The Role of Takaful Insurance in Enhancing Financial Inclusion: Application on the Saudi Insurance Market For the Period (2012-2022)

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Abstract:

This study aims to determine the role of Takaful insurance in enhancing financial inclusion, by studying the case of the Saudi Takaful insurance market during the period (2012-2022), where it was based on simple linear regression, through two models. The first model links the investments of companies and the gross written premiums, while the second model links the technical reserves with the gross written premiums.

The study concluded that there is an impact of each of the investments and technical reserves of the insurance companies on the gross written insurance premiums in the Saudi's insurance market, which contributes to enhancing financial inclusion in the Kingdom of Saudi Arabia.

Keywords: *Takaful insurance; financial inclusion; Saudi's insurance market.*

Jel Classification Codes : *G22; G20;C10*

Résumé:

Cette étude vise à déterminer le rôle de l'assurance Takaful dans l'amélioration de l'inclusion financière, en l'appliquant au marché saoudien de l'assurance Takaful au cours de la période (2012-2022), où la régression linéaire simple a été utilisée, à travers deux modèles ; Le premier modèle relie les investissements des entreprises au total des primes souscrites, tandis que le second modèle relie les précautions techniques au total des primes souscrites.

L'étude a conclu qu'il y a un impact de chacun des investissements et des réserves techniques des compagnies d'assurance sur le total des primes souscrites sur le marché saoudien de l'assurance, ce qui contribue à renforcer l'inclusion financière au Royaume d'Arabie Saoudie.

Mots clés: *Assurance Takaful ;L 'inclusion Financière ; Le marché saoudien de l'assurance.*

Jel Classification Codes : *G22; G20;C10*

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I. Introduction

Financial inclusion is aimed at facilitating the delivery of financial services to the different segments of society. Therefore, many countries pay great attention to this aspect due to its effective contribution to economic and social development, through developing specific strategies that achieve its objectives, including the creation of financial products and the improvement of the quality of other ones, in order to meet the needs of different segments of society.

In parallel, Takaful insurance is one of the most important financial products to the economy due to the role it plays in achieving financial stability, as well as reassuring members of society and safeguarding their businesses from various potential risks.

This study will try to highlight the role of Takaful insurance in promoting financial inclusion based on the data from the Saudi Takaful insurance market provided by its reports for the period 2012–2022.

I.1.Research Problem:

We will try to answer the following problem: "Does Takaful insurance have a role in promoting financial inclusion in Saudi Arabia?"

the study hypotheses can be formulated as follows:

-Investments of insurance companies operating in the Saudi insurance market have a statistically significant effect on financial inclusion by contributing to the increase of the gross written premiums.

-Technical reserves of insurance companies operating in the Saudi insurance market have a statistically significant effect on financial inclusion by contributing to the increase of gross written premiums.

I.2.Research Significance:

The research significance lies in dealing with one of the most important research topics which is financial inclusion as an effective contributor to economic development. By addressing the role of Takaful insurance in promoting financial inclusion in Saudi Arabia since insurance companies target a wide range of members of the community and offer various financial services that meet their needs, the significance of this study consists in trying to figure out the extent to which there is a relationship between Takaful insurance and financial inclusion. This is in order to benefit from Saudi Arabia's experience in promoting financial inclusion in the Algerian environment in the event that a relationship between Takaful insurance and financial inclusion exists.

I.3.Methodology and tools:

In this study, we relied on the analytical descriptive approach to present and analyze the data related to the included concepts. Then, we used simple linear regression model in modelling the relationship between the variables of the

Takaful insurance system and financial inclusion using the statistical analysis program SPSS 25.

I.4.Literature Review:

In the article titled Financial Inclusion Through Insurance by M.Rifaya, P.kaleeswaraw, & R.Mohammer (2016) the authors focused on the role of the insurance sector in promoting financial inclusion by relying on secondary data on the relationship between financial inclusion and the insurance sector in India. The study emphasized the importance of insurance services in promoting the financial inclusion of poor and marginalized groups who are exposed to multiple risks in their daily lives. However, despite the efforts made, there is still a great need for innovative insurance products to ensure covering a larger portion of society which still needs these services. The study also recommended that insurance companies need to identify the real needs of marginalized groups in rural areas and create products that meet them (M.Rifaya, P.kaleeswaraw, & R.Mohammer, 2016).

