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How Behavioral Biases Influence Rational Decision-Making in Life Insurance Purchases Decision

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Abstract

Purpose: This study examines the impact of Decision Framing Bias and Mental Accounting Bias on life insurance purchase decisions, specifically during the process of choosing among available alternatives. In the context of rational decision-making, where individuals evaluate all options and select the most optimal one, this research aims to explore how these biases affect the critical stage of selecting from alternatives and their subsequent influence on the final purchase decision.

Design/methodology: The sample was gathered using a simple random sampling technique on investors who have made transactions in life insurance purchases. The data was analysed using SEM PLS with Smart PLS application.

Findings: The study found that decision-framing bias does not significantly affect the stage of selecting the best alternative. In contrast, mental accounting bias was found to have a notable influence on this selection process as well as the final purchase decision. Additionally, choosing among the alternatives as a critical stage of rational decision-making was also observed to have a subsequent impact on the final purchase decision.

Practical implication: The findings can help individual investors to analyse and evaluate their behaviour toward the selection of an insurance policy. Insurance institutions can use this research to understand investors' behaviour and provide adequate information to insurance buyers before purchasing.

Keywords: Purchase Decision, Behavioural Bias, and Insurance

Introduction

The decision to purchase life insurance is a critical financial choice that involves a complex interaction of rational analysis and psychological influences. At the core of rational decision-making lies the structured process of identifying a need, gathering information, evaluating alternatives, and ultimately making a choice. However, this idealized model of decision-making often encounters significant deviations due to behavioral biases, notably decision framing and mental accounting. These biases can slightly, yet profoundly, influence consumer decisions, particularly when it comes to choosing among alternatives in life insurance products.

Decision framing bias refers to the cognitive tendency where the presentation of information—whether as a potential gain or loss—affects decision outcomes. This bias, deeply rooted in prospect theory as outlined by Kahneman and Tversky (1981), suggests that individuals are more likely to avoid risk when a decision is framed in terms of potential gains but are more willing to take risks when the same decision is framed

in terms of avoiding losses. In the context of life insurance, the way policy details are framed can significantly sway consumer preferences, potentially leading to decisions that may not align with their long-term financial well-being (Kahneman & Tversky, 1981; Kurniawan & Murhadi, 2018).

Mental accounting, another behavioral bias introduced by Thaler (1999), involves the cognitive separation of money into different mental categories, which can influence how individuals perceive and utilize their financial resources. For example, individuals might allocate funds into distinct "mental accounts" for savings, flexible spending, or necessary expenses. This compartmentalization can lead to irrational financial behaviours, such as under-insuring or over-insuring based on how insurance premiums are mentally categorized. In life insurance decisions, mental accounting can lead to a mismatch between perceived and actual needs, affecting the choice among available policy alternatives (Thaler, 1999; Silva et al., 2023).

The stage of choosing among alternatives in the rational decision-making process is particularly exposed to these biases. While this stage should ideally involve an objective comparison of different life insurance policies based on a thorough assessment of needs, biases such as decision framing and mental accounting can distort this process. For instance, a consumer might disproportionately favour a policy that is framed as providing security, even if it is more expensive or less comprehensive than other options. Similarly, mental accounting might cause a consumer to dismiss a beneficial policy because its premiums are perceived as a flexible expense rather than a necessary one (Singh & Jain, 2021; Zong & Guo, 2022).

Understanding the impact of decision framing and mental accounting biases on the life insurance purchase decision is essential for both consumers and financial advisors. By recognizing these biases and incorporating strategies to mitigate their effects, it is possible to make more rational decisions that better serve long-term financial security.

This study focuses on analysing the influence of these biases on the process of life insurance purchase decisions. This study considers choosing among the alternatives as a critical stage of rational decision-making, and how behavioural biases influence this stage, and finally the purchase decision.

Literature review

Life insurance purchase decision

The connection between Life insurance purchase decisions and the influence of biases can be identified from the research works of literature,

This foundational paper discusses how decision framing can influence choices, which is relevant when considering how life insurance options are presented to consumers. Kahneman, D., & Tversky, A. (1981). *Insurance Decision-Making and Market Behavior.*

This study explores how biases, including mental accounting and framing, influence insurance decisions, with implications for life insurance markets (Thaler, R. H.). This paper explores how price framing and other biases affect consumer judgments, relevant for understanding life insurance decisions (Zong, Y., & Guo, X. J.). This study examines how insurance literacy and behavioral biases affect decision-making in personal insurance, providing insights into life insurance choices (Naradda Gamage, S. K., Lin, C. Y., et al.) Barberis, N., &Thaler, R.(2003)*A Survey of Behavioral Finance.* This survey covers various behavioral biases, including those that affect financial decisions such as life insurance purchases.

