Jurnal Ekonomi dan Keuangan Islam
Available at https://journal.uii.ac.id/jeki

Stability of insurance efficiency during the Covid-19 pandemic: A comparative study between Islamic and conventional insurance in Indonesia

Ihsanul Ikhwan[1]; Aam Slamet Rusydiana[2]

[1]International Isalmic University Malaysia, Selangor, Malaysia
[2]Sharia Economic Applied Research & Training (SMART) Indonesia, Indonesia

Article History
Received : 30 November 2021
Revised : 16 December 2021
Accepted : 11 January 2022
Published : 15 January 2022

Keywords:
Insurances, efficiency, window DEA, Covid-19

DOI:
10.20885/JEKI.vol8.iss1.art5

JEL Clasification:
C14, G22, G28

Corresponding author:
Ihsanulikhwan1997@gmail.com

Author's email:
aamsmart@gmail.com

Paper type:
Research paper

Cite this article:
Ikhwan, I., & Rusydiana, A, S., (2022). Stability of insurance efficiency during the Covid-19 pandemic: A comparative study between Islamic and conventional insurance in Indonesia. *Jurnal Ekonomi dan Keuangan Islam*, 8(1), 60-76. https://doi.org/10.20885/JEKI.vol8.iss1.art5

Abstract

Purpose – The purpose of this study is to measure and compares The Stability of the efficiency of insurance companies, particularly during the COVID-19 pandemic, at 70 insurance institutions (both sharia and conventional) in Indonesia over Five years, from 2016 to 2020.

Methodology – Non-parametric approach, Data Envelopment Analysis (DEA), then extended by Window DEA analysis was employed as the research method.

Findings – This study found that COVID-19 has little effect on Insurance efficiency. COVID-19 has a detrimental impact on the efficiency of conventional insurance but does not affect Sharia insurance. This study also found that most Indonesian Insurances are considered the worst performers in terms of efficiency and efficiency stability during the study period. Most of the insurances are included in quadrant IV (low efficiency and high stability). Furthermore, according to the window DEA analysis, the most relatively stable value of Indonesian Insurances is Sinarmas Conventional Insurance

Originality – The study that focuses on measuring the efficiency of sharia insurances compared to the efficiency of conventional insurances in Indonesia during the COVID-19 outbreak has never been conducted. This study was the first to measure and compare the efficiency of Indonesian Insurances using the Window DEA analysis.

Introduction

World Health Health Organization (WHO) has declared COVID-19 as a global pandemic. The number of cases exposed to COVID-19 has reached more than 245 million, with total victims more than four million (Word Health Organization, 2021). The spread of the COVID-19 virus is rapidly compared to previous pandemics. It has resulted in lockdowns, travels ban, bans on public gatherings, the closure of several businesses, and the loss of many jobs (Babuna et al., 2020). Spurred by the inactivity of the economy, financial intermediation deteriorated due to intense pressure, as reflected by the national credit contraction of -2.41% (YoY), accompanied by a similar decline in disbursed financing and commercial insurance premiums of -18.23% (YoY) and -3.99% (YoY) respectively (Otoritas Jasa Keuangan, 2020).

P ISSN 2088-9968 | E ISSN 2614-6908

The insurance sector is part of the financial system, which is very important for the economic growth of a country (Adams et al., 2009). The increase in cases exposed to covid-19, which is expeditious compared to recovery resulting in a financial weakness in the insurance industry (Babuna et al., 2020). In the short term, Covid-19 will significantly and negatively impact the insurance market due to limited marketing and declining demand for household insurance (Wang et al., 2020).

In addition, the Covid-19 pandemic has also caused unemployment, where 1.62 million people became unemployed due to the COVID-19 pandemic in Indonesia in February 2021 (Badan Pusat Statistik, 2021). The increasing number of unemployed causes employees to lose health insurance provided by the company (Sercy et al., 2021).

Insurance is a financial instrument that mitigates risk, either a threat to the business or a chance to live. As part of the financial services sector, the insurance sector has a strategic role in promoting economic stability in the risk management of economic activities. (Setiawan, 2013). Insurance positively contributes to economic life as a financial intermediary and long-term investment (Cristea et al., 2014).

Pandemic conditions can lead to various problems that can trigger financial distress and inefficiency, including insurance sectors. The assessment of insurances efficiency will become important as efficiency reflects units' performance and is considered a concerning factor for stakeholders in formulating rational strategic decisions to reduce the risk level. The efficiency of the insurances refers to the insurer's ability to produce a given set of outputs via inputs (Diacon et al., 2002). According to Otoritas Jasa Keuangan (OJK), there are three types of Indonesian insurance: general insurance, life insurance, and reinsurance companies. As of December 31, 2015, there were 132 insurance companies officially registered by OJK, consisting of 76 general insurance, 50 life insurance, and six reinsurance companies.

A lot of research on insurance has been done, especially concerning the differences between conventional insurance and Islamic insurance. Insurance, which is managed, and its products are following Sharia is also known as takaful. The main difference between the takaful model and conventional insurance is that customers are considered partners, and they receive a share of the profits at the end (Yanīkkaya & Pabuçcu, 2017). The word "takaful" comes from the Arabic verb "Kafala", which means guarantee or responsibility. In Malaysia, takaful is legally defined as "a scheme based on brotherhood, solidarity and mutual assistance which provides mutual financial assistance and assistance to the participants". The world's pioneering takaful company is the Islamic Insurance Company Ltd of Sudan, founded in 1979. To date, there are more than 100 takaful operators worldwide, serving not only in Muslim-dominated countries such as Saudi Arabia, Turkey and Bahrain but also in other countries such as Australia and Singapore (Husin & Rahman, 2016).

A large number of insurance companies operating in recent years, both conventional and Sharia insurance companies, has made both of them continue to strive to improve their performance. One of the company's widely calculated performance is related to efficiency. Efficiency is often measured as the ratio of output to total input which can indicate the level of the company's ability to maximize output and minimize input so that the results obtained are the most optimal.

This study aims to see the efficiency level of insurance companies, especially general insurances in Indonesia, both Sharia and conventional insurance. The period of the data is five years from 2016 to 2020, primarily aimed to highlight 2020, when the COVID-19 pandemic spread in Indonesia and its impact on insurance efficiency. Then, the analysis is continued to assess the stability of the efficiency of Indonesian Insurance.

Literature Review

Experts in their fields have widely discussed insurance and economic growth, and it can be concluded that insurance and economic growth have a direct causal relationship. At the same time, what affects the development of insurance is the country's economic development. In addition to the state's development and involvement in the economy, cultural and religious traditions also have a significant influence and role in developing insurance (Cristea et al., 2014).

The Gulf Cooperation Council (GCC) countries have recorded substantial growth in the insurance industry over time. Where there is economic growth, an increasing population is aware of the insurance needs of the area. (Alshammari et al., 2018).

In carrying out economic activities, Muslims must be aware of the importance of applying Islamic principles and insurance practices. The first Sharia insurance company was established in 1994 that is PT Asuransi Takaful Keluarga (Nugraheni & Muhammad, 2019). The main difference between conventional insurance and Sharia insurance is in the treatment of investment funds. Conventional insurance companies invest in interest-based businesses while Sharia insurance uses a profit and loss sharing paradigm so that finances and investments must follow Islamic principles (Karbhari et al., 2018). In addition, Sharia insurance was also founded on the principles of mutual assistance, mutual security, and responsibility, and mutual protection and guarantee, included in the concept of tabarru' (donations) (Adawiyah & Scott, 2008).

Over the past two years, the COVID-19 pandemic has affected financial institutions, including insurance. However, in this current sustainable era, increasing efficiency is one of the goals to be achieved by the institutions. Many studies have been highlighted the level of efficiency of financial institutions, where efficiency is used as an indicator to measure and evaluate the institutions performance. In management theory, organizational performance is judged by how well an organization can minimize costs and create maximum profits. The Efficiency concept comes from the microeconomic concept, production theory In production theory, a producer is assumed to maximize profits or reduce costs from the manufacturer's perspective. In the production theory, a production frontier curve describes the relationship between input and output of the production process (Ascarya & Yumanita 2007). The production frontier curve is described as shows in Figure 1.

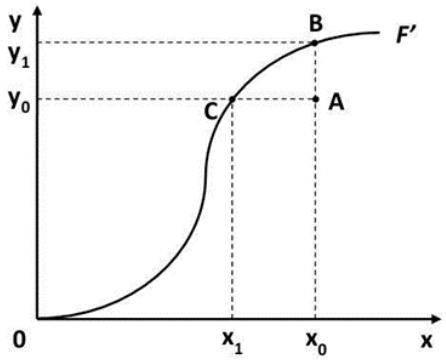

Figure 1. Production Frontier Curve

The analysis is based on evaluating the relative efficiency of comparable decision-making units (DMU). Furthermore, the efficient DMU will form a frontier line. If the DMU is on the frontier line, then the DMU can be relatively efficient compared to other DMUs in its peer group. In addition to producing efficiency values for each DMU, DEA also shows units that reference inefficient units.

