



Efficient Balanced contract plan between Social Insurance and Personal Insurance

- Focusing on the Sales Capacity of Personal Health Insurance by Insurance planner -

I Background of research

II National Health Insurance and Personal Health Insurance

III Consultation of insurance planners in relation to national and private health insurance

IV A Study on the Balanced contract plan between National Health Insurance and Personal Health Insurance

➤ **General Issues relating to National Health Insurance**

- 1. financial problems**
- 2. frequent conflicts of interest on health insurance**
- 3. the spread of moral hazard**
- 4. resistance of subscribers to higher insurance premiums**

➤ **an issue alternative**

In addition to the national health insurance, the medical expenses of the people are reduced while health and need specific alternatives that maximize the efficiency and assurance of care

➤ **Revitalization of private health insurance (personal health insurance) is an improvement of the national health insurance system.**

Contribute to the efficiency of the entire NHS system with efficiency (Kim Won-shik 2002)

> **an issue alternative**

Realistically, the supply of private health insurance (personal health insurance) in Korea depends on insurance planners

The Problem of Private Health Insurance Supply by Insurance planner

- 1. lack of understanding social insurance**
- 2. Lack of consulting skills to balance social and private health insurance**
- 3. The insurance plan itself rather than the customer, and the interests of the insurance company to which you belong, are encouraged to purchase private medical insurance**

➤ **National Health Insurance and Personal Health Insurance**

The current public benefits of national health insurance only partially cover medical expenses.

Because it is resolved, most patients will receive additional personal health insurance.

We have no choice but to pay my own expenses.

> National Health Insurance and Personal Health Insurance

The demand of the public among the benefits currently not provided by the National Health Insurance.

High areas include legal personnel burden, difference in senior ward, and nursing costs.

designated care, diet, state-of-the-art medical services, long-term care, etc.

But most of these areas are not covered by national health insurance.

There are also areas where the principle of general insurance is difficult to apply.

> National Health Insurance and Personal Health Insurance

	National Health Service	public health insurance	Private Health Insurance
Insurance Subscription and Target	whole nation	whole or part of a people (enforced form)	Part of the premium (arbitrary)
right of supply and demand	legal right of supply and demand	legal right of supply and demand	contractual (arbitrary) right to supply and demand
Medical finance	general tax	Health insurance premium + some treasury support	personal insurance premium
income redistribution effect	o	o	x
Operating entity/responsibility	state/public agency	state/public agency	Market (private insurance company)
major state	England, Sweden	Korea, France, Germany, Canada, etc	the United States, Switzerland, etc

Source; Federation of Korean Trade Unions (2006)

> Personal Health Insurance Type

		Application of the Public Health Guarantee System	
		yes	no
guaranteed content	Same service as public health insurance	1 Redundant (United Kingdom, Australia, Spain)	2 Alternative (Germany, USA, Chile)
	personal allowance for public health insurance	3 Supplementary model (France, Brazil, USA)	
	Supplementary services	4 Supplement to fringe benefits (Chile, Netherlands, Canada, Ireland)	

Source ; OECD. Private health insurance in OECD countries: The benefits and costs for individuals and health systems. 2004

> **Personal Health Insurance Type**

Supplemental punishment is a method to supplement the self-responsibility of the care sector, which is not guaranteed by the public health insurance.

Alternative types are excluded from public health insurance for some classes and allowed to subscribe to private insurance.

The competition type is similar to the alternative type, but it allows the choice of subscription among private or public insurance, and allows competition between public and private insurance.

> Personal Health Insurance Type

The supplemental private medical insurance policy has 'the main burden supplement' and 'the additional benefit supplement' according to the scope of the guarantee.

Complementary: A method to guarantee legal basis for public health insurance

Supplemental: Types of Advanced Additional Services, Innovative Medical Service Costs Not Guaranteed by Public Health Insurance

Most private health insurance companies in Korea are more like a "main burden supplement" to compensate for part of the cost of nursing care and income loss, along with their own expenses.

