moreover, it is essential to acknowledge the significance of CAMLZ, a constituent of the CAMEL model, concerning the profitability of banks, given the inherent features unique to each bank. Moreover, the stability of the political landscape, the level of taxes, and the extent of government intervention in the banking sector might influence banks' profitability. This study incorporates many control factors, including tax burden (TB), government integrity (I), and political stability (PS), which are included under the CAMLZ variables. Table 1 provides a comprehensive summary of the variable description.

3.3. Research Model

The eneralized Method of Moments (MM) is used to analyze the factors that impact banks' profitability. Micropanel data is a very effective approach for addressing challenges related to exogeneity and endogeneity. The use of least square estimation approaches may give rise to endogeneity concerns due to the dynamic characteristics of the cross-section units. Autocorrelation and individual effects will arise due to lagged dependent variables and independent factors, leading to heterogeneity among individual units. Consequently, using the eneralized System Method of Moment (MM), as previously applied by other scholars, might be a viable approach to address these

Table 1. Data Source.

Code	Variable	Description	Source
CAMLZ & PS,	Capitalization	Common Equity / Total Assets	Fitch Connect
TB, I	Asset Quality	Non-Performing Loans/ross Loans (%)	Fitch Connect
	Management Efficiency	Cost to Income Ratio (%)	Fitch Connect
	Liquidity	Liquid Assets / Deposits & ST Funding (%)	Fitch Connect
	Size	Log of Total Assets	Fitch Connect
	PS	Political stability & absence of violence	WI
	TB	Tax burden score	Heritage Foundation
	I	government integrity score	Heritage Foundation
Profitability	Earnings	Net Interest Margin	Fitch Connect
	Earnings	Operating ROAA (%)	Fitch Connect
	Earnings	operating ROAA (%)	Fitch Connect
Corruption	CC	control of corruption:	WI
Financial	RL	The rule of law: rank	WI
Regulation	RQ	Regulatory quality: rank	WI
Economic	BF	business freedom score	Heritage Foundation
Freedom	FF	Financial freedom score	Heritage Foundation
	IF	investment freedom score	Heritage Foundation
	LF	Labour freedom score	Heritage Foundation
	MF	monetary freedom score	Heritage Foundation
	OV	Overall score	Heritage Foundation
	TF	Trade freedom score	Heritage Foundation

Source: Author Compilation, 2022.

issues (Arellano & Bover, 1995).

The initial distinction transformation is used inside this methodology to eradicate the anticipated association between the lagged dependent variable, the temporal discrepancy, and the fixed effects peculiar to the banking sector. Using a first difference transformation in this method removes an expected link between the dependent variable, the time of the mistake, and the bank-specific fixed effects. A two-stage robust test and an overidentification test are implemented to assess the reliability of the instrumental variables used by the system MM estimator (Roodman, 2009). Since the MM method is compat ible with micro panels and uneven data, we employ it in our study. However, our time perspective is rather narrow compared to the entities at the cross sections (Jallow, 2022). The following model aims to examine how economic freedom and financial regulation changes affect banks' profitability in the Organization of Islamic Cooperation (OIC) area.

The overarching model:

$$\Pi_{it} = \alpha + \beta 1 \Pi_{it-1} + \beta 2 ECFR_{it} + \beta 3 REG_{it} + \beta 4 CTR_{it} + \sum DummyIDS_i + \sum ummyCHC_i + \varepsilon_{it} \quad (1)$$

Where:

It is a financial metric used to assess the success of a bank. The collection includes the net interest margin, the

return on assets, and the return on equity, three of the most important profitability indicators. All three signs are examined separately. The second grouping, the lagged effect bundle (it-1), includes the three profitability indicators but only shows their impact after some time. Some have hypothesized that a company's profitability lags its recent performance, meaning the previous year's success impacts the current year's results. MM models, namely dynamic models, are used as a result. Focused (explanatory) and control variables make up the remaining sets. The ECFRit basket contains indicators of financial deregulation, whereas the REit basket contains indicators of economic liberty.

It is intended that both bank-specific difficulties (as captured by the CAMLZ control variable) and country-specific issues (as captured by the CTRit variable) would be represented. The DummyIDSi variable shows whether the bank follows Islamic or conventional principles, while the DummyH1N1 and DummyCOVID19 variables show how the global health crisis and the COVID-19 pandemic have affected the bank (represented by DummyHCi). iven that the year of the COVID -19 pandemic is included in the data, it is crucial to determine whether a substantial change has happened during this time of massive illness breakout. The "it" symbol represents a cross-sectional unit, while the "it" symbol denotes time, and the "it" symbol shows the existence of an error term. Equations (2)–(4) highlight three separate profitability metrics; the next three models reflect this broad structure together.

Models that focus on profitability:

$$NIM_{it} = \alpha + \beta1 NIM_{it-1} + \beta2 ECFR_{it} + \beta3 REG_{it} + \beta4 CTR_{it} + \sum DummyIDS_i + \sum ummyCHC_i + \varepsilon_{it} \quad (2)$$

$$ROAA_{it} = \alpha + \beta1 ROAA_{it-1} + \beta2 ECFR_{it} + \beta3 REG_{it} + \beta4 CTR_{it} + \sum DummyIDS_i + \sum ummyCHC_i + \varepsilon_{it} \quad (3)$$

$$ROAE_{it} = \alpha + \beta1 ROAE_{it-1} + \beta2 ECFR_{it} + \beta3 REG_{it} + \beta4 CTR_{it} + \sum DummyIDS_i + \sum ummyCHC_i + \varepsilon_{it} \quad (4)$$

4. Data Analysis and Discussion of Results

4.1. Descriptive Statistics

Measures such as the mean and standard deviation are used to ascertain the central tendency of data for each variable. The standard deviation quantifies the variability among individual observations and their divergence from the mean. This study examines the performance of bank profitability by analyzing a dataset spanning 13 years, which includes data from 1453 Islamic and conventional banks operating in the Organization of Islamic Cooperation region. Several measures of financial performance are used to illustrate profitability in this analysis, including the net interest margin, return on assets, and return on equity. Mean, standard deviation, skewness, and kurtosis are some of the measures of central tendency found in Tables 2 and 3 from the descriptive analysis section. Table 2 presents data indicating that the average mean outcome of profitability indicators exhibits a positive value, indicating a good indication of the financial well-being of banks within the Organization of Islamic Cooperation (OIC). The mean net interest margin is recorded at 5.17 percent, but the mean return on assets and equity is 1.6 percent and 13.6 percent, respectively. The data indicates that OIC banks have a higher average return on equity, suggesting they effectively use their capital assets (equity) to improve their profitability. The skewness statistic is used to assess the normality of the data, and a p-value for skewness greater than 5% is required to support the null hypothesis. Regarding the profitability indicators, it is seen that all variables demonstrate skewness and kurtosis values over 5%, suggesting that the data in this study follows a normal distribution.

Table 2. Descriptive Statistics of Dependent Variables (Bank Profitability).

	Variables	Mean	Std. dev.	Min	Max	Obs
Profitability	NIM	4.99	3.78	-1.49	23.83	9,631
	ROAA	1.64	3.00	-12.4	12.38	9,177
	ROAE	13.65	19.97	-79.79	74.78	9,177

Source: Author's Calculations, 2022.

Table 3 presents the findings from variables positively, suggesting their significance as indicators of a nation's economic prosperity. However, certain factors, including bank asset quality, inflation, bank size, and interest rate, exhibit superior performance compared to other independent variables. Concerning the data distribution, it may be inferred that the data exhibits a normal distribution due to its skewness exceeding the established threshold.

Table 3. Descriptive Statistics of Explanatory Variables.

	Variables	Mean	Std. dev.	Min	Max	Obs
Economic Freedom	Business Freedom	63.52	11.69	23.4	93.5	9,634
	Financial Freedom	45.91	15.46	10	80	9,391
	Monetary Freedom	73.48	6.68	42.57	89.5	9,563
	Trade Freedom	72.75	9.49	41.4	87.4	9,413
	Labor Freedom	61.18	15.18	20	97	9,634
	Investment Freedom	46.31	17.07	0	80	9,473
	Overall Freedom	59.75	7.20	43.4	76.9	9,328
Control of Corruption	Control of Corruption	34.91	21.36	1.44	83.41	10,03
Regulation	Regulatory Quality	40.61	21.21	3.32	80.29	10,03
	Rule of Law	37.76	20.13	0.47	82.69	10,03
Control Variables	Capitalization	16.74	19.33	-566.1	121.4	10,51
	Asset Quality	9.51	14.74	0	145.6	7,459
	Management Efficiency	172.5	8643.13	-37984	86772	10,43
	Liquidity	49.23	93.76	2.99	790.9	10,33
	Firm Size	9.08	0.86	4.75	11.65	10,50
	Political Stability	26.47	19.90	0.0	97.16	10,03
	Tax Burden	83.41	9.27	44.8	99.9	9,390
	overnment Integrity	34.48	12.52	8.0	78.8	9,634

Source: Author's Calculations, 2022.

