

## Financial Stability of Islamic Banks in GCC Region During The Subprime Crisis :An Empirical Analysis

الاستقرار المالي للمصارف الإسلامية في دول مجلس التعاون الخليجي خلال  
أزمة الرهن العقاري: دراسة قياسية

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Abstract

ملخص

This study aims to identify the financial stability for Islamic banks in Golf Council Countries during the subprime crisis; to address the question if the financial stability of Islamic banks were more than the conventional banks in GCC. For this our study opted for an empirical analysis using daily data of the equity prices of both types of banks, this myth utilizing GARCH (1-1) model by studying the volatilities of returns that was used to measure the financial stability of the two types of banks.

The results of this study show that the total of the coefficients ARCH and GARCH of Islamic banks were less than the conventional banks during the crisis; we conclude that the Islamic banks enjoy financial stability more than traditional banks during the crisis.

**Keywords:** Islamic banks in GCC, subprime crisis, financial stability , volatility.

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تهدف هذه الدراسة إلى التطرق إلى الاستقرار المالي للمصارف الإسلامية في دول مجلس التعاون الخليجي خلال أزمة الرهن العقاري، من أجل التعرف على ما إذا كانت المصارف الإسلامية لدول المنطقة أكثر استقرارا من نظيرتها التقليدية، فتم استخدام الدراسة القياسية للبيانات اليومية لأسعار أسهم عينة من المصارف (إسلامية و تقليدية) بالاعتماد على نموذج  $GARCH (1-1)$  من أجل دراسة تطاير عوائد الأسهم لقياس الاستقرار المالي للنوعين من المصارف.

تبين نتائج الدراسة ان معامل كل من  $ARCH$  و  $GARCH$  للمصارف الإسلامية في دول  $GCC$  أقل من نظيرتها التقليدية خلال فترة أزمة الرهن العقاري ، و بالتالي كانت المصارف الإسلامية أكثر استقرارا من نظيرتها التقليدية خلال أزمة الرهن العقاري.

**الكلمات المفتاحية:** المصارف الإسلامية في دول الخليج، أزمة الرهن العقاري، الاستقرار المالي، التطاير

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## 1. INTRODUCTION

In the recent years, Islamic banking has been the fastest growing segment of the banking industry world-wide (Taisier A & Dennis, 2006); since the inception of Islamic banking about three decades ago, the number and reach of Islamic financial institutions worldwide has risen from one institution in one country in 1975 to over 300 institution operating in more than 75 countries, most of the Islamic banking business is concentrated in the Middle East, particularly in the GCC. This region represents 85% of total assets of Islamic banks (Ftiti, Nafti, & Sreiri, 2013). In Sudan and Iran , the entire banking system is currently based on Islamic finance principles (Cihak & Hesse, 2008).

Many Muslim and non-Muslim countries are practicing Islamic banking either as full-fledged or window/branch-based operations. For this, Islamic banking practice has shown increasing trends in the last couple of decades. At the time of worrisome global financial crisis especially in 2008; several Islamic banks were opened such as Gatehouse Bank in 2008 (Islam, Sumon, Raju, & Yousuf, 2019, p. 16)

Islam encourages business and trade activities that generate fair and legitimate profit but interest based transactions are prohibited. Fundamental principle of Islamic finance is the risk and profit-sharing feature of transactions, prohibition of interest (riba), gambling (maysir) and excessive uncertainty (gharar). (Bakri, Wong, Zullkefily, & Jais, 2012). Today, banking practices based on Islamic principles are considered a viable alternative to commercial, interest-based banking (Erfani & Vasigh, 2018, p. 01) .Financial development, including emerging Islamic financial services, needs to be orderly and will be adversely affected by adverse macroeconomic or financial shocks. It is therefore interesting to analyse how and why an Islamic banking system might be affected by and respond to these shocks differently from conventional banking systems. This empirical study identifies the key differences between Islamic and conventional banks (Rajhi & Hassairi, 2013, p. 150).

The subprime crisis has affected many countries and different economic sectors, and more particularly the banking sector, which has been

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very affected, since it was the main cause of this crisis, and the impact of the crisis has extended to include Arab economies as part of the global system. The GCC economies have been experiencing a significant opening to the world economy in recent decades, which has made the Gulf banking sector affected by the crisis, and because the Gulf Cooperation countries are experiencing an increasing growth in Islamic banking. In this research, we are trying to identify the ability of Islamic banks in the GCC to cope with the subprime crisis compared to their traditional counterparts, using Generalized Autoregressive Conditional Heteroskedasticity model (GARCH 1-1).

