



**COMPARISON OF PREMIUM RESERVE
CALCULATION ON TERM LIFE INSURANCE
USING PREMIUM SUFFICIENCY AND NEW
JERSEY METHOD**

UNDERGRADUATE THESIS

**Submitted as one of the requirements to
obtain**

Sarjana Aktuaria

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CIKARANG

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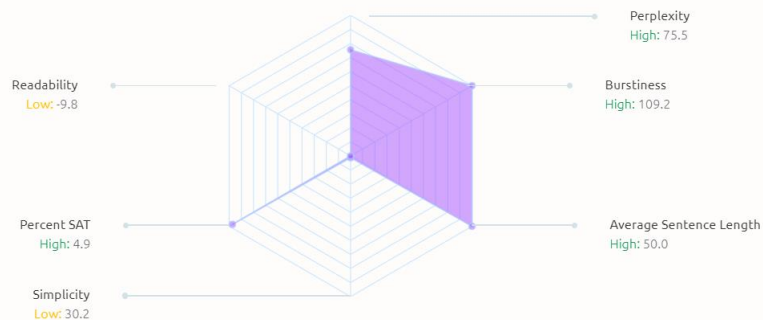
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COMPARISON OF PREMIUM RESERVE CALCULATION ON TERM LIFE INSURANCE USING PREMIUM SUFFICIENCY AND NEW JERSEY METHOD UNDERGRADUATE THESIS Submitted as one of the requirements to obtain Sarjana Aktuaria By: VINESIA TJIAN 021202000023 FACULTY OF BUSINESS ACTUARIAL SCIENCE STUDY PROGRAM CIKARANG SEPTEMBER 2023 ii PANEL OF EXAMINER APPROVAL The Panel of Examiners declare that the undergraduate thesis entitled Comparison of Premium Reserve Calculation On Term Life Insurance Using Premium Sufficiency and New Jersey Method that was submitted by Vinesia Tjian majoring in Actuarial Science from the Faculty of Business was assessed and approved to have passed the Oral Examination on September 23th, 2023. Maria Yus Trinity Irsan, S.Si., M.Si Chair - Panel of Examiner Dr. Edwin Setiawan Nugraha, S.Si., M.Sc Examiner I Promoted by, Dr. Dadang Amir Hamzah, S.Si., M.Si Advisor Recommended by, Maria Yus Trinity Irsan, S.Si., M.Si Head, Actuarial Science Study Program iii STATEMENT OF ORIGINALITY In my capacity as an active student of President University and as the author of the undergraduate thesis/final project/business plan stated below: Name: Vinesia Tjian Student ID number: 021202000023 Study Program: Actuarial Science Faculty: Faculty of Business I hereby declare that my undergraduate thesis/final project/business plan entitled "Comparison of Premium Reserve Calculation on Term Life Insurance using Premium Sufficiency and New Jersey Method" to be the best of my

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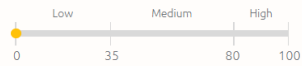
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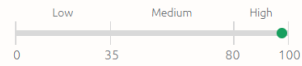
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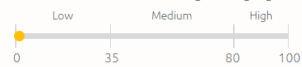
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Measures what percentage of words are SAT words, terms from a standardized college admissions exam known for its labyrinthine vocabulary lists.



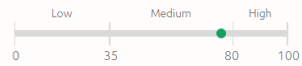
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Measures what percentage of words are in the 100 most common words in the English language.



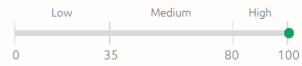
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How familiar a piece of text is to large language models like ChatGPT.



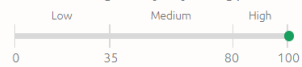
Burstiness: 109.2

Unique score developed by GPTZero in 2022 that correlates to variance in writing. Humans generally vary their writing patterns over time.



Average Sentence Length: 50.0 words

Unique score that correlates to variance in writing, where humans generally vary writing patterns.



