

The impact of underwriting size and ReTakaful on the profitability of Malaysian Takaful companies-an empirical study-

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Abstract :

The purpose of this paper is to investigate the impact of written contributions size and contributions ceded to reTakaful on the profitability of Takaful companies We collected the data from the financial reports of the five largest Malaysian Takaful insurance companies for the period 2017-2019.

Panel data models, were used to estimate the relationship between return on policyholders' assets to express the Takaful insurance company profitability and each of the variable underwriting size and ReTakaful

The regression results indicate that there is:

- Negative impact of written contributions size on the profitability of Takaful companies;
- Positive impact of contributions ceded to ReTakaful on the profitability of Takaful companies.

Keywords: Malaysian Takaful Insurance; Profitability; underwriting size; ReTakaful; Panel Data.

Jel Classification Codes: C1; G2; G22; O53.

المخلص:

نهدف من خلال هذه الورقة البحثية إلى دراسة أثر كل من حجم الاشتراكات المكتتبة وحجم الاشتراكات المتنازل عنها لإعادة التكافل على ربحية شركات التكافل، ولتحقيق ذلك تم جمع البيانات من القوائم المالية لأكبر خمس شركات تأمين تكافلي بماليزيا وذلك خلال الفترة (2017-2019). وقد تم استخدام بيانات البانل لتقدير العلاقة بين العائد على الأصول كمؤشر لقياس ربحية شركات التأمين التكافلي وكل من متغيري حجم الاكتتاب وإعادة التكافل.

وقد بينت نتائج الانحدار وجود:

- أثر سلبي لحجم الاشتراكات المكتتبة على ربحية شركات التأمين التكافلي؛
 - أثر إيجابي لحجم الاشتراكات المتنازل عنها على ربحية شركات التأمين التكافلي.
- الكلمات المفتاحية:** شركات التأمين التكافلي المالية؛ الربحية؛ حجم الاكتتاب؛ إعادة التكافل؛ بيانات البانل.

تصنيف O53، G22، G2، C1: jel

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1. Introduction

Through healthy savings, proper asset allocation, and rising national income, the takaful sector contributes to Malaysia's economic growth and development. The market share of Malaysian Takaful insurance is expected to reach over 16 percent in 2022 and keep increasing.

Looking at the wealth of individuals has been increasing through greater financial awareness; this has allowed individuals to spend more on Takaful insurance.

The Takaful insurance industry in a mixed insurance system like in Malaysia, United Arab Emirates or in a fully cooperative system as in Saudi Arabia is confronting many challenges like its relative newness compared to conventional insurance, like the financial and regulatory risks and increasing competition. It became very important to determine and define the most important factors affecting the profitability of the Takaful insurance industry to determine the response of this industry towards the challenges, because the profitability is important for the managers to be able to plan business and managerial strategies and focus, with aim to promote their companies.

Accordingly, the main aim of this research is to determine the impact of written contributions size (Gross premiums) and contributions ceded to Re-Takaful on the profitability of Takaful companies, this is done through using the panel data models.

The rest of the paper is organized as follows: section two discusses the most important literatures related to the studied subject. Section three deals with the theoretical background of the study, by giving a conceptual framework of Takaful and ReTakaful in Malaysia. The study data and methodology are presented in section four the researchers explain the used methodology and present the study results. The Results of the empirical study and their discussion are provided in section five. Finally, the last section concludes the study.

1.1 Study objectives

In order to reach the study purpose, the following objectives are highlighted:

1. To determine the most important determinants of Takaful companies' profitability;
2. To identify the impact of written contributions to ReTakaful on the profitability of Takaful companies;
3. To identify the impact of contributions ceded to ReTakaful on the profitability of Takaful companies.

1.2 Study Hypotheses

To reach the study aims and objectives the following hypotheses are developed:

H₁: There is a significant statistical impact of written contributions size on the profitability of Takaful companies.

H₂: There is a significant statistical impact of contributions ceded to ReTakaful on the profitability of Takaful companies.

1.3 Literature Review

It is well known in the financial literature that profitability is the main aim of any corporation and it is considered as the best measure of efficiency. Accordingly, several studies were conducted to determine the variables that affect insurance Takaful companies' profitability as the following:

- **Determinants of profitability of Takaful operators: new evidence from Malaysia based on dynamic GMM approach (Arif Hodori¹ and Mansur Masih, 2017):**

The study investigates the determinants of profitability of Takaful operators using the dynamic GMM estimator. The results of the study reveal that Takaful operators' size and age are significant determinants of its profitability. Moreover, the study identifies some challenges and limitations like data availability.

- **Determinants of Saudi Takaful Insurance Companies Profitability (Abdelkrim Ahmed Guendouz, 2018):**

The aim of the paper is to investigate the main internal factors affecting the profitability of Takaful companies in Arabia Saudi by using Panel data techniques. The regression results indicate that age, size, written premium growth rate and loss ratio, have significant effects on the profitability of Saudian Takaful companies.

- **Factors Affecting the Profitability of Takaful Insurance Companies A Standard Study of Takaful Insurance Companies in Malaysia during the Period -2012-2019- (Lensari Abdelhak and others, 2020):**

The study aims to find the influencing factors of Takaful insurance companies' profitability in Malaysia, where the study is conducted on 9 Takaful insurance companies during the period 2012-2019, the panel models are used to measure the relationship between the variables of the study. The independent variables were represented in percentage of financial leverage, the cash flow ratio, the rate of losses, the size of the company, and as for the dependent variable, profitability is expressed as the rate of return on equity. The study finds that there is a negative impact of both the financial leverage ratio and the losses rate on the return on equity, a positive effect of the size of the company on the return on equity, and the absence of a cash liquidity effect on the return on equity.