In the study titled *Advancing financial inclusion through access to insurance: the role of postal networks* by Suedekum (2016), the researcher studied the experiences of postal insurance in six developing countries (Kazakhstan, Burkina Faso, Kenya, Morocco, Zambia, India). The study found three models of postal insurance that differ depending on the type of partnership between the Post and insurance companies when providing insurance services. The first model is called Agency Partnership where the Post collects insurance premiums, pays claims and issues insurance policies on behalf of a specific insurance company. The second model is called the Full-fledged Partnership where the Post provides insurance services in partnership with insurance companies and assumes greater responsibility at all stages of the process, including the development of insurance products. Finally, the third model is called Own Insurance where the Post assumes the risks and provides its own insurance services. The study concluded that despite the comparative advantage provided by Posts for marginalized, poor and less educated groups, the level of providing insurance services via the Post remains low. (Suedekum, 2016).

The study by Derraji and Matraf (2021) entitled The role of insurance companies in *promoting financial inclusion in Algeria - Case study of the oil insurance company CASH* which is an article published in the Journal of Research in Financial Sciences and Accounting, University of Msila, Algeria. The study was aimed at measuring the contribution of insurance companies in the promotion of financial inclusion in Algeria by addressing the situation of the oil insurance company CASH from 2012 to 2019. It found that the net insurance margin which is a dependent variable is marginally affected by members of society eligible for work and the balance of technical reserves which are independent variables. The study concluded that the contribution of the insurance sector in promoting financial inclusion in Algeria was modest. (Derraji & Matraf, 2021)

Study of Dahmani and Belatrach (2023): *The Reality of Financial Inclusion in Saudi Arabia and Prospects for its Development*, an article published in the Journal of Economic and Management Research, University Center Maghnia. The study aimed to analyze the reality of financial inclusion in developing countries, Arab countries in particular, by highlighting the importance of expanding the access of the population to banking and financial services, working to understand the needs of the consumer and providing financial services that meet those needs, as well as assessing the level of development and inclusion in Saudi Arabia. The study found that financial inclusion rates in the Arab region remain low compared to the rest of the world. As for the Saudi financial system, it is generally well developed despite the limited use of equity and bonds financing. At the meantime, the Kingdom of Saudi Arabia has adopted a program aimed at developing a diversified and effective financial sector that stimulates savings, finance and investment within the framework of the implementation plan 2020 and the Saudi Vision 2030. (Dehmani & Bellatrech, 2023).

II.Conceptual Framework of Takaful Insurance and Financial Inclusion:

There are a number of definitions related to Takaful insurance and financial inclusion. In this study, we will try to outline the most relevant among them briefly to define them and setting out the most important principles on which each of them is based.

II.1 Definition of Takaful insurance:

In general, Takaful is a system based on the concepts of brotherhood, solidarity and mutual assistance. So, Takaful insurance is based on these principles and makes the solidarity mechanism an alternative to risk management techniques in conventional insurance that include riba (interest), al-gharar (uncertainty), and al-maisir (gambling) which are outlawed elements in Islamic Sharia. As an alternative to these elements, Takaful insurance depends on the mechanisms of dividing risk among a group of policyholders on the basis of mutual assistance and cooperation. Although these principles existed in the first Muslim communities, their transformation to an insurance mechanism began in the 1970s. (Ansari, 2022, p. 02).

Takaful insurance can also be defined as an insurance product based on the principles of Islamic sharia that encourages cooperation among members of society in the face of the common risks and threats. It is based on the theory of trusteeship, brotherhood and cooperation. Its initial idea is for members of society to cooperate through voluntary contributions of certain amounts of money. Contributions should be used to compensate contributing members who suffer losses. It may also be called Islamic insurance, Halal insurance, ethical insurance, co-operative insurance, and it differs from traditional contractual insurance which is considered prohibited in Islamic law due to its reliance on gharar (uncertainty), riba (interest), and maysir (gambling). (Sharifuddin, Kasmoen, Mat Taha, Mir Ahmad Talaat, & Mir Ahmad Talaat, 2016, pp. 33-34)

In conclusion, the takaful insurance system does not consider profit to be its primary objective, but aims to distribute the risk among participants who contribute to the compensation of those affected via their contributions in accordance with the principle of cooperation against harm, and in accordance with the principles of the Islamic sharia.

II.2 Comparison between Conventional Insurance and Takaful Insurance:

The contract used for Takaful insurance is quite different from the contract used for contractual insurance (conventional), since the Takaful contract is based on shared risks, whereas the conventional contract is based on the exchange of risks. The policyholders in Takaful insurance help each other by providing mutual protection to those who suffer harm in a manner that promotes the spirit of brotherhood and solidarity among members of society. These principles are completely absent in conventional insurance where the surplus is a profit for insurance companies without the participation of the policyholders. In Takaful insurance, the surplus is shared among the participants, and the Takaful insurance companies are obliged to invest their money in Sharia compliant investments, while there are no restrictions on the investments of conventional insurance companies. (Hassan & Salman, 2017, p. 02).