In the production frontier curve above, X manifest the input and Y is the output. If the calculated variable has a value of 1 and is indicated at a point on the frontier line, the variable is considered perfectly efficient. For example, point B and point C, where the variables X and Y are all points on the frontier line. However, all points below are considered less efficient at their respective levels. Point A indicates that the Y variable is correct but the X variable is lower so that it is not maximally efficient.

There are two types of efficiency, namely economic efficiency and technical efficiency. Economic efficiency has a macroeconomic picture, while technical efficiency has a microeconomic picture. Technical efficiency measurements are used to measure operational relationships in user inputs into output. The DEA Term refers more to the definition of technical efficiency, namely the relationship between input and output in a business unit (Rusydiana, 2013).

While the financial literature is replete with articles examining bank stability, it is devoid of articles examining insurance company stability. The majority of research on this subject has been on financial stability's determinants. According to past research, Islamic insurance firms are more stable than conventional insurance companies. Islamic insurance firms are riskier than conventional insurance companies from a risk management perspective (Abidi et al., 2020). Financial stability is similar to other businesses in that the larger the organization, the more solid its finances. Apart from that, some research discovered that return on equity, debt-to-asset ratio, and net profit margin all affected the return on Islamic insurance stocks (Hidayat & Firmansyah, 2017).

Numerous earlier research examining the efficiency of sharia and conventional insurance businesses concluded that both have a poor overall efficiency level. The primary source of inefficiency was natural scale efficiency, not technical or pure technical efficiency. The majority of organizations perform well by increasing their return on the scale, indicating a desire to improve their efficiency and scope to achieve the ideal output level (Taib et al., 2018). Certain studies analyze the strength of a country's political institutions and risk factors. The rule of law, corruption, democratic accountability, government stability, and bureaucratic quality are all summed up in this indicator. This is because corporate governance and efficiency assessment have garnered considerable attention in the traditional insurance business (Karbhari et al., 2018).

The Previous study has indicated that competition in the insurance business has increased in recent due to the addition of takaful players. Numerous studies discovered distinctions between takaful operators and traditional insurers in this regard. Competition and efficiency have a negative relationship in traditional insurance, but a good relationship in takaful. The positive correlation between competition and cost efficiency may persuade policymakers and regulators to favor a competitive insurance business that benefits from increased efficiency. They should, however, be cognizant of the level of competition and prudent in their application of market entrance limitations and requirements (Alshammari et al., 2019).

Research Methods

Data

This study focuses on the efficiency analysis of 77 insurance industries, namely sharia and conventional Indonesian insurance, in the 2016-2020 period. The input variables used in this study are total assets, equity, operating expenses, while the output variables used are claims, premiums, and investment. The input and output variable data used in this study were obtained from each insurance company's financial statements and annual reports. As for the efficiency score, it should be around zero and one. Table 1 provides the descriptive statistics of the input and output variables of Indonesian insurances for the 2015 to 2020 period.

Table 1. Statistical Descriptive of Indonesian Insurances (in IDR million)

Variable	Max	Min	Mean
Input			
Total asset	13,758,872	30,529	1,543,056
Operating expenses	2,010,925	54	229,982
Claim expenses	6,592,523	106	337,814
Output			
Premium/contribution	12,113,575	214	764,568
Investment income	527,758	260	43,084

Total assets are the variable with the most significant number among the input variables. The average real asset is IDR 1,543,056 million, with the essential value of IDR 13,758,872 million and the smallest of IDR 30,529 million. Meanwhile, based on the output variable, the amount of premium/contribution has a more excellent average value than investment income, which is IDR 764.568 million compared to IDR 43.084. the most significant value of premium/contribution is IDR 12.113.575 million, and the lowest is IDR 214 million.

Data Envelopment Anaysis

This study uses a non-parametric quantitative approach, Data Envelopment Analysis (DEA). DEA was developed by Charnes et al. (1978), then Banker et al. (1984) expanded the DEA, which serves to measure the efficiency and productivity of business units. The DEA method can provide information about the decision-making unit (DMU) (in this context, the insurance company in Indonesia), which does not use efficient inputs and causes inefficiencies, both in input and output variables. In addition, this method can provide information about the number of inputs and outputs that must be adjusted to achieve maximum efficiency. According to Wu et al (2006) DEA is one of the methods commonly used by researchers. This method can produce efficiency scores that reflect input and output variables (Yildirim, 2015).

However, the result of DEA efficiency is relative. DEA is usually used to analyze cross-sectional data, where a DMU is compared with all other DMUs over the same period, or other words, the role of time is ignored. When the data set increases, the measurement results tend to be different. To overcome these problems, Charnes et al. (1984) then introduced the concept of window analysis of DEA. DEA window analysis or often referred to as DEWA is an extension of DEA or a time-dependent version of DEA. DEWA can measure the performance of a DMU over time by treating it as a different entity in each period. The main idea of the DEA window analysis is to think of each DMU as a DMU distinct from each data entry into the observation. Furthermore, each DMU is not compared with the entire data set but only with alternatives from a particular subset of panel data. Window analysis has based on the assumption that what was "feasible" in the past will remain "feasible" forever. Therefore, the time treatment in the window analysis is more about the average properties over the period covered by a window (Tulkens & Van de Eeckaut, 1995).

According to Campisi and Costa (2008), this method has several advantages including evaluating efficiency relative to benchmarks for several companies based on optimal performance for each organization. This method is superior and helps estimate the efficiency of DMU in a relative sense (Shawtari et al., 2018). DEA Window Analysis works on the principle of moving averages which later detect the performance trends of each unit over time. Each DMU in a different period is processed like different data. DMU performance in specific periods compared to other periods in the same DMU performance unit. This analysis can be used to increase the number of data points in the analysis to be used for smaller sample sizes. In using this DEWA some variation can be used, namely the number of periods included in the analysis (in this study 5 years). This analysis can be used to observe a period covering the entire study period.

As recommended by Cooper et.al (2011), the table of window analysis results can be used for the analysis of relative efficiency stability through several summary statistics such as standard deviation (SD), long distance per window (LDW), long distance per period (LDP) and long distance per year (LDY). These four measurements can be used to analyze the efficiency stability achieved by each DMU. Standard deviation is the standard deviation that measures the difference in the average level of efficiency of the DMU for each window, the smaller the standard deviation value, indicating the more stable the efficiency value achieved by each DMU, in this case, Islamic and conventional banks. Long distance per window (LDW) shows the most significant difference from efficiency figures in one window. The smaller the LDW value indicates the more stable the efficiency value achieved by each Islamic bank, and vice versa. Long distance per all periods (LDP) describes the most significant difference from the efficiency figures in the entire observation period. The smaller the LDP value indicates the more stable the efficiency value achieved by each Islamic bank, and vice versa. The last one is long distance per year (LDY). LDY shows the most significant difference from the efficiency rate in one year. Similar to LDW and LDP, the smaller the LDY value indicates the more stable the efficiency value achieved by each DMU, and vice versa.

Results and Discussion

The discussion will show the efficiency level of 70 Insurances in Indonesia (both Sharia and conventional) during the 2015-202 period using Data Envelopment Analysis (DEA). The results will be displayed through an efficiency score with a range of 0 to 1. A score of 1 describes the

insurance's ability to manage their input and output optimally. However, if the efficiency score is further away from 1, the insurance is inefficient or has not optimally managed its input and output. The efficiency scores after data processing using MaxDea 8 can be seen in the following table.