The structure of this paper is organized as follows. Section 1 discusses literature reviews about financial crisis and financial crisis. Section 2 presents a background about the principles and development of Islamic banks in GCC region. Section 3 a presentation about financial crisis and financial stability. Section 4 describes the data and methodology .Section 5 describes the descriptive statistics .Section 6 presents the results and the last section is the conclusion.

## 2.LITERATURE REVIEW

Several studies have been conducted to study both bank financial stability and its determinants, Further, we have intended to review some of the leading researches on Islamic banking and its stability during the subprime crisis in the GCC. We review what the prior researches say about stability and performance of Islamic banking, Talking about the stability of Islamic banks, the paper work of **Cihak and Hesse (2008)** could be considered as one of the well-known studies for comparing financial stability of the Islamic banks and the Conventional banks in cross-country empirical study on Islamic banking stability analyze 20 banking systems of Bahrain, Bangladesh, Brunei, Egypt, Gambia, Indonesia, Iran, Jordan, Kuwait, Lebanon, Malaysia, Mauritania, Pakistan, Qatar, Saudi Arabia, Sudan, Tunisia, United Arab Emirates, West Bank and Gaza, and Yemen; having 520 observations for 77 Islamic banks and 3,248 observations for 397 conventional banks from 1993 to 2004. In this study, the impact of Islamic banks on financial stability is measured. Z-score is used as a measuring tool for stability of banks. The

findings of study indicate that; Small Islamic banks tend to be financially stronger than small conventional banks. Z-score for small Islamic banks is 25.00 and for small conventional banks, it is 17.20. Large conventional banks tend to be financially stronger than large Islamic banks. Z-score for large conventional banks is 19.50 and for large Islamic banks it is 12.90. Small Islamic banks tend to be financially stronger than large Islamic banks.

**Hasan and Dridi (2010)** tried by their paper to examine the performance of Islamic banks (IBs) and conventional banks (CBs) during the recent global crisis by looking at the impact of the crisis on profitability, credit and asset growth, and external ratings in a group of countries where the two types of banks have significant market share, the results of this paper showed that IBs have been affected differently than CBs. Factors related to IBs' business model helped limit the adverse impact on profitability in 2008, while weaknesses in risk management practices in some IBs led to a larger decline in profitability in 2009 compared to CBs. IBs' credit and asset growth performed better than did that of CBs in 2008–09, contributing to financial and economic stability. External rating agencies' re-assessment of IBs' risk was generally more favorable.

**Boumediene and Caby (2013)** study the stability of Islamic banks during the subprime crisis. According to their results, they show that the volatility of Islamic banks yields increased during the crisis of 2007. They found two main conclusions: first, Islamic banks had been affected by the crisis and second, they face the same risks as conventional banks. The empirical results show that there are signs of risk transfer between the Islamic equity market and the three main traditional markets, which implies the existence of contagion across global equity markets. The structure of the volatility of these markets is dominated by short-term volatility in the first period and a strong long-term volatility in the second period.

Similarly, the work of both **Rajhi and Hassiri (2013)** They analyzed financial stability for 16 countries including ten countries in the MENA region and six countries in Southeast Asia, for a total of 467 conventional banks and 90 Islamic banks between 2000 and 2008. Empirical results showed that the average levels of the stability of Islamic banks measured by the proxy Z-scores are higher than conventional banks except

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for small Islamic banks.

**Ben latifa and Koufi ( 2018)** compare the stability, in terms of contagion, of conventional and Islamic banks in Malaysia. they used a DCC-GARCH model to estimate the dynamic conditional correlation (a measure of financial contagion) for a sample of one Islamic bank and eight conventional banks during the period from March 31, 2004 to March 18, 2014. From the empirical findings, the results showed that the conditional correlation between the returns of conventional and Islamic banks in Malaysia increased during the period of financial crisis. This finding implies the existence of a financial contagion effect between Islamic and conventional banks in Malaysia. Also, we find that financial contagion represents a major factor for the transmission of risk between Islamic and conventional banks.

