

## **MENTAL ACCOUNTING, FRAMING AND LOSS AVERSION IMPACT ON INVESTMENT DECISIONS OF INDIVIDUAL INVESTORS IN THE COLOMBO STOCK EXCHANGE**

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### **Abstract**

*This study investigates how behavioural biases, including loss aversion, framing, and mental accounting, affect the choices made by individual investors on the Colombo Stock Exchange (CSE). Behavioural finance recognizes investment behaviour influenced by emotional and cognitive variables rather than just rationality. The research aims to determine the influence of these biases on investment outcomes to provide insights to enhance financial decision-making and market efficiency. Data was gathered from 207 individual investors using structured questionnaires as part of a quantitative methodology. Statistical techniques of multiple regression, correlation analysis, and exploratory factor analysis were used to assess the impact of the three behavioural biases. Pre-testing and factor analysis were also used in the study to guarantee the validity and reliability of the instruments. The findings show that loss aversion, mental accounting, and framing greatly impact investing choices. Investors who engage in mental accounting deploy money differently according to their imagined goals, which results in less-than-ideal diversity. While loss aversion leads to conservative tactics and a reluctance to sell at a loss, framing biases decisions based on how information is presented. Regression analysis validated these variables as significant predictors, with loss aversion having the most impact. In the CSE, behavioural biases have a significant role in influencing investment choices. The most prevalent bias was loss aversion, followed by mental accounting and framing. Better investment practices and increased market efficiency can result from addressing these biases through investor education, awareness campaigns, and regulatory actions. The study lays the groundwork for further research in economies with comparable cultures and emphasizes the significance of incorporating behavioural insights into financial decision-making frameworks.*

**Keywords:** mental accounting, loss aversion, behavioural finance, Colombo Stock Exchange

## **1.0 Introduction**

By exploring the complex connection between human psychology and financial decision-making, behavioural finance shows that investors are not just logical beings looking to maximize profits. Instead, they are impacted by emotional and cognitive biases, which frequently result in systematic mistakes in judgment and decision-making. These biases, which can affect asset prices and market efficiency and lead to departures from conventional financial theories, include anchoring, overconfidence, herding behaviour, loss aversion, and the sunk cost fallacy.

By classifying gains and losses according to perceived linkages with particular mental accounts, mental accounting affects investment decisions and frequently precedes long-term objectives (Segal, 2022). Similarly, framing bias illustrates how the way financial data is presented can influence how decisions are made. For example, framing a Rs. 1000 loss against a Rs. 4000 predetermined gain (Druckman, 2007). A fundamental idea in behavioural economics, loss aversion, emphasises that people typically experience the anguish of losses more keenly than the joy of comparable gains (Nagaya, 2023). Irrational actions like holding onto failing investments or selling profitable ones too soon may result from this.

By examining these trends, behavioural finance contributes to developing methods to lessen the effects of irrational conduct and provides insightful information about market dynamics. This is especially important for those involved in Sri Lanka's stock market because it empowers investors and decision-makers to make logical and well-informed choices in a constantly shifting financial environment.

## **1.1 Research Problem Identification and Justification**

With a market valuation of more than USD 30 billion as of December 2023 (Colombo Stock Exchange, 2024), the Sri Lankan stock market offers an interesting but little-studied setting for investigating the influence of behavioural biases on financial decision-making (Chandrasiri et al., 2021; Ebigson, 2023; Shantha, 2024). This research question is significant for many reasons:

- **Proven Prevalence of Biases:** Worldwide research has frequently shown how behavioural biases impact investment decisions. For example, according to a 2021 CFA Institute survey, more than 70% of financial professionals think behavioural biases highly influence how they invest (Statman, 2019). Understanding these prejudgments in Sri Lanka, a market with distinct cultural influences, might be beneficial.
- **Possible Market Inefficiencies:** Research on investor overconfidence by Barberis, Shleifer, and Sun (Barberis, 1998) shows that behavioural biases can result in inadequate financial investment decisions. Finding these biases in Sri Lanka might help reveal possible inefficiencies in the market and guide measures that encourage investors to make better decisions.
- **Promoting Market Growth:** Sri Lanka's expanding middle class and rising investment activity are highlighted in a 2023 World Bank study (World Bank, 2023). Comprehending

behavioural biases can aid in creating regulatory frameworks and investor education initiatives that encourage informed participation and, eventually, market stability and growth.

- **Global Relevance of Diverse Markets:** Sri Lanka's distinct cultural and economic environment provides insightful information that extends beyond national boundaries. Research suggests that cultural influences may impact investing behaviour, as demonstrated by studies by Shefrin and Statman (Shefrin, 2000). This study can explain how market structures and psychological variables interact in various contexts.
- **Advancing Investment Strategies:** This research can help financial advisors and individual investors create more successful investment plans by identifying behavioural tendencies. Furthermore, investment solutions that decrease the harmful significance of biases can be designed using insights to improve investor outcomes.

