Table of integration model for motor vehicle sharia insurance

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Abstract

Motor vehicle insurance is one of the general insurance types that provide coverage for loss, damages, and disappearance of a motor vehicle due to risks experienced by the covered object. The product illustration of motor vehicle insurance is generally presented in a condensed form, containing few pages and limited information. Based on a product illustration of motor vehicle sharia insurance issued by PT. Asuransi Tri Pakarta (TRIPA) treated as a case study, an alternative version of product illustration in form of a table of integration model was designed to not only provided general information but also vehicle prices, values of premiums, tabarru, ujrah, investment, insurance costs, and surplus (if any). The partitions also performed on the additional protection offered by TRIPA so that the benefits that would be received by the insured would be greater. The generated table of integration model presents richer information regarding the insurance products, better scheme, and transparency in the management of total premiums.

Keywords: general insurance; product illustration; management of total premiums; integration model; benefits.

Abstrak

Asuransi kendaraan bermotor merupakan salah satu jenis asuransi umum yang memberikan jaminan terhadap kerugian, kerusakan dan kehilangan kendaraan bermotor akibat terjadinya risiko yang menimpa obyek pertanggungan. Umumnya ilustrasi produk asuransi kendaraan bermotor disajikan dalam bentuk ringkasan yang beragam dalam beberapa halaman dan hanya menjelaskan informasi secara umum saja. Mengambil studi kasus berupa ilustrasi produk asuransi syariah kendaraan bermotor dari PT. Asuransi Tri Pakarta (TRIPA), dirancang bentuk alternatif penyajian berupa tabel model integrasi yang memberikan informasi tidak hanya harga kendaraan dan besaran premi, tetapi juga informasi tentang tabarru, ujrah, investasi, biaya asuransi, surplus (jika ada). Selanjutnya, dilakukan partisi terhadap perlindungan tambahan sehingga manfaat yang diperoleh pertanggungan lebih luas. Melalui tabel model integrasi ini, informasi yang tertulis tentang produk asuransi lebih lengkap dan skema pengelolaan premi total asuransi syariah kendaraan bermotor juga lebih jelas.

Kata Kunci: asuransi umum; ilustrasi produk; pengelolaan premi total; model integrase; manfaat.
1. INTRODUCTION

Motor vehicle insurance is one of the general insurance types that provide coverage for loss, damages, and disappearance of a motor vehicle due to accident experienced by the covered object [1] [2]. Generally, there are two types of coverage offered by insurance companies: Total Loss Only (TLO) and Comprehensive. In TLO coverage, compensation shall be provided when a motor vehicle is missing or its value of damage/loss reaches 75% off or more than its market value. While in Comprehensive coverage, compensation shall be provided if partial (or total) damage or loss happens to the insured vehicle. Besides the two, insurance companies also offer additional protection for the insured, one of them being personal accident protection. This kind of protection provides a guarantee on the safety of vehicle driver and passenger, in the form of compensation for death when a driver or passenger of the vehicle is dead.

The offers regarding coverage and protection mentioned above are usually summed up in a product illustration of motor vehicle insurance which may be presented in various forms and have several pages. For instance, a product illustration of motor vehicle sharia insurance issued by PT Asuransi Tri Pakarta (TRIPA) consists of seven pages presenting the prices of the vehicle to be covered object and the premiums to be paid annually by the insured. The product, however, is not exhaustive; new information may be added in it so that the insured would receive more detailed information regarding the scheme of premiums management. Supported by the results of interviews with a respondent from TRIPA in Bandung, which were treated as data, an alternative product illustration of TRIPA motor vehicle sharia insurance in form of a table of integration model was designed in this paper. The table provides more detailed information, consisting of vehicle prices, total premium, tabarru, ajrah, investment, insurance costs, and surplus (if any) [3] [4] [5] [6] [7] [8] [9].

