LEX LOCALIS-JOURNAL OF LOCAL SELF-GOVERNMENT

ISSN:1581-5374 E-
ISSN:1855-363X VOL. 23, NO.
11(2025)

Measuring the Effectiveness of Cooperative Insurance on Economic Growth in the Kingdom of Saudi Arabia
An Analytical Econometric Study for the Period Q1 2015–Q4 2023

Adaika Asma

University of El oued

adaika-asma@univ-eloued.dz

Pr. Yousfate Ali

SedLab , ADRAR University-Algeria.

Pr.yousfatali@univ-adrar.edu.dz

Received: 12.02.2025. Accepted: 14.05. 2025.Published:02.11.2025

Abstract:
This study attempted to identify the relationship between cooperative insurance and economic growth in the Kingdom of Saudi Arabia, using quarterly time series for the period 2015–2023. Cooperative insurance was adopted as an independent variable expressed by written insurance premiums, gross fixed capital formation as a control variable, and economic growth as a dependent variable expressed by gross domestic product. To achieve the objective of the study, a set of econometric approaches and measurement tools based on numerical and graphical representation were employed, such as the unit root test for time series and the cointegration test. Using the Autoregressive Distributed Lag (ARDL) model and the EViews 12 software, the results revealed the existence of a long-run equilibrium relationship between the independent variables and the dependent variable. The study also found the existence of a long-run effect between cooperative insurance and economic growth expressed by gross domestic product in the Kingdom of Saudi Arabia.

Keywords: Cooperative insurance; insurance premiums; economic growth; ARDL methodology.

Introduction:

Economic progress is based on each country's ability to control its financial development, primarily through controlling the banking and non-banking system, including the insurance system, in order to attract savings and capital. Therefore, all countries seek to provide insurance services that generally contribute to providing risk transfer mechanisms, encouraging long-term savings, and employing them to support development projects in order to enhance economic stability, foremost among which is economic growth. Some applied studies have confirmed the functional relationship linking insurance and economic growth, which helps direct funds and insurance returns to drive growth through financing productive projects and encouraging investment and entrepreneurship.

ISSN:1581-5374 E-
ISSN:1855-363X VOL. 23, NO.
11(2025)

In view of some Sharia-related issues raised regarding conventional (commercial) insurance, a new form of insurance compatible with the principles and foundations of the Islamic economy has emerged, known as cooperative insurance, Islamic insurance, or takaful insurance. These terms carry the same meaning when referring to an alternative to commercial insurance or insurance based on usury and other elements not permitted by Islamic Sharia. A number of Arab and non-Arab countries have adopted this form of insurance, including the Kingdom of Saudi Arabia, which has established regulations and legislation, most notably the Cooperative Insurance Companies Control Law and the Implementing Regulations for Cooperative Insurance.

1. Main Research Problem:

To what extent does cooperative insurance contribute to the growth of gross domestic product in the Kingdom of Saudi Arabia for the period Q1 2015–Q4 2023?

2. Sub-questions:

Based on the main question, several sub-questions can be raised:

- Does economic growth in the long run respond in the same direction to changes in written insurance premiums in the Kingdom of Saudi Arabia for the period 2015–2023?
- Does gross fixed capital formation contribute to economic growth in the Kingdom of Saudi Arabia for the period 2015–2023 in the long run?

3. Hypotheses:

- Takaful insurance is positively related in the long run to economic growth in the Kingdom of Saudi Arabia for the period 2015–2023.
- Economic growth responds in the same direction to changes in gross fixed capital formation in the long run.

4. Objectives of the Study:

The main objective of the study is to determine the effect of takaful insurance on economic growth in the Kingdom of Saudi Arabia for the period from the first quarter of 2015 until the last quarter of 2023. From this main objective, a set of sub-objectives is derived as follows:

- Tracing the path of the takaful insurance experience in the Kingdom of Saudi Arabia;
- Identifying the contribution of takaful insurance to the formation of gross domestic product;
- Highlighting the importance of the insurance sector to the Saudi economy.

Second: Previous Studies Related to the Study Topic

1. Study by Ibrahim Muhammad Muy and Ahmad Fahmi Shiekh Hassan (2015), entitled:

"Does the Development of Islamic Insurance Contribute to Enhancing Economic Growth? A Panel Data Analysis."

This paper aims to identify the impact of the development of Islamic insurance on economic growth in 22 Southeast Asian and Gulf Cooperation Council countries for the period 2004–2012. It used a set of independent variables represented by (Islamic insurance activities, trade volume, consumer price index, government consumption) and a dependent variable represented by economic growth. To achieve the study's objective, a set of econometric approaches and tools was used, relying on the Generalized Method of Moments (GMM) technique for the dynamic panel data model.

The study concluded the following results: total insurance premiums have a positive effect on economic growth; the three variables (trade, consumer price index, and government consumption) have different effects on economic growth, as trade and the consumer price index have a positive effect on economic growth, while government consumption has a negative but insignificant effect.