As a result, the current study uses data from Malaysia to examine the effect of written contribution size and contributions ceded to ReTakaful on the profitability of Takaful enterprises. The results of this study have substantial ramifications for all parties involved in the Takaful insurance sector. For instance, Takaful insurance companies both inside and outside of Malaysia are very curious to learn the causes of profits and losses and, consequently, factors affecting their profitability, with a focus on two crucial factors that were ignored by earlier studies: ReTakaful and the underwriting size.

2. THEORETICAL BACKGROUND

In this section the researchers clarify some important concepts related to the main subject as follows:

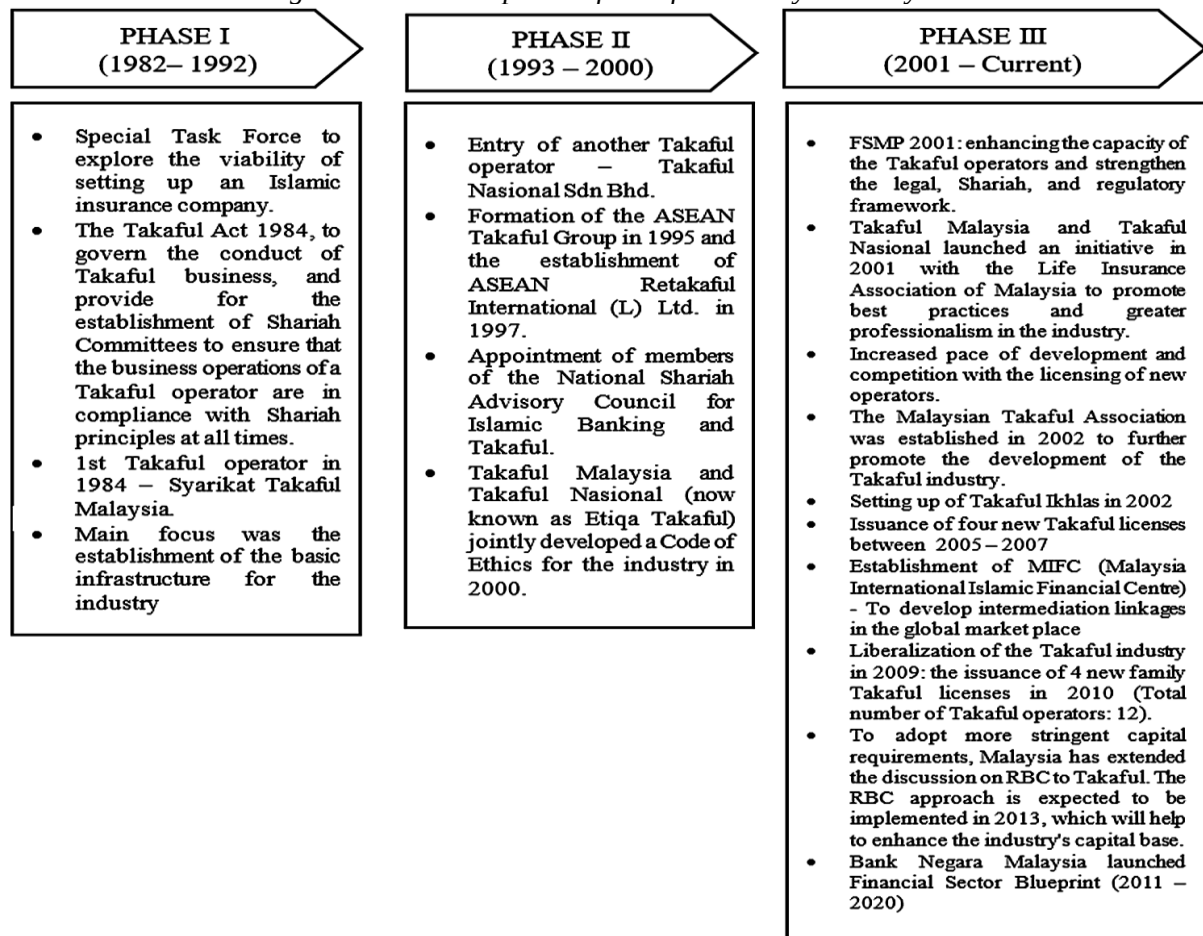
2.1 Conceptual Framework of Takaful

Takaful is literally derived from “*kafalah*” which means “*guaranteeing each other*” (Jamaldeen, 2017). Basically, *Takaful* is technically refers to an Islamic insurance, It was proposed as an alternative to traditional insurance since it lacks the aspects of interest (*riba*), gambling (*maysir*), and uncertainty(*gharar*). Participants pay money into a pool of premiums that tend to cover each other against loss (Billah, 2007).

The current Takaful practice uses there are two different sorts of contracts: the agency contract (*wakalah*). and the gift contract (*tabarru*).

According to Fisher (1999), Takaful is considered as the second most important social institution in the Islamic society to confront poverty and deprivation(Batcha, 2017). The following figure explains the main steps of economic development in Malaysia:

Figure1: The development of Takaful Industry in Malaysia



Source: Monther Eldaia and others(2020), Takaful in Malaysia: Emergence, Growth, and Prospects, IGI Global., Malaysia, p: 684.

2.2 Products of Takaful

The Takaful provides many products; some of them are illustrated in the following:

- **General Takaful:** General takaful offers protection or coverage against risks of a general nature for companies or individuals (takaful contributors).
- **General Takaful definition :** On the basis of annual renewal, general Takaful products are created to give a model of Shari'ah-compliant risk-sharing and risk management procedures.