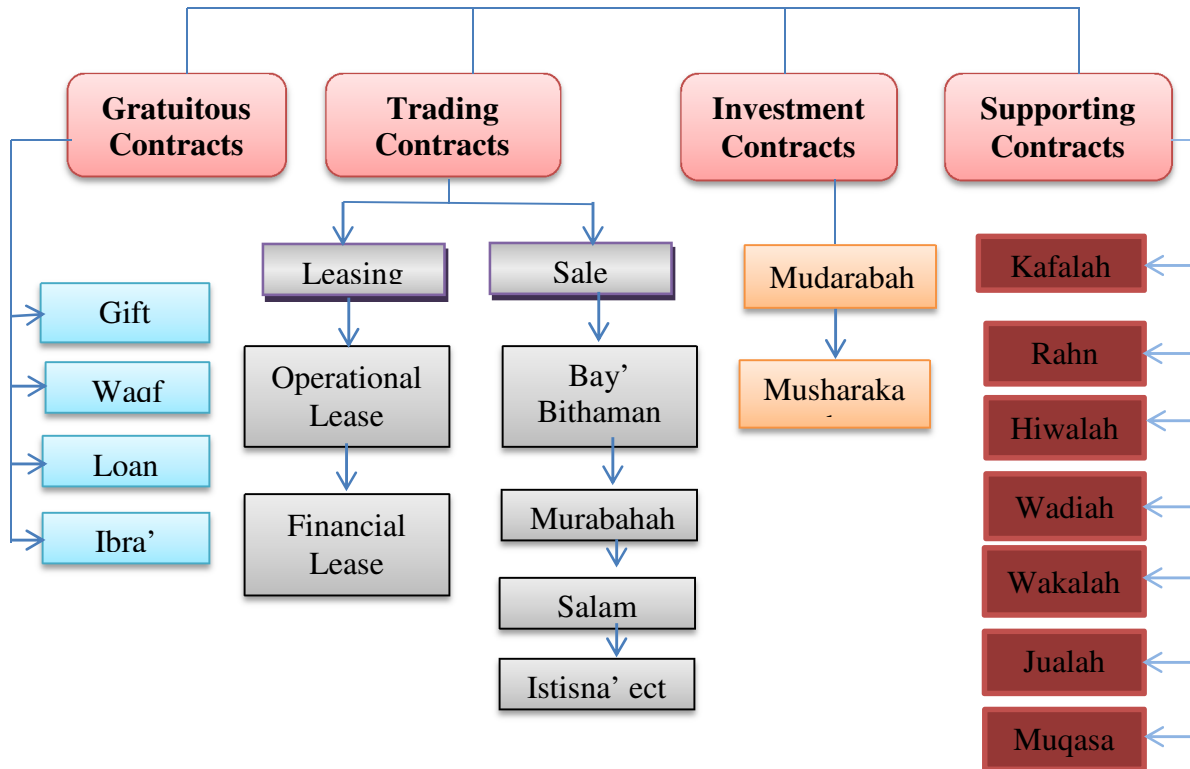
**Razeul& Sumon& Ahmed& Yousuf ( 2019)** their paper examined the financial stability of eight (8) full-fledged Islamic banks in Bangladesh for the period of 2010-2017 by using the technique of Z-score, along with different financial ratios such as NPF ratio, IDR ratio, and liquidity ratio that are widely used to assess the financial stability of Islamic banks. The results of the study suggest that Islamic banks in Bangladesh are now experiencing higher IDR ratio which indicates that these banks are making excessive financing. Although, the NPF ratios for some Islamic banks are decreasing but the pace of this decrease is very slow.