ISSN:1581-5374 E-
ISSN:1855-363X VOL. 23, NO.
11(2025)

2. Study by Nor Izzati Mohd Aziz and Salina Kassim (2020), entitled:
"Contributions of the Takaful Industry to Economic Growth, Savings, and Investment in Malaysia."
This study examined the effect of takaful insurance on economic growth in Indonesia through three main indicators of economic growth: savings, investment, and income. To achieve the study's objective, a questionnaire was developed and distributed to participants, then the data were collected, classified, and analyzed using the structural equation modeling approach. The study also conducted analyses of takaful insurance products and their associated investments.
The study found a positive and statistically significant relationship between all variables (saving behavior, individual investment, and investment-linked takaful) and the demand for takaful insurance. It also found that measuring insurance demand in this study was conducted through the structure of individual awareness, as regardless of other investment products, health insurance constitutes one of the main life expenditures. Consequently, individuals were more interested in saving in this type.
Takaful products, including insurance, are capable of contributing to economic growth in Malaysia. The study also concluded that the penetration rate of Islamic insurance in Malaysia was expected to exceed 16% in 2020, attributed to increased financial awareness among individuals, given that Islamic insurance is a common savings tool among Malaysians due to its compliance with Islamic Sharia provisions.
3. Study by Maryam Zaghlami and Latifa Bahloul (2020), entitled:
"The Impact of Takaful Insurance on Malaysian Gross Domestic Product with Reference to Takaful Insurance in Algeria: Reality and Prospects."
This study aimed to analyze the reality of takaful insurance and determine its effect on gross domestic product in Malaysia for the period 2009–2017. The study concluded that takaful insurance has a positive effect on Malaysian GDP.
Third: Theoretical Literature on Takaful Insurance
1. Takaful Insurance
1.1. Definition of Takaful Insurance:
There are several definitions of takaful insurance that differ according to researchers' perspectives. Some concepts clarifying the meaning of this term are presented below.
The Accounting and Auditing Organization for Islamic Financial Institutions defines takaful insurance as:
"Providing protection in a legitimate cooperative manner free from excessive uncertainty that invalidates contracts, usury, and other prohibitions, through the provision of contributions by the insured, wholly or partially, as donations to form an insurance pool from which compensations are paid when the insured risk occurs. Any surplus remaining after compensations, expenses, and reserve deductions is distributed to policyholders (the insured)."
It can also be defined as a collective insurance contract under which each participant commits to paying a specific amount as a donation, called a contribution, to compensate those affected when the insured risk materializes. The insurer (insurance company) manages the insurance process and invests participants' funds on their behalf in return for a known fee based on an agency contract or a share of the return based on a mudaraba contract.
2.1. Characteristics of Takaful Insurance:
Takaful insurance is distinguished from other types of insurance by several characteristics, including:

ISSN:1581-5374 E-
ISSN:1855-363X VOL. 23, NO.
11(2025)

1. **Mutual guarantee:** Policyholders are both insurers and insured at the same time, while the insurance company is responsible for managing the insurance process for the benefit of participants.
2. **Democracy of ownership and management:** Membership is open to anyone wishing to join without racial, gender, or color discrimination, and members are treated with complete equality.
3. **Distribution of insurance surplus to participants:** The surplus represents the remaining amount after paying compensations and obligations, plus Sharia-compliant investment returns. It is distributed to participants according to their contribution shares. This distribution is in return for their commitment to pay contributions in the event of a deficit in settling due compensations. Companies are not obligated to distribute the entire surplus, as part of it is retained to face unforeseen insured risks.
4. **Preservation of wealth:** Preserving wealth is one of the objectives of Islamic Sharia and a means of encouraging insured individuals through their entitlement to insurance surpluses.
5. **Contract based on solidarity:** The takaful insurance contract is based on solidarity among all members to cover risks that may affect one of them, and members may be asked to pay additional contributions to face potential losses.
6. **Sharia supervision:** Its role is to monitor the company's activities to ensure compliance with Islamic Sharia provisions.

Third: Performance of the Takaful Insurance Market in the Kingdom of Saudi Arabia for the Period 2015–2023

Takaful insurance has been practiced in the Kingdom of Saudi Arabia since the establishment of the first insurance company in 1985, reaching 28 insurance and reinsurance companies and branches of foreign companies operating entirely according to the principles of the Islamic economy. The takaful insurance sector, with its diverse activities, is considered one of the vital sectors in the Saudi economy. Takaful insurance in the Kingdom is divided into nine segments, with health insurance being the largest segment, followed by general insurance, which includes several sectors such as energy and engineering, and then protection and savings insurance.

The Saudi Arabian Monetary Authority has regulated the insurance sector since 2003 under the Cooperative Insurance Companies Control Law until 2016, after which the central bank assumed management of this sector.

The takaful insurance sector in the Kingdom of Saudi Arabia witnessed growth estimated at approximately 22.7% during 2023, making it one of the fastest-growing markets in the world. Total written insurance premiums reached SAR 65.6 billion in 2023 compared to SAR 53.4 billion in 2022, distributed according to the three main activities.