Examining correlations among variables poses an additional concern that requires attention within the realm of descriptive statistics. According to the principles of autocorrelation theory, variables with higher correlation values are more prone to experiencing multicollinearity. Consequently, concurrently using such variables may not be advisable. To what extent do two variables fluctuate in tandem, and at what rate may be determined by analyzing correlation data? The correlation coefficient may take on values between -1 and 1, inclusive. When the correlation coefficient is near -1 or 1, it suggests a strong relationship between the two variables, whereas when it is closer to zero, it implies a lesser relationship. The results of working together might be both beneficial and harmful. The findings of the correlations between the variables in this research are shown in Table 4. In the next part, we display the correlation matrix representing the connections between the variables.

The aggregate correlation matrix shown in Table 4 reveals a significant negative association between many factors, such as firm, financial, trade, and investment freedom and overall economic freedom, political stability, tax load, government integration, and profitability indicators. However, it is worth noting that the return on asset and

equity exhibit a negative association with labor and trade flexibility, management efficiency, and interest rate. The size of a bank has a significant correlation, both negative and positive, with the net interest margin & return on equity. However, there is no discernible association between bank size and return on assets. Remarkably, it is observed that in the context of OIC banks, there exists a positive association between inflation and all profitability indices. In a broad sense, the correlation matrix demonstrates a strong association between variables, irrespective of their positive or negative nature.

4.2. Econometric Analysis

Table 4. Correlations Matrix for All Banks.

	NIM	ROAA	ROAE	BF	FF	MF	TF	LF	IF	OV	CC	RQ	RL	C	A	M	L	Z	PS
[1]	1																		
[2]	0.31*	1																	
[3]	0.13*	0.67*																	
[4]	-0.2	-0.1*	-0.12*	1															
[5]	-0.1	-0.12*	-0.18*	0.21*	1														
[6]	-0.1*	-0.09*	-0.09*	0.10*	0.47*	1													
[7]	-0.2*	-0.08*	-0.18*	0.30*	0.69*	0.41*	1												
[8]	0.02*	-0.07*	-0.11*	0.29*	0.16	0.09*	0.17*	1											
[9]	-0.1*	-0.07*	-0.09*	0.19*	0.66*	0.41*	0.43*	0.05*	1										
[10]	-0.18	-0.11*	-0.19*	0.54*	0.76*	0.49*	0.73*	0.46*	0.55*	1									
[11]	-0.3*	-0.09*	-0.10*	0.45*	0.54*	0.43*	0.56*	0.14*	0.36*	0.714*	1								
[12]	-0.2*	-0.12*	-0.17*	0.48*	0.77*	0.53*	0.78*	0.30*	0.51*	0.898*	0.84*	1							
[13]	-0.3*	-0.09*	-0.12*	0.48*	0.59*	0.47*	0.60*	0.26*	0.43*	0.791*	0.90*	0.97*	1						
[14]	0.20*	0.175*	-0.14	0.08*	0.18*	0.03*	0.17*	0.10*	0.10*	0.177*	0.05*	0.11*	0.049*	1					
[15]	-0.02*	-0.237*	-0.21	-0.02*	-0.06	-0.15	-0.09*	0.02	-0.04	-0.06	-0.21*	-0.18*	0	0.015	1				
[16]	-0.03	-0.055*	0.0234*	0.01	-0.01	-0.03*	-0.02*	-0.01*	-0.02*	-0.01	-0.03	-0.01*	-0.017*	0.04*	0.09*	1			
[17]	0.10*	0.0951*	-0.057*	0.04*	0.05*	-0.02*	0.048*	0.05*	0.04*	0.0558*	-0.02	-0.01	-0.025*	0.56*	0.24*	0.08*	1		
[18]	-0.38*	0.002*	0.1449*	0.25*	0.08*	-0.01	0.134*	0.02*	0.01	0.2182*	0.39*	0.26*	0.3612*	-0.4*	-0.24*	-0.02	-0.264*	1	
[19]	-0.13	-0.08*	-0.08	0.29*	0.27*	0.36*	0.418*	0.29*	0.03*	0.476*	0.61*	0.61*	0.629*	-0.01	-0.15*	-0.01	-0.1*	0.162*	1
[20]	-0.13*	-0.076*	0.162*	0.38*	0.32*	-0.01	0.429*	0.45*	-0.01	0.5083*	0.36*	0.42*	0.3736*	0.17*	0	0.01	0.0629*	0.202*	0.383*
[21]	-0.3*	-0.07*	-0.11	0.48*	0.55*	0.41*	0.576*	0.22*	0.35*	0.791*	0.91*	0.82*	0.867*	0.08*	-0.15	-0.01	0	0.36*	0.6*

We thoroughly compared the system MM and different MM options and found that the results produced for all profitability metrics favored the system MM method. Thus, we adopted it for all models. The coefficient of the lagged dependent variable in the Pooled Ordinary Least Squares (OLS) estimate is upwardly biased, as the choice theory predicts between the difference and the system generalized method of moments (MM). Conversely, in the Fixed Effects estimation, this coefficient is shown to be subject to a downward bias. To establish the top and lower bounds, use the following two coefficients. If the coefficient in the Differenced eneralized Method of Moments (MM) approach is closer to or less than the coefficient in the Fixed Effects model, it is recomm ended to use the System MM approach.

Additionally, it is important to ensure that the number of instruments utilized does not exceed the number of groups. The autoregressive model of order 1 (AR (1)) is expected to reveal a p-value that is lower than 0.05, whereas the autoregressive model of order 2 (AR (2)) is expected to demonstrate a p-value that is higher than 0.05. The absence of autocorrelation leads to the acceptance of the null hypothesis. The p-values associated with the Hansen/Sargan test should be above the threshold of 0.05. The instruments are considered to be reliable if the null hypothesis is accepted. The Hansen test is suggested if the robust option is chosen. Table 5 displays the pooled ordinary least squares (OLS), fixed effects, and difference generalized method of moments (MM) estimates for all profitability indicators.

Table 5. Choice between Difference and System MM .

	POLS	FE	DMM
Net Interest Margin$_{t-1}$	0.828***	0.607***	0.663***
	[0.006]	[0.011]	[0.141]
L. Return on Assets$_{-1}$	0.362***	0.070***	0.082***
	[0.014]	[0.016]	[0.160]
L.Return on Equity$_{-1}$	0.369***	0.092***	0.124***
	[0.013]	[0.016]	[0.157]

*Notes: POLS (Pooled OLS), FE (fixed effect), DMM (difference MM).   * p < 0.1, ** p < 0.05, *** p < 0.01. Source: Author Calculation, 2022.*

According to the statistics mentioned above, the net interest margin exhibits a disparity of 0.165 between POLS (0.828) and DMM (0.663), but the difference between FE (0.607) and DMM is 0.056. In terms of return on asset, the disparity between POLS (0.362) and DMM (0.082) amounts to 0.280, while the discrepancy between FE (0.070) and DMM is 0.012. In terms of return on equity, the disparity between POLS (0.369) and DMM (0.124) amounts to 0.245, while the discrepancy between FE (0.092) and DMM is 0.032 . The findings indicate that the disparity between DMM and fixed effect estimators is comparatively less than between POLS and DMM estimators across all lag factors on profitability. This observation suggests that the estimated value of the generalized method of moments (MM) is more similar to the estimated value of the fixed effect. In this context, the MM system may be employed for further analysis.

4.3. eneral mm Result for Net Interest Margin, Roaa, and Roae

Table 6 presents the statistical significance of economic freedom and financial restraints to net interest margins, as estimated using system MM estimators. To include a specific model in our study, it is important to ascertain the soundness of the instruments by adhering to the criteria of system MM. The fundamental criteria for instrument validation necessitate that the first-order autocorrelation coefficient (AR-1) should be below 5%, while the second-order autocorrelation coefficient (AR-2) should exceed 5%. Similarly, there should be fewer instruments than there are groups. Ultimately, it is recommended that the Hansen test have a significance level of over 5%, with a range of values ranging from 13% to 25% being more favorable. The diagnosis shown in Table 6 indicates that all study tools possess validity and may be used for further inquiry.

Eight models were built to examine the impact of deregulation and free markets on the net interest margin. Table 6 shows that the net interest margin is not significantly affected by numerous variables of economic freedom. These indicators include trade, business, financial, and monetary independence. They are not included in the final version of the model. The net interest margin was positively influenced by labor freedom and economic freedom among the other economic freedom indicators. Several cases have shown the insignificance of financial norms.