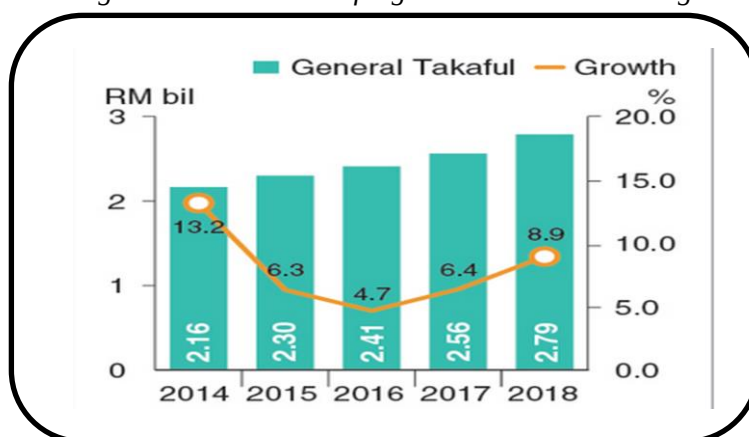
In this diagram, the relationship between participants is based on Ta'awuni and Tabarru'; whereas the relationship among Takaful operator and participants, is based on Mudarabah, Wakalah, or Waqf.

- **General Takaful products:** examples of general Takaful products (Team, 2014) (Yasin, 2011):
 - **Motor Takaful:** This kind shields the participant from any harm done to the insured vehicle as a result of theft, an accident, a fire, or damage to third parties' property.
 - **Fire Takaful:** This kind of protection guards participants' properties from any explosion, fire, or lightning harm. It contains structures, equipment, and plant. Damages brought on by a volcanic eruption, an earthquake, or a typhoon are not covered by the fire Takaful program.
 - **Engineering Takaful :** This safeguards the contractor's interests from potential losses resulting from a variety of factors related to the building or construction of bridges
 - **Marine Takaful:** This kind shields the participant from any transit-related property damage. It covers natural disasters like fires and sea collisions. Marine transport, ROA, and aviation may receive such coverage.

2.3 The prospects of General Takaful in Malaysia

The overall Takaful market increased by a nominal 8.9 percent to RM 2.79 billion in 2018, continuing to outpace the conventional market's 1.8 percent growth. 2. With 13.7 percent of gross direct premiums and total contributions (GDC), up from 12.9 percent in 2018, general Takaful increased its market share in the local insurance industry (ISM, 2018). Some statistics about general Takaful in Malaysia are shown in the following shape:

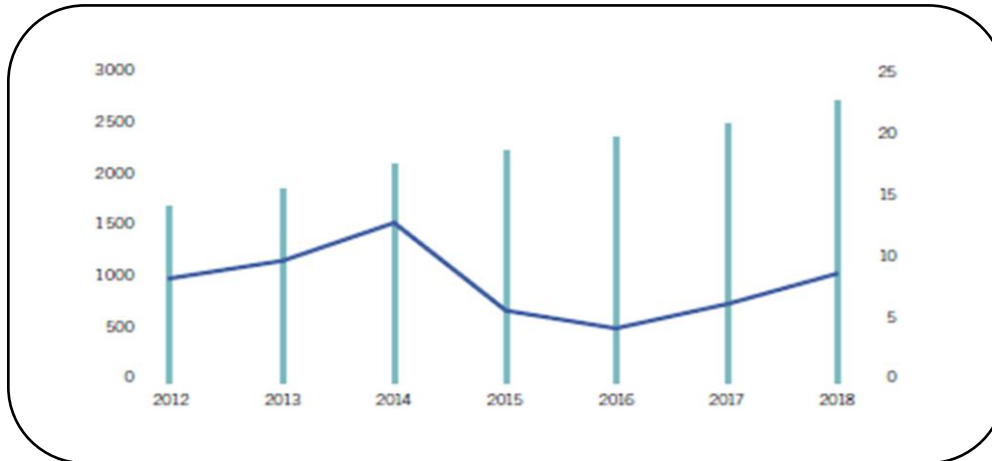
Figure 2: General Takaful gross contributions and growth



Source: Bashar Al Nattoor(2020), Takaful market grows despite Covid-19, Malaysia praised on 05/05/2020 available on: <https://www.thestar.com.my/business/business-news/2020/05/05/Takaful-market-grows-despite-covid-19-malaysia-praised>

With a gross contribution of RM2.79 billion in 2018 compared to RM2.56 billion in 2017, the whole Takaful industry grew by 8.9 percent. Fire is the second-largest business class after Motor Takaful, which has a portfolio composition of 62.3 percent, followed by other classes at 17.2 percent.

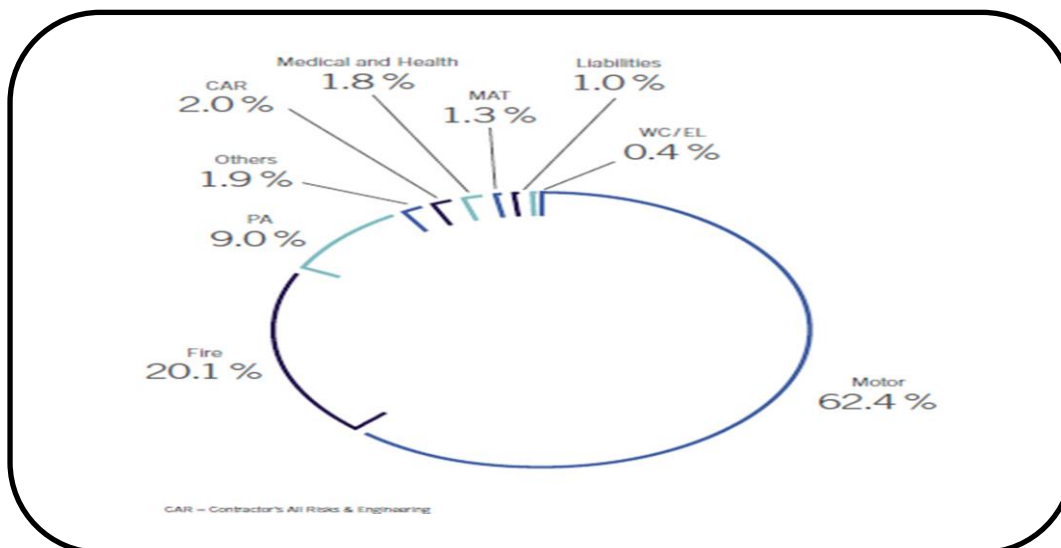
Figure 3: Gross Written General Takaful Contributions (in RM million) and growth (in %) (2012–2018)



Source: ISM(2018), statistical year book 2018.