Table 2. Insurances Efficiency Scores

DMU	2016	2017	2018	2019	2020
KU_ACA_	1	1	0,71	0,59	0,73
KU_ADIRA_DINAMIKA	0,92	0,76	0,67	0,69	0,59
KU_AIG_INS	0,57	0,55	0,72	0,51	0,51
KU_ALLIANZ_UTAMA	0,53	0,46	0,55	0,56	0,55
KU_ARTHAGRAHA	0,65	0,55	0,54	0,43	0,49
KU_ASEI	0,43	0,30	0,33	0,44	0,41
KU_AVRIST	0,76	0,70	0,71	0,58	0,52
KU_AXA_INDO	0,58	0,53	0,46	0,42	0,52
KU_BCA_UMUM	0,71	0,68	0,64	0,64	0,59
KU_BERDIKARI	0,45	0,31	0,26	0,44	0,33
KU_BINAGRIYA_UPAKARA	0,70	0,71	0,83	0,82	0,76
KU_BINTANG	0,63	0,77	0,50	0,51	0,69
KU_BOSOWA	0,45	0,45	0,51	0,56	0,58
KU_BUANA_INDEPENDENT	0,63	0,68	0,68	0,56	0,45
KU_BUMIDA	0,49	0,53	0,49	0,48	0,52
KU_CAKRAWALA_PROTEKSI	1	1	1	0,86	1
KU_CHINA_TAIPING	1,00	0,90	0,84	0,80	0,81
KU_CHUBB_GENERAL	0,70	0,49	0,43	0,43	0,35
KU_DAYIN_MITRA	0,82	1	1	0,88	1
KU_EKA_LLOYD	0,71	0,65	0,52	0,57	0,56
KU_ETIQA	0,71	0,75	0,45	0,32	0,57
KU_FPG_INDO	0,51	0,50	0,51	0,55	0,50
KU_HARTA_AMAN_PRATAMA	0,56	0,52	0,39	0,43	0,50
KU_INTRA_ASIA	0,75	0,71	0,77	0,97	0,55
KU_JASA_RAHARJA_PUTERA	0,59	0,61	0,60	0,66	0,52
KU_JASA_TANIA	0,56	0,55	0,47	0,40	0,34
KU_JASINDO	0,86	0,78	0,86	0,81	0,76
KU_KOOKMIN_BEST_INS	0,81	0,69	0,50	0,63	0,56
KU_KRESNA_MITRA	0,93	1	0,99	0,66	0,36
KU_KSK_INS	0,43	0,50	0,51	0,61	0,50
KU_MALACCA_TRUST	0,73	0,77	0,66	0,63	0,53
KU_MEGA	0,69	0,59	0,50	0,49	0,40
KU_MEGA_PRATAMA	0,60	0,75	0,52	0,38	0,36
KU_MITRA_PELINDUNG	0,71	0,58	0,57	0,54	0,49
KU_MNC_GENERAL	0,74	0,71	0,86	0,86	0,87
KU_MSIG	0,67	0,79	0,55	0,83	0,79
KU_MULTI_ARTHA_GUNA	0,97	0,75	0,55	0,61	0,61
KU_PAN_PACIFIK	0,79	0,67	0,91	0,53	0,47
KU_PURNA_ARTANUGRAHA	0,79	0,52	0,59	0,59	0,47
KU_QBE	0,52	0,56	0,48	0,52	0,48
KU_RAKSA_PRATIKARA	0,52	0,51	0,51	0,55	0,53
KU_RAMA_SATRIA	0,22	0,18	0,32	0,40	0,46
KU_RAMAYANA	0,51	0,55	0,53	0,52	0,60
KU_RELIANCE	0,58	0,63	0,65	0,78	0,70
KU_SAMSUNG_TUGU	0,57	0,52	0,72	0,58	0,63
KU_SARANA_LINDUNG_UPAYA	0,25	0,18	0,23	0,39	0,45
KU_SIMAS_NET	0,87	0,70	0,58	1	0,97
KU_SINAR_MAS	1	1	1	1	1
KU_SOMPO	0,80	0,74	0,83	0,77	0,61
KU_STACO	0,70	0,67	0,43	0,57	1,00
KU_SUMIT_OTO	0,87	0,93	0,81	0,91	1,00
KU_TOKIO_MARINE	0,55	0,56	0,66	0,79	0,80
KU_TRI_PAKARTA	0,44	0,54	0,54	0,48	0,60
KU_TUGU_KRESNA_PRATAMA	0,47	0,48	0,76	0,54	0,44
KU_TUGU_PRATAMA_INDO	1	0,99	1	1	0,89
KU_WAHANA_TATA	0,57	0,66	0,58	0,64	0,66
KU_ZURICH_INS	1	1	1	0,94	0,67
SU_SONWELIS_TAKAFUL	0,55	0,58	0,49	0,47	0,49
SU_ALLIANZ	0,96	0,94	1	1	1
SU_AXA_GENERAL	1,00	1,00	0,96	0,85	0,83
SU_BUMIDA	0,64	0,56	0,57	0,61	0,60
SU_JASARAHARJA PUTERA	0,70	0,72	0,46	0,80	1
SU_MEGA	0,70	0,72	0,46	0,80	1
SU_RELIANCE	1	0,89	0,80	0,88	0,80
SU_SINARMAS	1	0,85	0,74	0,74	1
SU_STACO	0,66	0,59	0,38	0,50	0,98
SU_TRI PAKARTA	0,59	0,57	0,53	0,75	0,87
SU_WAHANA_TATA	0,96	0,84	0,85	0,59	0,67
SU_TPI_SYARIAH	0,68	0,54	0,49	0,48	0,42
SU_CHUBB_SYARIAH	0,56	0,42	0,47	0,55	0,41

Based on Table 2, it can be seen that the efficiency scores of Insurances in Indonesia have fluctuated. The overall average of Insurances efficiency scores in the 2015-2020 period is 0.65. However, if it is measured annually, the standards show an exciting trend. The scores of Insurances efficiency experienced a sharp decline from 2016 to 2018, increasing in 2019 and relatively stable until 2020. The findings of this study reveal that COVID-19 has had little effect on the insurance business, both conventional and sharia insurance. This demonstrates that the efficiency of insurance institutions is unaffected by external circumstances like the COVID-19 epidemic.

Sinarmas Insurance obtains the maximum efficiency level 1 during 6-years observation, while Sarana Lindung Upaya Insurance is the lowest one with a score of 0.33. table 1 also shows that two insurances experienced an increasing trend from 2016 to 2018: Bosowa and Tokio Marine Insurance. However, there are also some insurances with a decreasing trend for 5 years study period: Jasa Tania, Mega, Mitra Pelindug, Chubb General, and AXA General Insurances. Efficiency scores also can be classified into four groups based on their efficiency scale, namely Fully Efficient (100%), Highly Efficient (80-99%), Medium Efficient (50-79%), and Low Efficient (less than 50%) (Rusydiana 2013). Of the total 350 DMU analyzed, there are only 34 DMUs reach a maximum efficiency value of 1, while the others 315 others did not achieve maximum efficiency with the details: 52 DMU's considered at highly efficient, 193 DMU's at medium efficiency, and 71 DMU's at low efficient.

Efficiency Comparison of Conventional and Sharia Insurance

Furthermore, a comparison will be made on Insurance efficiency based on conventional and Sharia insurance classification. The comparison is made by looking at the average efficiency value of conventional and Sharia insurance each year during the five-year study period.

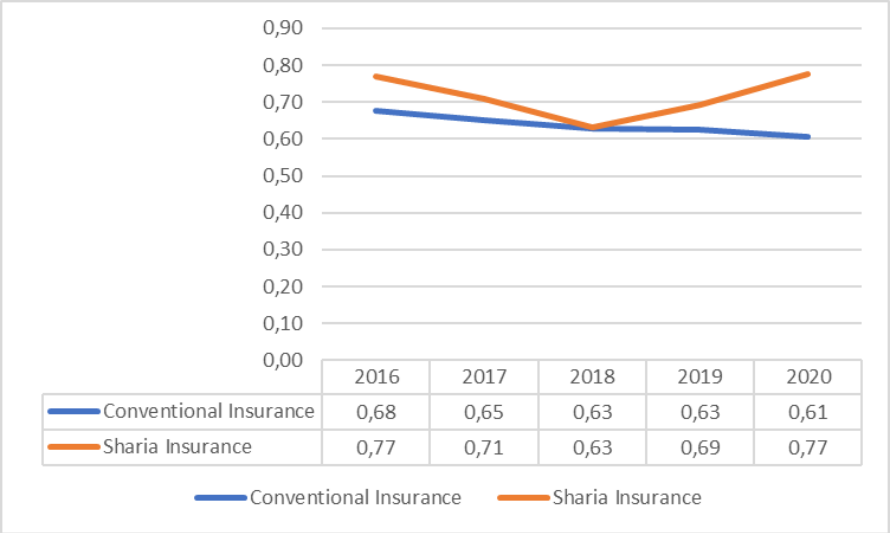

Figure 2. Efficiency Comparison of Conventional and Sharia Insurance

Figure 2 shows that the average efficiency scores of Sharia insurance are higher than conventional ones. The efficiency value of conventional insurance, has previously demonstrated a downward trend, continued to show a slight decline. In contrast, the efficiency value of sharia insurance, which has also shown a downward trend in 2018 but has since increased significantly, continues to show a significant increase. This is in line with (Karbhari et.al., 2018) wherein 2018 sharia insurances were on the inefficiency performance.

The result of this analysis is in line with Islam et al. (2013) and Khan and Noreen (2014), where sharia insurances are considered better than conventional insurances. Both Sharia and conventional insurances experienced a decline in average efficiency from 2016 to 2018. In 2018 both had identical average efficiency scores of 0.63. Then sharia insurance experienced an

increasing trend from 2018 to 2020, while conventional insurance experienced a slight decrease until 2020. As of the beginning of the 2020 Covid-19 pandemic spread in Indonesia, it affects the decline in the average efficiency of conventional insurance from 0.63 to 0.61. Interestingly, sharia insurance experienced a significant increase from 2019 to 2020 with a score of 0.69 and 0.77, respectively.