Nevertheless, drawing from the outcomes of the second, sixth, and eighth models, it can be deduced that the presence of the rule of law has a detrimental impact on the net interest margin. Management efficiency, asset quality, and liquidity negatively impacted the net interest margin. The positive parameters were capital sufficiency, inflation, interest rate, and political stability. External causes, such as the worldwide health crisis caused by the COVID-19 pandemic, negatively affect the financial performance of banks operating inside the Organization of Islamic Cooperation (OIC). Certain models, namely models 2, 3, and 4, have a more significant impact on Islamic banks.

Table 6 displays the statistical value that exemplifies the impact of monetary policy and market forces on a supplementary measure of a bank's profitability. In addition, eight distinct model compositions have emerged from this analysis. Business, financial, monetary, and overall economic freedom are negatively correlated with the return on assets of banks located inside the Organization of Islamic Cooperation (OIC) area, as shown by the MM research. The only determinant of economic freedom that positively influenced return on assets was a moderately high level

of investment flexibility. An improved investment environment facilitates banks' functioning and ability to provide financial support to diverse firms, perhaps leading to higher profits and an enhanced return on assets.

The rule of law is also a crucial predictor of a country's ability to regulate its financial sector. Bank-specific characteristics affect the Return on Assets indicator, including capital adequacy, managerial efficiency, liquidity, institutional quality, and government integration. Banks within the Organization of Islamic Cooperation have seen their financial results suffer due to external factors like the global health catastrophe caused by the COVID-19 outbreak. Simultaneously, the impact of religion on the relationship between financial deregulation and investment returns is small. This finding suggests that conventional and Islamic banks have almost the same level of influence within the Organization of Islamic Cooperation. Return on equity, a key performance statistic for banks, was also

Table 6. System MM Outputs for Net Interest Margin .

	1	2	3	4	5	6	7	8
NIM_{t-1}	0.790*** (0.125)	0.813*** (0.066)	0.842*** (0.059)	0.902*** (0.036)	0.890*** (0.039)	0.750*** (0.034)	0.745*** (0.043)	0.733*** (0.040)
Labour Freedom						0.011** (0.004)	0.012*** (0.004)	0.012*** (0.004)
Investment Freedom		0.011** (0.005)	0.010** (0.005)	0.011*** (0.004)	0.009** (0.005)		0.011** (0.004)	0.010*** (0.004)
Overall, Freedom		-0.046*** (0.015)	-0.039** (0.017)	-0.039*** (0.014)	-0.031** (0.014)		-0.050*** (0.014)	-0.053*** (0.014)
Regulatory Quality		0.011* (0.006)						
Rule of Law		-0.013* (0.006)				-0.010* (0.006)		-0.013* (0.007)
Capital Adequacy	0.027** (0.012)	0.109*** (0.034)	0.093*** (0.032)	0.084*** (0.028)	0.066** (0.029)		0.095** (0.042)	0.088** (0.036)
Asset Quality	-0.007** (0.004)					-0.014** (0.007)	-0.015** (0.006)	-0.017*** (0.007)
Management Efficiency	-0.008*** (0.002)						0.010* (0.006)	0.010** (0.005)
Liquidity	-0.002** (0.001)	-0.006*** (0.002)	-0.005*** (0.002)	-0.004** (0.002)	-0.003** (0.001)		-0.004* (0.002)	-0.004** (0.002)
Bank Size	-0.217* (0.131)			0.473** (0.215)				
Inflation	0.020* (0.012)			0.019* (0.010)		0.025** (0.012)	0.024* (0.013)	0.021* (0.012)
Interest Rate						0.006* (0.003)		
Political Stability					-0.004* (0.002)			
ovt Integrity		-0.007* (0.004)	-0.008* (0.004)					
Specialization ID		0.310*** (0.119)	0.243** (0.104)	0.165* (0.100)				
Pandemic	-0.274*** (0.064)	-0.366*** (0.136)	-0.395*** (0.081)	-0.345*** (0.068)	-0.339*** (0.076)	-0.277*** (0.080)	-0.363*** (0.085)	-0.335*** (0.081)
Constant				-3.300* (1.937)				
AR-1	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR-2	0.090	0.085	0.083	0.087	0.087	0.063	0.072	0.074
Hansen	0.162	0.198	0.109	0.342	0.190	0.112	0.201	0.192

Sargan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instruments	61	114	140	79	105	67	78	92
roups	545	545	545	545	545	545	545	545
MM Type				A two-step system MM				
Robustness	tasted	tasted	tasted	tasted	tasted	tasted	tasted	tasted

Notes: variables such as business freedom, trade freedom, monetary freedom, and financial freedom are excluded from the model after they were found insignificant in all eight models. * p < 0.1, ** p < 0.05, *** p < 0.01. Source: Author Calculation, 2022.

analyzed using the MM model. The effect of financial independence and regulation on return on equity in the Organization of Islamic Cooperation is seen in the following table.

All indicators of economic freedom were shown to have a negative effect on return on equity, and the assessment of this model included nine different combinations of instruments. In addition, it is noted that various factors, including financial laws, bank-specific features such as capital adequacy and bank size, and macroeconomic indices, except for government integrity, harm the return on equity. iven this setting, it's reasonable to assume that the factors listed in the previous table need investigation.

Table 7. System MM Outputs for Return on Asset .

	1	2	3	4	5	6	7	8
ROAA$_{t-1}$	0.320***	0.205***	0.206***	0.205***	0.215***	0.215***	0.220***	0.277***
	(0.062)	(0.074)	(0.073)	(0.061)	(0.061)	(0.059)	(0.058)	(0.056)
Business Freedom			-0.008*	-0.013**	-0.012**	-0.014***	-0.013**	-0.010*
			(0.005)	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)
Financial Freedom	-0.010*	-0.015**	-0.017**	-0.017***	-0.016**	-0.017***	-0.016**	-0.021***
	(0.006)	(0.006)	(0.007)	(0.006)	(0.007)	(0.007)	(0.007)	(0.008)
Monetary Freedom	-0.020*			-0.021*	-0.021*	-0.022**	-0.022**	-0.030**
	(0.011)			(0.011)	(0.011)	(0.011)	(0.011)	(0.012)
Investment Freedom	0.008*	0.020***	0.017***	0.014**	0.012**	0.014***	0.015***	0.016**
	(0.004)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.007)
Overall, Freedom		-0.038*	-0.036*					
		(0.021)	(0.021)					
Rule of Law	-0.021***	-0.021**				-0.017*	-0.017*	
	(0.007)	(0.010)				(0.010)	(0.010)	
Capital Adequacy	0.035***	0.121***	0.108***	0.104***	0.095***	0.096***	0.094***	0.060***
	(0.009)	(0.046)	(0.037)	(0.034)	(0.031)	(0.030)	(0.029)	(0.023)
Asset Quality	-0.047***	-0.047***	-0.051***	-0.053***	-0.055***	-0.056***	-0.055***	-0.063***
	(0.010)	(0.010)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Management Efficiency	-0.027***	-0.025**	-0.018*	-0.017**	-0.013**	-0.014**	-0.013**	
	(0.006)	(0.011)	(0.010)	(0.007)	(0.006)	(0.006)	(0.006)	
Liquidity	-0.002*	-0.006*				-0.003*		
	(0.001)	(0.003)				(0.002)		
Bank Size		0.534**	0.523*	0.587**	0.582***	0.557**	0.593***	0.488***
		(0.246)	(0.268)	(0.230)	(0.214)	(0.218)	(0.210)	(0.157)
Inflation					-0.025*	-0.027*	-0.025*	-0.029*
					(0.014)	(0.014)	(0.015)	(0.016)
Interest Rate	-0.009*	-0.011***	-0.008**	-0.011**	-0.011**	-0.013***	-0.012**	-0.011*
	(0.005)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)
ovt Integrity								0.013*
								(0.007)
Pandemic	-0.352***	-0.390***	-0.366***	-0.427***	-0.413***	-0.386***	-0.370***	-0.355***
	(0.093)	(0.101)	(0.086)	(0.084)	(0.079)	(0.086)	(0.084)	(0.084)
Constant	6.008***							

	(1.673)							
AR-1	0.001	0.005	0.005	0.004	0.004	0.003	0.003	0.001
AR-2	0.537	0.515	0.533	0.539	0.557	0.557	0.559	0.616
Hansen	0.110	0.129	0.186	0.109	0.149	0.125	0.114	0.001
Sargan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instruments	61	85	114	140	163	183	200	179
roups	545	545	545	545	545	545	545	545
MM Type				A two-step system MM				
Robustness	tasted	tasted	tasted	tasted	tasted	tasted	tasted	tasted

*Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Source: Author Calculation, 2022.*

Table 8. System MM Output for Return on Equity .