ISSN:1581-5374 E-
ISSN:1855-363X VOL. 23, NO.
11(2025)

1. Written Insurance Premiums:

Written insurance premiums according to various activities are classified into three main activities: health insurance, protection and savings insurance, and general insurance, which includes several types such as accident and liability insurance, motor insurance, property, marine, energy, engineering, and aviation insurance. Table (1) shows the total written insurance premiums by type of activity. It is observed that health insurance captures the largest share as the largest insurance activity in volume during the study years 2015–2023, with continuous growth. Its growth from 2015 to 2023 reached approximately 103%, representing between 58% and 60% of total written insurance premiums across the three main activities. General insurance ranked second, with a share estimated at 37.07% in 2023, followed by protection and savings insurance, which accounted for 3.91% of total written insurance premiums in 2023.

الجدول رقم (1) اجمالي أقساط التأمين المكتتبة حسب نوع النشاط في المملكة العربية السعودية للفترة 2015-2023
الوحدة (مليون ريال)

السنوات	التأمين الصحي	تأمينات الحماية والادخار	التأمينات العامة
2015	18967	1036	16494
2016	18630	1051	17173
2017	19035.05	1140.3	16327.4
2018	19883.4	1102.7	14028.4
2019	22474.9	1134.9	14280.7
2020	22836.8	1263.6	14678.3
2021	25109.3	1707.2	15213.9
2022	31929.8	1873.6	19652.8
2023	38625.6	2565.8	24267.7

Prepared by authors in the study of the market report in the interval between 2015.2023

Table 2: Insurance Depth to Oil and Non-Oil GDP for the Period 2015–2023

Year	Health Insurance	General Insurance	Protection & Savings Insurance	Total Non-Oil Insurance
2015	1.09%	0.95%	0.06%	2.10%
2016	1.04%	0.96%	0.06%	2.06%
2017	1.04%	0.89%	0.06%	1.99%
2018	1.03%	0.73%	0.06%	1.82%
2019	1.10%	0.70%	0.06%	1.86%
2020	1.13%	0.73%	0.06%	1.92%
2021	1.14%	0.69%	0.08%	1.91%
2022	1.25%	0.77%	0.07%	2.09%

Year	Health Insurance	General Insurance	Protection & Savings Insurance	Total Non-Oil Insurance
2023	1.41%	0.88%	0.09%	2.38%

Source: Prepared by the researchers based on quarterly insurance market reports for the period 2015–2023.

2. Depth of the Takaful Insurance Sector:

Insurance depth is defined as the ratio of total written insurance premiums to gross domestic product, whether oil or non-oil. As shown in Table (2), insurance depth relative to non-oil GDP reached 2.38%, which is the highest percentage compared to the study period, during which the ratio ranged between 1.82% and 2.38%.

It is also observed that insurance depth relative to oil GDP reached its highest level in 2023 at **1.63%**, which is lower than insurance depth relative to non-oil GDP. During the study period, this ratio ranged between **1.2% and 1.63%**.

The results of insurance depth, whether relative to oil GDP or non-oil GDP, also show that **health insurance** is the largest contributor to GDP formation, followed by **general insurance**, while **protection and savings insurance** represents the lowest contribution.

3. Insurance Density:

Insurance density is defined as the average per capita expenditure on insurance (total written insurance premiums divided by the population). As shown in the figure, insurance sector density increased from **SAR 1,465.2 per capita in 2022** to **SAR 2,034.5 per capita in 2023**. It is also noted that the level of individual spending on insurance services increased at an annual rate of **1.0%** during the first five years of the study (2015–2019). Furthermore, the compound annual growth rate of average per capita insurance expenditure reached **14.2%** during the last five years (2019–2023).

Table 3: Insurance Penetration to Oil GDP for the period 2015–2023

Year	Health Insurance	General Insurance	Protection & Savings Insurance	Total
2015	0.77%	0.67%	0.04%	1.48%

Year	Health Insurance	General Insurance	Protection & Savings Insurance	Total
2016	0.78%	0.72%	0.04%	1.54%
2017	0.74%	0.64%	0.04%	1.42%
2018	0.68%	0.48%	0.04%	1.20%
2019	0.76%	0.48%	0.04%	1.28%
2020	0.87%	0.56%	0.05%	1.48%
2021	0.80%	0.49%	0.05%	1.34%
2022	0.77%	0.47%	0.05%	1.29%
2023	0.96%	0.61%	0.06%	1.63%

Source: Prepared by the researchers based on the quarterly insurance market reports for the period 2015–2023.

Fourth: Measuring the Relationship between Takaful Insurance and Gross Domestic Product for the Period 2015–2023 in Saudi Arabia

According to previous studies, Islamic finance in its three components (Islamic financing, Islamic investment funds, and takaful insurance) contributes to economic growth. Accordingly, this study relies on takaful insurance, represented by written insurance premiums, as an independent variable; gross fixed capital formation as a control variable; and gross domestic product, expressing economic growth, as a dependent variable. To clarify the data sources and the meaning of the variables, Table (4) is presented below.

