Islamic Banking & Finance Review (IBFR)
Volume 11 Issue 1, Spring 2024
ISSN$_{(P)}$: 2221-5239, ISSN$_{(E)}$: 2413-2877
Homepage: https://journals.umt.edu.pk/index.php/IBFR

Article QR

Title:	**Short-Term and Long-Term Analyses of Islamic House Financing by Islamic Banks of Pakistan**
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DOI:	https://doi.org/10.32350/ibfr.111.04
History:	Received: March 19, 2024, Revised: May 02, 2024, Accepted: June 09, 2024, Published: June 29, 2024
Citation:	Iqbal, M. S., & Fikri, S. M. (2024). Short-Term and long-term analyses of Islamic house financing by Islamic banks of Pakistan. *Islamic Banking & Finance Review*, *11*(1), 80-106. https://doi.org/10.32350/ibfr.111.04
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Conflict of Interest:	Author(s) declared no conflict of interest.

A publication of
Dr. Hasan Murad School of Management (HSM)
University of Management and Technology, Lahore, Pakistan

Short-Term and Long-Term Analyses of Islamic House Financing by Islamic Banks of Pakistan

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Abstract

Islamic banks provide house financing in accordance with Islamic principles. There has been an increase in the popularity of Islamic house financing in Pakistan over the past few years. In this regard, the current study attempts to examine both short-term and long-term relationships between the variables associated with Islamic house financing. Several variables contribute to Islamic house financing. The current research incorporated four (4) variables, namely deposits, liabilities, Gross Domestic Product (GDP), and government expenditures. The macroeconomic variables included GDP and government expenditures, while the microeconomic variables included deposits and liabilities. The study also examines the causal effects of the variables on Islamic house financing in Pakistan. Additional information was collected from Meezan Bank through documentation review and measurements. Data was collected over the period 2018-2022. The Autoregressive Distributed Lag (ARDL) test and Granger causality test were the two econometric methods used to analyze time series data. It was determined that both macroeconomic factors and microeconomic factors play a significant role in Islamic house finance. Thus, with the help of this study, Islamic banks in Pakistan would be able to offer and expand Islamic house finance in the future.

***Keywords*:** ARDL, deposits, GDP, government expenditures, Islamic banks, Islamic house financing, liabilities, macroeconomic, microeconomic, short-term and long-term analyses Pakistan

Introduction

Islamic mortgage financing is necessary since it may be impossible to claim a house amidst prevailing economic circumstances. House sales in a country are affected both by the prevailing financial situation and housing costs. The rate is particularly high in metropolitan and urban areas. Additionally, it provides several services, such as bank mortgage loans and house loans. It

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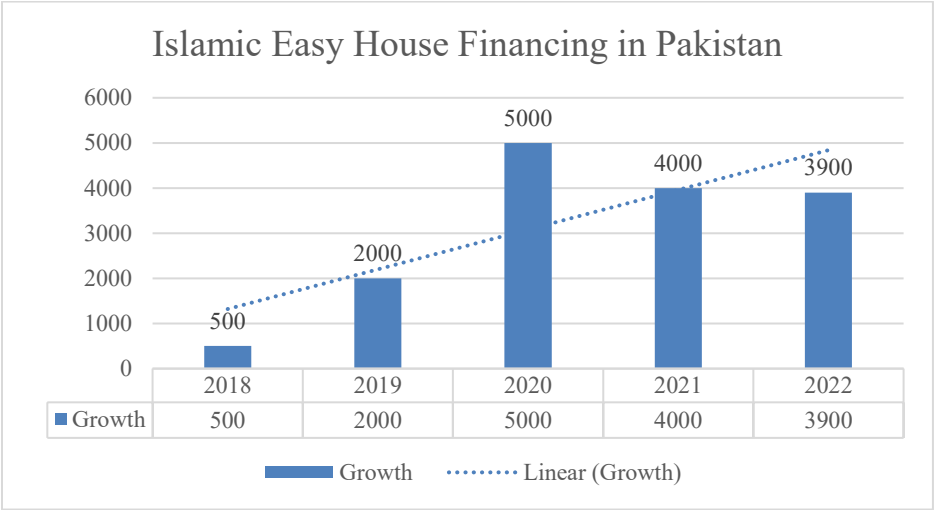
is the responsibility of Pakistan's property support association to provide special construction services (Wei & Said, 2021). Banking and other financial sectors offer housing finance advances and house assistance. Conventional banks lend to homeowners, while Islamic banks purchase their houses. This helps to make housing more accessible by providing affordable assistance to those who cannot buy a house outright. Moreover, it also keeps housing costs low along with helping people realize their house ownership dreams. Thus, Islamic financing is an essential part of the house purchasing process and also a critical component of the financial sector.

The Islamic mortgage financing complies with Islamic guidelines. Upon elimination of riba, gharar, and maysir, the system becomes free of these prohibited elements. The Islamic easy house financing concept in Pakistan is represented by ideas, such as *Ijarah, sound,' Bithaman Ajil,* and *Musharakah Mutanaqisah* (Aliyu et al., 2017; Iqbal & Sofi, 2022). Figure 1 below shows the rising stock of Islamic mortgage financing in Pakistan. The Islamic house financing concept has become increasingly popular in Pakistan due to its ability to provide an alternative to traditional mortgage financing which avoids *Riba, Gharar,* and *Maysir.*

Figure 1

Pakistan Statistical Record of Islamic Easy House Financing 2018-2022



Note. Source: Meezan Bank (retrieved on Aug 1, 2023)

Figure 1 shows the development of Islamic house financing in Pakistan for the period 2018-2022. The five-year period shows the long-term growth

of the Islamic easy house financing rate. Despite the fact that Islamic house financing is a mortgage loan, the society has generally adopted the institution and it is not just for Muslims. Islamic easy house financing also depends on Islamic banks' procedures regarding resources and obligations. Islamic home financing may be offered by banks with an extensive branch network if they already offer these products. In the meantime, a bank's obligations, such as liabilities, would limit bank its control. Islamic mortgage financing plays a significant role in the development of residential houses available in Pakistan. It is clear that this sector is expected to develop.