	1	2	3	4	5	6	7	8	9
ROAE$_{t-1}$	0.272***	0.353***	0.369***	0.404***	0.369***	0.361***	0.361***	0.364***	0.370***
	(0.073)	(0.076)	(0.095)	(0.087)	(0.087)	(0.084)	(0.085)	(0.083)	(0.079)
Business Freedom	-0.055*	-0.059**	-0.081***	-0.078***	-0.070**	-0.066**	-0.074**	-0.065**	-0.058**
	(0.032)	(0.030)	(0.030)	(0.029)	(0.030)	(0.030)	(0.029)	(0.029)	(0.029)
Financial Freedom		-0.084**	-0.111***	-0.116***	-0.108***	-0.099**	-0.113***	-0.101**	-0.091**
		(0.043)	(0.042)	(0.040)	(0.040)	(0.041)	(0.041)	(0.041)	(0.042)
Monetary Freedom	-0.142**	-0.135**	-0.094*	-0.099**	-0.074*				-0.115**
	(0.055)	(0.055)	(0.048)	(0.046)	(0.044)				(0.054)
Trade Freedom		-0.094*							
		(0.057)							
Investment Freedom	0.078**	0.107***	0.127***	0.114***	0.117***	0.122***	0.122***	0.118***	0.121***
	(0.031)	(0.032)	(0.046)	(0.032)	(0.032)	(0.033)	(0.030)	(0.033)	(0.032)
Overall, Freedom					-0.207*	-0.244**	-0.210*	-0.234*	-0.255**
					(0.114)	(0.124)	(0.120)	(0.125)	(0.126)
Regulatory Quality				0.082*					
				(0.050)					
Rule of Law	-0.125***	-0.086*	-0.100**	-0.093**			-0.092*	-0.091*	-0.087*
	(0.046)	(0.051)	(0.050)	(0.044)			(0.051)	(0.051)	(0.050)
Tax Burden	-0.209***	-0.183**	-0.206*	-0.138*	-0.156*	-0.173**	-0.157*	-0.175*	-0.194**
	(0.060)	(0.088)	(0.113)	(0.082)	(0.082)	(0.082)	(0.083)	(0.091)	(0.090)
Capital adequacy	-0.115**								
	(0.048)								
Asset Quality	-0.172**	-0.197***	-0.186***	-0.202***	-0.207***	-0.199***	-0.186***	-0.184***	-0.190***
	(0.069)	(0.069)	(0.069)	(0.073)	(0.068)	(0.068)	(0.066)	(0.064)	(0.066)
Management Efficiency	-0.209***	-0.100***	-0.097**	-0.076*	-0.070**	-0.077**	-0.097***	-0.098***	-0.092***
	(0.032)	(0.034)	(0.045)	(0.041)	(0.033)	(0.033)	(0.035)	(0.035)	(0.033)
Liquidity		-0.012*							-0.011*

		(0.007)							(0.007)
Bank Size		2.392**	3.640**	2.710**	3.047***	2.879**	2.570**	2.546**	2.612**
		(1.187)	(1.804)	(1.154)	(1.128)	(1.157)	(1.082)	(1.193)	(1.225)
Interest Rate	-0.109***	-0.133***	-0.089***	-0.114***	-0.130***	-0.136***	-0.136***	-0.128***	-0.131***
	(0.029)	(0.041)	(0.031)	(0.027)	(0.032)	(0.034)	(0.034)	(0.035)	(0.037)
ovt Integrity	0.084**								0.074*
	(0.040)								(0.042)
Pandemic	-2.042***	-1.948***	-2.296***	-1.978***	-1.681***	-1.599***	-1.398**	-1.246**	-1.318**
	(0.602)	(0.754)	(0.577)	(0.487)	(0.540)	(0.561)	(0.557)	(0.628)	(0.628)
Constant	60.542***	36.786***	22.608**	25.745***	26.308***	28.069***	31.227***	33.027***	33.746***
	(8.927)	(9.714)	(10.250)	(9.203)	(8.241)	(9.009)	(9.345)	(9.312)	(9.511)
AR-1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR-2	0.692	0.505	0.504	0.454	0.494	0.501	0.507	0.500	0.490
Hansen	0.207	0.112	0.126	0.115	0.139	0.108	0.122	0.156	0.141
Sargan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instruments	61	240	85	114	140	163	183	200	214
roups	545	545	545	545	545	545	545	545	545
MM Type	A two-step system MM								
Robustness	tasted	tasted	tasted	tasted	tasted	tasted	tasted	tasted	tasted

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Source: Author Calculation, 2022.

4.4. mm Result for All Profitability Indicators

The relationship between financial independence and regulation is detailed in Table 9. Bank profitability metrics such as Net Interest Margin (NIM), Return on Average Assets (ROAA), and Return on Average Equity (ROE) were shown in the table (ROAE). Economic, regulatory, bank-specific impact (control), macro-effects (control), and dummy effects (such as IDS and the global health crisis effect represented by the pandemic) are the broad categories into which the model divides the explanatory variables. All system MM model diagnostic tests for profitability indicators have been passed with flying colors. As a result, fewer tools are available than the number of teams. The AR (2) and Hansen tests surpass the significance level of 0.05, but the AR (1) test falls below this threshold. This suggests that the instruments used in the study are valid. The aussian Mixture Model (MM) implications are illustrated in the subsequent sub-sections of 4.2.2.1, 4.2.2.2, 4.2.2.3, 4.2.2.4, and 4.2.2.5, drawing upon the outcomes shown in Table 9.

4.5. The Lag Effect

In this analysis, we utilized a model that included a lag variable for profitability indicators at the outset and other variables, including unobserved bank-specific effects. Due to the intrinsic interaction between the effects of various banks and the lagged dependent variable, adopting typical static estimators may lead to discrepancies. Arellano and Bond (1991, 1995) developed different MM estimators for such models. Lagged exogenous variables in levels and lagging factors are added to the MM model, wh ich already includes the initial lagged dependent variable as an instrument. The system estimator uses the level equation's delayed initial differences. Blundell and Bond state that the system-MM estimator is utilized to deal with the bias and asymptotic imprecision of the difference estimator (1998). Table 9 illustrates that the various indicators of bank profitability among banks in the Organization of Islamic Cooperation show a significant delay in their effects. At a significance level of 99 percent,

the net interest margin presents a persistency rate of 84 percent, while the lag effects for return on assets and return on equity are 32 percent and 40 percent, respectively. This observed trend indicates that the many metrics used to assess bank profitability are significantly impacted by the previous year's financial performance. In this context, the impact of the net interest margin's lag performance on profitability indicators is more significant than the other two metrics.

4.6. The Economic Freedom and Financial Regulation Effect

According to Sufian & Habibullah (2011), financial institutions that operate within a conducive environment that safeguards the interests of investors have the potential to generate higher profits. Establishing economic

Table 9. System MM Outputs on Bank Profitability .

		Net Interest Margin		Return on Asset		Return on Equity	
		Coefficient	St. Err	Coefficient	St. Err	Coefficient	St. Err
Lag Effect	NIM_{t-1}	0.842***	(0.059)				
	$ROAA_{t-1}$			0.320***	(0.062)		
	$ROAE_{t-1}$					0.404***	(0.087)
Economic	Business			-0.014***	(0.006)	-0.081***	(0.030)
Freedom	Financial			-0.021***	(0.008)	-0.116***	(0.040)
Effect	Monetary			-0.030**	(0.012)	-0.142**	(0.055)
	Trade					-0.094*	(0.057)
	Labour	0.012***	(0.004)				
	Investment	0.010**	(0.005)	0.020***	(0.006)	0.127***	(0.046)
	Overall	-0.039**	(0.017)	-0.038*	(0.021)	-0.255**	(0.126)
Regulatory	Regulatory Quality	0.011*	(0.006)			0.082*	(0.050)
Effect	Rule of Law	-0.013*	(0.006)	-0.021***	(0.007)	-0.125***	(0.046)
Control	Tax Burden					-0.209***	(0.060)
Variables	Capital Adequacy	0.093***	(0.032)	0.121***	(0.046)	-0.115**	(0.048)
(Bank-	Asset Quality	-0.017***	(0.007)	-0.063***	(0.011)	-0.207***	(0.068)
specific and	Management	0.010**	(0.005)	-0.027***	(0.006)	-0.209***	(0.032)
Macro-	Efficiency						
effect)	Liquidity	-0.005***	(0.002)	-0.006*	(0.001)	-0.012*	(0.007)
	Bank Size	0.473**	(0.215)	0.593***	(0.210)	3.640**	(1.804)
	Inflation	0.024*	(0.013)	-0.029*	(0.016)		
	Interest Rate	0.006*	(0.003)	-0.013***	(0.005)	-0.133***	(0.041)
	Political Stability	-0.004*	(0.002)				
	ovt Integrity	-0.008*	(0.004)	0.013*	(0.007)	0.084**	(0.040)
IBs and HC	Specialization ID	0.310***	(0.119)				
effect	Pandemic	-0.395***	(0.081)	-0.413***	(0.079)	-2.296***	(0.577)
	Constant	3.300*	(1.937)	6.008***	(1.673)	60.542***	(8.927)
	AR-1	0.000		0.001		0.000	
	AR-2	0.083		0.537		0.692	
	Hansen	0.109		0.110		0.207	
	Sargan	0.000		0.000		0.000	