DEA Window Analysis

Since the DEA window analysis method can capture a general picture or general trend of development of Institutions, the authors report the average overall efficiency for each DMU in each window (see Appendix). The "Mean" column represents the average of all scores for each DMU. The standard deviation for each DMU's score is described in the "SD" column. The "LDY" column shows the most significant difference between DMU cores in different windows in the same year. The "LDP" column refers to the most significant difference between DMU cores over the entire period. This measurement is used to measure the stability efficiency of each DMU. The smaller the number of the four values above, the more stable the efficiency obtained per DMU (Nailah & Rusydiana, 2020).

Then analysis continued using the calculation of the DEA Window analysis. From the perspective of efficiency stability analysis through several statistical summaries such as SD, LDW, LDP and LDY. The most stable efficiency score is Sinarmas Conventional Insurance which achieves the smallest score of 0.00 in all several statistics and the highest score of 1 on average efficiency value. In addition, to evaluate the performance of Indonesian banks, the author tries to classify banks based on their level of efficiency and stability into four quadrants. Quadrant 1 consists of banks with a high efficiency level and stability of efficiency. In other words, the bank is categorized as top performance. Quadrant 2 consists of banks with a high level of efficiency but less stability. Quadrant 3 consists of banks with low levels of efficiency and stability. Quadrant 4 consists of banks that produce a low-efficiency level but are high stability. The efficiency column is derived from the average efficiency level in the window analysis results, in contrast, the stability of the efficiency column is generated from the LDY in the window analysis result. Table 3 shows the details of the quadrant categories.

As shown in table 3, the greater quadrant is Quadrant 4 with 26 insurances. Next, Quadrant II consists of 17 Insurances, followed by Quadrant III and I, which comprised of 14 and 13 Insurances respectively. Most of the Indonesia Insurances belong to quadrant IV (Low Efficiency and High Stability). It means most insurances are considered the worst performers in terms of efficiency and efficiency stability during the study period. This quadrant explains that the efficiency performance of Indonesian Insurances is low, and does not show an increase, or progress that has improved in the last five years. This needs to be a concern and evaluation material for all related parties, especially insurance companies to improve their performance in the following years. The analysis then continued by comparing in the quadrant analysis between sharia and conventional insurances.

Table 3. Indonesian Insurances Quadrant Category

	INSURANCE	EFFICIENCY		STABILITY		QUADRANT
1	KU_ACA	0,853	High Efficiency	0,234	Low Stability	II
2	KU_ADIRA_DINAMIKA	0,817	High Efficiency	0,318	Low Stability	II
3	KU_AIG_INS	0,643	Low Efficiency	0,098	Low Stability	III
4	KU_ALLIANZ_UTAMA	0,580	Low Efficiency	0,047	High Stability	IV
5	KU_ARTHAGRAHA	0,583	Low Efficiency	0,333	Low Stability	III
6	KU_ASEI	0,393	Low Efficiency	0,074	High Stability	IV
7	KU_AVRIST	0,736	High Efficiency	0,115	Low Stability	II
8	KU_AXA_INDO	0,549	Low Efficiency	0,101	Low Stability	III
9	KU_BCA_UMUM	0,698	High Efficiency	0,135	Low Stability	II
10	KU_BERDIKARI	0,374	Low Efficiency	0,018	High Stability	IV
11	KU_BINAGRIYA_UPAKARA	0,876	High Efficiency	0,147	Low Stability	II
12	KU_BINTANG	0,632	Low Efficiency	0,068	High Stability	IV

	INSURANCE	EFFICIENCY		STABILITY		QUADRANT
13	KU_BOSOWA	0,555	Low Efficiency	0,028	High Stability	IV
14	KU_BUANA_INDEPENDENT	0,666	Low Efficiency	0,027	High Stability	IV
15	KU_BUMIDA	0,529	Low Efficiency	0,031	High Stability	IV
16	KU_CAKRAWALA_PROTEKSI	0,978	High Efficiency	0,020	High Stability	I
17	KU_CHINA_TAIPING	0,932	High Efficiency	0,027	High Stability	I
18	KU_CHUBB_GENERAL	0,494	Low Efficiency	0,019	High Stability	IV
19	KU_DAYIN_MITRA	0,981	High Efficiency	0,079	High Stability	I
20	KU_EKA_LLOYD	0,630	Low Efficiency	0,055	High Stability	IV
21	KU_ETIQA	0,621	Low Efficiency	0,146	Low Stability	III
22	KU_FPG_INDO	0,581	Low Efficiency	0,151	Low Stability	III
23	KU_HARTA_AMAN_PRATAMA	0,516	Low Efficiency	0,102	Low Stability	III
24	KU_INTRA_ASIA	0,820	High Efficiency	0,123	Low Stability	II
25	KU_JASA_RAHARJA_PUTERA	0,646	Low Efficiency	0,104	Low Stability	III
26	KU_JASA_TANIA	0,523	Low Efficiency	0,071	High Stability	IV
27	KU_JASINDO	0,885	High Efficiency	0,141	Low Stability	II
28	KU_KOOKMIN_BEST_INS	0,677	Low Efficiency	0,130	Low Stability	III
29	KU_KRESNA_MITRA	0,848	High Efficiency	0,003	High Stability	I
30	KU_KSK_INS	0,574	Low Efficiency	0,058	High Stability	IV
31	KU_MALACCA_TRUST	0,731	High Efficiency	0,149	Low Stability	II
32	KU_MEGA	0,590	Low Efficiency	0,165	Low Stability	III
33	KU_MEGA_PRATAMA	0,457	Low Efficiency	0,030	High Stability	IV
34	KU_MITRA_PELINDUNG	0,624	Low Efficiency	0,052	High Stability	IV
35	KU_MNC_GENERAL	0,910	High Efficiency	0,106	Low Stability	II
36	KU_MSIG	0,766	High Efficiency	0,177	Low Stability	II
37	KU_MULTI_ARTHA_GUNA	0,678	Low Efficiency	0,039	High Stability	IV
38	KU_PAN_PACIFIK	0,742	High Efficiency	0,062	High Stability	I
39	KU_PURNA_ARTANUGRAHA	0,656	Low Efficiency	0,091	Low Stability	III
40	KU_QBE	0,555	Low Efficiency	0,045	High Stability	IV
41	KU_RAKSA_PRATIKARA	0,567	Low Efficiency	0,035	High Stability	IV
42	KU_RAMA_SATRIA	0,347	Low Efficiency	0,017	High Stability	IV
43	KU_RAMAYANA	0,592	Low Efficiency	0,102	Low Stability	III
44	KU_RELIANCE	0,760	High Efficiency	0,182	Low Stability	II
45	KU_SAMSUNG_TUGU	0,689	Low Efficiency	0,149	Low Stability	III
46	KU_SARANA_LINDUNG_UPAYA	0,297	Low Efficiency	0,007	High Stability	IV
47	KU_SIMAS_NET	0,916	High Efficiency	0,233	Low Stability	II
48	KU_SINAR_MAS	1,000	High Efficiency	0,000	High Stability	I
49	KU_SOMPO	0,812	High Efficiency	0,124	Low Stability	II
50	KU_STACO	0,649	Low Efficiency	0,027	High Stability	IV
51	KU_SUMIT_OTO	0,924	High Efficiency	0,043	High Stability	I
52	KU_TOKIO_MARINE	0,709	High Efficiency	0,066	High Stability	I
53	KU_TRI_PAKARTA	0,561	Low Efficiency	0,076	High Stability	IV
54	KU_TUGU_KRESNA_PRATAMA	0,597	Low Efficiency	0,023	High Stability	IV
55	KU_TUGU_PRATAMA_INDO	0,990	High Efficiency	0,000	High Stability	I
56	KU_WAHANA_TATA	0,658	Low Efficiency	0,043	High Stability	IV
57	KU_ZURICH_INS	0,952	High Efficiency	0,018	High Stability	I
58	SU_SONWELIS_TAKAFUL	0,590	Low Efficiency	0,107	Low Stability	III
59	SU_ALLIANZ	0,982	Low Efficiency	0,000	High Stability	IV
60	SU_AXA_GENERAL	0,967	High Efficiency	0,070	High Stability	I
61	SU_BUMIDA	0,663	Low Efficiency	0,051	High Stability	IV
62	SU_JASARAHARJA PUTERA	0,782	High Efficiency	0,046	High Stability	I
63	SU_MEGA	0,788	High Efficiency	0,200	Low Stability	II
64	SU_RELIANCE	0,909	High Efficiency	0,096	Low Stability	II
65	SU_SINARMAS	0,914	High Efficiency	0,247	Low Stability	II
66	SU_STACO	0,592	Low Efficiency	0,022	High Stability	IV
67	SU_TRI PAKARTA	0,697	High Efficiency	0,150	Low Stability	II
68	SU_WAHANA_TATA	0,853	High Efficiency	0,057	High Stability	I
69	TPI_SYARIAH	0,555	Low Efficiency	0,126	Low Stability	III
70	CHUBB_SYARIAH	0,543	Low Efficiency	0,078	High Stability	IV