ABSTRACT

Some life insurance companies can experience losses that can even lead to bankruptcy due to not being able to pay claims. This event can be anticipated by having a reserve fund that has been prepared and calculated properly. There are several types of insurance, one of which is term life insurance where the insurance pays benefits if the insured died before the insurance period ends. The purpose of this research is to calculate the amount of term life insurance premium reserves using the Premium Sufficiency and New Jersey methods since several other researchers have also tried to calculate using these methods, such as Aprijon (2020), Filemon (2022), and others, but none of those researchers have compared these two methods. The Premium Sufficiency method calculates the reserve using gross premium assumptions, while the New Jersey method calculates the reserve using adjusted net premium. This research is a quantitative research that will use some assumptions and also secondary data to calculate the premium reserve using both methods, and using Microsoft Excel to help on the calculation and the visualization of the results. In short term, for insurance companies that have limited funds at the beginning of the insurance contract period will be more suitable to use the New Jersey method because the reserves in the initial year are 0 so that the insurance company can use the existing funds to pay additional costs. While in long term, since the overall Premium Sufficiency reserve value from year to year is smaller than the New Jersey reserve value, insurance companies that in the future need larger funds to pay for other company needs will be more suitable to use the Premium Sufficiency method because the funds that need to be set aside as reserves are smaller, so that the remaining funds that are not set aside are greater than the New Jersey method and can be used for other needs. It can also be seen that at the end of the period the premium reserve accumulated using the Premium Sufficiency method is smaller than using the New Jersey method, where the amount of premium reserve using Premium Sufficiency and New Jersey method consecutively for male are Rp. 113.200.444,943 and Rp 124.761.949,747, while for female are Rp. 70.183.195,271 and Rp. 82.491.748,159.

Keywords: *Life Insurance, Term Life Insurance, Premium Reserve, Premium Sufficiency Method, New Jersey Method*

ABSTRAK

Beberapa perusahaan asuransi jiwa dapat mengalami kerugian yang bahkan dapat berujung pada kebangkrutan karena tidak mampu membayar. Kejadian ini dapat diantisipasi dengan memiliki dana cadangan yang telah dipersiapkan dan diperhitungkan dengan baik. Terdapat beberapa jenis asuransi, salah satunya adalah asuransi jiwa berjangka dimana pihak asuransi membayarkan manfaat apabila tertanggung meninggal dunia sebelum masa asuransi berakhir. Tujuan dari penelitian ini adalah untuk menghitung besarnya cadangan premi asuransi jiwa berjangka dengan menggunakan metode Premium Sufficiency dan New Jersey karena beberapa peneliti lain juga sudah mencoba menghitung dengan menggunakan metode tersebut, seperti Aprijon (2020), Filemon (2022), dan lainnya, namun belum ada dari peneliti tersebut yang membandingkan kedua metode tersebut. Metode Premium Sufficiency menghitung cadangan dengan menggunakan asumsi premi bruto, sedangkan metode New Jersey menghitung cadangan dengan menggunakan premi neto yang telah disesuaikan. Penelitian ini merupakan penelitian kuantitatif yang akan menggunakan beberapa asumsi dan juga data sekunder untuk menghitung cadangan premi dengan menggunakan kedua metode tersebut, serta menggunakan Microsoft Excel untuk membantu dalam perhitungan dan visualisasi hasil perhitungan. Dalam jangka pendek, bagi perusahaan asuransi yang memiliki dana terbatas pada awal masa kontrak asuransi akan lebih cocok menggunakan metode New Jersey karena cadangan pada tahun awal adalah 0 sehingga perusahaan asuransi dapat menggunakan dana yang ada untuk membayar biaya-biaya tambahan. Sedangkan dalam jangka panjang, karena nilai cadangan Premium Sufficiency secara keseluruhan dari tahun ke tahun semakin kecil dibandingkan dengan nilai cadangan New Jersey, maka bagi perusahaan asuransi yang di kemudian hari membutuhkan dana yang lebih besar untuk membayar kebutuhan perusahaan yang lain akan lebih cocok menggunakan metode Premium Sufficiency karena dana yang perlu disisihkan sebagai cadangan lebih kecil, sehingga sisa dana yang tidak disisihkan sebagai cadangan lebih besar dari metode New Jersey dapat digunakan untuk kebutuhan yang lain. Dapat dilihat juga bahwa pada akhir periode cadangan premi yang terkumpul dengan menggunakan metode Premium Sufficiency lebih kecil dibandingkan dengan menggunakan metode New Jersey, dimana jumlah cadangan premi dengan menggunakan metode Premium Sufficiency dan metode New Jersey secara berurutan untuk pria adalah Rp. 113.200.444.943 dan Rp 124.761.949.747, sedangkan untuk wanita adalah Rp. 70.183.195.271 dan Rp. 82.491.748.159.

Kata kunci: Asuransi Jiwa, Asuransi Jiwa Berjangka, Cadangan Premi, Metode Premium Sufficiency, Metode New Jersey

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