II.3 Definition of Financial Inclusion:

although definitions of financial inclusion differ, generally it is he extent to which formal financial system services reach and are available to all segments of society, including people with low income and vulnerable and disadvantaged groups. According to this definition, financial inclusion is divided into two parts: the first part is specific to individuals, and the second part is specific to companies. (Shailesh & Ragabiruntha, 2018, pp. 01-02).

It is also defined as the process of bringing the vulnerable and poor groups of society into the formal financial system, thereby guaranteeing them timely and affordable access to credit and other financial services. (Abel, Mutandwa, & Le Roux, 2018, p. 01).

The World Bank defines financial inclusion as “Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way”. (The world Bank, 2022)

According to the Bank of Algeria, financial inclusion is defined as “the availability and use of all financial services by various segments of society whether institutions or individuals, especially the marginalized class, through official financial channels (bank accounts, checking accounts, savings accounts, payment and transfer services, finance and lending services, insurance services...). This should be at competitive and reasonable prices while ensuring that the rights of users of these services are protected. The level of financial inclusion is measured by the availability of financial services (supply), their use (demand), as well as their quality”. (Bank of Algeria, 2022, p. 01)

From the definitions above, we conclude a comprehensive definition of financial inclusion as "the ability of all segments of society (rich, poor, individuals, institutions...) to take advantage of the financial services they wish to use easily, at the lowest possible cost, and whether they have budget deficit or budget surplus. It is the opposite of financial exclusion. It includes the aspect of supply which is the availability of appropriate financial services to the different segments of society, whether individuals or institutions, the demand aspect which is enabling all members of society to use available financial services, and the aspect of ensuring the quality of the provided financial services and that they are provided through official channels that ensure the protection of the rights of all parties.

***II.4. Dimensions of financial inclusion**:*

the dimensions of financial inclusion according to the approach of the World Bank include five fundamental dimensions, each dimension measurable and judged by a set of indicators (Demirgüç-Kunt & Klapper, 2012, p. 08):

II.4.1. Using financial accounts and payments: the indicators of this dimension focus on the rate of ownership of accounts in official financial institutions (banks, post offices, microfinance institutions), the mechanisms of their use (frequency of use, mode of access), their purpose (commercial, personal), the biggest barriers to their use, and the existing alternatives to them.

As for payments, indicators of this dimension focus on the extent to which official accounts are used to receive payments from the government or to receive or pay money through an official account to and from family members living elsewhere, as well as the extent to which the smartphone is used to receive or pay payments.

II.4.2 Savings behavior: indicators of this dimension focus on the extent to which official accounts in financial institutions are used for savings, or other informal saving methods (informal savings institutions, members outside the family, family members).

II.4.3 Borrowing: The indicators of this dimension focus on sources of borrowing (formal and informal) and its purposes (emergency, health...) and the extent to which credit cards are used in the borrowing process.

II.4.5 Insurance: it is the focus of this study since its theme is the role of Takaful insurance in promoting financial inclusion. This dimension includes several indicators such as:

-The proportion of adults who have been using insurance services in the past 12 months to insure their life and their property.

- Proportion of adults who work in the agricultural, forestry and fishing sector and various activities that gets affected by weather fluctuations and natural disasters, and insure their activities **.**

III. A Case Study of the Saudi Insurance Market for the Period (2012-2022):

This practical part will be dedicated to studying the impact of the independent variables (investments of insurance companies operating in the Saudi insurance market, and the technical reserves of insurance companies operating in the Saudi insurance market) on the dependent variable (gross written premiums of insurance companies operating in the Saudi insurance market) which reflects the growth of the insurance sector and, consequently, its contribution to the GDP, since the rise in this index reflects the contribution of insurance companies in enhancing financial inclusion.