Decision framing bias

Kahneman, D., & Tversky, A. (1981). *The Framing of Decisions and the Psychology of Choice.* This semi-

nal paper introduces the concept of decision framing and explores how the way choices are presented can influence decision-making, particularly when evaluating alternatives. Tversky, A., & Kahneman, D. (1986). *Rational Choice and the Framing of Decisions.* This paper discusses how framing effects can lead to different outcomes even when the same alternatives are presented, highlighting the importance of how choices are framed in rational decision-making. Payne, J. W., Bettman, J. R., & Johnson, E.J. (1993). *The Adaptive Decision Maker.* This book provides an in-depth analysis of how individuals make decisions when faced with multiple alternatives, discussing how decision framing can influence the selection process. Levin, I. P., Schneider, S. L., & Gaeth, G. J. (1998). *All Frames Are Not Created Equal: A Typology and Critical Analysis of Framing Effects.* This paper categorizes different types of framing effects and analyses how these effects influence the process of choosing alternatives in decision-making. Johnson, E. J., & Goldstein, D. (2003). *Do Defaults Save Lives?* This study examines the role of default options (a form of framing) in decision-making, highlighting how the framing of alternatives can significantly influence choices.

Mental accounting bias

Thaler, R. H. (1985). *Mental Accounting and Consumer Choice.* This work explores the concept of mental accounting and its role in consumer decision-making, with implications for how alternatives are evaluated and selected. Silva,E. M., Moreira, R. D. L., & Bortolon, P. M. (2023). *Mental Accounting and Decision Making: A Systematic Review of the Literature.* This review provides a comprehensive look at how mental accounting influences decision-making, including in the context of insurance. Thaler, R. H. (1999). *Mental Accounting Matters.* This work delves into the concept of mental accounting, explaining how individuals compartmentalize financial decisions, which can influence life insurance purchases. Heath, C., & Soll, J. B. (1996). *Mental Budgeting and Consumer Decisions.* This study explores the concept of mental budgeting, a subset of mental accounting, and its influence on consumer decision-making processes, particularly when selecting among various alternatives. Prelec, D., & Loewenstein, G. (1998). *The Red and the Black: Mental Accounting of Savings and Debt.* This paper examines how individuals mentally account for savings and debt, influencing their decisions among financial alternatives. It offers insights into the broader implications of mental accounting for rational decision-making.

Rational Decision making/ choosing among the alternatives

Tversky, A., & Kahneman, D. (1986). *Rational Choice and the Framing of Decisions.* This work expands on the concept of framing effects and discusses how they can lead to different outcomes even when evaluating the same set of alternatives, relevant to life insurance decisions. Lusardi, A., & Mitchell, O. S. (2007). *Financial Literacy and Retirement Planning: New Evidence from the Rand American Life Panel.* This study looks at the role of financial literacy in decision-making and how it interacts with biases like mental accounting and decision framing when consumers choose among life insurance options. Giné, X., & Yang, D. (2009). *Insurance, Credit, and Technology Adoption: Field Experimental Evidence from Malawi.* This research explores how biases influence insurance uptake, with implications for how consumers choose alternatives in life insurance based on their mental accounting and the framing of options. Kurniawan, B., & Murhadi, W. R. (2018). *Bias Aspect in Decision Making for Buying Life Insurance in Indonesia.* This study specifically addresses how biases like decision framing and mental accounting affect life insurance purchasing decisions, offering insights into how these biases distort the rational evaluation of alternatives. Milkman, K. L., & Beshears, J. (2009). *Mental Accounting*

and Small Windfalls: Evidence from an Online Grocer. This study provides empirical evidence on how small financial windfalls are mentally accounted for and how this affects choices among alternatives, offering insights relevant to financial decisions like insurance purchases. Dhar, R. (1997). *Consumer Preference for a No-Choice Option.* This study investigates how framing effects and the availability of a no-choice option influence the process of choosing among alternatives, contributing to the understanding of rational decision-making. Simon, H. A. (1955). *A Behavioral Model of Rational Choice.* This classic paper discusses the concept of bounded rationality and how individuals make decisions under constraints, including the influence of framing when choosing among alternatives. Tversky, A., & Kahneman, D. (1986). *Rational Choice and the Framing of Decisions.* This paper discusses how framing effects can lead to different outcomes even when the same alternatives are presented, highlighting the importance of how choices are framed in rational decision-making.