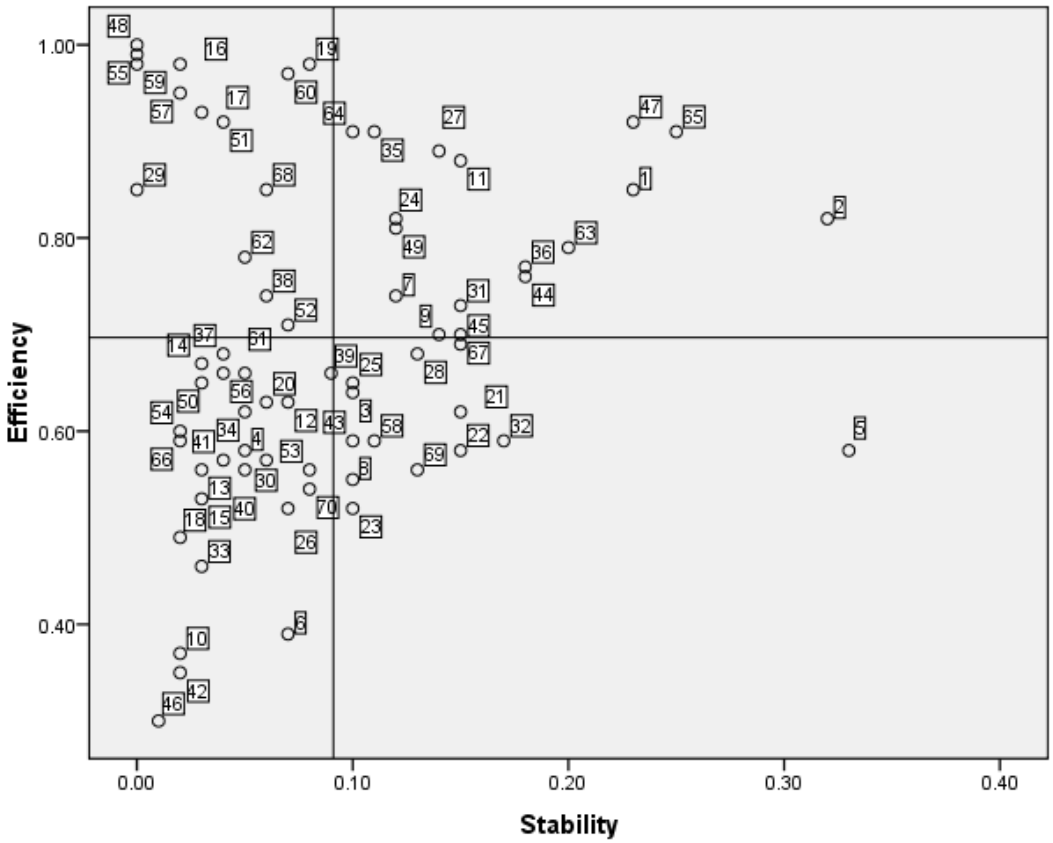

Figure 3. Efficiency-Stability Quadrant

Figure 3 shows the classification of sharia and conventional insurance based on the quadrant. The numbers used refer to the insurance numbering in table 3. The result indicates that sharia insurances are considered better than conventional insurances in terms of efficiency and efficiency stability quadrant proportion. The more significant quadrant that can explain it in conventional insurances is quadrant IV, which includes 22 insurances (38,6%), and the lowest is quadrant I, which consists of ten insurances (17,54%). While in sharia insurances, quadrant I is the second greater quadrant, including 3 insurances or 23,08% of sharia insurances. A further detailed comparison can be referred on appendix 2. This finding strengthens the above analysis that sharia bank is better than the conventional bank in terms of efficiency.

Conclusion

The The findings of this study indicate that the average efficiency score of Sharia and conventional insurance in Indonesia from 2016 to 2020 has fluctuated differently, with conventional insurance decreasing and sharia insurance increasing following a dip. In 2020, sharia insurance's average efficiency score climbed to 0.77 from 0.69 in 2019. Meanwhile, conventional insurance's score use declined to 0.61 from 0.63 earlier. This may explain why COVID-19 has had little effect on the insurance business. COVID-19 has a detrimental impact on the efficiency of conventional insurance but does not affect Sharia insurance, according to the DEA research.

This study also found that most Indonesian Insurances are considered the worst performers in terms of efficiency and efficiency stability during the study period. Most of the insurances are included in quadrant IV (low efficiency and high stability). This needs to be a concern and evaluation material for all related parties, especially insurance companies to improve their performance in the following year. Furthermore, from the perspective of efficiency stability analysis through several summary statistics such as standard deviation (SD), Long Distance per Window (LDW), Long Distance per Period (LDP), and Long Distance per Year (LDY), the most relatively stable value of Indonesian Insurances is Sinarmas Conventional Insurances.

Recommendations to practitioners include the need to enhance the quality of human resources in insurance and develop new insurance products to give clients more diversified options and achieve higher efficiency performance. Academics are urged to continue updating insurance efficiency information and statistics, particularly in 2021, since the pandemic has not ended. More studies may provide ideas to increase efficiency performance, with varied updates depending on the conditions. Recommendations to regulators include the importance of enhancing the overall quality of insurance, particularly its efficiency.

Author Contributions

Conceptualization: Aam Slamet Rusydiana
Data curation: Ihsanul Ikhwan
Formal analysis: Ihsanul Ikhwan
Investigation: Ihsanul Ikhwan
Methodology: Ihsanul Ikhwan
Project administration: Ihsanul Ikhwan
Supervision: Aam Slamet Rusydiana
Validation: Aam Slamet Rusydiana
Visualization: Aam Slamet Rusydiana
Writing – original draft: Aam Slamet Rusydiana
Writing – review & editing: Aam Slamet Rusydiana

References

Abidi, I., Nsaibi, M., & Regaieg, B. (2020). Challenges of Islamic insurance. *International Journal of Economics and Financial Issues*, 10(4), 69–79. https://doi.org/10.32479/ijefi.9860

Adams, M., Andersson, J., Andersson, L.F., & Lindmark, M. (2009). Commercial banking, insurance, and economic growth in Sweden between 1830 and 1998. *Accounting, Business & Financial History*, 19(1), 21-38. https://doi.org/10.1080/09585200802667139

Adawiyah, R., & Scott, H. (2008). *Essential Guide to Takaful (Sharia insurance)*. Kuala Lumpur: CERT Publication.

Alshammari, A. A., Alhabshi, S. B., & Saiti, B. (2018). The impact of competition on cost efficiency of insurance and takaful sectors: Evidence from GCC markets based on the stochastic frontier analysis. *Research in International Business and Finance*, 47, 410-427 https://doi.org/10.1016/j.ribaf.2018.09.003

Ascarya & Yumanita, D. (2007). Analisis efisiensi perbankan syariah di indonesia dengan data envelopment analysis (DEA). *TAZKIA Islamic Finance and Business Review*.1(2). 1-32. https://www.tifbr-tazkia.org/index.php/TIFBR/issue/archive

Babuna, P., Yang, X., Gyilbag, A., Awudi, D. A., Ngmenbelle, D., & Bian, D. (2020). The impact of Covid-19 on the insurance industry. *International Journal of Environmental Research and Public Health*, *17*(16), 5766; https://doi.org/10.3390/ijerph17165766

Badan Pusat Statistik. (2021). *Tingkat pengangguran terbuka (TPT)*. Retrieved from bps.go.id: https://www.bps.go.id/pressrelease/2021/05/05/1815/februari-2021--tingkat-pengangguran-terbuka--tpt--sebesar-6-26-persen.html

Banker, R. D., Charnes, A., & Cooper, W. W. (1984). Some models for estimating technical and scale inefficiencies in data envelopment analysis. *Management Science*, 30(9), 1078-1092. http://www.jstor.org/stable/2631725

Charnes, A., Cooper, W. W., & Rhodes, E. (1978). Measuring the efficiency of decision-making units. *European Journal of Operational Research*, 2(6), 429-444. https://doi.org/10.1016/0377-2217(78)90138-8

Cooper, W.W., Seiford, L.M., & Zhu, J. (2011). *Data envelopment analysis: History, models, and interpretations*. In Handbook on Data Envelopment Analysis (pp.1-39). Springer: Boston

Cristea, M., Marcu, N., & Cârstina, S. (2014). The relationship between insurance and economic growth in Romania compared to the main results in Europe: A theoretical and empirical analysis. *Procedia Economics and Finance*, 8, 226-235. https://org.id/10.1016/S2212-5671(14)00085-9

Diacon, S. (2001). The efficiency of UK general insurance companies. Center for Risk & Insurance Studies, *CRIS Discussion Paper Series*, 2001.III, 1-32. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.195.385&rep=rep1&type=pdf

Hidayat, I. P., & Firmansyah, I. (2017). Determinants of financial performance in the Indonesian Islamic insurance industry. *Etikonomi*, 16(1), 1–12. https://doi.org/10.15408/etk.v16i1.4648