III.1 Variables of the Study:

The variables of this study include the following:

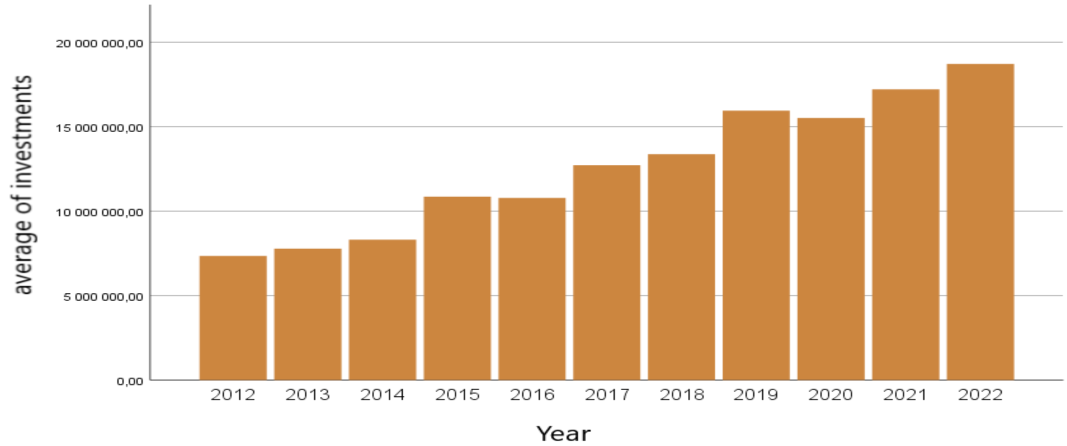
III.1.1 Independent Variables:

the independent variables of this study are the investments of insurance companies operating in the Saudi insurance market and the technical reserves of insurance companies.

III.1.1.1.Investments of Insurance Companies in the Saudi Insurance Market:

insurance is a saving activity that works to attract savings and capital then employ them in investments in order to serve the economic development of the state. Insurance companies attach importance to the investment process because it plays a prominent role in strengthening the financial position of the company which reflects on its ability to meet its obligations towards policyholders. All of this benefits the company's reputation and thus attract a larger number of subscribers.

Figure 01: volume of investments of insurance companies in the Saudi insurance market for the 2012-2022 period



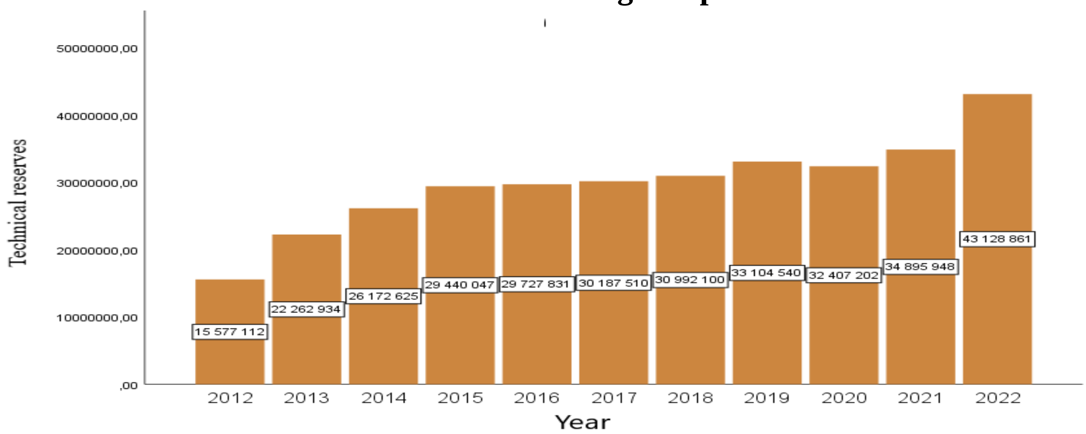
Source: based on reports of the Saudi insurance market issued by the Saudi Central Bank

The above figure shows a substantial rise in the volume of investments of insurance companies operating in the Saudi insurance market for the period. From SAR 7,349,886 in 2012, it rose in 2022 to SAR 18,713,079. This translates to more revenue for insurance companies which strengthens their financial position and allow them the possibility of reducing the various costs related to the insurance premium. On the other hand, the rise of revenue from investments improves the company's reputation among existing and potential clients, which results in attracting new ones.

III.1.1.2. Technical Reserves of Insurance Companies:

they are special reserves that appear in the budgets of the insurance company and are required by law in order to fulfil its obligations towards the policyholders or potential losses. This enhances the financial solvency of the insurance company, thereby improving its reputation, and contributing to the collection of high amounts of insurance premiums.