The research conducted by Fah and Hassani (2014), maintained that traditional banks in Pakistan are more productive than Islamic banks. With Islamic easy house financing in Pakistan, you will have greater payment flexibility as well as better savings options as compared to conventional financing. This is despite the rapid growth of Islamic mortgage financing. Therefore, it is crucial to analyze the factors affecting Islamic easy house financing which would, in turn, be helpful to improve Islamic mortgage financing availability and expertise in Pakistan. In light of this reality, the current study attempts to determine the factors that influence Islamic house financing growth in Pakistan. Moreover, it also identifies the microeconomic and macroeconomic elements of Islamic house financing in the country. Specifically, it aims to investigate the causal effects that these elements have on Islamic house financing. The implications of Islamic house financing for the country's economy are also analyzed. The industrial development potential is also investigated. Finally, the challenges and opportunities for Islamic house financing in Pakistan are also taken into account. Various factors influence Islamic house financing in Pakistan, and it is necessary to examine the opportunities and challenges facing the industry in the future.

Problem Statement

Islamic house financing has gained significant popularity in recent years, particularly in Islamic banks of Pakistan. Resultantly, it is essential to conduct a thorough analysis of both the short-term and long-term implications of this financing approach. In this study, we aim to provide a framework that would guide analysis and shed light on the potential challenges and opportunities associated with Islamic house financing by Pakistan's Islamic banks (Deniz, 2022).

Short-Term Analysis

A significant problem in the short-term analysis of Islamic house financing is the lack of awareness and understanding among potential customers. Many individuals are not familiar with the principles and mechanisms of Islamic financing, making it challenging to attract a broader customer base. This lack of awareness needs to be addressed to promote the growth and acceptance of Islamic house financing (Deniz, 2022).

Another problem in the short-term analysis is the limited range of Islamic house financing products offered by the Islamic banks of Pakistan. While, there are a few options available, customers may require a variety of financial products to cater to their diverse needs. Expanding the product offering can attract a wider customer base and enhance customer (Rahman et al., 2018).

Furthermore, Islamic house financing often involves higher initial costs as compared to the conventional financing methods. This can deter potential customers from opting for Islamic house financing, especially those with limited financial resources. Analyzing the reasons behind these high costs and exploring ways to reduce them is crucial to make Islamic house financing more accessible and affordable (Zulkhibri, 2018).

Long-Term Analysis

A significant problem in the long-term analysis of Islamic house financing is the regulatory framework and its alignment with Islamic principles. Ensuring that the regulatory environment supports Islamic finance and resolves any conflicts between conventional and Islamic banking systems is essential for the sustainable growth of Islamic house financing (Soon et al., 2022).

Managing risks associated with Islamic house financing is crucial for its long-term sustainability. Since Islamic financing operates on different principles as compared to conventional financing, it is essential to develop effective risk management strategies that specifically cater to Islamic house financing. This includes addressing issues, such as credit risk, operational risk, and liquidity risk (Iqbal & Fikri, 2024; Nizar et al., 2021).

Moreover, the establishment of a robust secondary market for Islamic house financing is another long-term challenge. A well-functioning secondary market can provide liquidity, enhance investor confidence, and

facilitate efficient risk management. Exploring ways to develop and strengthen the secondary market for Islamic house financing is vital for its long-term success and growth.

In conclusion, the short-term and long-term analyses of Islamic house financing by Pakistani Islamic banks reveal several factors. These include the lack of awareness and understanding among potential customers, limited product offerings, high initial costs, regulatory challenges, risk management, and development of a secondary market. By addressing these challenges, the Islamic banks of Pakistan can further enhance their position in the Islamic house financing sector and contribute to the growth and development of Islamic finance in the country (Rahman et al., 2018).

Research Questions

1. What is the current state of Islamic house financing by the Islamic banks of Pakistan?
2. What are the short-term effects of Islamic house financing by the Islamic banks of Pakistan?
3. What are the long-term effects of Islamic house financing by the Islamic banks of Pakistan?

Research Objectives

1. To assess the current state of Islamic house financing by the Islamic banks of Pakistan in terms of the number of customers, types of house financing products offered, and the total amount of financing disbursed.
2. To examine the short-term effects of Islamic house financing by the Islamic banks of Pakistan in terms of the impact on bank profitability, customer satisfaction, and market share.
3. To investigate the long-term effects of Islamic house financing by the Islamic banks of Pakistan in terms of the sustainability of the financing model, its contribution to the bank's growth, and its impact on the overall economy.

The findings would provide valuable insights which may be used by the banks to make informed decisions, improve their products and services, and contribute to the sustainable growth of Islamic house financing in Pakistan. Ultimately, this study would also help the Islamic banks of Pakistan to remain competitive and successful in the Islamic house financing industry.

Therefore, the current research may be highly beneficial for the Islamic banks of Pakistan and the Muslim community of Pakistan.