Instruments	40	61	61
roups	545	545	545
MM Type		A two-step system MM	
Robustness	tasted	tasted	tasted	tasted

*Notes: * p < 0.1, ** p < 0.05, *** p < 0.01. Source: Author Calculation, 2022.*

freedom plays a pivotal role in fostering an atmosphere that facilitates people's ability to engage in market activities, fosters a culture of innovation, and safeguards privately held assets. Consequently, this framework enables accelerated economic advancement (Chortareas et al., 2013). Nonetheless, this case study's results suggest that all indicators of economic freedom have a negative impact on bank profitability. According to earlier research (Turgutlu, 2014; Sufian & Zulkhibri, 2015), financial institutions' bottom lines are not significantly affected by their level of autonomy. Results from a measure of economic freedom correlate significantly with bank profitability, as indicated in Table 9. The vast majority of the table's investigated factors negatively impact profitability. Several variables, including business, financial, monetary, and trade flexibility, influence the net interest margin, with the former having little impact and the latter having a considerable negative effect on the return on assets and equity. Net interest margin (NIM), return on average assets, and return on average equity are all negatively and significantly impacted by economic freedom. Specifically, the impact of economic independence on ROAE is substantial. On the flip side, the indicators of net interest margin (NIM), return on average assets, and return on average equity were positively correlated with the degree of investment flexibility. However, the degree of labor flexibility did not significantly influence the indices of ROAA and ROAE. It is shown that banks in the OIC area benefit from a positive labor impact on their net interest margins.

Two important metrics, financial regulatory quality and the rule of law, commonly known as institutional quality, revealed the influence of regulation in the financial services sector. Bank profitability in the Organization of Islamic Cooperation area was proven to be negatively impacted by financial restrictions, namely institutional quality, as described in the literature review section. According to the positive association between financial regulation and bank profitability, we may expect banks to perform better in countries where people have more accessibility to political and regulatory forums. Similarly, the success of government institutions affects the financial health of banks via the introduction of effective policies and the credibility of the government's commitment to these initiatives. Regulatory effect research yields conflicting results when looking at the financial impact. While a negative link between regulatory quality and return on assets is predicted, empirical data reveals that regulatory quality has a large and positive influence on two metrics of bank profitability.

Nevertheless, the impact is so little as to render the finding moot. The rule of law becomes a more reliable predictor of financial regulation in this setting. The nation's monetary system is governed by a set of rules set out by the government. However, some reports claim that banks' profits suffer due to government participation and stringent financial restrictions. The rule of law has a detrimental impact on OIC banks' profits in this area. Therefore, it may be argued that financial rules reduce bank profits. In addition to the above results, the academic work of Rocha et al. (2011) and Haque and Brown (2005) also lends weight to our idea (2017).

4.7. The Control Variables Effect

The impact of micro- and macro-variables like bank size and political stability on profitability was also investigated using control variables in this study. The impact of micro- and macro-variables like bank size and political stability on profitability was also investigated using control variables in this study. The CAMEL model is well-known for its ability to remove salaries as a dependent variable from the analysis. The effect of these variables on banks' bottom lines has been the subject of several books and articles. Capital sufficiency is shown to have a

positive impact on the net interest margin and return on average assets but a negative impact on the return on average equity. It has a negligible impact on the net interest margin. The capital resources available show how well the bank controls expenses. Financial institutions with high capital adequacy levels have the upper hand regarding returns on assets and net interest margins. At the same time, it reduces the return on equity, as seen in Table 9.

In addition, it has been found that banks with lower levels of deposits, greater levels of capitalization, and more liquidity tend to exhibit better performance. This study's empirical findings challenge the common perception that poor asset quality and liquidity hurt banks' bottom lines. Although managerial efficiency improves the net interest margin, it negatively impacts the bank's profitability as measured by other indicators. According to the technical analysis, banks' size and profitability would have a negative impact. Risk and expenditure connected with big banks are attributed to the impact on net income and consequent profitability. According to Haque and Brown (2017), there is a strong positive relationship between the size of a bank and its profitability. Our empirical study confirms the authors' findings (see table 9). OIC banks' net interest margin, asset return, and equity positively correlate with bank size. Table 9 also includes information on other macroeconomic indexes, including taxation, inflation, interest rates, government transparency, and political stability. These variables affect bank profits from country to country and area to region (asaymeh et al., 2022; Fratzcher et al., 2016).

The model showed that the tax burden, by itself, significantly reduced ROE. However, it is important to note that political stability did affect the net interest margin. However, the effect is practically negligible, lessening the prospective influence, which may increase political stability in the region. On the other hand, inflation boosts net interest margin but hurts ROA and ROE in conventional banks while having no appreciable effect on ROE in Islamic financial institutions. Interest rates have a mostly negative effect on regional banks' return on average assets and return on average equity, but government integrity within the financial system boosts the profitability of regional banks. Additional research lends credence to the findings mentioned above, for example, the work of Beltratti and Stultz (2012), Bermpei et al. (2018), and Daher and Saout (2017). To generalize, the profitability of banks within the Organization of Islamic Cooperation is significantly impacted by both institutional and national macro-factors (OIC). This effect persists regardless of the direction in which these factors operate.

4.8. The Dummy Effect: - Does The Impact on Profitability Differ Among Islamic Banks?

The possible impact of religion and the continuing global health crisis (COVID-19) on OIC banks' profitability is another important issue this research raises. Dummy variables, including IDS and HC, were created so that we could analyze the results. The IDS dummy variable indicates a specialist's background, whether it is Islamic or conventional. The Worldwide Health Council (HC) has described the COVID -19 pandemic, which is now a major health concern on a global scale. Two potential difficulties using variables are discussed below. The first study will examine how the dummy variables in Table 9 specialization and HC —affect banks' profitability. Table 10 shows how economic freedom and financial limitations may have different impacts on the profitability of Islamic and conventional banks.

Table 10. System MM Outputs IDS .

	RQ		FF		IF		OV	
	0	1	0	1	0	1	0	1
NIM (P-Values)	-	-	-	-	-	-	-	0.001
Coefficient	-	-	-	-	-	-	-	-.063
ROA (P-Values)	-	0.027	-	0.02	-	0.006	-	0.03
Coefficient	-	.022	-	-.02	-	.017	-	-.05
ROE	-	-	-	0.04	-	0.01	-	0.04
Coefficient	-	-	-	-.08	-	.117	-	-.27

Notes: - 1 stands for Islamic banks, while 0 for conventional banks. P-values less than 0.05 shows the validity of the hypothesis. Source: Author Calculation, 2022.

Islamic banks are distinct from their non-Islamic counterparts in several fundamental ways. Islamic banks are distinct from other types because they follow Shariah law's tenets. These businesses may have a different profit margin than traditional banks. Many considerations point to conventional banks being more profitable than Islamic banks. A favorable and statistically significant correlation was found between bank specialization and net interest margin in the specialized estimate of the generalized MM model (Table 9). However, this statemen t makes no sense regarding Return on Average Assets and Return on Average Equity. Consequently, there has been substantial growth in the spread of Islamic financial institutions. Traditional banks are demonstrated to have net interest margins that are 30 percent lower compared to the profit rates attained by other financial organizations. Numerous academic studies have shown that the continuing epidemic negatively affects banks' financial advantages (Xiazi and Shabir, 2022). Empirical evidence shows that the current pandemic has had a major impact on bank profits throughout the Organization of Islamic Cooperation (OIC). Evidence suggests that the COVID-19 epidemic will negatively affect the Net Interest Margin of roughly 39.5%, according to the available data.

Similarly, the pandemic is expected to reduce ROAA by around 41%. (Return on Average Assets). The expected negative effect on Return on Equity is also above 200 percent. It follows that the epidemic has negatively impacted the financial stability of banks in the Organization of Islamic Cooperation area. Consistent with this result, studies from various other regions have found the same thing (The World Bank, 2022; Katusiime, 2021; Bitar and Tarazi, 2022). The second line of investigation investigates the differences between Islamic and conventional banks regarding the impact of economic freedom and financial rules on bank profitability. Table 10 provides a high-level summary of the features that matter in the context of Islamic banking. After factoring in every conceivable factor, we found that just four were significant: regulatory quality, financial freedom, investment freedom, and total economic freedom.