Figure 02: Technical reserves of Takaful insurance companies operating in the Saudi insurance market during the period 2012-2022



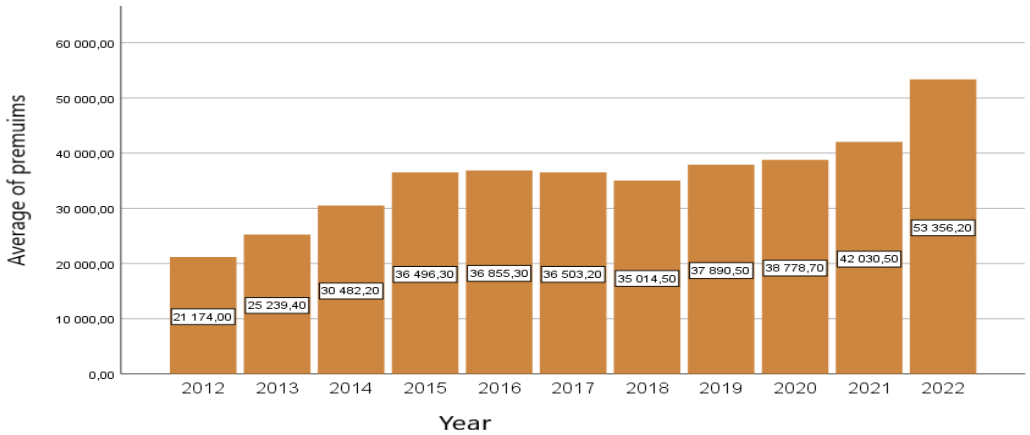
Source: based on reports of the Saudi insurance market issued by the Saudi Central Bank

The share of technical reserves of insurance companies operating in the Saudi insurance market increased during the period 2012-2022, reaching SAR 43,128,861 thousand in 2022, compared to SAR 15,577,112 thousand in 2012. This shows that the insurance companies raised the share of technical reserves in an effort to meet their obligations towards the policyholders to earn their trust and attract more clients to their insurance.

III.1.2. The Dependent Variable:

in this study, we will rely on gross written premiums as an indicator of the contribution of the insurance sector in enhancing financial inclusion during the period 2012-2022. Gross written premiums represent the revenue or premiums due under the insurance policies issued by the company, thus reflecting the size of the market share of insurance companies.

Figure 03: Gross written insurance premiums of insurance companies operating in the Saudi insurance market during the 2012-2022 period



Source: based on reports of the Saudi insurance market issued by the Saudi Central Bank

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Gross written insurance premiums increased 26.9% in 2022 to SAR 533,562 million compared to SAR 420,305 million in 2021. Generally speaking, gross written premiums increased significantly. From SAR 21,174 million in 2012, they increased to SAR 533,562 million in 2022, reflecting the increased turnout for insurance.

III.2 Inferential Analysis and Testing the Hypotheses:

In order to test the hypotheses of this study, the simple linear regression model will be applied to examine the extent to which there is a statistically significant causation relationship between the investments of Saudi Takaful insurance companies as the independent variable and the gross insurance written premiums in the Saudi insurance market as the dependent variable in the first model. In the second model, it will be applied to examine the extent to which a statistically significant causation relationship exists between the technical reserves of insurance companies as the independent variable, and the gross insurance written premiums in the Saudi insurance market as the dependent variable.

The independent variable in each model reflects the scope of Takaful insurance in the Saudi insurance market, while the dependent variable reflects financial inclusion through the increase in Saudi society's access to insurance services, as this is considered an indicator of financial inclusion.

III.2.1.The relationship between the investments of Takaful insurance companies and the gross insurance written premiums:

to study this relationship the simple linear regression model will be applied using statistical analysis program SPSS 25, knowing that this model will be formulated according to the following equation:

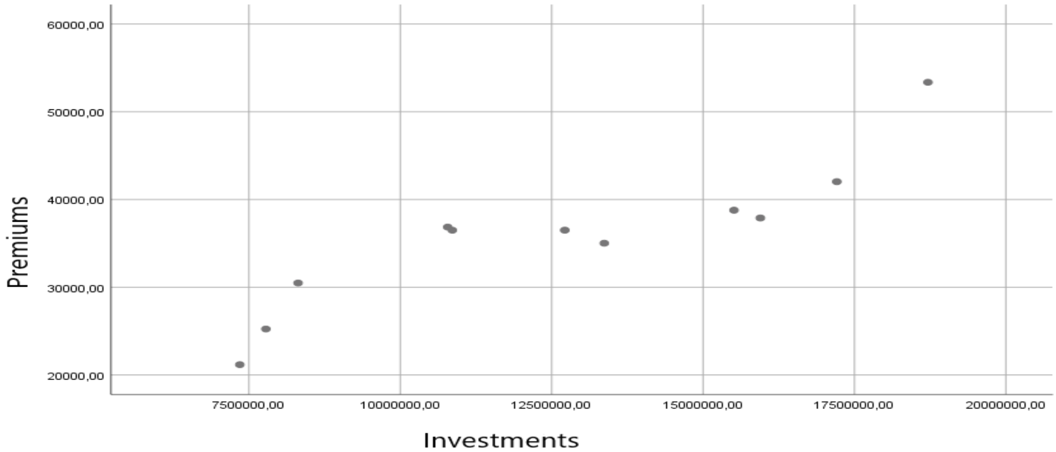
$$\mathbf{Y= B_0+B_1X+U_t}$$

Y is the value of the dependent variable and stands for gross insurance written premiums in the Saudi market; B_0 is a constant and stands for the value of gross insurance premiums in case of absence of investments; X is the independent variable and stands for investments of Saudi Takaful insurance companies; B_1 is the regression coefficient and it stands for the amount of change in gross Takaful insurance premiums in case of change for one unit in investments; U_t is the random error and its existence means that there are other independent variables affecting the gross written premiums but they were not included in the model.

III.2.1.1 Examining the linearity of the relationship:

before conducting the simple linear regression test, we confirmed the linearity of the relationship through a cloud representation and it was as follows:

Figure 04: Distribution of the point cloud of the relationship between investments of Saudi Takaful insurance and gross insurance written premiums



Source: based on the output from SPSS 25

From this figure we can see that the point cloud is distributed in a linear way which means that the requirement of the linearity of the relationship is met, and the simple linear regression model can be applied

III.2.1.2 Conducting the test and examining the validity of the first model:

after conducting the simple linear regression test using SPSS 25, we study the explanatory power of the model, and its overall and partial significance in addition to the normal distribution of residuals (random errors)

A.Explanatory power of the first model:

Table (01): Explanatory power of the first model

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,897a	,805	,784	3936,15201

Source: based on the output from SPSS 25

Since the model is simple, it is preferably sufficient to use the coefficient R Square to determine the explanatory power. The table shows that the value of the coefficient of determination is R Square = 0.805, which means that 80.5% of changes in gross written premiums are explained by changes in total investments, and 19.5% are explained by other variables that are not included in the model. This indicates that the explanatory power of the model is high.

B. Examining the overall significance of the model:

this is done through the results of the Anova table, knowing that this test is based on the following two hypotheses: H0-: there is no overall statistical significance of the model, H1: there is an overall statistical significance of the model. The results of the overall test of the first model can be explained in the following:

Table (02): results of the overall test of the first model

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	577277597,009	1	577277597,009	37,260	,000[b]
	Residual	139439633,760	9	15493292,640		
	Total	716717230,769	10			

Source: based on the output from SPSS 25

From the ANOVA table, we see that the value of significance found Sig =0.000 is less that the set value which is (α =0.05). So, the null hypothesis is rejected and the alternative hypothesis is accepted, which means that the model has an overall statistical significance.

C. Partial significance of the first model:

for the partial test of the model we rely on the results of the following table:

Table (03): results of the partial test of the first model

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Bêta		
1	(Constant)	11446,334	4162,802		2,750	,022
	investments	,002	,000	,897	6,104	,000
a. . Dependent Variable: premiums						

Source: based on the output from SPSS 25

- Testing the significance of the constant B_0:

for this test, we need to examine the following statistical hypotheses: H0, the constant has no statistical significance, and the alternative hypothesis: H1, the constant has statistical significance. As we notice from the table, Sig_{B0} = 0.022 which is less than (α =0.05), and therefore we reject the null hypothesis and accept alternative one. This means that the constant in the first model does have statistical significance.

- Testing the significance of the coefficient B_1:

for this test, we need to examine the following statistical hypotheses: H0, there is no statistically significant effect of the investments of Takaful insurance companies on gross written premiums and H1: there is a statistically significant effect of the investments of Takaful insurance companies on gross written premiums. We notice from the table that Sig_{B1} = 0.000 which is less than (α =0.05), and therefore we reject the null hypothesis and accept the alternative hypothesis. This means that there is a statistically significant effect of the investments of Takaful insurance companies on gross written premiums, meaning that Takaful insurance has an impact on financial inclusion in the Saudi environment.