Literature Review

Islamic banks promote specific financing practices consistent with Islamic house financing practices (Zulkhibri, 2018). Resultantly, bank money is switched from helping organizations to helping consumers (Nizar et al., 2021). This segment examines the variables or drivers of Islamic house financing in Pakistan which may contribute to its growth in the country. It also reviews the previous studies on the subject. Economic factors and macroeconomic factors can both influence Islamic house financing in Pakistan. Microeconomic factors include credit availability and cost, consumer preferences, and market competition. Macroeconomic factors, on the other hand, include economic growth, inflation, and interest rates. All of these factors can influence the growth of Islamic house financing. Altogether, these variables and drivers can significantly increase Islamic house financing in the country (Ayagre et al., 2022).

We find out one of the most fascinating things about banks studying microeconomics. According to Adebola et al. (2011), bank size, capitalization, and capital proportion are some examples of inside factors. Macroeconomics offers a more comprehensive perspective. It includes economic rate, conversion scale, and monetary development. Microeconomic factors focus on a bank's inner workings, such as its size and capitalization. Macroeconomic factors, on the other hand, refer to the larger economic environment, such as the growth rate, exchange rate, and national development. These factors play a significant role in bank functioning and may have a considerable impact on profitability. Together, microeconomic and macroeconomic factors play a significant role in the functioning and profitability of banks.

According to Isa et al. (2019), the value of stores, absolute resources, and bank size are internal elements that significantly increase banks' loan portfolios in Pakistan (Athanasoglou et al., 2008). Bank size influences credit enhancement (Deniz, 2022). Adeboye (2009) stated that internal variables, such as savings, full credit and advance, credit cards, and bank assets have the biggest influence on housing availability in Pakistan. Rahman et al. (2018), based on the number of purchases made and the ratio of obligations managed, described the characteristics of the house advance.

In the interim, bank size negatively affects all-out bank financing (Ayagre et al., 2022; Fikri et al., 2023). This is due to the fact that the other internal variables, such as full credit and advance, as well as credit cards, all have a positive impact on housing availability in Pakistan. On the other hand, bank size has been found to have a negative effect on overall bank financing. Thus, it is not included in the current study. Hence, it may be concluded that bank volume has an overall adverse impact on housing availability in Pakistan and it has, therefore, not been taken into consideration in this study (Rana et al., 2024; Rahman et al., 2018).

The global financial crisis also affected the growth of Islamic banks' loans due to macroeconomic factors. It was found that Gross Domestic Product (GDP) and government consumption positively correlate with loan development in Islamic and traditional banks (Deniz, 2022; Ibrahim et al., 2018; Ma'in et al., 2016). Islamic house financing also shows a vast and positive relationship with GDP in stable economies (Shukor et al., 2016; Yusof et al., 2011). Due to macroeconomic factors, the growth of Islamic banks' loans and the macroeconomic conditions of the country can be linked to the development of the economy. This demonstrates that when GDP increases, loan demand increases as well. It is true for both Islamic and traditional banks and it also applies to Islamic house financing. Resultantly, the macroeconomic factors directly impact loan growth and Islamic house financing.

Long-term Islamic bank financing can also contribute to economic growth (Alrawahdeh & Zyadat, 2021; Hussain et al., 2021; Ledhem, 2021). The significance of Pakistan's Islamic bank financing was uncovered by Soon et al. (2022) through a long-term link between GDP, direct theories, global exchange, and expansion. Pakistan's GDP and Islamic bank outlets have a two-way causal relationship with each other. This relationship, however, remains tenuous (Gani & Bahari, 2021). Financial development is limited by family obligations. Soon et al. (2022) concluded that family obligations, such as traditional gender roles, may limit women's economic development, even when they have access to economic opportunities. Gani and Bahari (2021), found a tenuous causal relationship between Islamic bank outlets and GDP in Malaysia. The study revealed the importance of Islamic finance, however, other factors, such as gender roles and family obligations must also be considered to fully comprehend their impact on economic development.

It is widely believed that family obligations contribute to diminishing development, but the fact is that families actually contribute significantly to increasing the use and quality of life (Samad et al., 2022). Be that as it may, other macroeconomic variables, such as growth and strategy rate, also affect bank loan development (Deniz, 2022). Family obligation is a factor in bank lending, although it does not override other macroeconomic variables that influence development. These factors suggest that family obligation is not the only factor that affects the development of a bank's loaning. As such, family obligations do not override other factors that contribute to bank lending. Other macroeconomic variables must be considered to ensure successful development.

The current study uses four (4) variables by previous tests. These variables included stores, liabilities, GDP, and EXP. This assessment can be distinguished from others by the addition of liabilities. Determining whether liabilities impact Islamic house financing in Pakistan would be noteworthy. The current study also provides a deeper understanding of the underlying factors that may affect Islamic house financing in Pakistan. Based on the analysis of the four variables, it is evident that this study makes an important contribution to understanding the factors underlying Islamic house financing in Pakistan.

Research Methodology

The study's approach consists of three categories: research strategy, data collection technique, and data analysis. Descriptive research is the focus of this study, and secondary data is used in the data collection strategy. We reviewed previous studies on the topic, including proposals, journals, and articles, for supporting data in this study. In conclusion, this study presents a variety of research strategies, data collection and analysis methods, and results that may be helpful to future researchers (Gani, 2019).

The study's optional numerical data is gathered from the annual data of Meezan Bank, a full-fledged Islamic bank of Pakistan. The analysis covers the period (2018-2022). During the current financial crisis, a decade's worth of developments in Islamic house financing have been examined. Among these factors are the extreme recession of 2018 and the COVID-19 pandemic, which are expected to affect dates from 2019-2022. The researcher was able to determine whether the global financial crisis had an impact on Pakistan's Islamic house financing by reviewing 46 absolute

perceptions. The purpose of this study is to examine how Islamic house financing fared during the global financial crisis in Pakistan. As well as examining the future of Islamic house finance, it discusses the impact of these factors.