Table No. (4): Study Variables

Variable	Symbol	Description	Source
Economic growth	LGDP	GDP per capita, calculated as total GDP divided by the mid-year population; data expressed at constant local currency prices.	IFSP
Cooperative (Takaful) insurance	LTAKAFULI	The Accounting and Auditing Organization for Islamic Financial Institutions defines takaful insurance as providing protection in a legitimate cooperative manner free from excessive uncertainty invalidating contracts, usury, and other prohibitions, through contributions paid as donations wholly or partially to form an insurance pool from which compensations are paid upon the occurrence of the insured risk. Any surplus remaining after compensations, expenses, and reserve deductions is distributed to policyholders (the insured). Expressed in local currency.	General Directorate of Insurance Supervision, Saudi Insurance Market
Gross fixed capital formation	LGFC	Represents capital accumulation in the economy, i.e., the addition to existing capital	WB

ISSN:1581-5374 E-
ISSN:1855-363X VOL. 23, NO.
11(2025)

Variable	Symbol	Description	Source
		stock, equivalent to total investment. Expressed in local currency.	

Source: Prepared by the researchers based on outputs from the following sources:
Data collection relied on:

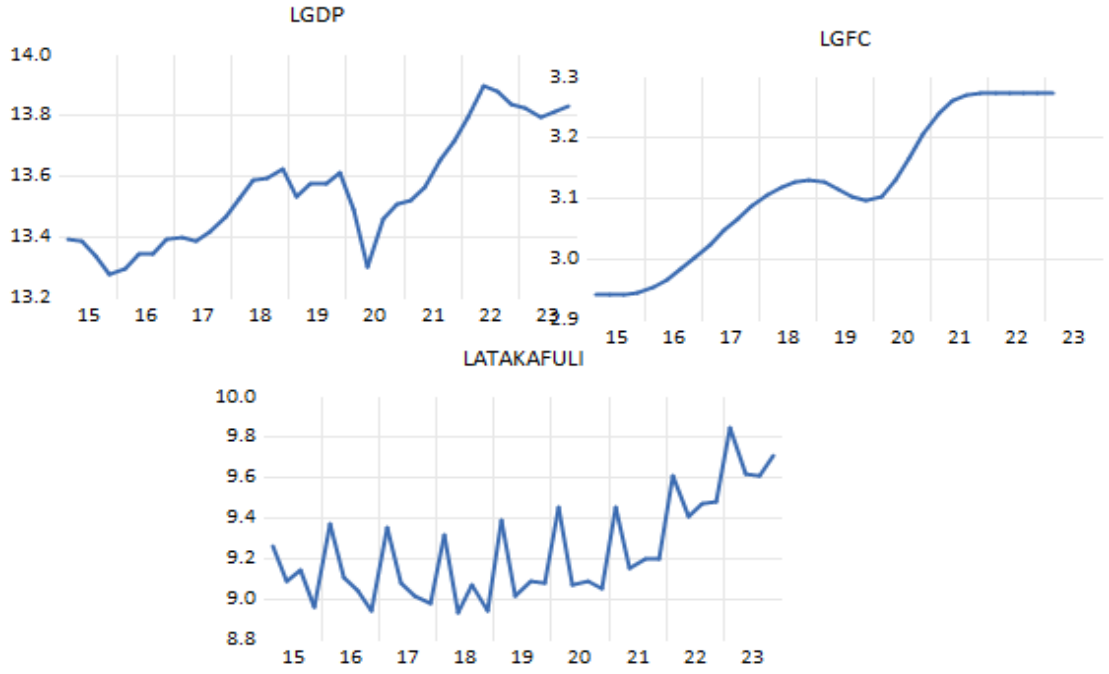
- The General Directorate of Insurance Supervision, Saudi Insurance Market for the years 2015–2023, via: «https://www.ia.gov.sa/Documents/sector-report/Insurance_Market_Report_2021_Arabic.pdf»
- World Bank database:

  «https://data.albankaldawli.org/»
  International Financial Statistics:
- «https://data.imf.org/?sk=4c514d48-b6ba-49ed-8ab9-52b0c1a0179b»

1. Methodology of Variable Selection:

In order to achieve the objective of the study, namely identifying the contribution of takaful insurance to GDP in the Kingdom of Saudi Arabia, the logarithmic transformation was applied to the variables included in the model to obtain homogeneity in the time-series data. To determine the relationship between the dependent variable and the explanatory variables, the Autoregressive Distributed Lag (ARDL) approach was used to estimate the impact of takaful insurance on GDP as an indicator of economic growth in Saudi Arabia for the period Q1 2015–Q4 2023. The following model was estimated:

$LGDP = \alpha_0 + \alpha_1 LATAKAFULI + \alpha_2 LGFC + \varepsilon_t$



2. Results of the Econometric Model Estimation:

Figure () illustrates the graphical representation of the study variables in logarithmic form: GDP (LGDP), takaful insurance represented by written insurance premiums (LATAKAFULI), and the control variable gross fixed capital formation (LGFC). This graphical representation

provides a preliminary view of the stationarity of the time series prior to conducting the unit root test.