In 2018, fire contributions made up 20% of the total, while motor contributions made up 62% of the total. The dominance of these two lines is even more obvious than in the traditional general insurance market, with a combined share of 82 percent (67%).

Figure 4: Breakdown of General Takaful's Gross Direct Contributions in 2018



Source: ISM(2018), statistical year book 2018.

2.4. The prospects of Family Takaful in Malaysia

- **Family Takaful:** It is a Taburru contract wherein the members give non-zakat gifts to the Waqf Fund during customary intervals. All risks to human life, such as disability, death, and disease, as well as immediate and long-term speculative demands, are covered by this contract.

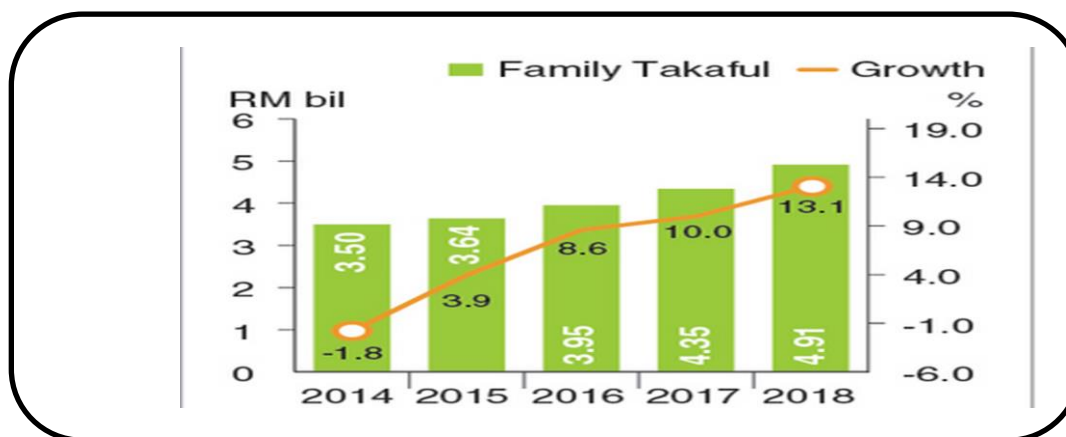
- **Family Takaful definition:** Family Takaful products are ready to provide protection against the hazards of passing away or becoming permanently disabled. Under the terms of this contract, the participant gains access to long-term investments and savings returns based on a previously determined ratio fixed with Mudarabah. The participants in a family Takaful also undertake a Wakalah contract, allowing the operator to function as their agent, and deposit their money with the Takaful operator. Participants' funds are put in the Participants' Special Account in the form of a contribution to the Takaful fund (PSA).

- **Family Takaful products:** There are many types of family *Takaful* products offered by various operators which are divided into three kinds (Eldaia, 2020);

- **Ordinary family**

- ✓ **Individual family Takaful:** In this case, the fund member is covered by the policy against any specified risks, such as those related to their schooling, mortgage, or health.
- ✓ **Group family Takaful:** In this type, members are required to insure themselves as well as their families against any risks that are specified, such as health, education, and mortgage.
- A retirement income plan that delivers regular income is known as an annuity;
- Investment-linked: A portion of the contribution is utilized to purchase investment units, like fixed income securities. Permanent disability and death are covered by takaful protection.

Figure 4: Family Takaful gross contributions and growth



Source: Bashar Al Nattoor(2020), Takaful market grows despite Covid-19, Malaysia praised on 05/05/2020 available on: <https://www.thestar.com.my/business/business-news/2020/05/05/Takaful-market-grows-despite-covid-19-malaysia-praised>

The total family Takaful contribution grew by 13.1% since it increased from 4.35 billion RM in 2017 to 4.91 billion RM in 2018. This resulted by development of the penetration rate, which increased to 15.2% in 2018 from 14.8% in 2017. This also meant that the industry provided of RM834.2 billion Takaful protections, up 11.6% from 2017,”

2.5 Takaful market in Malaysia

Family and general Takaful premiums increased by 29.6% and 16.4%, respectively, in the first half of 2019, according to Fitch, while conventional life insurance rates increased by 12.2% and general insurance premiums decreased by 1.3 (Bashar, 2020).

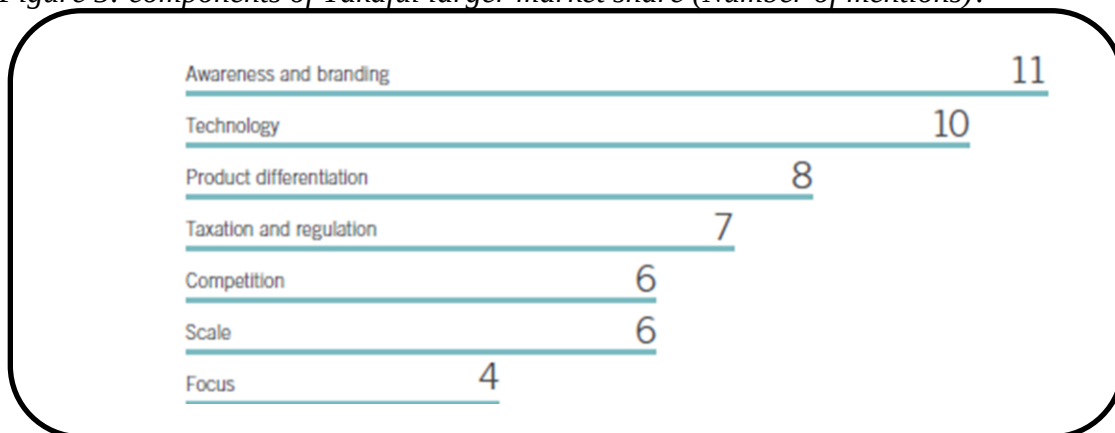
a. How to develop the market share of Takaful in Malaysia?