For the purpose of this study, exploratory data is collected using a quantitative information approach. Using Eview11 software and an econometric technique, test data is collected. Following is a description of how the study's model was developed. It is evident from the findings that quantitative information is the most effective tool to gather and analyze the data and provides valuable insights into the market research process.

$$\text{IHF} = f\,(\text{Deposit, LIAB, GDP \& EXP}) \quad (1)$$

(Deposit) refers to Islamic bank deposits, (LIAB) refers to Islamic bank liabilities, (GDP) refers to Pakistan's Gross Domestic Product, and (EXP) refers to government expenditures. Thus, the figures presented in this table represent Pakistan's financial position at the end of the financial year.

In this review, co-integration techniques are used. Four (04) independent variables, namely deposits, liabilities, GDP, and government expenditures were examined using the co-integration method. To evaluate the co-mix connection between the components, ARDL (Autoregressive Distributed Lag Cointegration) test is used in this study (Gani, 2019). ARDL co-integration is a powerful tool to assess co-integration between Islamic house financing and other variables.

ARDL is used because it is able to overcome the barriers associated with errors as well as autocorrelation limitations. According to Pesaran et al. (1999, 2001), the stationarity status between the variables in the current study was 1(0) and 1(1). In the current study, the ARDL test is significant when fixed status is combined with the ARDL test. However, at the end, the results showed that the ARDL test is not a useful tool to determine the status of stationarity. Following are the variables that were included in the study. It is therefore considered efficient and useful to identify the most important variables to create a model that is most accurate by using the ARDL test.

$$\Delta\ln(IHF)t=\alpha 0+\lambda 1\,ln(DEPOSIT)t-i+\lambda 2ln(LIAB)t-i+\lambda 3ln(GDP)t-i+\lambda 4ln(EXP)t-1+\Sigma\beta 1pi=1\Delta\ln(DEPOSIT)t-i+\Sigma\beta 2pi=0\Delta\ln(LIAB)t-i+\Sigma\beta 3pi=0\Delta\ln(GDP)t-i+\Sigma\beta 4pi=0\Delta\ln(EXP)t-i+\varepsilon t \quad (2)$$

In the current analysis, equation (2) was applied to the ARDL model.

The gap value is p and Δ is the first-level difference variable. Despite the fact that it focuses on the intercept, $\lambda\beta 1$ to $\lambda\beta 4$ are the coefficients and t is the error correction term (ECT). Long-term analysis would be conducted once the co-integration among the components has been identified. To summarize, the ARDL model is a strong tool for identifying the long-term relationships between the components of the economy and also a powerful tool to identify the path towards prosperity.

$$\ln(IHF)t=\beta 0+\Sigma\beta 1pi=1\Delta\ln(DEPOSIT)t-i+\Sigma\beta 2pi=0\Delta\ln(LIAB)t-i+\Sigma\beta 3pi=0\Delta\ln(GDP)t-i+\Sigma\beta 4pi=0\Delta\ln(EXP)t-i+\varepsilon t \quad (3)$$

The current study attempted to identify the short-term link among the factors. To conclude, the study identified the short-term relationship between the variables and their corresponding effects on the market.

$$\ln(IHF)t=\beta 0+\Sigma\beta 1pi=1\Delta\ln(DEPOSIT)t-i+\Sigma\beta 2pi=0\Delta\ln(LIAB)t-i+\Sigma\beta 3pi=0\Delta\ln(GDP)t-i+\Sigma\beta 4pi=0\Delta\ln(\mathrm{EXP})\ t-i+\theta ECTt-1+\varepsilon t \quad (4)$$

ECE demonstrates the rapidity of variation or elaborates on the speediness at which various factors contribute to accomplish harmonic stability in the long-term. It is evident from the coefficient values that there is an ECT co-integration of the variables because they are important and poorly structured. As a result, long-run causality is demonstrated (Adebola et al., 2011). Additionally, the model applies Granger causality in a dynamic manner. By showing the elements' causal relationship, it assists in showing their direction (Mozumder & Marathe, 2007). To conclude, the ECE model demonstrates the rapidity of adjustment and provides a way to demonstrate the causal relationship between the variables through Granger causality in a dynamic manner.

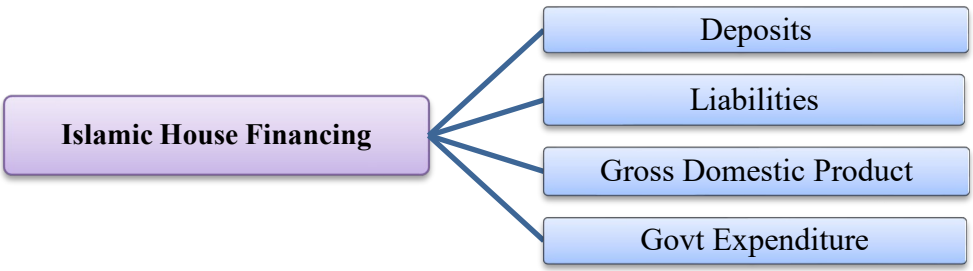
Theoretical Framework

The theoretical framework focuses on the relationship between independent variables (deposits, liabilities, GDP, and government expenditure) and the dependent variable (Islamic house financing). Deposits, liabilities, GDP, and government expenditure are the primary sources of financing for Islamic house financing in Pakistan. Higher deposits enhance liquidity, while higher liabilities balance the bank's assets with obligations to depositors and creditors. GDP, an economic indicator, influences income levels and purchasing power, affecting demand for Islamic house financing. Government expenditure, on the other hand,

stimulates economic growth and boosts consumer confidence, leading to higher demand for Islamic house financing. The dependent variable (Islamic house financing) is influenced by these independent variables, demonstrating the factors that can enhance or hinder the availability and growth of Islamic house financing in Pakistan. The framework highlights the causal relationships between these variables and their collective impact on Islamic house financing, which is crucial for policymakers, financial institutions, and researchers aiming to enhance the effectiveness and accessibility of Islamic house financing in Pakistan.