2.1. Time Series Stationarity Test:

To confirm or reject the results obtained from graphical analysis, the second step involved testing the stationarity of the time series using the Phillips–Perron (PP) test. It is known that the Augmented Dickey–Fuller (ADF) test assumes that the time series is generated by an autoregressive (AR) process, whereas the PP test is based on a more general assumption that the time series is generated by an integrated autoregressive moving average (ARIMA) process. Therefore, some researchers rely more on the PP test than on the ADF test, arguing that it has better testing power, especially when the sample size is small or when there is inconsistency between the results of the two tests. The following table presents the PP test results for the time series under study.

Table 5: Stationarity of Time Series

Variables	ADF		PP	
	Intercept			
	I(0)	I(1)	I(0)	I(1)
LATAKAFULI	0.9984	0.4729	0.0328	.....
LGDP	0.8485	0.0003	0.8485	0.0004
LGFC	0.8943	0.0244	0.8172	0.2092
Variables	Intercept and trend			
	I(0)	I(1)	I(0)	I(1)
LATAKAFULI	0.9909	0.0365	0.0008	.....
LGDP	0.4580	0.0021	0.3814	0.0023
LGFC	0.0158	0.0878	0.5182	0.5232
Variables	Non			
	I(0)	I(1)	I(0)	I(1)
LATAKAFULI	0.9212	0.4433	0.8755	0.0000
LGDP	0.9320	0.0000	0.9229	0.0000
LGFC	0.9985	0.3987	0.9967	0.0809

Prepared by researchers

It is evident from Table (5) that all variables were non-stationary at levels according to the Augmented Dickey–Fuller test and became stationary after taking first differences, except for the takaful insurance variable (LATAKAFULI). As for the Phillips–Perron test, it clearly shows that the takaful insurance variable is stationary at level under the presence of a constant and a constant with a trend, while the remaining variables were non-stationary at level and became stationary after taking first differences, whether under a constant and trend or without them. Thus, the study variables are integrated at different orders between level and first difference, which justifies the choice of the ARDL model as the appropriate method in this case.

2.2. Cointegration Test:

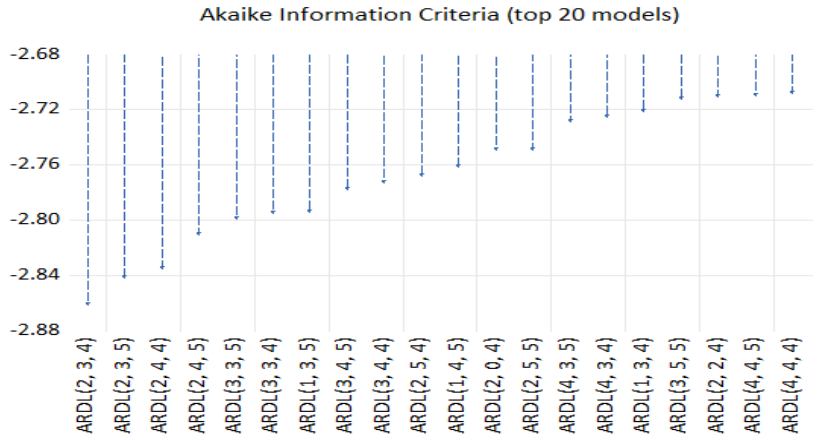
Table (6) presents the results of the cointegration test using the Bounds Testing approach. From the table, it is noted that the F-statistic value (F-statistic = 4.0767) exceeds the upper critical bound value of 3.87 at the 5% significance level. This leads to rejecting the null hypothesis of no cointegration among the study variables, indicating the existence of a long-run equilibrium relationship running jointly from the explanatory variables toward the dependent variable (GDP) as an indicator of economic growth.

It is also evident that the error correction term coefficient is negative and statistically significant, with a value not exceeding one, confirming the existence of cointegration among

ISSN:1581-5374 E-
ISSN:1855-363X VOL. 23, NO.
11(2025)

the study variables. Figure (4) illustrates the optimal lag selection according to the Akaike criterion (2,3,4).

Figure (4): Automatic Selection of the Optimal Model



ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LGDP(-1))	0.389224	0.175281	2.220566	0.0403
D(LATAKAFULI)	0.014703	0.044311	0.331820	0.7441
D(LATAKAFULI(-1))	-0.214786	0.057391	-3.742485	0.0016
D(LATAKAFULI(-2))	-0.116330	0.044572	-2.609934	0.0183
D(LGFC)	-19.31988	4.969062	-3.888034	0.0012
D(LGFC(-1))	41.52840	12.19557	3.405205	0.0034
D(LGFC(-2))	-39.99320	12.20145	-3.277741	0.0044
D(LGFC(-3))	15.13027	4.689441	3.226454	0.0050
CointEq(-1)*	-0.744145	0.169895	-4.380024	0.0004

R-squared	0.684461	Mean dependent var	0.018956
Adjusted R-squared	0.558245	S.D. dependent var	0.067548
S.E. of regression	0.044895	Akaike info criterion	-3.119833
Sum squared resid	0.040312	Schwarz criterion	-2.695500
Log likelihood	54.23758	Hannan-Quinn criter.	-2.986937
Durbin-Watson stat	2.400674		

Source: Prepared by the researchers based on EViews 12 software.