Figure 5 shows the most recommendations as would take to capture the full promise of Takaful (Schanz, 2019):

- **Awareness and branding:** Increasing awareness and brand effectiveness. It shows that essential (and distinctive) characteristics like profit sharing are still not fully understood;
- **Technology:** is the second mentioned lever to pull, and compared to their conventional counterparts, Takaful operators use less agents. Their distribution may give them a competitive advantage when it comes to the use of technology to improve the appeal, accessibility, and affordability of their products;
- **Product differentiation:** The third characteristic of many Takaful solutions is that they compete with traditional industries without making a novel proposal or breaking new ground;
- **Taxation and regulation:** Numerous studies suggest that Takaful should receive tax benefits and capital relief, which are justified by the low levels of guarantees;
- **Competition:** Many suggestions call for increased competition (general Takaful may not be enough);
- **Scale:** (The absence is viewed as a major competitive disadvantage when compared to traditional insurers) and concentration (Takaful operators are advised to pool their efforts rather than competing with their traditional counterparts by fishing in the same).

To measures that Takaful companies must take to secure a much higher market share are explained in the accompanying graph.

Figure 5: components of Takaful larger market share (Number of mentions)?



Source: SchanzAlms(2019), Malaysian Insurance Highlights 2019, Malaysian Re, p : 44.

3. RETAKAFUL

ReTakaful is the main of Takaful industry it provide solvency protection to the Takaful companies in order to ensure that the claims can be paid when due, thus guarantee its profitability.

3.1 ReTakaful definition

- A contract of which an operator procures a third party to cover him against loss or liability by reason of such original Takaful cover.
- ReTakaful is a risk management tool used by Takaful operators to share some of their insured risks to other third parties, which can be another Takaful operator or a specially-formed ReTakaful operator

- 'Islamic reinsurance' (ReTakaful) as "the agreement among insurance companies, on behalf of the insurance funds under their management, to devise a mechanism for avoidance of part of the risks which the insurance funds may encounter. Based on such agreement a reinsurance fund which has a distinct legal personality and independent financial liability is formed up through making contributions out of the insurance funds paid by the insurance clients based on donation. The reinsurance fund, thus formed, assumes the task of covering part of the risks encountered by the insurance funds"(AAOFI, 2012)

3.2 Basic Principles of ReTakaful :

The basic principles of ReTakaful are (ICEIF):

- Under any circumstances, the original participant has no recourse against the ReTakaful company;
- If the ReTakaful company goes out of business, the ceding company is still responsible for the contract's obligations.;
- The ReTakaful company lacks any legal recourse against the original's wrongdoing.

3.3 Objectives of ReTakaful:

ReTakaful seeks to achieve the following objectives (ICEIF):

- a) ReTakaful's main goal is to lessen the cedant's risk exposure and responsibility in the event of a lawsuit.
- b) ReTakaful is an essential tool for Takaful operators to control risk and achieve the following goals:
 - To ensure efficient spreading of risk, enabling sharing on development and growth of the market and the same time protects Takaful operators from any adverse exposure on their liabilities;
 - To provide extra and additional capacity for cedant's to accept participation of risks which are bigger and complex in nature and may be over and above its financial and technical capability;
 - ReTakaful has the effect of stabilizing or smoothing of income and loss over a period of years, which brings about more stability and sustainability to the Takaful fund;
 - With huge and varied covered risks in their portfolio, ReTakaful operators are able to analyse, having knowledge and experience on these risks at a macro level. This unique information can be shared with the Takaful operators, to be used and leverage for the purpose of product design, rating, appropriate underwriting process etc.

3.4 Types of ReTakaful:

ReTakaful can be classified in two categories :Treaty ReTakaful or Facultative ReTakaful (Sheila, 2014):

- **Treaty ReTakaful:** Subject to the limitations and exclusions of the ReTakaful contract, this form provides automatic coverage for any risks written by the ceding Takaful Operator.
- **Facultative ReTakaful Contracts:** This kind of insurance protects the ceding Takaful operator against specific risks that either fall outside the scope of the treaty arrangement's coverage limits or are not protected by its provisions. The individual offerings are open for acceptance or rejection by the ReTakaful Operator.

4. DATA AND METHODOLOGY

In this section the researchers provide more insights about the methodology used in this as follows:

4.1 Data and Sample:

The sample of this study comprises of the five largest Malaysian Takaful insurance companies (**Itiqa Takaful Berhard; Takaful Malaysia; IkhlasBerhard; Hong Leong MSI Takaful Berhard; Great Eastern Takaful Berhard**), whereas the used data is collected from the financial reports available on the websites of these companies for the period 2017-2019. The Eviews 9 software is used to analyze the data and to interpret the results. More over the return on Return on Policyholders Assets is used as a dependent variable and a proxy of profitability of Takaful insurance companies, while the Underwritings size (UND) and the contributions ceded to ReTakaful(CCTR) are used as independent variables.

4.2 Variables' operational definition

To determine the impact of Underwritings size and ReTakaful on profitability of Takaful companies which The following factors were picked based on the available literature and data availability, which is assessed by the Return on Assets (ROA). The operational definitions and measurements of the variables utilized in this study are provided in Table 1.

Table1: the operational definitions and measurements

Variables	Definition	Measurement
Dependent Variable		
Profitability (ROA)	Return on Policyholders Assets. In a Takaful insurance company, the best ratio of measuring profitability is the return on Policyholders (Participants) assets.	Net Income (Loss) / Policyholders Assets
Independent Variables		
Underwritings size (UND)	The written contributions every year	Gross contributions for the year
The ReTakaful(CCTR)	The contributions ceded to ReTakaful	The contributions ceded to ReTakaful

Source: prepared by the researchers.