Figure 2

Theoretical Framework



Results

This section covers three subtopics: the fixed test, the evaluation of the long-term structure and bound assessment, the short-term connection and analytic assessment and the Ganger causality assessment. For instance, the results of the fixed test may show that there is a statistically significant relationship between the two variables, indicating that there is a causal relationship between them. Using the econometric results, conclusions will be discussed.

Test of Stationary

ADF stands for Augmented Dickey–Fuller stationery test, performed in the current research. For the time stationary test to be considered prepared for time series, it requires a predetermined test. The stationarity of the data is an important factor to be considered while analyzing a time series, since it is impossible to predict the information in a non-fixed series. The results demonstrated the importance of stationery test to analyze time series data and the importance of conducting such a testing.

Table 1
Unit Root Test of Study of Perron - Phillips

Variables	Levels	Difference - First	Level Stationarity
L-IHF	-0.418	-3.912*	1 (1)
L-DEPOSIT	-2.115	-4.955*	1 (1)
L-LIAB	-1.872	-5.395*	1 (1)
L-GDP	-2.631	-8.420*	1 (1)
L-EXP	-4.335	-12.490	1 (0)

Note. Significant levels: Based on McKinnon (1973) at 1%, 5%, and 10% significance levels. Lag lengths: Determined using the Akaike Information Criterion (AIC), a method to assess model fit quality.

According to Table 1, the Philips-Perron unit root test was used to determine the stationarity of factors in this model. The level and first difference were set for house maintenance, deposits, liabilities, GDP, and government expenditures. A 5% level was set for Islamic house financing, deposits, liabilities, and GDP in the first difference (I(1)). Currently, government expenditures are at 5% level difference (I(0)). Co-integrating ARDL was the next stage of the research which confirmed the co-integration of the ARDL strategy. Using bound tests, this analysis distinguished the long-run co-integration of factors, such as deposits, liabilities, GDP, and government expenditure on Islamic house assistance. This analysis showed that the ARDL co-integration strategy is effective to evaluate the long-run sustainability of the Islamic housing sector and to predict future trends.

Testing and Diagnosis of Short-term Links, Long-term Bound Tests, and Diagnostic Tests

Table 2
Results of Bound Test: Important Bound (k-4)

Significance of Level	I (0)	I (1)
1-Percent	3.30	4.38
5-Percent	2.57	3.50
10-Percent	2.3	3.10
F	4.777	

Note. The assessment data relies on McKinnon's (1973) critical values: *** (1% significance), ** (5% significance), and * (10% significance). AIC (Akaike Information Criterion) was applied to select optimal lag lengths.

AIC is used to measure the fit of a statistical model to the data.

Table 2 shows the results of the bound test of long-run co-integration. The *F*-measurement value is larger than the upper bound value of 5% (4.777>3.50). In this model, the deposits, liabilities, and upper bound basic are used, since the F-measurement value is higher. Pakistan's GDP and government expenditures are in line with Islamic house financing. In Pakistan, both internal and macroeconomic factors have a long-run impact on Islamic house financing, as evidenced by the development of long-term stability among the factors and Islamic house financing.

The historical relationship among liabilities, deposits, GDP, and government expenditure on Islamic house financing shows how significant these variables are in advancing Islamic house financing in Pakistan. For instance, during the last decade, a positive correlation was observed between deposits and Islamic house financing, indicating that increased deposits were driving the growth of Islamic house financing in the country.

There is then a study conducted on the impact of long-term variables on Islamic banking on the financing of Islamic houses. The previous table provides a framework for the existence of long-term relationships. Therefore, research like the one presented in this paper is crucial to identify the factors that affect Islamic house financing.

Table 3

Long-Term Estimations

Variables	Coefficients	Statistics-t
L-DEPOSITS	1.018	1.377
L-LIAB	-0.088	-0.096
L-GDP	-0.220	1.839
L-EXP		0.486

Note. The Akaike Information Criterion (AIC) indicates a strong relationship between the ARDL model (2,0,4,1,1) at 1%, 5%, and 10% levels.

Table 3 shows the long-term results for the model. The results indicate that all variables have a long-term impact on Islamic house financing in Pakistan. According to the recent bound test results, deposits, liabilities, GDP, and government expenditures may be associated with long-term co-integration. However, the long-run analysis clearly showed that all variables

contribute significantly to Islamic house financing in Pakistan. The size of customers led to an increase in Islamic bank financing in Pakistan, according to Isa et al. (2019). It is clear that there is a long-term relationship between the variables that affect Islamic house financing in Pakistan.

Furthermore, Adeboye (2009), mentioned that deposits tend to affect house financing in Pakistan. The results of this analysis, however, do not prove the premise of any other researches. This is because there was found no sustained evidence of a significant correlation between deposits and Islamic house financing in Pakistan. Thus, the findings suggest that deposits are not a significant factor for Islamic house financing in Pakistan.

The current study indicates varying effects of macroeconomic and internal factors on long-run Islamic house financing in Pakistan. Due to the advancements that have taken place over the study period, the relationship between these components may be affected by the study time. As a result of these factors, Pakistani Islamic home financing will remain unaffected in the long run. According to the results, Pakistani Islamic house financing is not likely to be affected by changes in deposits, liabilities, GDP, and government expenditures between 2018 and 2022. This indicates that macroeconomic and internal factors have little impact on Islamic house financing in Pakistan.