➤ **Definition of insurance planner**

An insurance planner is subordinate to a particular insurance company and is responsible for introducing insurance policies to the public for the insurance company and encouraging the public to sign insurance contracts and delivering them to the insurance company.(Kim Young-kyu 2015)

Article 2 Clause 9 of the Insurance Business Act defines an insurance planner as a broker of insurance contracts belonging to an insurance company, an insurance agent, or an insurance broker.

Consultation of insurance planners in relation to national health insurance and personal health insurance

> Current status of insurance planners

Units; 10,000 person, trillion, %

	2015			2016			2017		
	insurance agent	Insurance company	Banquassurance and broker	insurance agent	Insurance company	Banquassurance and broker	insurance agent	Insurance company	Banquassurance and broker
Number of insurance planner belonging to the company (weight)	20.4 (34.6)	20.3 (34.5)	18.2 (30.9)	21.4 (36.4)	19.7 (33.5)	17.7 (30.1)	22.3 (37.8)	18.9 (32.0)	17.8 (30.2)
insurance collection (weight)	35.2 (44.1)	25.4 (31.8)	19.2 (24.1)	37.5 (47.1)	24.6 (30.8)	17.7 (22.1)	38.4 (49.4)	25.3 (32.5)	14.1 (18.1)

Source; Financial Supervisory Service (2018)

➤ **Pay structure for insurance planners**

Insurance planner and insurance company are contractually appointed, and insurance company receives benefits according to the performance of insurance product sold by insurance planner

According to an article by Chosun Biz, half of the planners at the local insurance company had a monthly income of less than 2 million won (Jin Kwang-sung, 2018)

> **Health Insurance Consultation for Insurance Architects**

Insurance planners' incentives to engage in the insurance industry are divided into livelihood-oriented, business-oriented and participatory(Jeong Jung-young · Ahn Cheol-kyung, 2009)

'Survival insurance planner' based on economic motivation (livelihood-oriented) 53.3~69.5% of cases are the highest (An Cheol-kyung, Hwang Jin-tae, Seo Sung-min, 2011)

> **Health Insurance Consultation for Insurance Architects**

Prior to working for an insurance designer who selected an insurance planner, the number of households or no jobs (27.1 percent) was the highest (An Cheol-gyeong, Cheonggye, Hwangjin, Seo Seong-min, 2011)

In particular, most female designers don't have previous work experience (labor, household) or engage in simple sales regardless of the financial industry

➤ Cause of incomplete sales by insurance planner

Insurance products vary depending on the type of insurance they subscribe to and when they are subscribed

Subscribing to an insurance policy will result in an insurance policy with insurance-related terms that are not accessible to the public.

In this case, the insurance consumer will understand the insurance policy and receive important information

according to the insurance designer's ability.

In contrast, if the policyholder has no understanding of the terms and conditions of the insurance product sold by the insurance planner, he or she will have to rely on the information of the insurance planner (Lee Ho-seung 2014).

> **Need for Enhancing the Capabilities of Insurance planner**

Kim Jeong-ju (2015) studied the ability of insurance planners to effectively perform their duties in a capacity model development study by insurance planners, i.e., professionalism and analytical skills.

First, highlight your professional skills

'Property' to have a product's product history and knowledge of various financial and sales regulations;

The Expertise Capabilities Group includes the ability of the goods to understand, to provide regulatory knowledge, and to provide financial information.

> **The Need for Enhancing the Capabilities of Insurance planner**

Second, emphasize analytical skills

Means the preparation of the call, financial design and the ability to provide services based on the customer's propensity

Includes four capabilities: design capability, description, customer orientation, and readiness

> Need to strengthen the expertise of insurance planners

- 1. Product history; shifting product education focused on selling point to education focused on interpreting terms and conditions; and also focusing on social insurance, etc.**
- 2. Regulatory knowledge; training on insurance business laws, etc., which are not currently implemented by an insurance company or by an educational institution.**
- 3. Financial financial knowledge; need to further develop basic knowledge of finance and economy from insurance-oriented knowledge;**

> Need to strengthen the analysis capability of insurance planners

1. Design ability; need to acquire a qualified financial certificate that includes all aspects of financial consulting ability, social insurance, etc.