### 3.ISLAMIC BANKS IN GCC REGION

#### 1.3 Principles of Islamic Banking

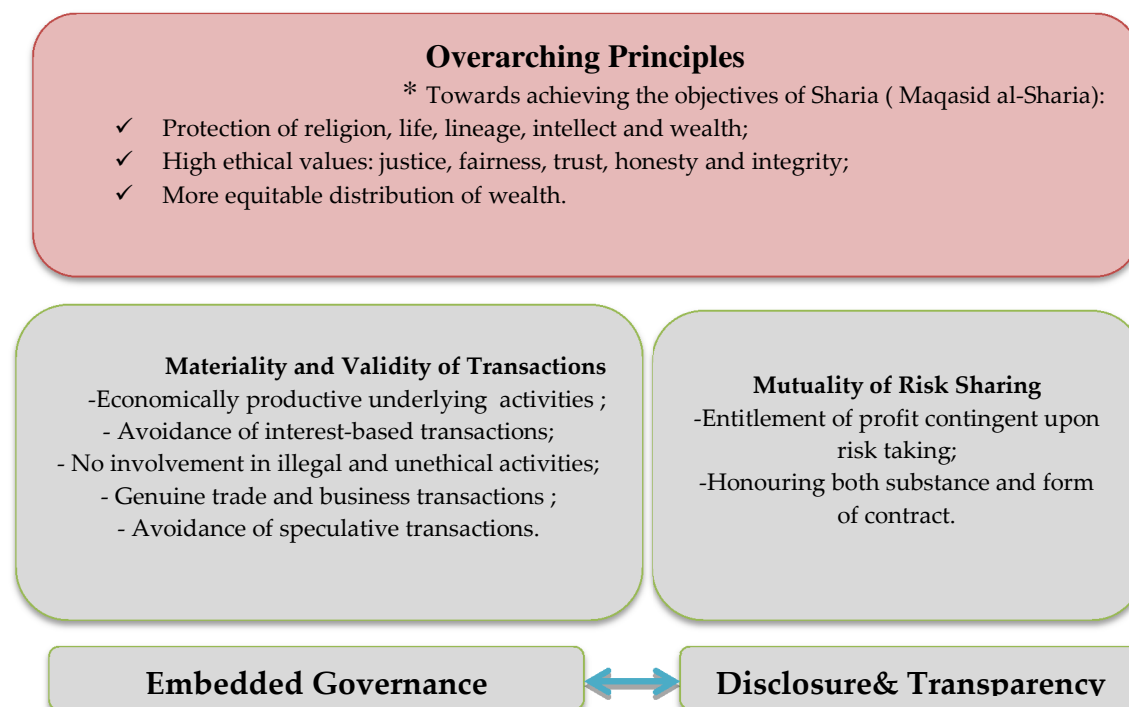
An Islamic bank is a financial institution which identifies itself with the spirit of Islamic legal code (Shari'a), as laid down by the Holy Quran and Sunnah, as regards its objectives, principles, practices and operations. As in **Figure 1** Islamic banks adopt various financial instruments in operating their businesses (Miniaoui & Gohou, 2011).

Figure1. Main Shari'a Contracts Applied In Islamic Banking



Source: Hela Miniaoui & Gaston Gohou , (2011),*Did The Islamic Banking Perform Better During The financial Crisis? Evidence from the UAE*, International Conference on Management , Economics and Social Sciences, Bangkok, Dec, 2011, p01

The great Islamic scholars Ibn Taymiaa famously stated that the two prohibitions which explain all distinctions between contracts that deemed valid or invalid are those of Riba and Gharar, the former means any unjustifiable increase of capital whether in loans or sales (fixed interest rate) and the later is the speculative behavior and it encompasses any transactions featuring extreme uncertainties and/or gambling (Rashwan, 2010, p. 03); we can summarize the main principles of Islamic banks mechanism by the **figure 2**.

**Figure2. Islamic Bank Principles**

**Source:** ashwan, M. H. (2010, December). *A COMPARISON BETWEEN ISLAMIC AND TRADITIONAL BANKS:PRE AND POST THE 2008 FINANCIAL CRISIS.*  
<http://ssrn.com/abstract=1724451>, p. 03.)

### 2.3. Islamic banking industry in GCC

Islamic banks in the GCC region currently control a market share of around 15% of the regional banking system's assets. Saudi Arabia, Kuwait and the UAE are considered to be three of the big 4 countries (along with Malaysia) in global Islamic finance. Saudi Arabia has a large concentration of Islamic finance assets (compared to total assets) at 40%, compared to Kuwait and the UAE which have 21% and 20% respectively. The remaining three countries of the GCC are considered to be credible challengers to these countries. Bahrain has a 15% concentration of Islamic finance assets compared to Qatar with only 5% (Jill, Izzeldin, & Vasileios, 2009, p. 05); in

the other part the GCC region has the largest Islamic banks (IBs), the market share of Islamic finance in the banking systems of the GCC countries at end-2008 was in the range of 11-35%, compared with 2-24% in 2004 (Hasan & Dridi, 2010, p. 05), conventional banks in this region have adopted the financial accounting rules established by the International Accounting Standard Board, while Islamic banks use the financial accounting rules established by The accounting and Auditing Organization for Islamic Financial International (AAOIFI) (Taisier A & Dennis, 2006, p. 07).