According to a recent study conducted by Hachicha and Amar (2015), Pakistan's GDP is non-negatively affected by Islamic banks. Arafat et al. (2021) concludes that adverse effects on bank reliability can be detrimental, despite the fact that there is no evidence to support this claim. Both conventional and Islamic banks were affected during the pandemic in Pakistan, Malaysia, and other countries.

In the long-run, the financial situation during the pandemic might have an adverse effect on Islamic house financing in Pakistan. These findings are confirmed by a prior study conducted by Yusof et al. (2018), which asserted that Islamic banks have a significant impact on macroeconomic fluctuations.

Table 4 displays the diagnostic tests results. To determine the integrity of the model, the *F*-Measurement values for the LM test, normality test, and heteroscedasticity test must be greater than 5% significance. The findings indicate that there isn't a serial connection component. The *F*-measurement value for the L M test, where the value of 0.130 is more significant than the

5% significance level, determines the outcome.

Table 4

Results of Diagnostic Tests

SLM Test of Serial Correlation	0.130 (0.971)	Godfrey-Breusch
Test of Normality	1.571 (0.457)	Bera-Jarque
Test of Heteroskedasticity	0.538 (0.851)	Godfrey-Breusch-Pagan

Note. (2,1,0,4,1) ARDL- is chosen established on AIC, and ***, **, * reflects statistical significance levels at 1%, 5%, and 10%, respectively. *Denotes that the statistical significance levels are below those for the ARDL sample.

Additionally, the Jarque-Bera normalcy test result of 1.571 is more significant than 5%. There is a high likelihood that this model will spread. Each of the diagnostic tests used in this model proved that there were no problems with the data, indicating that the model is well-calibrated and suitable to be used in practical settings. The heteroscedasticity test requires the Breusch-Agnostic-Godfrey test. Based on the final result, the information does not have a heteroscedasticity problem since the probability of the *F*-measurement record is 0.538, which is above the 5% significance threshold. According to the results, the information used in this review is appropriate since it wouldn't provide erroneous or unbalanced results. The results prove that the data pertaining to this model is accurate and fair.

Figure 3

CUSUM Graph

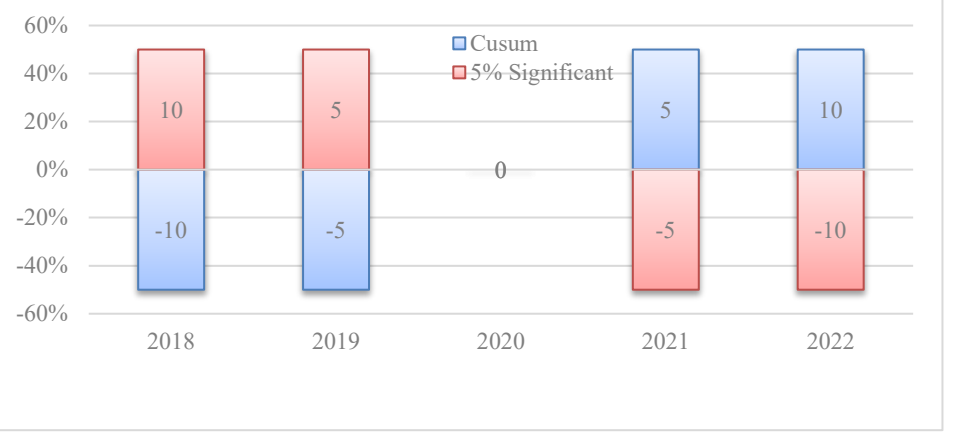
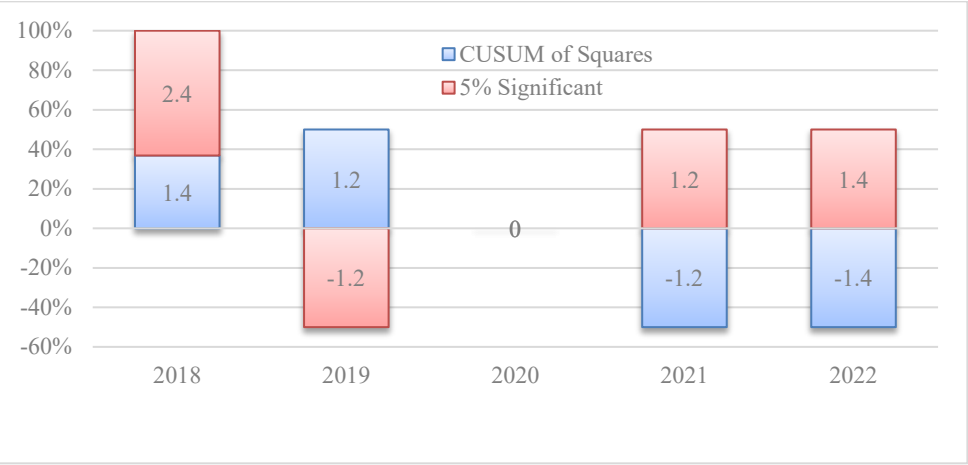


Figure 3 shows the results of the CUSUM analysis, which is recommended to determine the reliability of statistics. The red bar in the chart does not exceed the blue bar despite being close to the limits. Based on the results of the CUSUM test, it is extremely likely that the data is reliable since the line doesn't cross the red bar. The diagram below illustrates how CUSUMSQ measures the reliability of data. CUSUMSQ and CUSUM tests are similar in design since they measure the accuracy of the data. These tests are important to evaluate the reliability of the data for further research.