Husin, M. M., & Rahman, A. A. (2016). Do Muslims intend to participate in Islamic insurance? Analysis from theory of planned behaviour. *Journal of Islamic Accounting and Business Research*, 34(1), 1–5. https://doi.org/10.1108/JIABR-03-2014-0012

Islam, J., Rahman, A., & Bhuiyan, Z. H. (2013). Measures of efficiency in the Takaful industry of Bangladesh-A Bangladesh non-approach. *European Journal of Business and Management - Special Issue: Islamic Management and Business*, 5(11), 163–173. https://iiste.org/Journals/index.php/EJBM/article/view/5434

Karbhari, Y., Muye, I., Hassan, A. F. S., & Elnahass, M. (2018). Governance mechanisms and efficiency: Evidence from an alternative insurance (Takaful) market. *Journal of International Financial Markets, Institutions and Money*, 56, 71–92. https://doi.org/10.1016/j.intfin.2018.02.017

Khan, A., & Noreen, U. (2014). Efficiency measure of insurance v/s Takaful firms using DEA approach: A case of Pakistan. *Islamic Economic Studies*, 22(1), 139–158. https://doi.org/10.12816/0004133

Nailah., & Rusydiana, A, S. (2020). Efficiency and stability of Islamic banking in ASEAN: DEA window analysis. *Tazkia Islamic Finance and Business Review*, 14(1), 11-19. https://doi.org/10.30993/tifbr.v14i1.211

Nugraheni, P., & Muhammad, R. (2019). Innovation in the takaful industry: a strategy to expand the takaful market in Indonesia. *Journal of Islamic Marketing*. 11(6), 1313-1326. https://doi.org/10.1108/JIMA-08-2018-0143

Rusyidiana, A, S. (2013). *Mengukur tingkat efisiensi dengan metode data envelopment analysis (DEA)*. Tim SMART Consulting: Katulampa Bogor

Sercy E, Duane TM, Lieser M, Madayag RM, Berg G, Banton KL, Hamilton D, Bar-Or D. (2021). Effect of the Covid-19 pandemic on health insurance coverage among trauma patients: a study of six level I trauma centers. *Trauma Surg Acute Care Open*. 6(1), 1-8. https://doi.org/10.1136/tsaco-2020-000640

Setiawan, S. (2013). *Prospek dan daya saing sektor perasuransian indonesia di tengah tantangan integrasi jasa (The prospects and competitiveness of Indonesian insurance sector in the challenges of service integration)*. Jakarta: Naga Media.

Shawtari, F. A., Salem, M. A., & Bakhit, I. (2018). Decomposition of efficiency using DEA window analysis: A comparative evidence from Islamic and conventional banks. *Benchmarking: An International Journal*, 25(6), 1681–1705. https://doi.org/10.1108/BIJ-12-2016-0183

Taib, C. A., Ashraf, M. S., & Razimi, M. S. B. A. (2018). Technical, pure technical and scale efficiency: A non-parametric approach of Pakistan's insurance and takaful industry. *Academy of Accounting and Financial Studies Journal*, 22(1). https://www.abacademies.org/articles/technical-pure-technical-and-scale-efficiency-a-nonparametric-approach-of-pakistans-insurance-and-takaful-industry-7070.html

Tulkens, H., & Van den Eekaut, P. (1995). Nonparametric efficiency, progress and regress measures for panel-data: Methodological aspects, *European Journal of Operation Research*, 80(3), 479-499. https://doi.org/10.1016/0377-2217(94)00132-V

Wang, Y., Zhang, D., Wang, X., & Fu, Q. (2020). How does Covid-19 affect China's insurance market? *Emerging Markets Finance and Trade*, 56, 2350–2362. https://doi.org/10.1080/1540496X.2020.1791074

Word Health Organization. (2021, 29 October). *WHO Coronavirus (Covid-19) dashboard*. https://covid19.who.int/table

Yanïkkaya, H., & Pabuçcu, Y. U. (2017). Causes and solutions for the stagnation of Islamic banking in Turkey. *ISRA International Journal of Islamic Finance*, 9(1), 43–61. https://doi.org/10.1108/IJIF-07-2017-005

Yildirim, I. (2015). Financial efficiency analysis in Islamic banks: Turkey and Malaysia models. *Journal of Economics, Finance and Accounting*, 2(3): 289–289. https://doi.org/10.17261/pressacademia.2015312956

APPENDIX: Window DEA Result

Insurances	window	2016	2017	2018	2019	2020	Mean/ window	MEAN	SD	LDW		LDP
CHUBB_SYARIAH	window 1	0,64	0,53	0,57			0,58	0,54	0,03	0,11	0,14	0,18
	window 2		0,48	0,54	0,57		0,53			0,09		
	window 3			0,49	0,60	0,47	0,52			0,14		
	LDY	x	0,05	0,08	0,03	x	0,08					
KU_ACA	window 1	1,00	1,00	0,73			0,91	0,85	0,07	0,27	0,41	0,41
	window 2		1,00	0,74	0,59		0,78			0,41		
	window 3			0,97	0,65	1,00	0,87			0,35		
	LDY	x	-	0,23	0,06	x	0,23					
KU_ADIRA_DINAMIKA	window 1	0,92	0,76	0,68			0,79	0,82	0,11	0,24	0,24	0,32
	window 2		0,78	0,69	0,72		0,73			0,09		
	window 3			1,00	0,93	0,88	0,94			0,12		
	LDY	x	0,02	0,32	0,21	x	0,32					
KU_AIG_INS	window 1	0,58	0,61	0,82			0,67	0,64	0,05	0,25	0,25	0,32
	window 2		0,60	0,83	0,58		0,67			0,25		
	window 3			0,73	0,53	0,51	0,59			0,22		
	LDY	x	0,02	0,10	0,05	x	0,10					
KU_ALLIANZ_UTAMA	window 1	0,64	0,49	0,58			0,57	0,58	0,04	0,15	0,15	0,19
	window 2		0,47	0,57	0,59		0,54			0,12		
	window 3			0,62	0,60	0,66	0,63			0,06		
	LDY	x	0,02	0,05	0,01	x	0,05					
KU_ARTHAGRAHA	window 1	0,76	0,69	0,71			0,72	0,58	0,12	0,07	0,14	0,33
	window 2		0,56	0,60	0,46		0,54			0,14		
	window 3			0,54	0,43	0,49	0,49			0,12		
	LDY	x	0,13	0,17	0,04	x	0,17					
KU_ASEI	window 1	0,46	0,33	0,37			0,39	0,39	0,00	0,13	0,18	0,18
	window 2		0,33	0,36	0,51		0,40			0,18		
	window 3			0,33	0,44	0,42	0,39			0,11		
	LDY	x	0,01	0,05	0,07	x	0,07					
KU_AVRIST	window 1	0,87	0,83	0,85			0,85	0,74	0,11	0,04	0,18	0,32
	window 2		0,78	0,76	0,64		0,73			0,14		
	window 3			0,74	0,59	0,56	0,63			0,18		
	LDY	x	0,05	0,11	0,05	x	0,11					
KU_AXA_INDO	window 1	0,68	0,65	0,58			0,64	0,55	0,08	0,10	0,12	0,23
	window 2		0,58	0,53	0,46		0,52			0,12		
	window 3			0,48	0,45	0,53	0,49			0,08		
	LDY	x	0,07	0,10	0,01	x	0,10					
KU_BCA_UMUM	window 1	0,71	0,68	0,64			0,68	0,70	0,06	0,08	0,08	0,14
	window 2		0,68	0,64	0,65		0,66			0,04		
	window 3			0,75	0,78	0,75	0,76			0,03		
	LDY	x	0,00	0,11	0,14	x	0,14					
KU_BERDIKARI	window 1	0,46	0,35	0,28			0,36	0,37	0,01	0,18	0,27	0,27
	window 2		0,33	0,27	0,53		0,38			0,27		
	window 3			0,26	0,53	0,35	0,38			0,27		
	LDY	x	0,02	0,02	0,00	x	0,02					
KU_BINAGRIYA_UPAKARA	window 1	0,83	0,81	1,00			0,88	0,88	0,04	0,19	0,19	0,23
	window 2		0,82	1,00	0,93		0,91			0,18		
	window 3			0,85	0,87	0,77	0,83			0,10		
	LDY	x	0,00	0,15	0,05	x	0,15					
KU_BINTANG	window 1	0,65	0,77	0,52			0,65	0,63	0,03	0,25	0,25	0,28
	window 2		0,80	0,57	0,58		0,65			0,23		
	window 3			0,53	0,52	0,75	0,60			0,23		
	LDY	x	0,02	0,04	0,07	x	0,07					
KU_BOSOWA	window 1	0,50	0,53	0,59			0,54	0,56	0,01	0,09	0,09	0,09
	window 2		0,51	0,60	0,59		0,56			0,09		
	window 3			0,53	0,56	0,59	0,56			0,06		
	LDY	x	0,02	0,01	0,03	x	0,03					
KU_BUANA_INDEPENDENT	window 1	0,69	0,72	0,71			0,71	0,67	0,05	0,02	0,24	0,24
	window 2		0,71	0,73	0,60		0,68			0,13		
	window 3			0,73	0,62	0,49	0,62			0,24		
	LDY	x	0,01	0,02	0,03	x	0,03					
KU_BUMIDA	window 1	0,51	0,55	0,52			0,53	0,53	0,00	0,04	0,05	0,06
	window 2		0,55	0,54	0,50		0,53			0,05		
	window 3			0,52	0,53	0,56	0,53			0,04		
	LDY	x	0,00	0,02	0,03	x	0,03					
KU_CAKRAWALA_PROTEKSI	window 1	1,00	1,00	1,00			1,00	0,98	0,02	-	0,11	0,11
	window 2		1,00	1,00	0,89		0,96			0,11		
	window 3			1,00	0,91	1,00	0,97			0,09		
	LDY	x	-	-	0,02	x	0,02					
KU_CHINA_TAIPING	window 1	1,00	0,90	0,89			0,93	0,93	0,04	0,11	0,11	0,19
	window 2		0,92	0,88	0,81		0,87			0,10		
	window 3			0,87	0,84	0,84	0,85			0,02		
	LDY	x	0,01	0,03	0,03	x	0,03					
KU_CHUBB_GENERAL	window 1	0,70	0,51	0,46			0,56	0,49	0,06	0,24	0,24	0,32
	window 2		0,53	0,47	0,48		0,49			0,06		