4.3 Panel Data Estimation Method

Usually, when we talk about Panal data, we're talking about time series observations of many different people. A cross-sectional dimension denoted by the subscript I and a time series dimension, denoted by the subscript t, are hence the minimum number of dimensions included in observations in panel data. However, the clustering or hierarchical structure of panel data may be more complex. As an illustration, variable y might represent a measurement of the pollution level in city j of town I at time t. (Antweiler, 2001). The estimation of regression model using panel data done by three approaches which are:

a. Common Effect Model or Pooled Least Square (PLS)

The panel data model approach known as the pooled least square model assumes that corporate data would behave consistently over time since it ignores time and individual characteristics. To estimate the panel data model, this method use the Ordinary Least Square (OLS) methodology or the least squares technique.

The form of panel data regression equation is similar to ordinary least square, ie:

$$y_{it} = \alpha + \beta X_{it} + \varepsilon_{it}$$

Description: For $i = 1, 2, \dots, N$ and $t = 1, 2, \dots, T$.

Where N = Number of individuals or cross section and T is the number of time periods.

From this model $N \times T$ can be generated equation, that is equal to T equation of cross and as much i equation coherent time or time series (Rizka, 2017).

b. Fixed Effect Model (FE)

The Common Effect Model is different from the Fixed Effect Model, although the Ordinary Least Squares Principle is still applied. More models are required to account for the difference since it is less reasonable to assume that modeling results in a consistent intercept for each cross section and time.

The regression equation of fixed effects model panel data is as follows:

$$y_{it} = \alpha + \beta X_{it} + \varepsilon_{it}$$

Description: for $i = 1, 2, \dots, N$ and $t = 1, 2, \dots, T$.

Where N = number of individuals or cross section and T = the number of time periods (Rizka, 2017).

c. Random Effect Model (RE)

The error terms of each company in the Random Effect model account for the variation in intercepts. Heteroscedasticity can be eliminated by using the Random Effect model. The random effect model differs from the common and fixed effect models in that it essentially use the maximization of probability or general least square approach rather than the ordinary least square concept.

The regression equation of panel data of random effects model is as follows (Rizka, 2017):

$$y_{it} = \alpha + \beta X_{it} + \mu_{it} + \varepsilon_{it}$$

Description: for $i = 1, 2, \dots, N$ and $t = 1, 2, \dots, T$.

Where: N = number of individuals or cross section T = the number of time periods.

ε_{it} = is the residual as a whole where the residual is a combination of cross section and time series.

μ_{it} = is the individual residual which is the random characteristic of unit observation the μ_{it} remains at all times.

5. Results and Discussion

In this section the researchers present the main results and give an economic explanation of these results as follows:

5.1 Descriptive statistics analysis

The following table provides a summary of the descriptive statistical analysis for the study sample. From this table it is obvious that the Malaysian Takaful insurance companies generate positive returns since the mean of Return on Policyholders Assets (ROA) is equal to 9.177133, Underwritings size (UND) mean is equal to 1214194, while the contributions ceded to ReTakaful mean is equal to 149646.4

Table2: Descriptive statistics

Variable	ROA	UND	CCTR
Mean	9.177133	1214194	149646.4
Median	3.276000	673800.0	82322.00
Maximum	29.42300	3244163.	394204.0
Minimum	0.546000	110027.0	29595.00
St. dev.	10.04815	1098301.	125349.0

Source: prepared by the researchers depending on the Eviews outputs

5.2 Normality Test

To test the normality of data the Jarque Bera Test is used, this test is good-of-fit test of departure from normality, based on the sample skewness and kurtosis.

Supposed having $V_1, \dots, V_N$ observations and the wish to test if they come from a normal distribution. The test statistic JB can be defined as $J.B = N/6(W^2 + (K-3)^2/4)$

Table3: Normality test results

Variable	Jarque Bera Test	
	t-Statistic	P-value
ROA	2.095235	0.350772
UND	1.962845	0.374778
CCRT	2.002264	0.367463

Source: prepared by the researchers depending on the Eviews outputs.

According to table 3 it can be concluded that all the study variables follow the normal distribution, since the corresponding P- values are all more than 5 % significant level.

5.3 Tests for the Stationarity and Autocorrelations

To test the data Stationarity for ROA and detecting the autocorrelation by determining whether the unit root exists among the data or not, we have used two tests:

- **Augmented Dickey-Fuller Test:** It is important to include additional mutations for the dependent variable to eliminate the autocorrelation. The decomposition length is in the three cases is determined by the Akaika Information Criterion (AIC) or the Schwartz Bayesian Criterion (SBC) or by Lagrange Multiplier.
- **Levin-Lin-Chu Test:** Individual unit root tests have limited power. The importance of the test is the prob-ability of rejecting the null hypothesis if it is false and the null hypothesis is

there is a unit root. It follows that we find too many unit roots. Under the null hypothesis, there is a unit root, while there is no unit root under the alternative;

The Eviews software gives a sample way to apply this test, and the null hypotheses will be rejected if the probability is less than 5%.

H0: each time series contains a unit root

H1: each time series is stationary

Table 4: unit root test results

Variable		Augmented Dickey-Fuller test		Levin Lin Chu unit Root Test	
		t-Statistic	P-value	t-Statistic	P-value
ROA	At the level	2.716516	0.0299	15.2310	1.0000
	At the 1 st level	-	-	-11.3250	0.0000
UND	At the level	4.37024	0.9291	19.7306	1.0000
	At the 1 st level	2.187050	0.05	1.98928	0.9767
CCTR	At the level	-0.033646	0.9740	0.31499	0.6236
	At the 1 st level	1.355420	0.2123	0.339	0.0040

Source: prepared by the researchers depending on the Eviews outputs.