Comparing the profitability of Islamic financial institutions to that of conventional financial institutions, this research provides empirical evidence of the impact of economic freedom and regulatory soundness. Compared to traditional banks, Islamic financial institutions benefit more from unrestricted economic freedom. Using the Net Interest Margin, the impact grows by 6%; using the Return on Average Assets, the effect grows by 4%; and using the Return on Average Equity, the effect grows by 27%. It has been found that Islamic banks are less profitable when they achieve financial independence inside OIC jurisdiction. Only the Return on Average Assets and Return on Average Equity indicators were shown to be negatively affected, falling by 14% and 8%, respectively. The net interest margin, however, showed no discernible change. Because of this factor, Islamic banks' bottom lines benefit more from investment flexibility than regular banks. This positive contribution is implemented to increase regulatory quality and boost return on assets.

In conclusion, measures of economic freedom, particularly those linked to financing and investment freedom, as well as regulatory quality, have a substantial impact on the profitability of Islamic banks. Mateev and Bachvarov's (2019) study on bank performance demonstrates that the findings are consistent with their hypothesis that institutional quality and bank-specific variables impact bank profitability. Regulation seems to have the greatest impact on the profitability of Islamic banks, especially for government banks and organizations with significant foreign ownership. Due to their commitment to Shariah principles, the degree to which Islamic banks resemble conventional banks in their dependency on the government's capacity to develop and enforce fair laws and regulations that permit and support the establishment of the banking sector remains unknown.

5. Conclusions and Policy Implications

This research looks at how various elements, including economic freedom and banking restrictions, affect the economic success of OIC member nations. Traditional and Islamic financial institutions were included in this study's sample size 1453. In addition to proving the existence of effective freedom in the financial sphere, this study also illustrates the potential influence of legislative frameworks that are supportive and favorable to banks on the business climate and, therefore, on the financial performance of banks. Using NIM, ROAA, and ROAE as dependent variables, the research analyzed their effects separately. Additionally, the research included financial deregulation and economic liberty as explanatory factors. Other control variables combine macroeconomic measurements of bank profitability with indications of individual banks' performance. Using the aussian Mixture Model (MM), researchers analyzed information gathered from 156 OIC member states from 2008 to 2020. Table 11 displays the results of this study.

Table 11. Summary of Results.

Variable	Hypothetical Effect NIM/ROA/ROE	Finding	Significance NIM/ROAA/ROAE	Decision NIM/ROAA/ROAE
Business Freedom	+/+/+	No/-/-	No/Sig/Sig	Reject/Reject /Reject
Financial Freedom	+/+/+	No/-/-	No/Sig/Sig	Reject/Reject /Reject
Investment Freedom	+/+/+	+/+/+	Sig/Sig/Sig	Accept/Accept/Accept
Labor Freedom	+/+/+	+/No/No	Sig/No/No	Accept/Reject /Reject
Monetary Freedom	+/+/+	No/-/-	No/Sig/Sig	Reject/Reject /Reject
Trade Freedom	+/+/+	No/No/-	No/No/Sig	Reject/Reject /Reject
Overall, Freedom	+/+/+	-/-/-	Sig/Sig/Sig	Reject/Reject /Reject
Rule of Law	-/-/-	-/-/-	Sig/Sig/Sig	Accept/Accept/Accept
Regulation Quality	-/-/-	+/No/+	Sig/No/Sig	Reject/Reject /Reject
Capital Adequacy	+/+/+	+/+/-	Sig/Sig/Sig	Accept/Accept/ Reject
Asset Quality	+/+/+	-/-/-	Sig/Sig/Sig	Reject/Reject /Reject
Management Efficiency	+/+/+	+/-/-	Sig/Sig/Sig	Accept/Reject /Reject
Liquidity	+/+/+	-/-/-	Sig/Sig/Sig	Reject/Reject /Reject
Bank Size	+/+/+	+/+/+	Sig/Sig/Sig	Accept/Accept/Accept
Political Stability	+/+/+	-/No/No	Sig/No/No	Reject/Reject /Reject
Tax Burden	-/+/+	No/No/-	No/No/Sig	Reject/Reject /Reject
overnment Integrity	+/+/+	-/+/+	Sig/Sig/Sig	Reject/Accept/Accept
Inflation	-/-/-	+/-/No	Sig/Sig/No	Reject/Accept/Reject
Interest Rate	-/-/-	+/-/-	Sig/Sig/Sig	Reject/Accept/Accept
Lag Effect	Yes	Yes	Sig	Accept
Dummy IDS	Yes	Yes	Yes	Accept
Dummy HC	-/-/-	-/-/-	Sig/Sig/Sig	Accept

Notes: symbol "+" indicates a positive relationship between the dependent variable and independent variable, and the "-"symbol expresses the negative relation between the dependent and independent variable and the Word. İn addition, "No" represents that there is no significant relationship between the dependent variable and dependent variable, "/" symbol is used to differentiate the sequence of results as per profitability indicators such as NIM. ROAA, and ROAE, respectively. Source: Author Compilation, 2022.

The results indicate that the impact of economic freedom on the three measures of profitability was neither uniform nor comparable. Our hypothesis was supported by investment freedom being the only economic freedom variable that held steady across all three profitability measures. Providing more investment freedom to banks will likely increase successful enterprises' funding, enhancing their profitability. In general, the presence of freedom has a detrimental effect on profitability indicators. Apart from a limited number, most economic freedom measures significantly adversely affected banks' profitability. For instance, the variables of trade, finance, monetary, and business freedom have no significant impact on net interest margin, although they display a detrimental influence

on the other indicators of profitability. The effect of financial restrictions on bank profitability in the Organization of Islamic Cooperation (OIC) region has been adversely affected by the rule of law. The observed effect aligns with our underlying assumptions and corroborates findings from other investigations. Interestingly, the influence of regulatory quality on return on average assets is insignificant, whereas the other profitability indicators have a positive effect.

Nevertheless, it can be deduced that financial regulations and the quality of governance significantly influence banks' profitability. We hypothesized that there would be a positive correlation between the effects of banks and their profitability. Nevertheless, it is important to note that most bank-specific attributes adversely influence bank profitability. This holds for all indicators except bank size, which positively correlates with profitability. Capital adequacy is also positively associated with net interest margin and return on average assets. This study has shown that the impact of political stability on Return on Average Assets and Return on Average Equity and the effect of the tax burden on Net Interest Margin and ROAA is relatively insignificant. Simultaneously, we expect to see both adverse and beneficial effects. Bank profitability across key measures, including net interest margin, return on average assets, and return on average equity, varied in response to control factors like government credibility, inflation, and interest rates. According to the research, a considerable lag was found between changes in profitability measurements, including Net Interest Margin, Return on Average Assets, and Return on Average Equity. This discovery demonstrates how stable the data is and why dynamic panel data analysis techniques are required. Furthermore, it has been shown that factors like specialization and the global health problem significantly impact profits. Conventional and Islamic banks respond differently to the impact of economic sovereignty and financial rules on bank profitability. There have been large and lasting negative repercussions across all profitability measures because of the global health catastrophe created by COVID-19.

The findings of this research have the potential to guide policymakers toward several courses of action. Financial institution managers are required to actively seek methods to increase the capitalization of their institutions and explore innovative strategies to create income that is not dependent on interest. In addition, individuals need to oversee the liquidity reserves of their financial institutions as they transform consumer deposits into assets that generate income. Additionally, it is imperative for OIC members to thoroughly evaluate their financial policies to diminish corporate expenditures, enhance investment opportunities, and establish a more efficient institutional structure grounded on the principles of a free market. Safeguarding and providing insurance for investments at the regional level, together with adherence to global regulations, are two efficacious approaches for bolstering trust and mitigating the likelihood of economic disruptions. overnments must develop robust regulatory frameworks that foster competition and stimulate growth within the banking industry and the broader economy. To foster future collaboration, governments and banks need to establish research groups that can undertake comprehensive investigations, evaluations, and enhanced management of the many elements that can potentially influence the profitability of regional banks.

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Conflict of interest

The author claims that the manuscript is completely original. The author also declares no conflict of interest.