	window 3			0,46	0,46	0,38	0,43			0,08		
	LDY	x	0,01	0,01	0,02	x	0,02					
KU_DAYIN_MITRA	window 1	0,98	1,00	1,00			0,99	0,98	0,02	0,02	0,12	0,12
	window 2		1,00	1,00	0,96		0,99			0,04		
	window 3			1,00	0,88	1,00	0,96			0,12		
	LDY	x	-	-	0,08	x	0,08					
KU_EKA_LLOYD	window 1	0,72	0,65	0,55			0,64	0,63	0,02	0,17	0,17	0,17
	window 2		0,70	0,58	0,64		0,64			0,12		
	window 3			0,57	0,64	0,61	0,61			0,07		
	LDY	x	0,05	0,04	0,00	x	0,05					
KU_ETIQA	window 1	0,90	1,00	0,60			0,83	0,62	0,19	0,40	0,40	0,67
	window 2		0,85	0,52	0,33		0,57			0,53		
	window 3			0,46	0,33	0,60	0,47			0,27		
	LDY	x	0,15	0,13	0,01	x	0,15					
KU_FPG_INDO	window 1	0,65	0,65	0,67			0,66	0,58	0,07	0,02	0,09	0,17
	window 2		0,52	0,55	0,61		0,56			0,09		
	window 3			0,52	0,55	0,50	0,52			0,04		
	LDY	x	0,13	0,15	0,07	x	0,15					
KU_HARTA_AMAN_PRATAMA	window 1	0,67	0,63	0,50			0,60	0,52	0,08	0,17	0,17	0,27
	window 2		0,59	0,46	0,47		0,51			0,13		
	window 3			0,40	0,45	0,48	0,44			0,08		
	LDY	x	0,04	0,10	0,02	x	0,10					
KU_INTRA_ASIA	window 1	0,75	0,71	0,80			0,75	0,82	0,07	0,09	0,40	0,40
	window 2		0,83	0,84	1,00		0,89			0,17		
	window 3			0,84	1,00	0,60	0,82			0,40		
	LDY	x	0,12	0,05	-	x	0,12					
KU_JASA_RAHARJA_PUTERA	window 1	0,62	0,64	0,61			0,62	0,65	0,02	0,03	0,16	0,16
	window 2		0,65	0,62	0,66		0,64			0,04		
	window 3			0,65	0,76	0,60	0,67			0,16		
	LDY	x	0,01	0,03	0,10	x	0,10					
KU_JASA_TANIA	window 1	0,63	0,63	0,57			0,61	0,52	0,09	0,06	0,18	0,25
	window 2		0,62	0,54	0,43		0,53			0,18		
	window 3			0,49	0,42	0,37	0,43			0,12		
	LDY	x	0,01	0,07	0,01	x	0,07					
KU_JASINDO	window 1	1,00	1,00	1,00			1,00	0,88	0,10	-	0,07	0,21
	window 2		0,79	0,86	0,83		0,83			0,07		
	window 3			0,86	0,84	0,79	0,83			0,07		
	LDY	x	0,21	0,14	0,00	x	0,14					
KU_KOOKMIN_BEST_INS	window 1	0,90	0,80	0,64			0,78	0,68	0,10	0,26	0,26	0,39
	window 2		0,78	0,57	0,68		0,68			0,21		
	window 3			0,51	0,64	0,56	0,57			0,13		
	LDY	x	0,02	0,13	0,04	x	0,13					
KU_KRESNA_MITRA	window 1	0,93	1,00	1,00			0,98	0,85	0,16	0,07	0,64	0,64
	window 2		1,00	1,00	0,67		0,89			0,33		
	window 3			1,00	0,67	0,36	0,68			0,64		
	LDY	x	-	-	0,00	x	0,00					
KU_KSK_INS	window 1	0,48	0,55	0,57			0,53	0,57	0,04	0,08	0,13	0,21
	window 2		0,57	0,59	0,69		0,62			0,13		
	window 3			0,55	0,64	0,53	0,57			0,10		
	LDY	x	0,02	0,05	0,06	x	0,06					
KU_MALACCA_TRUST	window 1	0,80	0,82	0,84			0,82	0,73	0,10	0,05	0,16	0,31
	window 2		0,80	0,71	0,73		0,75			0,08		
	window 3			0,69	0,65	0,54	0,63			0,16		
	LDY	x	0,03	0,15	0,08	x	0,15					
KU_MEGA	window 1	0,74	0,72	0,67			0,71	0,59	0,12	0,07	0,08	0,31
	window 2		0,63	0,58	0,55		0,58			0,08		
	window 3			0,51	0,49	0,43	0,48			0,08		
	LDY	x	0,09	0,16	0,05	x	0,16					
KU_MEGA_PRATAMA	window 1	0,62	0,76	0,54			0,64	0,46	0,27	0,22	0,33	0,38
	window 2		0,76	0,55	0,43		0,58			0,33		
	window 3			0,53	0,40	0,38	0,15			0,15		
	LDY	x	0,00	0,01	0,03	x	0,03					
KU_MITRA_PELINDUNG	window 1	0,77	0,66	0,63			0,68	0,62	0,06	0,14	0,14	0,24
	window 2		0,64	0,64	0,57		0,62			0,07		
	window 3			0,59	0,59	0,53	0,57			0,06		
	LDY	x	0,02	0,05	0,02	x	0,05					
KU_MNC_GENERAL	window 1	0,80	0,83	1,00			0,88	0,91	0,04	0,20	0,20	0,20
	window 2		0,84	1,00	1,00		0,95			0,16		
	window 3			0,92	0,89	0,91	0,91			0,02		
	LDY	x	0,01	0,08	0,11	x	0,11					
KU_MSIG	window 1	0,80	0,82	0,75			0,79	0,77	0,02	0,07	0,27	0,31
	window 2		0,81	0,57	0,84		0,74			0,27		
	window 3			0,64	0,88	0,79	0,77			0,24		
	LDY	x	0,00	0,18	0,04	x	0,18					
KU_MULTI_ARTHA_GUNA	window 1	1,00	0,78	0,59			0,79	0,68	0,10	0,41	0,41	0,45
	window 2		0,76	0,57	0,63		0,65			0,20		
	window 3			0,55	0,61	0,61	0,59			0,06		