**Table 1.** Growth in Assets of Islamic Banks and Conventional Banks in Selected Countries

	Growth rate of assets	Growth rate of assets	Period
Saudi Arabia <sup>2/</sup>	33.4	19.0	2003-2008
Bahrain	37.6	9.6	2000-2008
Kuwait	28.3	19.0	2002-2008
UAE	59.8	38.1	2001-2008
Qatar	65.8	38.1	2002-2008
GCC average	45.0	24.8	

**Source:** Hasan, M., & Dridi, J. (2010, September). *The Effects of the Global Crisis On Islamic and Conventional Banks: A comparative Study*. IMF Working Paper, p. 05

1/ Including Islamic banks

2/Including Islamic windows



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#### 4. Financial stability and subprime crisis

The stability of the banking sector is the foundation of steadiness of the entire financial system as banks play a central role in the money creation process; in the payment system, in the financing of investment and in economic growth (Hussien, 2010, p. 259), for this it is so difficult to give any commonly accepted definition of financial stability ; Allen & Geoffrey (2006) define financial stability as a period where there is an absence of instability :” We define episodes of financial instability as episodes in which a large number of players, whether they be households, companies or governments, are subjected to financial crises which are not justified by their previous behaviour; and where, collectively, these crises have seriously unfavourable macroeconomic effects”. (Aniss & Caby, 2012, p. 05), Garry J. Schinasi (2004) had a paper about financial stability who defined it “Financial stability is a condition in which an economy’s mechanisms for pricing, allocating, and managing financial risks (credit, liquidity, counterparty, market, etc.) are functioning well enough to contribute to the performance of the economy” (Schinasi, 2004, p. 10)

Financial and economic stability is perceived to be an original feature of the Islamic economic system conceptually ensured by morality, development and a relatively equitable wealth distribution and practically by the abolition of interest and promotion of wealth redistribution in accordance with divine law (Karwowski, 2009, p. 07).

The subprime mortgage crisis had renewed the focus on the relationship between banking and financial stability, more specifically on the resilience of Islamic banking industry during crisis. Islamic banks managed to remain stable at the early phases of the crisis that was driven by three main Factors. First, compared with conventional banks, Islamic bank’s financing activities are more focused with the real economic activities. Most financing activities in Islamic Banks are done through Murabaha and Ijarah followed by Istinsa. According to the Council of Islamic Banks and Financial Institutions (CIBAFI), for the Islamic banks in the GCC for year 2007, Murabaha comprised of 65.4%, Ijarah 12.78% and Istinsa 2.83%.

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Both Murabaha and Ijrah transactions require the Islamic bank to know the client's purpose and use of finance as well the ownership of the asset by the bank. Although Musharakah and Mudharabah both provide better risk sharing while keeping strong link to the real estate sector, they are used minimally for different reasons (Amba & Almukharreq, 2013, p. 84).

The Financial Crisis Inquiry Commission (FCIC) concluded that there were a number of reasons for the 2008 subprime financial crisis, including low interest rates, easy credit, scant regulation and toxic mortgages, which led to a full-blown crisis in the autumn of that year (Alqahtani & Mayes, 2017, p. 101), in other hand the abuse of various innovate financial techniques and new investment instruments that have been developed in recent decades was one of the root cause of this crisis (Park, 2009, p. 127). Lindgren, Garcia and Saal (1996) define the banking as the ability of the bank to withstand adverse events such as banking panics, major political changes, liberalization of the financial sector and natural disasters (Chakroun & Gallali, p. 67).

Risky mortgages had been securitized, packaged and repackaged, and sold to investors around the world. When the 'subprime bubble' burst, there were billions of dollars of losses from mortgage-related securities, and this shocked financial markets and the financial institutions that were highly exposed to those mortgages. In addition, these losses were significantly magnified by the use of derivatives. The main causes of the crisis were not independent of one another, but were highly interrelated and difficult to separate.

The analysis of the stability of Islamic banks relative to conventional banks becomes more relevant when the analysis period includes the recent global financial crisis. Indeed, the crisis induced a series of failures of many conventional banks and constitutes a good test of the stability of Islamic banks (Ben latifa & Khoufi, 2018, p. 168).