In conclusion, research on behavioural biases' effects on financial decision-making in Sri Lanka is essential for policymakers and investors worldwide and academically and practically relevant. This updated part emphasises the possible significance of the research and identifies the problem by fusing facts with compelling reasoning.

#### *Problem Statement*

The study searches for the depth of this issue by examining the impact of specific behavioural biases on investment choices made by corporate investors in the Sri Lankan stock market. By focusing on these biases, mental accounting, framing, and loss aversion. The research aims to discover the underlying mechanisms of corporate investment behaviour in Sri Lanka.

### **1.2 Research Questions**

This research examines the influence of three key behavioural biases: mental accounting, framing, and loss aversion on investment decisions made by corporate investors in Sri Lanka. Therefore, the research question formulated as, "How does mental accounting, framing and loss aversion impact individual investor decision-making in CSE?".

### **1.3 Research Objective**

To find the impact of Mental accounting, Framing and Loss Aversion on individual investor decision-making in CSE.

## **2.0 Literature Review**

Behavioural finance is a field that associates psychology and economics to understand how emotions and psychological biases influence financial decision-making. It encounters the traditional view in finance that investors are normal actors who make decisions based solely on

logical analysis of all obtainable information (Kengatharan & Kengatharan, 2014; Galovotti et al., 2021; Goyal et al., 2021; Hossain & Siddiqua, 2022).

- Focuses on psychological influences: It underlines how emotions, biases, and mental shortcuts can lead investors to choose not in their best financial interest.
- Examples of biases: Common biases studied in behavioural finance include overconfidence, loss aversion, herding mentality, and anchoring bias. These biases can lead to actions like holding against losing stocks for too long, chasing hot trends, or being overly influenced by what others are doing.
- Market anomalies: Behavioural finance helps explain market anomalies where traditional financial models cannot fully explain market movements. For instance, it can explain why stock prices sometimes diverge from their intrinsic value.
- Investor limitations: It acknowledges that investors have boundaries in their ability to process information, control emotions, and fight biases.

Understanding behavioural finance can be helpful for both investors and financial professionals. Investors can become more aware of their biases and develop strategies to make more rational decisions. Financial professionals can use these perceptions to design products and services that meet the requirements and psychology of investors.

#### *Market Growth and Investor Participation*

With a market valuation of Rs. 4,534.65 billion as of March 31, 2024, the Colombo Stock Exchange (CSE) has grown significantly due to increased disposable incomes, improved financial literacy programs, and technical developments like Internet trading platforms. Many Sri Lankan investors, however, are still relatively new to the market and rely more on unofficial than on expert advice, which reveals a lack of financial knowledge and a lack of experience with financial markets. Due to their perceived stability, traditional investments like real estate and fixed deposits still hold sway, but the rise in popularity of initial public offerings (IPOs) highlights the entry of novice investors. Cognitive and behavioural aspects heavily influence investment decision-making, including mental accounting, framing, and loss aversion. These elements further complicate the financial environment by influencing perceptions and resource allocation. In Sri Lanka, empowering investors and encouraging logical investing behaviour, which can improve market efficiency, investor confidence, and economic growth, requires a knowledge of these behavioural dynamics.

#### *Mental Accounting*

According to research, mental accounting greatly influences portfolio management, asset allocation, and investor behaviour. According to a 2001 study by Shlomo Benartzi and Richard H. Thaler on retirement savings among university workers, mental accounting causes people to compartmentalise their accounts, which results in less-than-ideal asset allocation techniques. Meir

Statman (2004) talked about how mental accounting frames gains and losses within separate mental accounts, which affects risk preferences and asset allocation.

Investments classified as “spending accounts” are more likely to be liquidated than those for savings, according to research by Alok Kumar and Charles M.C. Lee (2006) on the influence of tangibility and anticipated spending opportunities on investor decisions. Further evidence of how the framing of funds across mental accounts influences risk-taking behaviour and investment outcomes was provided by laboratory tests conducted by Enrico G. De Giorgi and Thierry Post (2017). Experiments by Amos Tversky and Richard H. Thaler (1990) have shown how mental accounting biases affect portfolio decisions, frequently departing from the expectations of conventional portfolio theory. Utpal Bhattacharya and Neal Galpin (2012) created a model that clarified how these biases affect asset allocation and realization choices by incorporating mental accounting biases into conventional portfolio frameworks.

Together, this research highlights how mental accounting influences risk choices, asset allocation, and portfolio management in general. Private investors and financial experts can benefit greatly from the insights essential for comprehending the psychological aspects influencing investment behaviour.

#### *Framing*

Framing effects have significantly impacted market dynamics, risk preferences, and investor decision-making. The idea of framing effects was first proposed by Amos Tversky and Daniel Kahneman in 1981. They showed how various ways of presenting options affect risk-taking, asset valuation, and investor behaviour. A meta-analysis of studies on framing by Ellen Peters and Paul Slovic (2000) confirmed the widespread and persistent impacts of framing in various domains, including financial decision-making.