	LDY	x	0,02	0,04	0,01	x	0,04					
KU_PAN_PACIFIK	window 1	0,83	0,71	0,94			0,83	0,74	0,08	0,23	0,51	0,51
	window 2		0,68	0,93	0,54		0,72			0,39		
	window 3			0,99	0,56	0,48	0,68			0,51		
	LDY	x	0,03	0,06	0,02	x	0,06					
KU_PURNA_ARTANUGRAHA	window 1	0,93	0,61	0,71			0,75	0,66	0,09	0,31	0,31	0,45
	window 2		0,60	0,67	0,68		0,65			0,08		
	window 3			0,62	0,60	0,47	0,56			0,15		
	LDY	x	0,01	0,09	0,08	x	0,09					
KU_QBE	window 1	0,68	0,63	0,51			0,61	0,55	0,05	0,17	0,17	0,18
	window 2		0,58	0,50	0,54		0,54			0,08		
	window 3			0,51	0,53	0,51	0,52			0,03		
	LDY	x	0,05	0,01	0,01	x	0,05					
KU_RAKSA_PRATIKARA	window 1	0,58	0,57	0,58			0,57	0,57	0,01	0,01	0,06	0,06
	window 2		0,55	0,54	0,58		0,55			0,03		
	window 3			0,54	0,60	0,58	0,57			0,06		
	LDY	x	0,02	0,03	0,02	x	0,03					
KU_RAMA_SATRIA	window 1	0,25	0,22	0,36			0,28	0,35	0,08	0,14	0,23	0,30
	window 2		0,20	0,36	0,43		0,33			0,23		
	window 3			0,34	0,44	0,51	0,43			0,16		
	LDY	x	0,02	0,02	0,01	x	0,02					
KU_RAMAYANA	window 1	0,60	0,66	0,66			0,64	0,59	0,04	0,06	0,08	0,10
	window 2		0,57	0,56	0,58		0,57			0,02		
	window 3			0,56	0,53	0,61	0,57			0,08		
	LDY	x	0,09	0,10	0,04	x	0,10					
KU_RELIANCE	window 1	0,80	0,78	0,87			0,82	0,76	0,05	0,08	0,15	0,23
	window 2		0,64	0,73	0,79		0,72			0,15		
	window 3			0,69	0,81	0,73	0,74			0,13		
	LDY	x	0,14	0,18	0,02	x	0,18					
KU_SAMSUNG_TUGU	window 1	0,62	0,61	0,90			0,71	0,69	0,02	0,29	0,34	0,34
	window 2		0,57	0,90	0,59		0,68			0,34		
	window 3			0,75	0,62	0,65	0,67			0,13		
	LDY	x	0,05	0,15	0,03	x	0,15					
	window 1	0,27	0,20	0,24			0,24	0,30	0,07	0,07	0,22	0,25
	window 2		0,20	0,24	0,41		0,29			0,21		
	window 3			0,23	0,41	0,46	0,37			0,22		
	LDY	x	0,00	0,01	0,00	x	0,01					
KU_SIMAS_NET	window 1	1,00	1,00	0,85			0,95	0,92	0,04	0,15	0,38	0,38
	window 2		1,00	0,80	1,00		0,93			0,20		
	window 3			0,62	1,00	0,98	0,87			0,38		
	LDY	x	-	0,23	-	x	0,23					
KU_SINAR_MAS	window 1	1,00	1,00	1,00			1,00	1,00	-	-	-	-
	window 2		1,00	1,00	1,00		1,00			-		
	window 3			1,00	1,00	1,00	1,00			-		
	LDY	x	-	-	-	x	-					
KU_SOMPO	window 1	0,80	0,74	0,83			0,79	0,81	0,04	0,09	0,21	0,22
	window 2		0,74	0,83	0,77		0,78			0,09		
	window 3			0,96	0,89	0,75	0,86			0,21		
	LDY	x	-	0,12	0,11	x	0,12					
KU_STACO	window 1	0,76	0,70	0,46			0,64	0,65	0,04	0,29	0,54	0,54
	window 2		0,72	0,49	0,63		0,61			0,24		
	window 3			0,46	0,63	1,00	0,70			0,54		
	LDY	x	0,03	0,02	0,00	x	0,03					
KU_SUMIT_OTO	window 1	0,89	1,00	0,83			0,91	0,92	0,02	0,17	0,17	0,17
	window 2		1,00	0,85	0,92		0,92			0,15		
	window 3			0,86	0,96	1,00	0,94			0,14		
	LDY	x	-	0,01	0,04	x	0,04					
KU_TOKIO_MARINE	window 1	0,63	0,65	0,67			0,65	0,71	0,07	0,04	0,22	0,25
	window 2		0,58	0,67	0,81		0,69			0,22		
	window 3			0,71	0,83	0,83	0,79			0,12		
	LDY	x	0,07	0,04	0,02	x	0,07					
KU_TRI_PAKARTA	window 1	0,52	0,57	0,57			0,56	0,56	0,01	0,05	0,14	0,14
	window 2		0,58	0,57	0,56		0,57			0,02		
	window 3			0,56	0,48	0,62	0,55			0,14		
	LDY	x	0,00	0,01	0,08	x	0,08					
KU_TUGU_KRESNA_PRATAMA	window 1	0,52	0,50	0,76			0,60	0,60	0,00	0,26	0,31	0,31
	window 2		0,50	0,76	0,55		0,60			0,27		
	window 3			0,76	0,57	0,45	0,59			0,31		
	LDY	x	0,01	0,00	0,02	x	0,02					
KU_TUGU_PRATAMA_INDO	window 1	1,00	1,00	1,00			1,00	0,99	0,02	-	0,09	0,09
	window 2		1,00	1,00	1,00		1,00			-		
	window 3			1,00	1,00	0,91	0,97			0,09		
	LDY	x	-	-	-	x	-					
KU_WAHANA_TATA	window 1	0,73	0,73	0,63			0,69	0,66	0,03	0,10	0,10	0,15
	window 2		0,69	0,61	0,65		0,65			0,08		
	window 3			0,58	0,64	0,66	0,63			0,08		
	LDY	x	0,04	0,04	0,01	x	0,04					
KU_ZURICH_INS	window 1	1,00	1,00	1,00			1,00	0,95	0,07	0,00	0,33	0,33

	window 2		1,00	1,00	0,94		0,98			0,06		
	window 3			1,00	0,96	0,67	0,88			0,33		
	LDY	x	-	-	0,02	x	0,02					
SONWELIS_TAKAFUL	window 1	0,57	0,58	0,50			0,55	0,59	0,03	0,08	0,14	0,18
	window 2		0,69	0,55	0,59		0,61			0,14		
	window 3			0,59	0,63	0,61	0,61			0,04		
	LDY	x	0,11	0,09	0,03	x	0,11					
SU_ALLIANZ	window 1	0,96	0,94	1,00			0,97	0,98	0,02	0,06	0,06	0,06
	window 2		0,94	1,00	1,00		0,98			0,06		
	window 3			1,00	1,00	1,00	1,00			-		
	LDY	x	-	-	-	x	-					
SU_AXA_GENERAL	window 1	1,00	1,00	0,97			0,99	0,97	0,02	0,03	0,12	0,12
	window 2		1,00	0,98	0,88		0,95			0,12		
	window 3			1,00	0,95	0,92	0,96			0,08		
	LDY	x	-	0,03	0,07	x	0,07					
SU_BUMIDA	window 1	0,70	0,64	0,60			0,65	0,66	0,02	0,10	0,10	0,11
	window 2		0,62	0,64	0,69		0,65			0,07		
	window 3			0,65	0,71	0,71	0,69			0,06		
	LDY	x	0,02	0,05	0,03	x	0,05					
SU_JASARAHARJA PUTERA	window 1	0,96	1,00	0,70			0,89	0,78	0,11	0,30	0,31	0,35
	window 2		1,00	0,69	0,69		0,79			0,31		
	window 3			0,65	0,65	0,71	0,67			0,06		
	LDY	x	-	0,05	0,04	x	0,05					
SU_MEGA	window 1	0,88	0,91	0,62			0,80	0,79	0,03	0,29	0,54	0,54
	window 2		0,87	0,55	1,00		0,80			0,45		
	window 3			0,46	0,80	1,00	0,76			0,54		
	LDY	x	0,05	0,16	0,20	x	0,20					
SU_RELIANCE	window 1	1,00	0,90	0,84			0,91	0,91	0,03	0,16	0,16	0,16
	window 2		1,00	0,85	0,94		0,93			0,15		
	window 3			0,88	0,90	0,86	0,88			0,04		
	LDY	x	0,10	0,04	0,04	x	0,10					
SU_SINARMAS	window 1	1,00	0,88	1,00			0,96	0,91	0,07	0,12	0,26	0,26
	window 2		0,94	0,93	0,99		0,95			0,06		
	window 3			0,75	0,74	1,00	0,83			0,26		
	LDY	x	0,06	0,25	0,25	x	0,25					
SU_STACO	window 1	0,70	0,62	0,41			0,58	0,59	0,06	0,29	0,56	0,57
	window 2		0,64	0,43	0,56		0,54			0,21		
	window 3			0,41	0,57	0,98	0,65			0,56		
	LDY	x	0,02	0,02	0,01	x	0,02					
SU_TRI PAKARTA	window 1	0,66	0,66	0,59			0,64	0,70	0,05	0,07	0,33	0,33
	window 2		0,66	0,60	0,91		0,72			0,30		
	window 3			0,55	0,76	0,88	0,73			0,33		
	LDY	x	0,00	0,05	0,15	x	0,15					
SU_WAHANA_TATA	window 1	1,00	0,91	0,91			0,94	0,85	0,08	0,09	0,34	0,37
	window 2		0,92	0,97	0,63		0,84			0,34		
	window 3			0,96	0,64	0,74	0,78			0,32		
	LDY	x	0,02	0,06	0,00	x	0,06					
TPI_SYARIAH	window 1	0,76	0,69	0,59			0,68	0,56	0,11	0,17	0,17	0,34
	window 2		0,56	0,51	0,48		0,52			0,08		
	window 3			0,50	0,49	0,42	0,47			0,08		
	LDY	x	0,13	0,09	0,01	x	0,13					