## 5. Data and methodology and Descriptive statistics

### 1.5 Data and methodology

This study included a sample consisting of nine Islamic banks and nine conventional banks located in five countries of the Gulf Cooperation Council represented in: (United Arab Emirates, Bahrain, Kuwait, Qatar and Saudi Arabia) with the exception of the State of Oman where most of the Islamic Omani banks have been listed in the Muscat market For securities after the year 2005, especially since we used the daily closing prices of shares of Islamic banks and their traditional counterparts during the period from July 18, 2005 to July 17, 2011, and the banks under study are as follows:

**Table2 .** Sample Of GCC banks used in the study

Conventional Banks (CBs)			Islamic Banks (IBs)		
Bank Name	Country	Assets	Bank Name	Country	Assets
Abudhabi Commercial Bank	UAE	53861	Abudhabi Islamic Bank	UAE	30471
Emirate Dubai National Bank	UAE	4496	Dubai Islamic Bank	UAE	33734
National Bahrain Bank	Bahrain	7311	Sharjah Islamic Bank	UAE	7083
Ahli United Bank	Bahrain	1290	Bahrain Islamic Bank	Bahrain	2328
Kuwait Ahli Bank	Kuwait	11978	Kuwait International Bank	Kuwait	5876
National Kuwait Bank	Kuwait	74570	Kuwait Finance House	Kuwait	58681
Qatar commercial Bank	Qatar	31784	Qatar Islamic Bank	Qatar	26403
Ahli Bank	Qatar	8624	Qatar International Bank	Qatar	10549
Riyad Bank	Saudi Arabia	57192	El rajihi Bank	Saudi Arabia	82056

Source: DataStream Database

In **table 3.** shows our assumptions regarding the study period dates and the number of observation used in the study, before the subprime crisis, during the crisis and after than, These various banks “daily share prices were gathered via *Datastream*.

**Table3.**Classification of study period and number of observations

	Start date	End date	Num of Observations
Pre-crisis	18 /07/2005	17/07/2007	522
During crisis	18/07/2007	17/07/2009	522
Post-crisis	18/07/2009	17/07/2011	522

An index was then calculated for the sample of Islamic banks and also an index for traditional banks, following the method of the American Dow Jones Industrial Index (DJIA), as well as the Japanese Nikkei average through the simple arithmetic mean through the following formula:

$$\text{Index value in period (x) = } \frac{\sum \text{share prices of corporations in sample index}}{\text{Number of corporations in sample Index}}$$

Daily returns are calculated using the following formula:

$$R_t = \ln\left(\frac{P_t}{P_{t-1}}\right)$$

- $R_t$  : Daily return of Index
- $P_t$  :Index Value in day t
- $P_{t-1}$  : Index value in previous day
- $\ln$  : Natural Logarithm ..... 2.71

In this paper we expected week-end days from the daily prices series.

## 5.2 Descriptive statistics

The empirical study portion of our research is a multi-step process, where we attempt to sequentially analyze the data starting from simple descriptive statistical for both Islamic return index and the conventional return index during the three periods.

**Table 4:** Descriptive results of Index return series for Islamic Banks

**Source:** Our sample study using Eviews 8

Through the **table.4** on descriptive statistics related to the returns of the Islamic Banks Index, it becomes clear to us that:

- the value of the Skewness coefficient is negative  $SK < 0$  during the

	Mean	Median	Maxim	Minim	Std.Dev	Skewness	Kurtosis	Jarque-Bera	Jarque-Bera
<b>Pre-crisis</b>	0.000661 -4	0.000000	0.06225 0	0.068721	0.01818 8	-0.221285	4,527535	54,905 39	<b>0.000000</b>
<b>During Crisis</b>	1.11e16	0.022990	0.13994 4	0.110478 -	0.12423 9	-0.000336	9.884890	1032.3 30	<b>0.000000</b>
<b>Post-crisis</b>	0.000199	0.000179	0.05478 5	0.055853 -	0.00986 2	-0.238936	9.156916	827,86 84	<b>0.000000</b>

two periods before and after the financial crisis, which means that the distribution is twisted to the left, and during the crisis the Skewness value was positive  $SK > 0$ ;

- The value of the Kurtosis coefficient was greater than 3  $KU >$  during all study periods (before, during and after the financial crisis), which means that it is elongated, indicating the presence of anomalous values in the series;

Jarque-Bera test: We test null hypothesis ( $H_0$ : returns are subject to normal distribution) null hypothesis if the probability value corresponding to the Jarque-Bera test is:  $PR. > 5\%$ . However, we note from the previous table that the probability value corresponding to the Jarque Bera test is less than 5% for all study periods, which means that index returns are not subject to normal distribution and this is a general advantage of financial time series.