3.2. Results of Estimating the Short-Run and Long-Run Relationship between Takaful Insurance and Economic Growth:

After confirming the existence of a long-run equilibrium relationship between the independent variables and the dependent variable, the next step was to examine the short-run impact of takaful insurance on economic growth in Saudi Arabia using the error correction model within the ARDL framework. Table (7) presents the obtained results.

The error correction term measures the speed at which short-run disequilibrium adjusts toward long-run equilibrium. If the coefficient of the error correction term is negative and statistically significant, this indicates the existence of a long-run relationship among the variables. Table (7) shows that the error correction coefficient CointEq(-1)* is negative (-0.744145) and significant at a level below 1%, indicating that short-run errors can be corrected within a time period estimated at (1 / 0.744145 = 1.34), i.e., approximately one year and four months, toward equilibrium. This means that if a shock occurs to the takaful insurance or gross fixed capital formation variables by one unit, its effect on GDP, representing economic growth, will persist for about 12 months before returning to its equilibrium and normal level.

ISSN:1581-5374 E-
ISSN:1855-363X VOL. 23, NO.
11(2025)

Table 08

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LATAKAFULI	0.390052	0.172140	2.265893	0.0368
LGFC	0.805245	0.213347	3.774340	0.0015
C	7.494835	1.159923	6.461493	0.0000

EC = LGDP - (0.3901*LATAKAFULI + 0.8052*LGFC + 7.4948)

It is also evident from the long-run relationship in the ARDL model presented in Table (8) that takaful insurance (LATAKAFULI) is positively and statistically significantly related to the dependent variable representing economic growth. The coefficient is estimated at 0.695946 at the 1% significance level. Accordingly, any 1% increase in written insurance premiums leads to a 0.39% increase in GDP in the same direction.

This positive relationship between takaful insurance and economic growth in Saudi Arabia can be explained by the fact that increased takaful insurance encourages saving and investment, as it is based on principles of solidarity, participation, and cooperation, which motivate individuals to increase savings in well-studied projects. This contributes to the growth of small and medium-sized enterprises and startups. The positive relationship also reflects that takaful insurance adds a type of available financial services that helps attract foreign investment and makes the market more sustainable. Moreover, takaful insurance provides financial stability, which enhances economic growth by offering protection against losses, thereby ensuring greater stability for the national economy. This gives companies and individuals more freedom to innovate and grow instead of focusing on potential risks, ultimately promoting economic growth.

4. Criteria for Evaluating the Quality of the Estimated ARDL Model:

Table 09

الاختبار	القيمة	مستوى المعنوية
Test Jarque-Bera	**1.729840**	**0.421085**
LM Test	**1.612600**	**0.2321**
Hrteroskedasticity Test Breush	**1.372709**	**0.2520**
Ramsey Reset Test	**1.658233**	**0.2162**

Prepared by authors via Eviews12

Table (9) shows the following results:

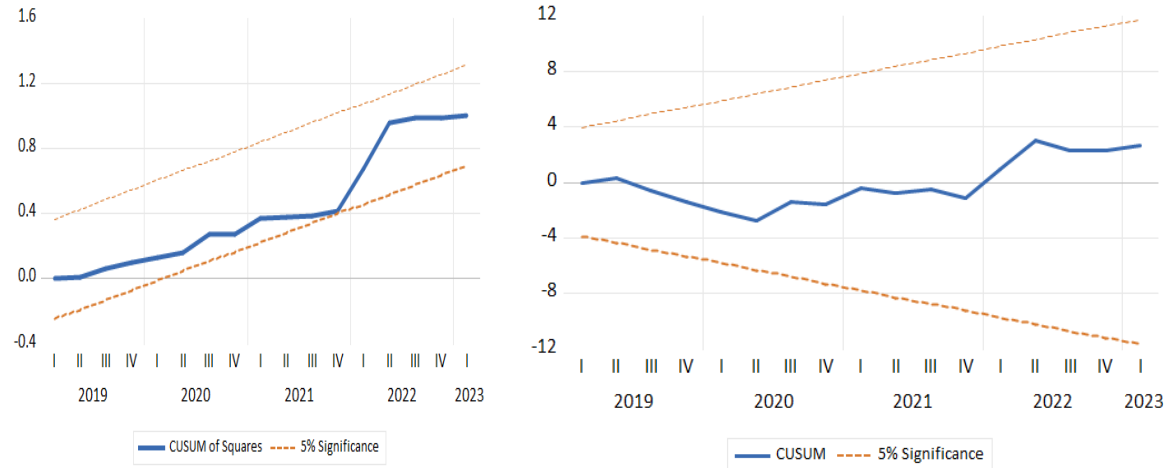
- **Serial correlation test of residuals:** The model does not suffer from serial correlation problems, as the Fisher probability value is 0.2321, which is greater than the 5% significance level, indicating the absence of serial correlation in the residuals.
- **Heteroskedasticity test:** The results indicate no heteroskedasticity problem, as the probability value is 0.2520, which exceeds the 5% significance level. This leads to accepting the null hypothesis of homoskedasticity of the error term in the estimated model.
- **Normality test (Jarque–Bera):** This test determines whether the residuals are normally distributed. The results show that the Jarque–Bera probability value is 0.421085, which is not significant at the 5%