References

Aebi, V., Sabato, ., & Schmid, M. (2012). Risk management, corporate governance, and bank performance in the financial crisis. *Journal of Banking & Finance* 36(12), 3213-3226. https://doi.org/10.1016/j.jbankfin.2011.10.020

Agoraki, M. K., Delis, M. D., & Pasiouras, F. (2011). undefined. *Journal of Financial Stability* 7(1), 38-48. https://doi.org/10.1016/j.jfs.2009.08.002

Al-asaymeh, A., Almahadin, H.A., Alnaimi, A., Alzoubi, H.,   In'airat, Md. (2022). Determinants of commercial banks' profitability in volatile environments: Evidence from generalized method of moments. *Accounting and Financial Studies Journal* 26(S2), 1-24

Al-Harbi, A. (2019). undefined. *Journal of Economics, Finance and Administrative Science* 24(47), 4-28. https://doi.org/10.1108/jefas-05-2018-0043

Anginer, D., Bertay, A. C., Cull, R., Demirguc-Kunt, A., & Mare, D. S. (2019). Bank regulation and supervision ten years after the global financial crisis. https://doi.org/10.1596/1813-9450-9044

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies* 58(2), 277. https://doi.org/10.2307/2297968

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics* 68(1), 29-51. https://doi.org/10.1016/0304-4076(94)01642-d

Asteriou, D., Pilbeam, K., & Tomuleasa, I. (2021). The impact of corruption, economic freedom, regulation and transparency on bank profitability and stability: Evidence from the Eurozone area. *Journal of Economic Behavior & Organization* 184, 150-177. https://doi.org/10.1016/j.jebo.2020.08.023

Athanasoglou, P. P., Brissimis, S. N., & Delis, M. (2005). Bank-specific, industry-specific, and macroeconomic determinants of bank profitability. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4162071

Barth, J. R., Caprio, ., & Levine, R. (2004). Bank regulation and supervision: What works best? . *Journal of Financial Intermediation* 13(2), 205-248. https://doi.org/10.1016/j.jfi.2003.06.002

Barth, J. R., Caprio, ., & Levine, R. (2012). The evolution and impact of bank regulations.   *Policy Research Working Papers*. https://doi.org/10.1596/1813-9450-6288

Beck, T., & Keil, J. (2020). Are banks catching Corona?. *Effects of COVID on lending in the US SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3766831

Beck, T., Demirgüç-Kunt, A., & Merrouche, O. (2013). Islamic vs. conventional banking: Business model, efficiency, and stability. *Journal of Banking & Finance* 37(2), 433-447. https://doi.org/10.1016/j.jbankfin.2012.09.016

Beltratti, A., & Stulz, R. M. (2012). The credit crisis around the globe: Why did some banks perform better?. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1572407

Bermpei, T., Kalyvas, A., & Nguyen, T. C. (2018). Does institutional quality condition the effect of bank regulations and supervision on bank stability? Evidence from emerging and developing economies. *International Review of Financial Analysis* 59, 255-275. https://doi.org/10.1016/j.irfa.2018.06.002

Bitar, M., & Tarazi, A. (2020). A note on regulatory responses to COVID-19 pandemic: Balancing banks' solvency and contribution to recovery. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3631131

Blau, B. M. (2017). Economic freedom and crashes in financial markets. *Journal of International Financial Markets, Institutions and Money* 47, 33-46. https://doi.org/10.1016/j.intfin.2016.11.010

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics* 87(1), 115-143. https://doi.org/10.1016/s0304-4076(98)00009-8

Boukhatem, J. and Ben Moussa, F. (2017). The effect of Islamic banks on DP growth: some evidence from selected MENA countries. *Borsa Istanbul Review*, Vol. 18 No. 3, pp. 231-247.

Bourke, P. (1989). Concentration and other determinants of bank profitability in Europe, North America, and Australia. *Journal of Banking & Finance* 13(1), 65-79. https://doi.org/10.1016/0378-4266(89)90020-4

Chortareas, . E., irardone, C., & Ventouri, A. (2013). Financial freedom and bank efficiency: Evidence from the European Union. *Journal of Banking & Finance* 37(4), 1223-1231. https://doi.org/10.1016/j.jbankfin.2012.11.015

Claessens, S., & Laeven, L. (2004). Undefined. *Journal of Money, Credit, and Banking* 36(3b), 563-583. https://doi.org/10.1353/mcb.2004.0044

Colak, ., & Öztekin, Ö. (2021). The impact of the COVID -19 pandemic on bank lending around the world. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3712668

Daher, L., & Le Saout, E. (2017). Performance of listed Microfinance institutions. *Strategic Change* 26(2), 145-158. https://doi.org/10.1002/jsc.2117

Demirguc-Kunt, A., Laeven, L., & Levine, R. (2004). Regulations, Market Structure, Institutions, and the Cost of Financial Intermediation. *Journal of Money, Credit, and Banking* 36(3), 593-622. https://doi.org/10.1353/mcb.2004.0045.

Demirgüç-Kunt, A., Pedraza, A., & Ruiz-Ortega, C. (2021). Banking sector performance during the COVID-19 crisis. *Journal of Banking & Finance* 133, 106305. https://doi.org/10.1016/j.jbankfin.2021.106305

Dietrich, A., & Wanzenried, . (2009). What Determines the Profitability of Commercial Banks? Ew, Evidence from Switzerland

Dietrich, A., & Wanzenried, . (2011). Determinants of bank profitability before and during the crisis: Evidence from Switzerland. *Journal of International Financial Markets, Institutions and Money* 21(3), 307-327. https://doi.org/10.1016/j.intfin.2010.11.002

Dong Yihan. (2021). The Impact of the COVID-19 Pandemic on the Banking Sector [Master's thesis]. https://www.diva-portal.org/smash/get/diva2:1619647/FULLTEXT01.pdf

Elnahass, M., Trinh, V. Q., & Li, T. (2021). lobal banking stability in the shadow of COVID -19 outbreak. *Journal of International Financial Markets, Institutions, and Money* 72, 101322. https://doi.org/10.1016/j.intfin.2021.101322

Fernández, A. I., & onzález, F. (2005). How accounting and auditing systems can counteract risk -shifting of safety-nets in banking: Some international evidence. *Journal of Financial Stability* 1(4), 466-500. https://doi.org/10.1016/j.jfs.2005.07.001

Fratzscher, M., König, P. J., & Lambert, C. (2016). Credit provision and banking stability after the great financial crisis: The role of bank regulation and the quality of governance. *Journal of International Money and Finance* 66, 113-135. https://doi.org/10.1016/j.jimonfin.2016.02.015

arcía -Herrero, A., avilá, S., & Santabárbara, D. (2009). What explains the low profitability of Chinese banks? . *Journal of Banking & Finance* 33(11), 2080-2092. https://doi.org/10.1016/j.jbankfin.2009.05.005

hosh, S. (2016). Macroprudential policies, crisis and risk -taking: Evidence from dual banking systems in CC countries. *Journal of Islamic Accounting and Business Research* 7(1), 6-27. https://doi.org/10.1108/jiabr-03-2014-0011

rassa, R., & azdar, K. (2014). Financial development and economic growth in CC countries. *International Journal of Social Economics* 41(6), 493-514. https://doi.org/10.1108/ijse-12-2012-0232

reenwald, D. L., Krainer, J., & Paul, P. (2020). The credit line channel. Federal Reserve Bank of San Francisco, Working Paper Series, 1.000-96.000. https://doi.org/10.24148/wp2020-26

ropper, D. M., Jahera, J. S., & Park, J. C. (2015). Political power, economic freedom, and Congress: Effects on bank performance. *Journal of Banking & Finance* 60, 76-92. https://doi.org/10.1016/j.jbankfin.2015.08.005

Haque, F., & Brown, K. (2017). Bank ownership, regulation and efficiency: Perspectives from the Middle East and North Africa (MENA) region. *International Review of Economics & Finance* 47, 273-293. https://doi.org/10.1016/j.iref.2016.10.015

Hardianto, D. S., & Wulandari, P. (2016). Islamic bank vs. conventional bank: Intermediation, fee-based service activity and efficiency. *International Journal of Islamic and Middle Eastern Finance and Management* 9(2), 296-311. https://doi.org/10.1108/imefm-01-2015-0003

Harkati, R., Alhabshi, S. M., & Kassim, S. (2020). Influence of economic freedom and its subcomponents on risk-taking behavior. *Review of Behavioral Finance* 12(4), 335-356. https://doi.org/10.1108/rbf-09-2019-0119

Hasan, I., Politsidis, P. N., & Sharma, Z. (2021). lobal syndicated lending during the COVID -19 pandemic. *Journal of Banking & Finance* 133, 106121. https://doi.org/10.1016/j.jbankfin.2021.106121

Heritage Foundation (2022), Index of Economic Freedom, The Heritage Foundation, available at www. heritage.org/index

Hladika Mirjana. (2021). impact of covid-19 pandemic on the loans quality, provisions, and profitability of the banking sector. https://file:///C:/Users/Ousman/Downloads/IMPACT_OF_COVID-19_PANDEMIC_ON.pdf