Objectives of the study

1. To analyse the influence of decision framing bias and mental accounting bias on choosing alternatives while making a life insurance purchase decision.
2. To know whether choosing alternatives as a stage of rational decision-making influences the final purchase decision of life insurance.

Hypotheses framed for the study

1. H_1: Decision framing has an influence on choosing among the alternatives.
2. H_1: Mental accounting bias has an influence on choosing among the alternatives.
3. H_1: Choosing among the alternatives has an influence on life insurance purchase decisions.

Methodology

a. Sample and procedure

The sample was gathered using a simple random sampling technique on investors who have made transactions in life insurance purchases. The data was analysed using SEM PLS with Smart PLS application. Data was collected with the assistance of a structured questionnaire through Google Forms. The responses were measured on a 5-point Likert scale (“1“strongly disagree, “5“strongly agree”).

b. Data Analysis

To test the hypotheses in the research model, structural equation modeling (SEM) was used. A structural model was drawn to explore the direct and indirect effects of components on life insurance purchase decisions, followed by convergent and discriminant validity of the construct.

Results and Analyses

1. Evaluation of measurement model

Convergent validity

The convergent validity score is calculated from the *loading factor* score on a latent variable with its indicators. The picture below shows the calculation result of each indicator *loading factor*. It is considered high if the correlation is more than 0.60 with the calculated construct.

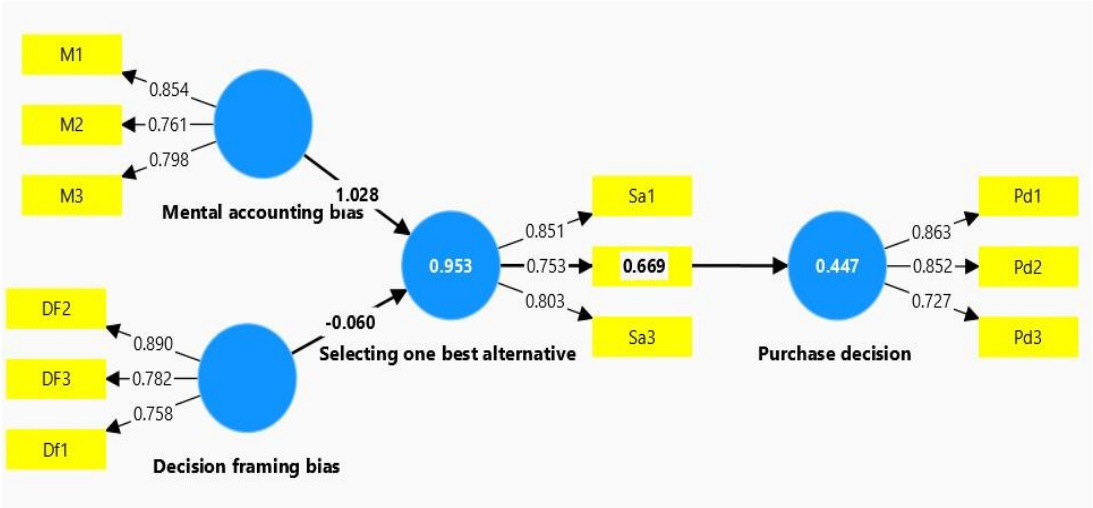

Image 1. The test of convergent validity

Based on image 1, it can be seen that all the indicators have complied with the *convergent validity* due to their *loading factor* score above 0.60. Aside from the *loading factor score*, the validity can also be seen from the AVE score, it is considered valid if the AVE score more than 0.5.

Construct	Average variance extracted (AVE)
Decision framing bias	0.660
Mental accounting bias	0.649
Purchase decision	0.667
Selecting one best alternative	0.645

Table 1 Average Variance Extracted

It can be seen from Table 1 that the score test result of the *average variance extracted* (AVE) for each construct with the relation of each construct towards other constructs is above 0.5, which means a good *convergent validity* score.

Reliability Test

Construct reliability testing is measured using *Composite Reliability* and *Cronbach's Alpha*. Construct is considered reliable if the score is above 0.70.

Construct	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_ c)	Average variance extracted (AVE)
Decision framing bias	0.754	0.855	0.853	0.660
Mental accounting bias	0.728	0.733	0.847	0.649
Purchase decision	0.749	0.767	0.856	0.667
Selecting one best alternative	0.724	0.730	0.845	0.645

Table 2 Reliability test

From the results of Table 2, all the constructs have a *Composite Reliability* score and *Cronbach's Alpha* score above 0.70, which means that the construct has good reliability.