Figure 4
CUSUMSQ Graph



In Figure 4, the model's diagram line is shown in the CUSUMSQ test. The stability test in this case demonstrates that the data has maintained its stability due to the position of the bar within the blue bar. The fact that the red bar does not stray from the designated bar supports CUSUMSQ's stability. The additional knowledge gained from this outcome shows that the statistics employed can provide reliable estimates and results. Due to this, it may be concluded that the method is accurate and that the measurements are constant. The data used in the model was found to be stable in the CUSUMSQ test and, therefore, it can be used to give accurate estimates and results.

Table 5
ECM Short-Term Estimation

Variables	Coefficients	Statistics-t
L-IHF	0.367*	4.151
L-GDP	-0.044*	-3.758
L-EXP	0.017*	0.418
(-1) ECM	-0.054*	-6.847

Note. The ARDL (2,1,4,0,1) model shows high statistical significance at 1%, 5%, and 10% levels, rejecting the null hypothesis of no relationship with high confidence.

Table 5 shows the short-run estimations of the ECM test. Despite the fact that there is no long-run association between the variables and Islamic house financing in Pakistan, there are two variables that are related in the short-run. GDP and government expenditures are the determining variables. These two variables might be categorized as macroeconomic variables or external forces influencing Islamic house financing in Pakistan. While, there is a strong correlation between the two parameters and Islamic house financing, GDP has the opposite effect. On the contrary, Islamic house financing in Pakistan appears to have a short-run positive correlation with official utilization. Hence, the results of ECM test clearly demonstrate that macroeconomic variables play an important role in determining Islamic house financing in Pakistan.

According to the results, Islamic house financing, for instance, decreased by 0.04% when GDP increased by 1%. According to GDP, Pakistan's collaboration with Islamic house financing is different from what was previously believed. Growth in the nation's GDP is generally beneficial to financing governments. As a result of the analysis, GDP has a negative impact on Islamic house financing. The value of Islamic home financing is probably to decline dramatically if Pakistan's GDP grows faster than expected between 2018 and 2022.

In Pakistan, there may be a short-run basis for the negative relationship between GDP and Islamic house financing. Depending on a range of factors that could influence altered findings, these aspects could progress under various circumstances. Islamic house financing needs to develop quickly to overcome the economic effects of the COVID-19 pandemic. This issue may provide a unique insight into how the country's GDP is changing in relation

to how Islamic house financing is functioning. For instance, during the pandemic, the country experienced a high rate of unemployment, leading to a decrease in GDP and a decrease in demand for Islamic house financing.

On the contrary, funding for Islamic house financing is positively correlated with government expenditures. According to estimates, there would be a 0.017% increase with every 1% drop in government spending. It suggests that government expenditure would contribute more to Islamic domestic assistance in Pakistan. It also highlights how significant government support is for the growth of Islamic house financing organizations in the country. Since the government of Pakistan spends a lot of money to improve the country's financial situation, supporting services such as Islamic house financing may be improved and their supply increased. Thus, government support for Islamic house financing is crucial for the development of this service in Pakistan.

The short-run analysis shows that the value of the term for error correction is -0.054% and it has significance at 1% level. Therefore, the 5.4% shift from the long-run management course could take place within a year. This result is consistent with the assumption that the short-term management course is more accurate than the long-run management course.

Table 6

Results of Granger Causality Test

Variables	IHF	Deposit	LIAB	GDP	GEX
IHF	-	4.388*	8.244*	.541	1.301
deposit	2.068	-	2.648	.792	.361
LIAB	1.404	2.529	-	1.92*	.056
GDP	5.043*	1.921*	3.938*	-	.110
GEXP	6.522*	7.331*	7.269	11.2*	-

Note. Statistics at 1%, 5%, and 10% levels are represented by ***, **, and *, respectively. For instance, *p*-value of 0.05 would be represented as ** in the table.

The pairwise Granger causality evidence in the following table demonstrates the contributing link among the model's factors. The results showed that, based on a 5% significance level, the model determined five (5) causal links. Pakistan's Islamic house financing is causally related to stores and responsibilities. This indicates that Islamic houses in Pakistan are financed by deposits and liabilities. However, it is possible to determine the

value of Islamic house financing further by calculating the value of assets and obligations. This data strongly suggests that inner variables, such as possessions and obligations, are significant factors that may affect the financing of Islamic houses in Pakistan. Islamic banks should improve and take lead systematically in the management of assets and liabilities, since these elements clearly demonstrate a strong causal relationship with Islamic house financing. Overall, it is concluded that Islamic banks should continue to focus on improving their management of assets and liabilities to develop the Islamic house financing in Pakistan.

Islamic house finance is strongly associated with macroeconomic variables, such as GDP and government expenditures. The impact of Islamic housing on GDP and government expenditures is significant. Since Islamic house financing can be used to estimate Pakistan's GDP and government expenditures, Islamic house aid is widely accepted to have an impact on external financial aspects. The expansion of Islamic mortgage finance in Pakistan supports macroeconomic variables. In this study, the importance of Islamic mortgage finance in Pakistan is emphasized as having little bearing on monetary conditions. Due to this, Islamic house financing is crucial to assess Pakistan's economy as a whole.

Liabilities, however, demonstrate a direct relationship between Islamic house financing and government expenditures. This is followed by GDP, which is causally connected to government expenditures. A causal link between the four factors—Islamic house financing, deposits, liabilities, and GDP— along with government expenditures, may be easily determined from the results. Indeed, domestic factors including Pakistan's GDP and Islamic house finance, as well as deposits and liabilities in Islamic banks, have a big influence on government expenditures. Based on the causal relationship between these factors and government expenditure, government expenditure is significant. The explanation and analysis of this result support Granger causality test results. According to this analysis, interior factors will have an impact on Islamic house financing in Pakistan over the next five years. Following a causal link between these factors, we were able to predict and estimate other traits in the future based on their significance in the interim. Therefore, this study suggested that internal factors would affect the development of Islamic housing financing in Pakistan.