The calculated values for statistic the Augmented Dickey-Fuller test were all less than the tabulated values at a significant level of 0.05 except for CCTR. Also for, the p-values are less than 0.05 which means rejecting the null hypothesis, and thus there is no autocorrelation (i.e. the time series of the ROA, and UND is Stationary), while in CCTR is greater than 0.05, meaning that it has autocorrelation, i.e. the time series is non- Stationarity.

Moreover, the results of the Levin Lin Chu unit Root test indicate that the time series of ROA and CCTR are stationary while the UND is not stationary at the level since the p- value is equal to 0.9767 and it is greater than 0.05, which means that there is an existence of a unit root.

- Autocorrelation test:

Table 5: Autocorrelation and Partial Correlation test

Autocorrelation and Partial Correlation of UND				
	AC	PAC	Q-Stat	Prob
1	0.569	0.569	5.8964	0.015
2	0.149	-0.259	6.3301	0.042

Source: prepared by the researchers depending on the Eviews outputs.

Table 5 means that the values of autocorrelation decrease over time while the partial autocorrelation values fade after the initial period, means that their model is auto correlated from the first order. The study of statistical hypothesis is "There is no significant difference, between the average of underwriting size in the Takaful companies".

Table 6: Panel Models' Results

Dependent Variable : ROA				
Variable / Method		Pooled Squares	Least	Fixed Effects
Constante	Coefficient	13.75697		5.518900
	t-Statistic	5.146203		18.32253
	Prob.	0.0002		0.0000
				0.2760

UND	Coefficient	-4.62E-06	-1.15E-06	-1.58E-06
	t-Statistic	-6.059196	-3.556917	-4.159187
	Prob.	0.0001	0.0074	0.0013
CCRT	Coefficient	3.58E-06	3.38E-05	3.63E-05
	t-Statistic	0.616872	7.879394	8.397570
	Prob.	0.5488	0.0000	0.0000
R-squared		0.417485	0.995943	0.319513
Adjusted R-squared		0.320399	0.992900	0.206098
F-Statistic		4.300161	327.3169	2.817209
ProbF-Statistic		0.039070	0.000000	0.099293
Durbin watson		0.726867	2.754822	1.191948
Equation of Pooled Least Squares		ROA=13.76-4.62*UND+3.58*CCRT + U _{it}		
Equation of Fixed Effects		ROA=5.52-1.15*UND+3.38*CCRT+U _{it}		
Equation of Random Effects		ROA=5.66-1.58*UND+3.63 *CCRT		

Source: prepared by the researchers depending on the Eviews outputs.

5.4 .Pooled versus Fixed effect model

- Restricted F Test:

The pooled model is confined and ignores the heterogeneity effects that are explicitly taken into account in the fixed effects model, and the F test is used to determine whether the fixed effects model is superior to the OLS pooled model. The restricted F test formula is as follows.

$$F = \frac{(R_{FEM}^2 - R_{PM}^2)/(N - 1)}{(1 - R_{FEM}^2)/(NT - N - K)} \rightarrow F(N - 1, NT - N - K)$$

N: number of cross sections. T: number of periods.

K: number of parameters estimated in the unrestricted model.

R_{PM}^2 : Coefficient of determination of pooled model.

R_{FEM}^2 : Coefficient of determination of fixed model.

Table 7: Restrected F Test Results

Restrected F	148.05
Statistical F	19.4291

The results in table 7 above indicate that the value of the restricted F testis greater than the statisticalF; so that the pooled effect model is rejected, accordingly in this study fixed effect model is more suitable.

5.5 Fixed versus Random effect model

In order to decide which model is Appropriate, the fixed effect or the random effect model the Hausman test will be applied; the results of this test are shown in table 8 bellow:

The Hausman test			
Effects Test	Statistic	df	Prob.
Cross-section F	457.033	(4,8)	0.0000

Source: prepared by the researchers depending on the Eviews outputs.

The significance of the Hausman test is 0.000, which is less than 0.05, indicating that the random effect model is rejected. This means that the most appropriate model for this study is the fixed effect model.

5.6 . Results' Analyzes

Before performing the hypotheses testing the following preliminary tests will be investigated to ensure the data validity and credibility:

a. Model Fitness

The results as it is shown in table 6 indicate that the value of the F test is 327.31 with sig. 0.000 which is less than 0.05 indicating the significance of the model.

Where, the value of the R-square is 0.99 indicating that this model can explain 99% of the change in the value of the ROA in other words about 99% of the variation in the dependent variable (Return on Policyholders Assets) is explained by the independent variables (Underwritings size (UND) and contributions ceded to ReTakaful).

Moreover, The Durbin-Watson test statistic which is an autocorrelation measure is equal to 2.75, which means that it falls within the null hypothesis acceptance area, i.e. there is no autocorrelation.

b. Hypotheses Testing

- From table 6 it is obvious that if all the variables are absent, the rate of ROA is equal to 5.52 %. But in this case the researchers seek to determine the impact of both Underwritings size (UND) and contributions ceded to ReTakaful on the profitability of Malaysian Takaful companies represented by Return on Policyholders Assets.
- Accordingly, from the same table it can be seen that the Underwriting size has a negative impact on the profitability of Malaysian Takaful companies. Moreover, if the written contributions size increases with one unit, the rate of return on Policyholders assets will decrease with 1.15%. as a result, the following hypothesis “**H₁**: There is a significant statistical impact of written contributions size on the profitability of Takaful companies” is accepted. This finding can be explained by the reality that a large expansion of the actuarial activity leads to self-destruction, as the company may not be able to comply with all insured.
- Furthermore, the results in table 6 indicate that the contributions ceded to ReTakaful has a positive impact on the profitability of Malaysian Takaful companies, and if the written contributions size increased by one unit, the rate of return on Policyholders assets will increase with 3.38%. Consequently, “**H₂**: There is a significant statistical impact of contributions ceded to ReTakaful on the profitability of Takaful companies” is accepted. This important result can be justified by the fact that ReTakaful companies are the most important players that Takaful companies adopt to maintain their solvency and achieve their profitability, thus ensuring their continuity in the market.