2. Descriptive power; RP training and script memorization to upgrade the explanatory power.

3. Customer-oriented; need to strengthen ethical training for insurance recruiters

4. Readiness; Need to increase the role of Sales Manager to train and manage insurance planners

A Suggestion for the Vitalization of Takaful Insurance in Indonesia

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Abstract

Stock company model and mutual company model have been conventional ways of delivering insurance. Both types of insurance companies have common features and differences. Due to its nature, mutual insurance company sell participating policies more than stock company. Participating policy use more conservative assumption for determining the premium but has dividend for policyholder.

Indonesia has large muslims population, about 87% of the population choose Islam as their religion. Muslims claim that conventional insurance concept is unlawful based on Islamic law (*shari'ah*) since it contains *riba* (interest), *gharar* (uncertainty), and *maysir* (gambling). Takaful, Islamic insurance, has been developed as an alternative for muslims. It is based on the philosophy of cooperativeness and mutuality. It is quite challenging for takaful to expand its business since it has some issues to overcome. Takaful and participating policies have similar concept. However, both of Takaful and participating policies have small market shares in Indonesian insurance market. This paper aims to suggest a modification of current participating policy for the actual expansion of the concept of Takaful in Indonesia. In this paper, the authors will compare following four types of policies based on simulation study: non-participating whole life policy, participating whole life policy, whole life Takaful, and modified participating whole life policy. Indonesian data will be used for the analysis.

Keywords: Takaful insurance (Islamic life insurance), Participating policy, Modified participating policy, *tabarru*, *ibaha*.

Introduction

Insurance contract has been being purchased for the financial protection from unexpected future losses. Stock company model and mutual company model have been conventional ways of delivering insurance. Mutual model has a cooperative concept. Policyholders share their risks

among themselves unlike the stock company model. Policyholders of stock company transfer their risks to the insurer. In mutual company policyholders own the profits and losses, meanwhile the profit and losses belong to shareholders in stock company. Therefore, there exists implicit conflict of interest between policyholders and shareholders in the stock company. Although mutual insurance company has advantages, it also has disadvantages. One of the difficulties is raising sufficient capital. It is hard for start-up mutual insurance company to meet capital requirements. Due to its nature mutual companies sell participating policies more than stock companies. Participating policy or par product is a type of insurance contract that pays dividends to the policyholders. The dividends are determined by share of surplus earnings. In Indonesia, par products are typically sold as medium to long-term endowment policy and whole life policy.

Among Muslims conventional insurance concept has become a controversial issue. They claim that conventional insurance is unlawful from the viewpoint of Islam since it contains *riba* (interest), *gharar* (uncertainty), and *maysir* (gambling) components. Takaful, Islamic insurance, has been developed as an alternative for muslims. Takaful is a modern form of mutual financial protection under Islamic law and has similar concept with par product. Indonesia has large Muslim population, about 87% of the population choose Islam as their religion. According to an analysis of Milliman Family Takaful Insurance, Islamic life insurance, only has 4% portion in terms of gross written contributions in 2015. Although it is still far less than conventional insurance, it is steadily growing from 3.6% in 2011 to 5% in 2015 (General and Family Takaful). It is quite challenging for Takaful to expand its business since it has some issues to overcome. Takaful company has to provide qard (interest-free loan) in case of deficit. As a consequence, many Takaful companies are burning up capital. Moreover there is little hope for imminent recovery. Challenges in distribution arise due to large geographical spread of Indonesian insurance market and there are still few Takaful companies in Indonesia. Lower return of Takaful gives Takaful companies more challenges in expanding their business. In Indonesia conventional insurance company is allowed to open shari'ah unit, called Takaful window. But the problem is, there are requirements not easy to be satisfied for Takaful window. Moreover, according to the regulation made by Financial Services Authority (OJK; Indonesian regulator), conventional insurance company which has Takaful window needs to spin-off their Takaful window by year 2024. If conventional insurance companies want to do it, they need to meet separation condition immediately. Another challenge for Takaful to expand its business is some muslims think that