B. The Evaluation of Structural Model Results

The testing phase on the structural model (*Inner Model*) in this research is undertaken through these steps:

R Square Adjusted

	R-square	R-square adjusted
Purchase decision	0.447	0.436
Selecting one best alternative	0.953	0.951

Table 3 R square test

Table 3 shows that the R^2 *Adjusted* score is 0.951, meaning that every change in the Insurance Purchase Decision (dependent variable) is explainable by *Selecting one best alternative (*independent variable) *by 95.1%.* Other factors still explain the 4.9 percent of the purchase decision variable.

The Hypotheses Test Result

Direct influence hypotheses testing

Relationship	Path coefficients	P-value
Decision framing bias -> selecting one best alternative	-0.060	0.349
Mental Accounting bias -> selecting one best alternative	1.028	0.000
Selecting one best alternative -> Purchase decision	0.669	0.000

Table 4 Hypotheses test results

The observed path coefficients and associated p-values for the relationships among the variables reveal insightful findings. The path from Decision framing bias to selecting one best alternative exhibits an insignificant coefficient of -0.060 with a p-value of 0.349>0.05, indicating no significant relationship. This implies that there is no notable influence of decision-framing bias during choosing among the alternatives while purchasing life insurance. The path from mental accounting bias to selecting one best alternative demonstrates a significant coefficient of 1.028 with a p-value of 0.00<0.05, emphasising the accepted significant relationship. This signifies that mental accounting bias has a notable influence on choosing among alternatives while purchasing life insurance. Similarly, the path from selecting one best alternative to the purchase decision exhibits a significant coefficient of 0.669 with a p-value of 0.00<0.05, emphasising the accepted significant relationship. This signifies that selecting one best alternative/ choosing among alternatives as a stage of rational decision-making has a significant notable influence on the final purchase decision.

Hypotheses Testing on Indirect Influence

Relationship	Path coefficients	P value
Decision framing bias-> selecting one best alternative-> Purchase decision	-0.040	0.311
Mental accounting bias-> selecting one best alternative->purchase decision	0.688	0.000

Table 5 Indirect effect results

The observed path coefficients and associated p-values from Table 5 also reveal that Decision framing bias does not influence either selecting one best alternative as a stage of rational decision-making with a coefficient of -0.040 and a p-value of 0.331>0.05 and Mental accounting bias has a significant notable influence on selecting one best alternative and the final purchase decision with a coefficient of 0.688 and a p-value of 0.000<0.05. This signifies that mental accounting bias influences insurance buyers' choice rather than a decision-framing bias.

Findings

The analysis reveals that Decision Framing Bias does not significantly impact insurance buyers when they are in the critical stage of choosing the best insurance option among alternatives. Furthermore, the findings suggest that this bias does not have a notable indirect effect on the final purchase decision. In contrast, Mental Accounting Bias plays a significant role, strongly influencing the selection process during this stage of rational decision-making. Additionally, Mental Accounting Bias extends its impact to the final purchase decision. Ultimately, the process of selecting the best alternative within rational decision-making has a considerable influence on the final insurance purchase decision.

Conclusion

The complexity of life insurance products can lead to information overload, where consumers struggle to process all available information and rely on heuristics, such as framing and mental accounting, to make their decisions. This can result in consumers either defaulting to the option that is most favourably framed or choosing the policy that aligns with their mental accounting categories, rather than conducting a thorough comparison of all available alternatives (Zong & Guo, 2022; Naradda Gamage et al., 2023). As found in the study consumers are more prone to their mental accounting categories when choosing among the alternatives or making a final purchase decision. This shows the irrational behaviour of insurance buyers or the bias-influenced decision-making process. To counteract the effects of mental accounting in life insurance decisions, consumers must take a more holistic view of their finances. For example, by considering life insurance as part of a broader financial plan rather than a standalone expense, consumers can make more rational decisions that align with their overall financial goals.

To make more rational decisions, consumers need to gather comprehensive information and evaluate it objectively. This can be facilitated by decision aids, such as online comparison tools, which present information in a standardized format, reducing the influence of biased framing and helping consumers compare policies based on objective criteria (MDPI, 2023). In conclusion, understanding the impact of decision framing and mental accounting biases on the life insurance purchase decision is essential for both consumers and financial advisors. By recognizing these biases and incorporating strategies to mitigate their effects, it is possible to make more rational decisions that better serve long-term financial security.

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