2. METHOD

The product illustration of TRIPA insurance for a case study in this paper was the product illustration of motor vehicle sharia insurance for Serena branded personal vehicle type: New Serena 2.0 Highway Star A/T 2017. The illustration describes in Table 1. Table 1 shows that the initial value of the covered object (Serena branded personal vehicle: type New Serena 2.0 Highway Star A/T 2017) is IDR434,400,000 and insured for 4 years. In the first year, the net premium which must be paid by the insured is IDR5,212,800 plus administration cost of IDR31,000 If the insured also takes the personal accident protection, then the additional premium of IDR35,000 will be added, resulting in a total premium of IDR5,278,800 which must be paid. The benefits of comprehensive coverage and personal accident protection are claimed when the insured is dead. The prices of the covered object from year to year decrease while net premium to be paid will increase in the second year, higher than the one in the first year, and then it will decrease in the third and fourth years. The value of personal accident premium stays the same until the final year of the insurance policy period while the administration costs are omitted in the second, third, and fourth years. Therefore, the total premium to be paid in the second year will be IDR7,815,192, the third year IDR6,359,864, and the fourth year IDR5,908,099. The value of personal accident protection which will be claimed by the insured if he dies is IDR15,000,000. Based on the interview results with a respondent of TRIPA in Bandung, an illustration regarding the scheme of total premium management of motor vehicle sharia insurance product designed and presented in Figure 1.
Table 1. A Product Illustration of Motor Vehicle Sharia Insurance for Serena Branded Personal Vehicle: Serena Type New Serena 2.0 Highway Star A/T 2017.

| Year | Details                          | Prices          | Coverage and Protection |
|------|---------------------------------|-----------------|-------------------------|
| 1    | Vehicle Price                   | IDR434,400,000  |                         |
|      | Net Premium                     | IDR5,212,800    |                         |
|      | Administration Cost             | IDR31,000       | Comprehensive           |
|      | Personal Accident (PA) Premium  | IDR35,000       | PA : Death              |
|      | Total Premium                   | IDR5,278,800    |                         |
| 2    | Vehicle Price                   | IDR369,240,000  |                         |
|      | Net Premium                     | IDR7,680,192    |                         |
|      | Administration Cost             | –               | Comprehensive           |
|      | Personal Accident (PA) Premium  | IDR35,000       | PA : Death              |
|      | Total Premium                   | IDR7,815,192    |                         |
| 3    | Vehicle Price                   | IDR304,080,000  |                         |
|      | Net Premium                     | IDR6,324,864    |                         |
|      | Administration Cost             | –               | Comprehensive           |
|      | Personal Accident (PA) Premium  | IDR35,000       | PA : Death              |
|      | Total Premium                   | IDR6,359,864    |                         |
| 4    | Vehicle Price                   | IDR282,360,000  |                         |
|      | Net Premium                     | IDR5,873,088    |                         |
|      | Administration Cost             | –               | Comprehensive           |
|      | Personal Accident (PA) Premium  | IDR35,000       | PA : Death              |
|      | Total Premium                   | IDR5,908,099    |                         |

Figure 1. The Scheme of Total Premium Management of TRIPA Motor Vehicle Sharia Insurance Product.
Figure 1 explains that the total premium to be paid is the addition result of comprehensive coverage premium (the net premium) and personal accident premium. Next, the total premium divided into two accounts, namely the tabarru fund account, which will be used to pay insurance costs, and the ujrah fund account, which will be used to pay the company’s operational expenses. Tabarru fund then invested in sharia shares. Some of the investment income will be directed to the company (company returns) and others will be returned to the tabarru fund account (tabarru fund returns). The total amount of the tabarru fund after being reduced by the insurance costs is called the tabarru surplus, which later will be divided for the company, the insured and the tabarru reserve.

Here are the mathematical notations and calculations for the terms presented in the scheme of total premium management of TRIPA motor vehicle sharia insurance product that was developed based on the interview results:

1. Year = $n$
2. Total premium of nth year = $P_n$.
3. Ujrah fund of nth year: $U_n = 0.4 \times P_n$. (1)
4. Tabarru fund of nth year: $T_n = 0.6 \times P_n$. (2)
5. Investment of nth year: $I_n = 0.6 \times P_n$. (3)
6. Investment returns of nth year: $HI_n = 0.1 \times I_n$. (4)
7. Return (for the company) of nth year: $KP_n = 0.7 \times HI_n$. (5)
8. Return (for the tabarru fund) of nth year: $KT_n = 0.3 \times HI_n$. (6)
9. Total of the tabarru in the nth year: $TL_n = (0.6 \times P_n) + 0.3(0.1 \times I_n)$. (7)
10. Insurance costs of nth year: $BK_n = 0.7 \times TL_n$. (8)
11. Tabarru surplus of nth year: $ST_n = TL_n - BK_n$. (9)
12. The tabarru surplus in the nth year (for the insured): $ST_i = 0.3 \times ST_n$. (10)
13. The tabarru surplus in the nth year (for the company): $ST_p = 0.675 \times ST_n$. (11)
14. The tabarru surplus in the nth year (for the tabarru reserve): $ST_r = 0.025 \times ST_n$. (12)