**Table 4.** Descriptive results of Index return series for Conventional Banks

	Mean	Median	Maxim	Minim	Std.Dev	Skewness	Kurtosis	Jarque-Bera	Jarque-Bera
<b>Pre-crisis</b>	-0.000100	0.000248	0.065740	-0.071149	0.017281	0.32029-3	4.411857	52.18012	<b>0.000000</b>
<b>During Crisis</b>	-0.000720	0.000245	0.070337	-0.080439	0.020652	0.35675-4	5.139430	110.6260	<b>0.000000</b>
<b>Post-crisis</b>	0.000334	0.000576	0.062255	-0.051312	0.012093	0.23327-1	7.753681	495.2788	<b>0.000000</b>

**Source:** Our sample study using Eviews 8

In other hand the descriptive statistics related to the returns of the Conventional Banks Index are:

- The value of the Skewness coefficient related to the returns of conventional banks took a negative value for all study periods SK # 0, that is, the shape of the distribution is not symmetrical, and since SK < 0, this means that the distribution is round left.

- the value of the Kurtosis coefficient for all periods was greater than 3 which means that it is elongated, as it indicates the presence of anomalous values in the series;

- The corresponding probability value of the Jarque-Bera test is less than 5% for all study periods, which means that the returns to the index are not subject to normal distribution.

**Table 06.** Results of estimates returns for Islamic and conventional banks during study periods

	Type of Bank	Constant	t-Stat	Coef AR	t-Stat	MA Coef	t-Stat	Adj. R <sup>2</sup>	F-stat.	Akaïke	Schwarz	DW stat
<b>Pre-crisis</b>	<b>Islamic Banks</b>	0.0006-13	0.8147-83	0.8571-81	9.8355-92	0.770119	7.132021	0.024717	7.563976	5.1918-99	5.167321-	1.631618
	<b>Traditional Banks</b>	7.50E-05	0.0911-77	0.5333-62	3.6757-66	0.692615	5.591935	0.030617	9.196073	5.30442-4	5.279883-	2.043441
<b>During -crisis</b>	<b>Islamic Banks</b>	0.0003-64	0.2838-25	0.129366	2.899827	0.090984	2.049263	0.019921	6.142596	4.6943-81	4.669360-	4.6845-69
	<b>Traditional Banks</b>	0.0007-13	0.6487-06	0.212365	4.834066	0.0249-59	0.5541-12	0.040046	11.84633	4.9552-01	4.630695-	4.9456-02

Post-crisis	Islamic Banks	-7.77E-05	0.2131-52	0.655907	4.966016	0.7208-19	5.9081-49	0.012271	4.186527	6.4295-60	6.404800-	6.4198-56
	Traditional Banks	0.000346	0.618246	0.4913-77	3.1888-27	0.606473	4.284771	0.021852	6.786150	6.0294-42	6.004865-	6.0198-14

Source: Our sample study using Eviews 8

The **table 06** shows the study period and the type of bank, the estimated, calculated statistics for it to test the statistically significant, and we also obtained the results of each of the corrected determination factor, calculated Fischer statistic, Akaike criterion, Schwarz standard and in the last statistic Durbin-Watson.

After differentiating between several models, the ARMA (2,2) and ARMA (1,1) models for Islamic and conventional banks were respectively selected for the pre-mortgage period on the basis of Akaike and Schwarz benchmarks, and also ARMA models (15, 2) and ARMA (1,2) for Islamic banks and their traditional counterparts during the crisis, and finally, both ARMA (7,7) and ARMA (2,2) were selected for Islamic banks and their traditional counterparts, respectively, after the crisis, on the basis of a standard diminution Akaike and Schwarz, where the explanatory ability for the models appeared to us during the three study periods, both for Islamic banks and their traditional counterparts, where the maximum value reached 4% for traditional banks during the mortgage crisis, and despite that, the F-Statistic statistic was significant which means The model is statistically acceptable.

And the deterioration of the explanatory power can be traced back to the nature of linear models that are not in line with the prediction in the period of crises where special models are required which are the GARCH models.

**Table07.** Results of ARCH effect tests

	Type of Bank	F-statistic	Proba.	Obs*R-squared	Proba.
Pre-crisis	IBs	17.13293	0.0000	16.64661	0.0000
	CBs	7.351952	0.0069	7.276912	0.0070
During-crisis	IBs	134.1685	0.0000	106.3814	0.0000
	CBs	90.86374	0.0000	77.60217	0.0000

Post-crisis	IBs	4.333193	0.0379	4.313575	0.0378
	CBs	18.25049	0.0000	17.69536	0.0000

**Source:** Our sample study using Eviews 8

The results of the tests in the previous table indicate that the probability of a LMca (R-squared \* Obs) statistic, whether for Islamic banks or their traditional counterparts during or before the crisis or after the crisis was less than 5%, which causes us to reject the nihilistic hypothesis that errors variation is constant over time and we accept Alternative hypothesis: conditional variance is not constant; So we deduce the existence of the ARCH effect on the model residues for both Islamic and conventional banks in the Gulf states during the three study periods, which means that the variance of the model residues is not homogeneous where there is a problem of Heteroskedasticity and that the calculated value of the Lagrange multiplier is less than the critical value as proven by the Fisher statistics, in order to correct Impaired assumption of contrast homogeneity GARCH models should be relied upon as a solution to this problem.