tabarru' (treating premium as a donation) concept, which is used in current Takaful scheme, still not acceptable since it is unlawful for the donor to expect a return from the donated property. Although there are difficulties for Takaful to expand its business, Takaful is fundamentally good for the people since it has characteristics of transparency and risk-sharing. More importantly it is compliant with *shari'ah*.

Participating policies or par products have been sold by multinational and domestic insurance companies with varying degrees of popularity in Indonesia. In general, par product typically form much smaller part of insurance company's overall portfolio. Though both of Takaful and par product have smaller portion in Indonesia insurance market, they share similar good concept. One of the relative advantages of par product compared to Takaful is the fact that these products are sold by conventional insurance companies which have large portion in Indonesia insurance market, which are more financially stable, and which are better known by consumers since they dominate the market. But currently sold par product is not *shari'ah* compliant. The intention of the authors of this paper is to contribute to the practical expansion of sales of insurance policy compliant with Takaful concept by proposing a modified participating policy.

Methodology

This study employed quantitative analysis using the data from Indonesia insurance market and statistics from the population of Indonesia. Projections of future Indonesian mortality rates will be made by estimated Lee-Carter model. Lee-Carter model stated as follows

$$\ln(m_{x,t}) = a_x + b_x k_t + \epsilon_{x,t}$$

where $m_{x,t}$ denotes central death rate at the age x and year t , a_x denotes average value of the logarithm of the central death rate for age x , b_x denotes the sensitivity of the log of mortality at age x to changes the mortality index k_t , k_t denotes an index of the level of mortality; how fast mortality improvement over time, $\epsilon_{x,t}$ reflects particular age-specific historical influences not captured by the model. The model is constrained by $\sum_x b_x = 1$ and $\sum_t k_t = 0$. The estimator for a_x is

$$\hat{a}_x = \frac{1}{T} \sum_{t=1}^T \ln(m_{x,t})$$

For the estimation of b_x and k_t , Singular Value Decomposition (SVD) is used for the first stage estimation. Having developed and fitted the demographic model, forecasting of mortality index will be made using an appropriate ARIMA model.

Indonesian government bond yield rate and sukuk yield rate will be used in this study. Non-participating and participating policy will use government bond, takaful and modified participating policy will use sukuk as risk-free rate. These data will be fitted using Black-Karasinski model and 10,000 scenarios will be generated using resulted model. For government bond, Black-Karasinski model with estimated parameter is

$$\ln(r_{t+1}) = \ln(r_t) + 0.08509324(2.001181 - \ln(r_t)) + 0.04851858\epsilon_{t+1} \quad (1)$$

and for sukuk, Black-Karasinski model with estimated parameter is

$$\ln(r_{t+1}) = \ln(r_t) + 0.08509324(2.001181 - \ln(r_t)) + 0.04851858\epsilon_{t+1} \quad (2)$$

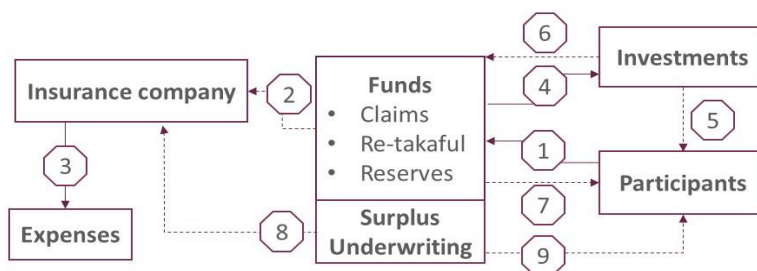
where $\epsilon_t \sim N(0,1)$, r_t denotes local interest rate.