ISSN:1581-5374 E-
ISSN:1855-363X VOL. 23, NO.
11(2025)

level. Accordingly, the null hypothesis that the residuals are normally distributed is accepted.

Figure (5) shows that the results of the CUSUM and CUSUM of Squares tests indicate that the cumulative sum of recursive residuals (CUSUM) lies within the critical bounds (upper and lower) at the 5% significance level. The same applies to the cumulative sum of squares of recursive residuals (CUSUM of Squares), which also falls within the critical bounds at the 5% significance level. This confirms that the model is structurally stable, its parameters are stable under repeated sampling, and there is consistency between short-run and long-run error correction results.

Figure (5): Structural Stability Test



Source: Prepared by the two researchers based on the Eviews12 software.

Conclusion:

Through this study, we sought to determine the impact of Takaful insurance on economic growth in the Kingdom of Saudi Arabia for the period extending from the first quarter of 2015 to the fourth quarter of 2023. The following results were reached:

- **First hypothesis:** Written insurance premiums have a positive effect on economic growth in the long run. This hypothesis is valid, as the results show that a 1% increase in written insurance premiums leads to an increase in economic growth by 0.39% in the long run.
- **Second hypothesis:** Takaful insurance does not have a positive effect on economic growth in the short run. This hypothesis is invalid, as shown by the results.
- **Third hypothesis:** Gross fixed capital formation has a positive effect on economic growth in the long run. This hypothesis is valid, as the results show that a 1% increase in gross fixed capital formation leads to an increase in economic growth by 0.8% in the long run.

References:

1. Atallah Hadda, *The Role of Takaful Insurance Institutions in Achieving Sustainable Development: A Comparative Study between Malaysia, Sudan, and the United Arab Emirates*, Master's Thesis, Ferhat Abbas University Setif 1, Faculty of Economic, Commercial and Management Sciences, Algeria, 2014.
2. Abdullah bin Mohammed Al-Ruzain, *Cooperative Insurance and Its Developmental Role in the Kingdom of Saudi Arabia*, Bayt Al-Mashoura Journal, Issue 3, Qatar, 2015.
3. Study by Maryam Zaghlami and Latifa Bahloul, *The Impact of Takaful Insurance on the Malaysian Gross Domestic Product with Reference to Takaful Insurance in Algeria:*

Reality and Prospects, Ro'aa Iqtisadiya Journal, University of Martyr Hamma Lakhdar El Oued, Issue 1, Volume 10, 2020.

4. Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), Sharia Standard No. 26.
5. Souad Maayzia, *The Impact of the Islamic Financial Industry on Economic Growth: A Study of a Sample of Selected Countries*, Doctoral Dissertation, Faculty of Economic, Commercial and Management Sciences, Mohamed Seddik Ben Yahia University, Jijel, Algeria, 2024.
6. Abdel Karim Ahmed Kandouz, *Takaful Insurance*, Arab Monetary Fund, Knowledge Booklets Series, Issue 52, Abu Dhabi, United Arab Emirates, 2023.
7. Touati Ben Ali Fatima, *Mechanisms for the Distribution and Investment of Surplus Insurance Funds in Islamic Takaful Insurance Companies*, Journal of Economics and Finance, University of Chlef, Algeria, Issue 02, 2018.
8. Nemat Mohammed Mokhtar, *Commercial Insurance and Islamic Insurance between Theory and Practice*, Modern University Office Publishing House, Alexandria, 2005.
9. Saudi Arabian Monetary Authority, *Saudi Insurance Market Report*, General Department of Insurance Supervision, 2015–2018.
10. General Department of Insurance Supervision, *Saudi Insurance Market for the Years 2015–2023*, at the following link:
11. «https://www.ia.gov.sa/Documents/sector-report/Insurance_Market_Report_2021_Arabic.pdf»
12. World Bank Database at the following link: «https://data.albankaldawli.org/»
13. International Financial Statistics at the following link: «https://data.imf.org/?sk=4c514d48-b6ba-49ed-8ab9-52b0c1a0179b» Statistical Report.
14. Phillips, P. C. B., & Perron, P. (1988). *Testing for a unit root in time series regression*. Biometrika, Vol. 75, No. 2, pp. 335–346.