## 6. Results and discussion

According to the results of estimating the returns dividend model for both Islamic and conventional banks in the Gulf Cooperation Council states conditional on the heterogeneity of variance, it indicates that the model is statistically acceptable at the level of significance of 5 percent for both types of banks during the three study periods.

The fluctuations in the returns of the shares of Islamic banks during the period of the mortgage crisis, i.e. the total of ARCH and GARCH coefficients estimated at 0.878509 were less than their traditional counterpart estimated at 0.987226 as the latter was very close to the one and this is evidence of the continuity of the volatility shock in the returns of the stock prices Traditional banks, which shows us that the impact of the mortgage crisis on traditional banks in the Gulf Cooperation Council countries was greater than Islamic banks, as it showed a greater ability to



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maintain financial stability compared to its traditional counterpart as a result of its distance from speculation and to deal in debt by selling or buying in addition to gaining investor confidence And its dealers.

As for the mortgage crisis set for the period 2005 to 2007, the total ARCH and GARCH coefficients were estimated at 0.960296 for the Islamic Gulf banks compared to 0.986451 for their conventional counterparts, it appears that both are approaching one and this is evidence of the persistence of shocks fluctuations in the returns of each Islamic banks and their traditional counterparts, as it appears that the latter are more volatile and volatile than their Islamic counterparts; While Islamic banks after the mortgage crisis were more volatile than their Islamic counterparts, which is shown by ARCH and GARCH coefficients estimated at 0.987780 for Islamic banks compared to 0.952003 for conventional banks and they are close to one, which means that there is a continuity of shocks Islamic banks more than their traditional counterpart This is until the beginning of the transition from a financial crisis to an economic crisis, just as Islamic banks also bear a large percentage of the risks, and the risks of Islamic banks have been fabricated from their traditional counterparts.

On the other hand, the value of variance in the long term reached its maximum for Islamic banks during the mortgage crisis with a value of 9,37 power 5, while the lowest value was for traditional banks after the crisis where the value of variance reached 1,02 power 5, and it appears through the results of the previous table that the behavior of The clients of historical and recent information did not have a significant impact, especially as Islamic banks stipulate in their activity the relationship between the real and financial economy through various financing modes provided by Islamic banks in addition to sharing in the profit and loss under the sheep base in fine, unlike traditional banks that are widely used Financial derivatives that increase shocks in financial markets during crises.

From the results of the previous table we observed the GARCH coefficient was greater than the ARCH coefficient for Islamic and conventional banks before the crisis, and this indicates that recent information is more influential than the old information, and the same was

after the mortgage crisis for both types of banks. The GARCH coefficient was greater than ARCH coefficient, which means that the dealers take into account more recent and new information than the old one, but during the mortgage crisis, the matter differed between Islamic banks and their traditional counterparts, as the GARCH coefficient for the latter remained larger.

than the ARCH coefficient, while for Islamic banks it was a convergence between the coefficient of GARCH and ARCH coefficient, although the first coefficient is slightly larger than the last.

In order to estimate the variance equation, we estimated the following models ARCH 1, ARCH2, ARCH3, GARCH (1,1), GARCH (1,2), as it was found that the acceptable model for representing the conditional variance of the two series of returns of the Islamic Banks Equity Index and its traditional Gulf counterpart during The mortgage crisis and before and after the crisis is the GARCH model (1,1).

## 7. Conclusion

In this paper we used detailed data of share prices of Islamic and conventional banks in GCC region during three periods ( before-crisis; during and after-crisis); Our results indicate The presence of ARCH effect in both returns of Islamic and conventional banking index series before the mortgage crisis, during it and also after the crisis.

The presence of the problem of dynamics of variance over time in the rest of the returns of the indicators, which requires the use of the GARCH model, as it became clear to us that the effect of GARCH in time series during the entire periods, and that the total coefficients of ARCH and GARCH were the lowest for Islamic banks during the mortgage crisis, which indicates the limited impact of the crisis on these banks compared to their traditional counterparts.

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