Knowing that the equation of the model is formulated as follows:

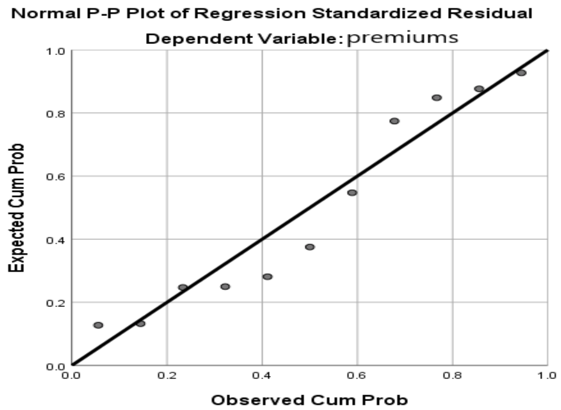
$$Y= 11446,334+0.001X+Ut$$

That is, in case of an increase of one unit in investments, the gross written premiums will increase by 0.001 units.

D. Verifying the requirement for the normal distribution of residuals in the first model:

The requirement for the normal distribution of residuals is one of the most important conditions for the validity of the simple linear regression model, and it can be verified by the residuals' distribution plot:

Figure (05): distribution of residuals for the first model



Source: based on the output from SPSS 25

It is clear from the chart that the residuals are distributed normally, since the points are either directly on the line or very close to it, so the requirement of normality of the residuals is met in the first model.

III.2.2 Studying the relationship between the technical reserves of Takaful insurance companies and the gross insurance written premiums:

this model will be formulated according to the following equation:

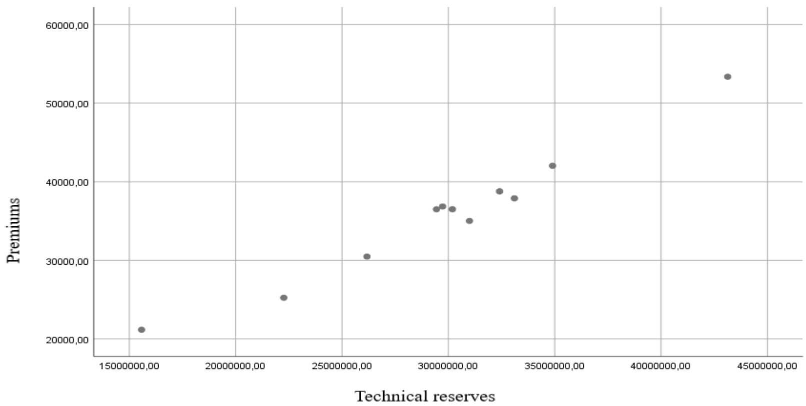
$$Y= B_0+B_1X+U_t$$

Y is the value of the dependent variable and stands for gross insurance written premiums in the Saudi market; B_0 is a constant and stands for the value of gross insurance premiums in case of absence of technical reserves; X is the independent variable and stands here for the technical reserves of Takaful insurance companies; B_1 is the regression coefficient and it stands for the amount of change in gross Takaful insurance premiums in case of change for one unit in technical reserves; U_t is for random error

III.2.2.1 Examining the linearity of the relationship :

before conducting the simple linear regression test, we confirmed the linearity of the relationship through a cloud representation:

Figure 06: Distribution of the point cloud of the relationship between the technical reserves of Takaful insurance companies and the gross written premiums.



Source: based on the output from SPSS 25

From this figure we can see that the point cloud is distributed in a linear way which means that the requirement of the linearity of the relationship is met, and the simple linear regression model can be applied.

III.2.2.2 Conducting the test and examining the validity of the second model:

after conducting the simple linear regression test using SPSS 25, we study the explanatory power of the second model, and its overall and partial significance

A. Explanatory power of the second model: it is explained through the following table:

Table (04): Explanatory power of the second model

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,984[a]	,968	,965	1584,43485

Source: based on the output from SPSS 25

The table shows that the value of the coefficient of determination is R Square = 0.968, which means that 96.8% of changes in gross written premiums are explained by changes in total of technical reserves, and 03.2% are explained by other variables that are not included in the model. This indicates that the explanatory power of the model is very high.

B. Examining the overall significance of the second model:

this done through the results of the Anova table, knowing that this test is based on the following two hypotheses: H_0: there is no overall statistical significance of the model, H_1: there is an overall statistical significance of the model. The results of the overall test of the second model can be explained in the following:

Table (05): Overall significance of the second model

ANOVA[a]						
Model		Sum of Squares	ddl	Mean Square	F	Sig.
1	Regression	694123326,578	1	694123326,578	276,495	,000[b]
	Residual	22593904,191	9	2510433,799		
	Total	716717230,769	10			

Source: based on the output from SPSS 25

From the ANOVA table, we see that the value of significance found Sig =0.000 is less that the set value which is (α =0.05). So, the null hypothesis is rejected and the alternative hypothesis is accepted, which means that the second model has an overall statistical significance.