Discussion

The findings from the analysis highlight critical insights into the dynamics of Islamic house financing in Pakistan, particularly in the context of macroeconomic and internal factors. The results indicate that both short-term and long-term relationships exist among the variables analyzed, which aligns with the existing literature on Islamic banking and finance.

Stationarity and Co-integration

The results from the Augmented Dickey-Fuller (ADF) test confirm the importance of stationarity in time series analysis, reinforcing the findings of studies such as Harris (1995) and Phillips and Perron (1988), which emphasize the need for stationarity to ensure reliable statistical inference. The unit root tests indicated that most variables were non-stationary at their levels but stationary after first differencing, highlighting the necessity of co-integration testing.

The bound test results revealed a significant co-integration relationship among deposits, liabilities, GDP, and government expenditure, consistent with the findings of Niazi and Kakar (2016), who identified similar long-term relationships in Islamic finance. This suggests that these factors interact to influence Islamic house financing, confirming the theoretical underpinnings of the ARDL model's capability to assess long-run equilibrium relationships.

Impact of Macroeconomic Variables

The long-term estimations demonstrated that while deposits and liabilities were positively correlated with Islamic house financing, the impact of GDP was found to be negative. This finding contradicts some existing literature, such as the work of Adeboye (2009), which posited a positive relationship between GDP growth and Islamic financing. The divergence in results may be attributed to the unique economic conditions in Pakistan during the study period, particularly the economic disruptions caused by the COVID-19 pandemic. As noted by Yusof et al. (2018), Islamic banks tend to experience fluctuations due to macroeconomic uncertainties, indicating that the impact of GDP on financing can vary based on external economic shocks.

Short-term Dynamics

The short-term analysis revealed that government expenditures

positively influenced Islamic house financing, aligning with the findings of Khan and Bhatti (2008), who emphasized the role of government policy in enhancing Islamic banking services. Conversely, the negative relationship between GDP and Islamic house financing suggests that as the economy expands, the demand for Islamic financing may decrease, possibly due to increased reliance on conventional financial instruments.

Granger Causality

The Granger causality results further substantiate the interconnectedness of the variables, confirming that Islamic house financing is significantly influenced by deposits and liabilities. This is consistent with the findings of Hachicha and Amar (2015), who emphasized the importance of effective asset and liability management in Islamic banking. The causality results indicate that strengthening the management of these elements could enhance the growth of Islamic house financing in Pakistan.

Implications for Policy and Practice

Given the findings, it is crucial for policymakers to consider the role of government support in promoting Islamic house financing. The evidence suggests that government expenditures have a direct positive impact on financing activities, indicating that increased fiscal policies could stimulate growth in this sector. Additionally, Islamic banks should focus on enhancing their asset and liability management practices to leverage the causal relationships identified in the study.

In summary, this discussion underscores the significance of both macroeconomic and internal factors in shaping the landscape of Islamic house financing in Pakistan. The interplay of these variables offers valuable insights for future research and practical applications in the banking sector, ultimately contributing to a more robust understanding of Islamic finance dynamics in emerging markets.

The analysis presented in this study reinforces the need for further exploration into the relationship between Islamic house financing and macroeconomic variables. The findings indicate that both short-term and long-term strategies are vital for sustainable growth in this sector. Future research could expand on these findings by exploring additional variables and their effects on Islamic house financing in different contexts, ultimately contributing to a comprehensive understanding of the sector's potential.

Conclusion

To concludes, this analysis indicates that government expenditures on Islamic house financing in Pakistan and deposits, liabilities, and GDP are interlinked. However, no long-run association between assets, liabilities, GDP, government expenditures, and Islamic house financing in Pakistan was found by using the long-run test measurements. This indicates that not all model elements have a long-term impact on Islamic house financing in Pakistan. However, in the short-term, outside variables, such as GDP and government expenditures influence Islamic house financing. Islamic house financing is negatively correlated with GDP, although it is positively correlated with government expenditures. All in all, the current study provides evidence that government expenditures can have a significant impact on the growth of Islamic house financing in Pakistan.

The Granger causality test showed that the model has five pairwise links. A study has been conducted in Pakistan that identified the connection between macroeconomic factors and Islamic house financing. A number of macroeconomic factors affected Islamic house financing in Pakistan. Islamic banks and their assistance are significantly impacted by external and financial variables. Due to the public authority's role in supporting government expenditures and managing Pakistan's GDP, Islamic houses may be able to finance stocks in Pakistan. Based on the perspectives of Islamic banks' specialists, this study explains how Islamic house financing can be advanced in Pakistan most effectively. The Islamic banks will also examine the factors that affect the availability of Islamic house finance in Pakistan. If the accepted leadership is in place, this collection could be improved. Consequently, this study demonstrates the importance of macroeconomic factors and the connection between them and Islamic house financing. It can assist public authorities in improving their financial policies.

Since the information was only retrieved recently in 2021, the findings may be different when retrieved again in the future. The results of future research on variables affecting Islamic house financing in Pakistan may differ from those in the current study due to multiple time series testing. Among the topics covered in this study are 2021 and more subtle approaches. Research of this nature is necessary in order to determine the factors influencing the financing of Islamic houses in Pakistan with accuracy.

Conflict of Interest

The author of the manuscript has no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

Data Availability Statement

The data associated with this study will be provided by the corresponding author upon request.

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