The result from generating 10,000 scenarios of mortality rate and yield rate will be used for cash flow simulation for whole life non-participating policy, whole life participating policy, whole life takaful, and whole life modified participating policy.

Proposed New Scheme

Instead of using *tabarru* concept, *ibaha* concept will be used in this study. *Ibaha* cannot be regarded as donation, it does not transfer the ownership. With *ibaha*, one puts at the disposal of others something consumable and allows them to consume it; however, it still belongs to the owner so the leftover, if any, belongs to the owner [2]. Surplus underwriting is treated as reversionary bonus. It will be declared at the end of every year during the term of insurance contract and guaranteed to be paid at claim is made. The scenario of this proposed new scheme, called modified participating policy, can be illustrated through the following figure,

<Modified Participating Policy Scheme>



where

1. Policyholder pays the premium
2. Insurance company gets the fixed fee
3. Expenses are borne by insurance company
4. Money in the fund is invested in lawful investment
5. 90% of profit from investment to the policyholder as reversionary bonus
6. 10% of profit from investment to the fund
7. Claims are paid to the policyholder
8. 20% of surplus underwriting to the insurance company
9. 40% of surplus underwriting to the policyholder as reversionary bonus

The key point of takaful is the transparency, profit (loss) sharing, and the fairness between policyholder and insurance company. For the participating policy, insurance company assume lower interest rate so the interest risk is reduced. Although premium charged will be higher than non-participating policy, if there is any profit from investment the policyholder has the right of receiving the dividend. This modified participating policy adopt both concept. Thus it has transparency, profit (loss) sharing, fairness, and also dividend for policyholder.

Result and Discussion

For the simulation study, 10,000 cash flows for four types of policies was built by using the result of generating yield rates and mortality rates. Four types of policies are whole life non-participating policy, whole life participating policy, whole life takaful, and whole life modified participating policy. Assume that 100,000 people aged 40 buy whole life insurance contract with sum assured (SA) of Rp.100,000,000. Cash flows for each type of policies was built and comparison of the benefit and the risk from the viewpoint of insurance company and policyholder was made. The assumption for each type of policies are listed in the assumption table.

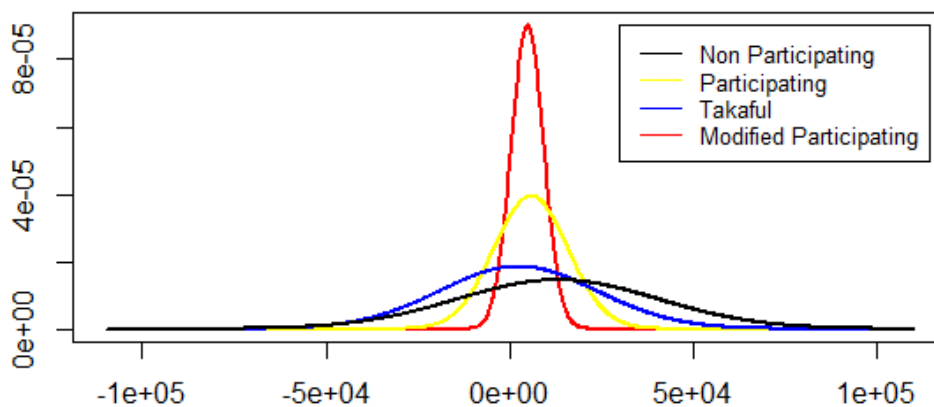
For participating policy, 90% of the profit from investment will be given to policyholder as dividend or reversionary bonus. In takaful, surplus underwriting will be shared in the proportion of 40% for policyholder, 40% for insurance company, and 20% remains in the fund. For modified participating policy, policyholder will receive 40% of surplus underwriting and 90% of profit from investment, insurance company will receive 40% of surplus underwriting. The rest will remain in the fund.