C. Partial significance of the second model: we rely on the results of the following table:

Table (06): results of the partial test of the second model

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	513,972	2175,286		,236	,819
	T.Reserves	,001	,000	,984	16,628	,000
a. Dependent Variable: Premiums						

Source: based on the output from SPSS 25

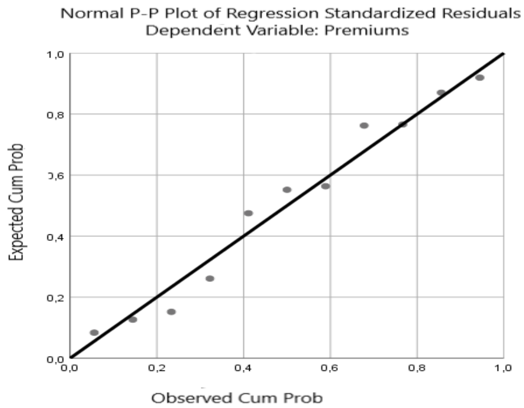
- ***Testing the significance of the constant B_0*:** for this test, we need to examine the following statistical hypotheses: H0, the constant has no statistical significance, and the alternative hypothesis: H1, the constant has statistical significance. As we notice from the table, Sig_{B0} = 0.819 which is more than (α =0.05), and therefore we accept the null hypothesis and accept the alternative one. This means that the constant in the second model has no statistical significance.
- ***Testing the significance of the coefficient B_1*:** for this test, we need to examine the following statistical hypotheses: H0, there is no statistically significant effect of the technical reserves on gross written premiums and H1: there is a statistically significant effect of the technical reserves on gross written premiums.
- We notice from the table that Sig_{B1} = 0.000 which is less than (α =0.05), and therefore we reject the null hypothesis and accept the alternative hypothesis. This means that there is a statistically significant effect of the technical reserves on gross written premiums, meaning that Takaful insurance has an impact on financial inclusion in the Saudi environment.

Knowing that the equation of the model is formulated as follows:

D. Verifying the requirement for the normal distribution of residuals in the second model:

it can be verified by the residuals' distribution plot:

Figure (07): distribution of residuals for the second model



Source: based on the output from SPSS 25

It is clear from the chart that the residuals are distributed normally, since the points are either directly on the line or very close to it, so the requirement of normality of the residuals is met in the second model.

IV. Conclusion:

This paper examined the role of Takaful insurance in promoting financial inclusion in Saudi Arabia by studying the Saudi Takaful insurance market during the period 2012-2022, taking into consideration that insurance is one of the most important means that promote the access to financial services by various segments of society.

***IV.1 Findings*:**

The study reached the following findings**:**

- There is a noteworthy development in the size of investments by Takaful insurance companies operating in the Saudi insurance market as well as a rise in their technical reserves during the period (2012-2022).
- The volume of gross written premiums of insurance companies operating in the Saudi insurance market increased significantly during the period (2012-2022)
- The validity of the first hypothesis was demonstrated, which means that the investments of insurance companies operating in the Saudi insurance market have a statistically significant effect on financial inclusion by contributing to the increase of gross written premiums.
- The validity of the second hypothesis was demonstrated, which means that the technical reserves of insurance companies operating in the Saudi insurance market have a statistically significant effect on financial inclusion by contributing to the increase of gross written premiums.

IV.2 Recommendations:

Based on the findings reached by studying the Saudi insurance market, which indicated that overall, Takaful insurance has a role in increasing the level of financial inclusion in Saudi Arabia, the following recommendations can be made:

-Authorities of the insurance sector in Algeria should expand the scope of Takaful insurance services to enhance financial inclusion, especially through providing access to individuals and institutions that refrain from dealing with traditional insurance companies due to religious reasons.

-Insurance companies in Algeria should move towards Takaful insurance, since it is based on the principle of

- protecting the participants (policyholders) who can be exposed to risks through cooperation and solidarity among all contributors. This means that it provides protection for vulnerable and marginalized groups. Also, financial inclusion aims to introduce all groups of society, especially vulnerable and poor groups, into the official financial circle, i.e. that Takaful insurance is highly consistent with the objectives of financial inclusion.

-The need to raise awareness of the existence of an alternative to traditional insurance that is compliant with Islamic Sharia, and allows individuals who refuse to deal with traditional insurance institutions on religious grounds in Algeria to secure their property in compliance with the principles of Islamic laws.

-Take advantage of Saudi Arabia's leading experience in the field of Takaful Insurance in order to disseminate insurance culture in the Algerian environment.

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