6. Conclusion

This study aims to identify the impact of underwriting size and Re-Takaful on the profitability of Takaful companies, this is done through taking an evidence from the top five largest Malaysian Takaful companies, after conducting this research several results are reached.

- **First**, the results of the theoretical study showed the following:
 - Operationally, Takaful refers to participants mutually contributing to fund with the purpose of having mutual indemnity in the case of loss.
 - ReTakaful refers to a transaction in which one party (the Takaful operator) cedes a portion of its risks to another party (the ReTakaful operator) in exchange for a portion of a

contribution in the form of tabarru into the fund to provide coverage against a specific loss or damage.

- Takaful made significant contributions for Islamic financial market in Malaysia, especially in three leading indicators of economic growth include savings, investment, and income.
- The Takaful insurance industry either in a mixed insurance like Malaysia or in fully cooperative have many challenges relative: novelty compared to conventional insurance, financial and regulatory risks and increasing competition. It became very important to determine and define the main factors affecting the profitability of the Takaful insurance industry

▪ **Second**, the results of the empirical study showed the following:

- There is a negative impact of written contributions size on the profitability of Malaysian Takaful companies(**H₁**is accepted), In fact, it is logic and justified result in order large expansion of the actuarial activity leads to self-destruction, because the company not able to comply with all insured.
- There is a positive impact of contributions ceded to ReTakaful on the profitability of Malaysian Takaful companies(**H₂**is accepted),In fact, ReTakaful contract of which an operator procures a third party to cover him against loss, And as ReTakaful companies are the most important factors that Takaful companies adopt to maintain their solvency and achieve their profitability, thus ensuring their continuity in the market.

Appendices:

statistics of Malaysian Takaful insurance companies studied

COM	years	ROA (RM 000)	UND (RM 000)	CCTR (RM 000)
Itiqa)	2017	0,544709168	1267358	91239
Itiqa	2018	2,053446939	2963302	189256
Itiqa	2019	1,987716245	3244163	205660
Takaful	2017	2,502538257	1686168	297576
Takaful	2018	3,276207917	2294334	352796
Takaful	2019	4,451590612	2748637	394204
Ikhlas	2017	0,606641831	673800	74735
Ikhlas	2018	0,899136649	647307	74328
Ikhlas	2019	1,207093467	425215	82322
Hong	2017	11,80559473	110027	29595
Hong	2018	13,5467068	169870	35980
Hong	2019	21,58776898	257533	44002
Eastern	2017	21,04469827	307264	47091
Eastern	2018	23,06662042	420123	54071
Eastern	2019	29,43809932	997815	271841

Referrals and references:

1. Jamaldeen, F. (2017). **The Islamic Principles behind Takaful**. Retrieved March 01, 2017, from <http://www.dummies.com/personal-finance/islamic-finance/the-islamic-principles-behind-takaful/>.
2. Batcha, A.A. (n.d.). **Takaful Operations: Issues and Recommendations on Marketing Takaful Successfully**. Retrieved February 18, 2017, from [https://www.scribd.com/doc/39308647/Takaful -Operations-Issues-and-Recommendations-on-Marketing-Takaful -Successfully](https://www.scribd.com/doc/39308647/Takaful-Operations-Issues-and-Recommendations-on-Marketing-Takaful-Successfully)
3. Billah, M.M. (2007). **Applied Takaful and Modern Insurance: Law and Practice**. Petaling Jaya, Selangor: Sweet & Maxwell Asia.
4. HodoriArif and MasihMansur(2017)., **Determinants of profitability of takaful operators: new evidence from Malaysia based on dynamic GMM approach**, INCEIF, Malaysia, p:5.
5. **See:**
 - Marifa Academy Team(2014).. **Islamic Banking & Finance: Principles and Practices**. Kuala Lumpur,Malaysia.
 - Yasin, N., &Ramly, J(2011)., **Takaful: A Study Guide** (1st ed.). Kuala Lumpur, Malaysia: IBFIM.
6. ISM, statistical year book 2018.
7. MontherEldaia and others(2020)., **Takaful in Malaysia: Emergence, Growth, and Prospects**, IGI Global., Malaysia, p: 691
8. Bashar Al Nattoor (2020)., **Takaful market grows despite Covid-19, Malaysia praised on 05/05/2020**
9. <https://www.thestar.com.my/business/business-news/2020/05/05/takaful-market-grows-despite-covid-19-malaysia-praised>
10. Schanz Alms(2019)., **Malaysian Insurance Highlights 2019**, Malaysian Re, p : 44.
11. Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI)(2012)., **(Shari'ah Standard No. 41. Islamic Reinsurance**, Manama.
12. International Centre for Education in Islamic Finance, **ReTakaful**, available at: <https://www.coursehero.com/file/22535793/RETAKAFUL/>
13. Sheila Nu Nuhtay and Mustapha Hamat (2014)., **ReTakaful(Islamic Reinsurance): Historical, Shari'ah and Operational Perspectives** , IDOSI Publications,Malaysia,p:187.
14. Antweiler, W., (2001). "Nested Random Effects Estimation in Unbalanced Panel Data", Journal of Econometrics. Vol (101), p:295.
15. RizkaZulfikar and FakultasEkonomi(2017)., **Estimation model and selection method of panel data regression: an overview of common effect, fixed effect, and random effect model**, p:3 Available at:[<https://doi.org/10.31227/osf.io/9qe2b>]
16. Robert Kunst(2011)., **Panel Unit Root Tests**, Vienna, 2011, p: 1.