<Assumption Table>

	Non-Participating	Participating	Takaful	Modified Participating
Interest rate	7.725%	6.85%	7.725%	6.85%
Mortality Factor	100%	101%	100%	101%
Initial Expense	0.5% SA	0.5% SA	0.5% SA	0.5% SA
Renewal Expense (Including 1st year)	•5% Prem •0.1% SA	•5% Prem •0.1% SA	•5% Prem •0.1% SA	•5% Prem •0.1% SA
Premium	Rp. 1,028,598	Rp. 1,135,948	Rp. 1,028,598	Rp. 1,135,948

Net present value (NPV) of profit for insurance company is fitted to Normal distribution and shown in the figure below and the statistics for NPV profit for insurance company are listed in the table below. The distribution of NPV profit insurance company for modified participating policy is less spread out and has lower standard deviation than other policies. That means, modified participating policy is the least risky and beneficial for insurance company.

<Distribution of NPV Profit for Insurance Company (in million rupiah)>



<Statistics of NPV Profit for Insurance Company (in million rupiah)>

	Non Participating	Participating	Takaful	Modified Participating
Pr(Loss)	31.82%	26.90%	43.94%	13.34%
VaR at level 99.5% for Loss	57,743.95	20,153.25	53,247.78	6,427.60
E(NPV)	13,037.28	5,870.39	2,304.13	4,965.96
Std Dev (NPV)	27,481.75	10,104.02	21,568.77	4,423.70
Min	(79,634.04)	(35,333.28)	(96,829.97)	(19,247.21)
Median	13,438.96	6,441.10	3,351.12	5,108.77
Max	100,293.20	36,201.21	71,869.91	21,050.04
Range	179,927.24	71,534.49	168,699.88	40,297.25

The probability of experiencing loss for modified participating policy is the smallest. Thus, insurance company tends to get the profit by selling modified participating policy. Based on the value at risk at level 99.5% shown in the table, modified participating policy is the smallest. That means modified participating policy has the least required capital.

According to Solvency II, in a simply way, solvency ratio equals to own fund divided by solvency capital requirement. Assume that insurance company set solvency ratio to 150% and cost of capital (CoC) for 10%. The own fund insurance company should held and the cost of capital are shown in the table,

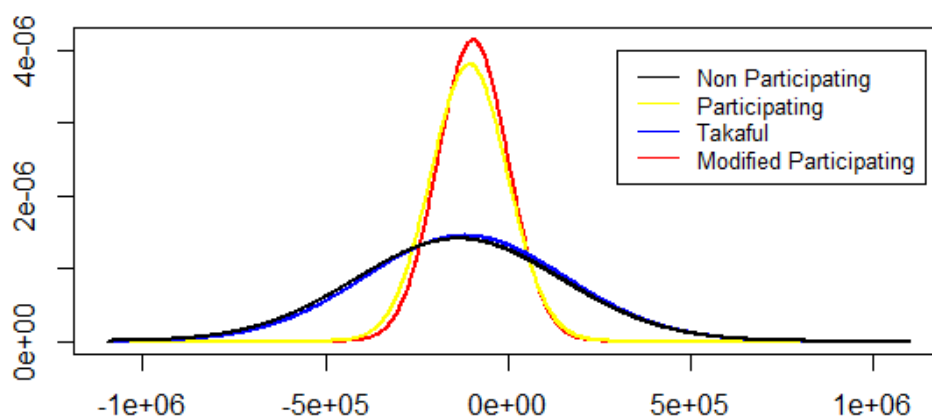
<Own Fund and Cost of Capital (in million rupiah)>

	Non Participating	Participating	Takaful	Modified Participating
Own Fund	86,615.93	30,229.88	79,871.67	9,641.40
CoC	8,661.59	3,022.99	7,987.17	964.14

Cost of capital for modified participating policy is very small compared to other policies. Consequently, insurance company can save the deviation and utilize it for expanding their business or giving additional benefit for policyholders.