Next, to design a more complete table of integration model, a partition of the personal accident protection were performed for expanding protection that could be provided to the insured. The personal accident protection divided into three types of protection: medication cost, physical disability, and death [5] [9].
The total premium of the first year, \( P_t \), is IDR5,278,800 is entered into the mathematical calculation equation (1) – (12) resulting a table of integration model for TRIPA motor vehicle sharia insurance. The protection is expanded to include five people who use same personal vehicle, one (1) driver and four (4) passengers. Personal accident premium of IDR35,000 is partitioned into three: IDR3,500 for medication cost, IDR15,750 for physical disability and IDR15,750 for death. Next, the amount of personal accident protection which is IDR15,000,000 is partitioned into:

1. Medication cost = \( 2x = 2 \) (IDR750,000) = IDR1,500,000
2. Physical disability = \( 9x = 9 \) (IDR750,000) = IDR6,750,000
3. Death = \( 9x = 9 \) (IDR750,000) = IDR6,750,000

where \( x \) value = IDR750,000 (per unit).

### 3. RESULTS AND DISCUSSION

The total premiums of the first year until the fourth year on Table 1 are entered into the mathematical calculation in equation (1) – (12) resulting a table of integration model for TRIPA motor vehicle sharia insurance.

| Year (n) | Vehicle Price (P) | Total Premium (P_T) | Tabarru (T_T) | Ujroh (U_U) | Investment (I_I) | Investment Return (I_KP) | Investment Return (I_KT) |
|----------|------------------|---------------------|--------------|-------------|----------------|------------------------|------------------------|
| 1        | 434,400,000      | 5,278,800           | 3,167,280    | 2,111,520   | 3,167,280      | 316,728                | 221,710                | 95,018                 |
| 2        | 369,240,000      | 7,815,192           | 4,689,115    | 3,126,077   | 4,689,115      | 468,115                | 328,238                | 140,674                |
| 3        | 304,080,000      | 6,359,864           | 3,815,918    | 2,543,946   | 3,815,918      | 381,592                | 267,114                | 114,478                |
| 4        | 282,360,000      | 5,908,088           | 3,544,853    | 2,363,235   | 3,544,853      | 354,485                | 248,120                | 106,346                |

Table 3. Continued.

| Total Tabarru (T_T) | Insurance Cost (B_K) | Tabarru Surplus (S_T) | Total Tabarru (T_T) | Insurance Cost (B_K) | Tabarru Surplus (S_T) | Investment Return (I_KP) | Investment Return (I_KT) |
|--------------------|----------------------|-----------------------|--------------------|----------------------|-----------------------|------------------------|------------------------|
| 9                  | 3,262,298            | 2,283,609             | 978,689            | 293,607              | 660,615               | 24,467                 | 1,500,000              | 6,750,000              | 6,750,000              |
| 10                 | 4,829,789            | 3,380,852             | 1,448,937          | 434,681              | 938,032               | 36,223                 | 1,500,000              | 6,750,000              | 6,750,000              |
| 11                 | 3,651,199            | 2,555,839             | 1,095,360          | 328,608              | 739,368               | 27,384                 | 1,500,000              | 6,750,000              | 6,750,000              |
| 12                 | 2,555,839            | 1,789,087             | 766,752            | 230,026              | 517,558               | 19,169                 | 1,500,000              | 6,750,000              | 6,750,000              |

The total premium of the first year, \( P_t \), is IDR5,278,800 is entered into the mathematical calculation equation (1) to (3), obtained \( Tabarru T_t \) (column 3), \( Ujroh U_t \) (column 4), and \( Investment I_I \) (column 5) in Table 3, while the

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Table 2. Partitioning The Personal Accident Protection.

| Types of Protection | Medication Cost (2x) | Physical Disability (9x) | Death (9x) |
|---------------------|----------------------|--------------------------|------------|
| The Ratio of Vehicle User (20x) | \( 2x = 5 \) people | \( 9x = 5 \) people | \( 9x = 5 \) people |
| Personal Accident Premium IDR35,000 | 10 (1750) | 45 (1750) | 45 (1750) |
| = IDR3,500 | = IDR15,750 | = IDR15,750 | = IDR15,750 |
results of column 6 to column 12 are obtained from columns 3, 4 and 5. In the same way, for the second, third, and fourth years.

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