Appendices:

Breusch-Godfrey Serial Correlation LM Test: Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	1.612600	Prob. F(2,15)	0.2321
Obs*R-squared	5.131949	Prob. Chi-Square(2)	0.0768

Heteroskedasticity Test: ARCH			
F-statistic	1.372709	Prob. F(1,26)	0.2520
Obs*R-squared	1.404167	Prob. Chi-Square(1)	0.2360

ISSN:1581-5374 E-
ISSN:1855-363X VOL. 23, NO.
11(2025)

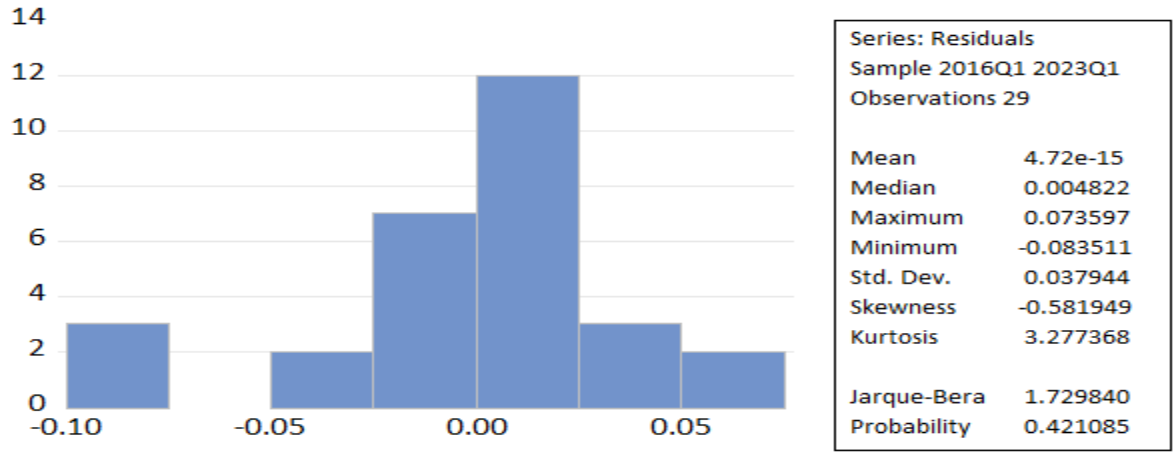


Table 01

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LGDP(-1)	0.645079	0.181454	3.555055	0.0024
LGDP(-2)	-0.389224	0.193717	-2.009238	0.0607
LATAKAFULI	0.014703	0.052815	0.278389	0.7841
LATAKAFULI(-1)	0.060766	0.058432	1.039948	0.3129
LATAKAFULI(-2)	0.098456	0.057730	1.705450	0.1063
LATAKAFULI(-3)	0.116330	0.058329	1.994390	0.0624
LGFC	-19.31988	5.846447	-3.304551	0.0042
LGFC(-1)	61.44750	19.44382	3.160259	0.0057
LGFC(-2)	-81.52160	27.41959	-2.973115	0.0085
LGFC(-3)	55.12347	19.24427	2.864409	0.0107
LGFC(-4)	-15.13027	5.645218	-2.680191	0.0158
C	5.577241	1.819939	3.064521	0.0070

R-squared	0.951446	Mean dependent var	13.55584
Adjusted R-squared	0.920029	S.D. dependent var	0.172198
S.E. of regression	0.048696	Akaike info criterion	-2.912937
Sum squared resid	0.040312	Schwarz criterion	-2.347159
Log likelihood	54.23758	Hannan-Quinn criter.	-2.735742
F-statistic	30.28431	Durbin-Watson stat	2.400674
Prob(F-statistic)	0.000000		

Table 02

Null Hypothesis: D(LATAKAFULI) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 3 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.711555	0.0365
Test critical values:	1% level	-4.284580	
	5% level	-3.562882	
	10% level	-3.215267	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LATAKAFULI has a unit root
Exogenous: Constant
Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.138452	0.0328
Test critical values:	1% level	-3.632900	
	5% level	-2.948404	
	10% level	-2.612874	

*MacKinnon (1996) one-sided p-values.

ISSN:1581-5374 E-
ISSN:1855-363X VOL. 23, NO.
11(2025)

Null Hypothesis: LATAKAFULI has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.226238	0.0008
Test critical values:	1% level	-4.243644	
	5% level	-3.544284	
	10% level	-3.204699	

Null Hypothesis: D(LGDP) has a unit root
Exogenous: Constant
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.891909	0.0004
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LGDP) has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.843943	0.0023
Test critical values:	1% level	-4.252879	
	5% level	-3.548490	
	10% level	-3.207094	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LGDP) has a unit root
Exogenous: None
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.831600	0.0000
Test critical values:	1% level	-2.634731	
	5% level	-1.951000	
	10% level	-1.610907	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LGFC) has a unit root
Exogenous: None
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-1.719039	0.0809
Test critical values:	1% level	-2.641672	
	5% level	-1.952066	
	10% level	-1.610400	

Null Hypothesis: D(LGFC) has a unit root
Exogenous: Constant
Lag Length: 8 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.344051	0.0244
Test critical values:	1% level	-3.752946	
	5% level	-2.998064	
	10% level	-2.638752	