From the view point of policyholders, NPV of the profit received by policyholders is shown on the figure and statistics based on the distribution of NPV of profit for policyholder is shown in the table below.

<NPV Profit for Policyholder>



<Statistics of NPV Profit for Policyholder>

	Non Participating	Participating	Takaful	Modified Participating
E(NPV)	(135,688.47)	(104,515.70)	(118,334.73)	(94,524.03)
Std Dev (NPV)	283,451.46	104,909.29	275,139.64	96,530.04
Min	(1,033,353.49)	(416,419.58)	(1,065,268.84)	(447,268.21)
Median	(141,245.90)	(111,580.00)	(122,567.00)	(99,976.03)
Max	820,332.62	320,969.72	978,556.64	355,784.21
Range	1,853,686.11	737,389.30	2,043,825.48	803,052.42

The expected net present value profit for policyholder of modified participating might be smaller than non-participating policy and takaful, but it has smaller standard deviation. That means modified participating policy is the least risky for policyholder. Policyholder can maximize the risk transferring to the pooled fund. Thus, policyholder who buy modified participating policy can reduce their risk more than policyholder who buy other policies. Since the insurance company which sells modified participating policy can save their cost of capital, the saved cost of capital can be given to policyholder as additional benefit. Assumed that 40% of saved cost of capital will

be regarded as additional bonus if policyholder survive at age 60. NPV profit for policyholder will increase and the distribution of NPV profit for policyholder will be shifted to the right.

<Statistics of NPV Profit for Policyholder after Receiving Additional Bonus>

	Non Participating	Participating	Takaful	Modified Participating
E(NPV)	(135,688.47)	(104,515.70)	(118,334.73)	(63,734.22)
Std Dev (NPV)	283,451.46	104,909.29	275,139.64	96,530.04
Min	(1,033,353.49)	(416,419.58)	(1,065,268.84)	(416,478.40)
Median	(141,245.90)	(111,580.00)	(122,567.00)	(69,186.22)
Max	820,332.62	320,969.72	978,556.64	386,574.02
Range	1,853,686.11	737,389.30	2,043,825.48	803,052.42

As a result of receiving additional benefit, the distribution of NPV of profit for policyholder is shifted to the right. Thus, it is very beneficial for policyholder since the risk of experiencing loss will decrease and it is the least risky for policyholder since it has smaller standard deviation.

Conclusion

Modified participating policy is a modification of participating policy using Takaful concept. Instead of using *tabarru* concept, *ibaha* concept will be used for this modified participating policy. It is a modification of participating policy to realize spirit of takaful and Islamic law. Modified participating policy follows Islamic rule about fairness, transparency, profit sharing concept, and lawful investment. Modified participating policy with other insurance policy was compared to be able to see its advantages. Whole life non-participating policy, whole life participating policy, and takaful are used as comparison. Starting with fitting Indonesian mortality rate with Lee-Carter model and fitting Indonesia government bond and sukuk yield rate with Black-Karasinski model, then generated 10,000 scenarios of future cash flow using the result of forecasting mortality rate and yield rate.

From the generated cash flow, benefit and risk for insurance company and policyholder from each policies was compared. Based on net present value profit for both insurance company and policyholder, modified participating policy gives the best result since the probability of loss and

standard deviation of the net present value is smaller than other policies. Modified participating policy is the least risky for both insurance company and policyholder based on its small standard deviation. This advantage is very crucial for doing business. Another advantages of modified participating policy is the need of capital which smaller than other policy. By selling modified participating policy, it is expected that takaful company can expand its business since one of their difficulties is raising sufficient capital.

Indonesia has the largest muslims population in the world. Muslim people prefer to keep Islamic law in insurance area. It has very big market share but unfortunately Islamic insurance market in Indonesia form much smaller part of insurance industry. Modified participating policy is sharia compliant and mutually beneficial for both insurance company and policyholder. We expect suggestion of modified participating policy may contribute to the expansion of takaful market in Indonesia ultimately.

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