Hussain, H. I., Kot, S., Kamarudin, F., & Yee, L. H. (2021). Impact of rule of law and government size to the Microfinance efficiency. *Economic Research-Ekonomska Istraživanja* 34(1), 1870-1895. https://doi.org/10.1080/1331677x.2020.1858921

Islam, M. S., & Nishiyama, S. (2016). undefined. *Research in International Business and Finance* 37, 501-514. https://doi.org/10.1016/j.ribaf.2016.01.024

Islamic Financial Services Board (IFSB). (2018). Islamic Financial Services Board (IFSB): Stability Report. https://www.ifsb.org/preess_full.php?id=534&submit=more

Jalilian, H., Kirkpatrick, C., & Parker, D. (2007). The impact of regulation on economic growth in developing countries: A cross-country analysis. *World Development* 35(1), 87-103. https://doi.org/10.1016/j.worlddev.2006.09.005

Jallow, C. (2022). Banking performance in OIC member countries: A panel study of selected Islamic banks. *Asian Journal of Economics, Business and Accounting* 131-139. https://doi.org/10.9734/ajeba/2022/v22i1930664

Johnes, J., Izzeldin, M. A., & Pappas, V. (2012). A comparison of performance of Islamic and conventional banks 2004 to 2009. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2071615

Kanas, A., Vasiliou, D., & Eriotis, N. (2012). Revisiting bank profitability: A semi-parametric approach. *Journal of International Financial Markets, Institutions and Money* 22(4), 990-1005. https://doi.org/10.1016/j.intfin.2011.10.003

Kanas, A., Vasiliou, D., & Eriotis, N. (2012). Undefined. *Journal of International Financial Markets, Institutions and Money* 22(4), 990-1005. https://doi.org/10.1016/j.intfin.2011.10.003

Kassim, S. (2016). Islamic finance and economic growth: The Malaysian experience. *lobal Finance Journal* 30, 66-76. https://doi.org/10.1016/j.gfj.2015.11.007

Katsiampa, P., Mcuinness, P. B., Serbera, J., & Zhao, K. (2022). The financial and prudential performance of Chinese banks and Fintech lenders in the era of digitalization. *Review of Quantitative Finance and Accounting* 58(4), 1451-1503. https://doi.org/10.1007/s11156-021-01033-9

Katusiime, L. (2021). COVID-19 and bank profitability in low-income countries: The case of Uganda. *Journal of Risk and Financial Management* 14(12), 588. https://doi.org/10.3390/jrfm14120588

Kim R. Holmes, Edwin J. Feulner, Mary Anastasia O'rady. (2008). 2008 Index of Economic Freedom. ASTRID. https://www.astrid-online.it/static/upload/protected/2008/2008-Index-of-Economic-Freedom.pdf

Lassoued, M. (2017). Corporate governance and financial stability in Islamic banking. *Managerial Finance* 44(5), 524-539. https://doi.org/10.1108/mf-12-2016-0370

Lohano, K., & Kashif, M. (2019). Factors Affecting the Profitability of Banks in Developing Countries. *NUML International Journal of Business & Management* 14(2), 74-91.

Louati, S., argouri Abida, I., & Boujelbene, Y. (2015). Capital adequacy implications on Islamic and non -Islamic bank's behavior: Does market power matter?. *Borsa Istanbul Review* 15(3), 192-204. https://doi.org/10.1016/j.bir.2015.04.001

Masrizal, M., & Trianto, B. (2022). The role of pls financing on economic growth: Indonesian case. *Journal of Islamic Monetary Economics and Finance* 8(1). https://doi.org/10.21098/jimf.v8i1.1378

Mateev, M., & Bachvarov, P. (2019). Regulation, ownership, and bank performance in the MENA region: Evidence from Islamic and conventional banks. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3361462

Naceur, S. B., & Omran, M. (2011). The effects of bank regulations, competition, and financial reforms on banks' performance. *Emerging Markets Review* 12(1), 1-20. https://doi.org/10.1016/j.ememar.2010.08.002

Naceur, S. B., & Omran, M. M. (2010). The effects of bank regulations, competition, and financial reforms on banks' performance. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1554537

Olson, D., & Zoubi, T. A. (2011). Efficiency and bank profitability in MENA countries. *Emerging Markets Review* 12(2), 94-110. https://doi.org/10.1016/j.ememar.2011.02.003

Papanikolaou, N. I. (2019). How changes in market conditions affect screening activity, credit risk, and the lending behavior of banks. *The European Journal of Finance* 25(9), 856-875. https://doi.org/10.1080/1351847x.2018.1548367

Park, J. (2012). Corruption, soundness of the banking sector, and economic growth: A cross-country study. *Journal of International Money and Finance* 31(5), 907-929. https://doi.org/10.1016/j.jimonfin.2011.07.007

Pelster, M., Irresberger, F., & Weiß, . N. (2016). Bank stock performance and bank regulation around the globe. *The European Journal of Finance* 24(2), 77-113. https://doi.org/10.1080/1351847x.2016.1226189

PHAN, H. T., HOAN, T. N., DINH, L. V., & HOAN, D. N. (2020). The determinants of listed commercial banks' profitability in Vietnam. *The Journal of Asian Finance, Economics and Business* 7(11), 219-229. https://doi.org/10.13106/jafeb.2020.vol7.no11.219

Rocha, R., Farazi, S., Khouri, R., & Pearce, D. (2011). The status of bank lending to SMEs in the Middle East and North Africa region: Results of a joint survey of the Union of Arab Banks and the World Bank. *Policy Research Working Papers*. https://doi.org/10.1596/1813-9450-5607

Roodman, D. (2009). How to do Xtabond2: An introduction to difference and system MM in Stata. *The Stata Journal: Promoting communications on statistics and Stata* 9(1), 86-136. https://doi.org/10.1177/1536867x0900900106

Safiullah, Md and Shamsuddin, Abul, (2018), Risk in Islamic banking and corporate governance. *Pacific-Basin Finance Journal* 47,129-149, https://EconPapers.repec.org/RePEc:eee:pacfin:v:47:y:2018:i:c:p:129-149.

Sarpong-Kumankoma, E., Abor, J., Aboagye, A. Q., & Amidu, M. (2017). Freedom, competition, and bank efficiency in sub-Saharan Africa. *International Journal of Law and Management* 59(6), 1359-1380. https://doi.org/10.1108/ijlma-11-2016-0142

Short, B. K. (1979). The relation between commercial bank profit rates and banking concentration in Canada, Western Europe, and Japan. *Journal of Banking & Finance* 3(3), 209-219. https://doi.org/10.1016/0378-4266(79)90016-5

Srairi, S. (2015). Corporate governance disclosure practices and performance of Islamic banks in CC countries. *Journal of Islamic Finance* 4(2), 1-17. https://doi.org/10.12816/0024085

Sufian, F., & Habibullah, M. S. (2011). Opening the black box on bank efficiency in China: Does economic freedom matter?. *lobal Economic Review* 40(3), 269-298. https://doi.org/10.1080/1226508x.2011.601633

Sufian, F., & Zulkhibri, M. (2015). The nexus between economic freedom and Islamic bank profitability in the MENA banking sectors. *lobal Business Review* 16(5_suppl), 58S-81S. https://doi.org/10.1177/0972150915601256

The International Monetary Fund (IMF). (2018). Economic Diversification in Oil-Exporting Arab Countries. https://www.imf.org/external/np/pp/eng/2016/042916.pdf

The World Bank. (2022). COVID-19 and Nonperforming Loan Resolution in the Europe and Central Asia Region POLICY NOTE - DECEMBER 2020: Lessons learned from the global financial crisis for the pandemic. Public Documents | The World Bank. https://thedocs.worldbank.org/en/doc/460131608647127680-0130022020/original/FinSACCOVID19andNPLPolicyNoteDec2020.pdf

TURUTLU, E. (2014). Dynamics of profitability in the Turkish banking industry. *Ege Akademik Bakis (Ege Academic Review)* 14(1), 43-43. https://doi.org/10.21121/eab.2014118066

Xiazi, X., & Shabir, M. (2022). Coronavirus pandemic impact on bank performance. *Frontiers in Psychology* 13. https://doi.org/10.3389/fpsyg.2022.1014009

Zarrouk, H., El hak, T. and Abu Al Haija, E. (2017) . Financial development, Islamic finance, and economic growth: evidence of the UAE. *Journal of Islamic Accounting and Business Research* Vol. 8 No. 1, pp. 2-22

Zarrouk, H., Ben Jedidia, K., & Moualhi, M. (2016). Is Islamic bank profitability driven by same forces as conventional banks?. *International Journal of Islamic and Middle Eastern Finance and Management* 9(1), 46-66. https://doi.org/10.1108/imefm-12-2014-0120