Richard H. Thaler and Shlomo Benartzi (1995) investigated how different ways of presenting investment options influence investor choices, with consequences for retirement planning, savings, and asset allocation. The rationality of securities market investors in the context of framing effects was investigated by Werner F. M. De Bondt (1993), who demonstrated how media coverage and market information affect investors’ views of gains and losses, affecting asset prices and trading patterns.

Using insights from behavioural economics, Richard H. Thaler (2018) thoroughly reviewed framing effects in financial decision-making, emphasising how they affect investor behaviour, market outcomes, and policy responses. In their 2007 study, Malcolm Baker and Jeffrey Wurgler examined the relationship between investor mood framing and stock returns, demonstrating the impact of financial news and market data presentation on perceptions and trading behaviour. In their experimental study of framing effects in the stock market, Thomas Oberlechner and Michael K. W. L. Chiu (2004) showed how differences in the way financial information is presented affect how risk is perceived, trading choices made, and market movements occur.

Together, this research highlights how essential framing effects influence financial behaviour, with significant ramifications for policymaking, market efficiency, and individual investors.

Stakeholders may promote more logical decision-making and stable financial markets by recognizing these cognitive biases and creating solutions to lessen their impact.

### *Loss Aversion*

Studies on loss aversion emphasize how important it is in influencing trading choices, investor behaviour, and market results. Prospect theory was first presented by Daniel Kahneman and Amos Tversky in 1979. It highlights how people place a greater weight on possible losses than on comparable rewards, which significantly impacts how they make decisions about investments and other areas. This bias in the housing market, where sellers are reluctant to accept prices below their purchase cost, impacts pricing and market dynamics, as David Genesove and Christopher Mayer (2001) showed.

Investors prefer to realize gains over losses, which results in increased trading volumes and lower returns, according to Terrance Odean's (1998) analysis of loss aversion in financial markets. Myopic loss aversion was studied by Shlomo Benartzi and Richard H. Thaler (1995), who demonstrated how investors' short-term aversion to realising losses results in price patterns that deviate from conventional asset pricing. According to a 2014 study by Hsiu-Lang Chen and Mei-Yuan Chou on the Taiwan futures market, loss-averse investors frequently use momentum trading, which aligns with behavioural finance theories.

Brad M. Barber and Terrance Odean (2008) found that investors' preference for local stocks due to loss aversion leads to less-than-ideal diversification and performance. In their 2013 study on the neuroeconomics of loss aversion, Elizabeth A. Phelps and Colin F. Camerer identified the neurological processes behind this cognitive bias and its consequences for risk- and uncertainty-averse decision-making.

When taken as a whole, these studies demonstrate how loss aversion permeates every aspect of financial behaviour, from specific trading choices to more general market trends. Investors and politicians can improve market efficiency and encourage more logical decision-making by comprehending this bias and creating ways to lessen its effects.

It isn't easy to directly adapt findings from other contexts because Sri Lanka's distinct cultural, political, and legal environment distinguishes it from developed and developing countries. Much research hasn't been done on investor behaviour in Sri Lanka, like the study conducted by Kengatharan and Kengatharan (2014). With only 128 participants, their study was unable to adequately represent the heterogeneous group of Sri Lankan investors and failed to consider the Eastern Province or take post-2014 market conditions into account. As a result, the results cannot be applied to the current situation in Sri Lanka.

Rajeshwaran (2020) emphasizes the need for district-by-district comparisons and island-wide studies to confirm regional trends in investor behaviour. To promote investment, boost capital for listed companies, and open up new investment opportunities, it is essential to comprehend investor behaviour on the Colombo Stock Exchange (CSE). To provide insightful new information, this study explicitly aims to investigate the factors that influence Eastern Province investors' decisions to engage in the CSE and evaluate the effect of these factors on their performance.

Furthermore, more studies are required to provide a comprehensive understanding of market dynamics by analyzing the actions of institutional and foreign investors in the CSE. Policymakers and regulators should prioritize investment education initiatives to improve investor awareness and behaviour. In order to stop manipulations that make use of behavioural biases, which frequently disfavour less knowledgeable retail investors, stock market regulators also need to keep a close eye on market movements. This study hopes to help investors and policymakers make well-informed decisions by filling in these gaps, which will ultimately strengthen and level the playing field for Sri Lanka's stock market.

## **2.1 Theoretical Gap**

### *Prospect Theory*

Prospect theory, developed by Daniel Kahneman and Amos Tversky, is a core principle of behavioural finance. It describes how individuals make decisions under risk, mainly focusing on how they value gains and losses. Prospect theory suggests that losses are felt more acutely than gains, leading to risk aversion and behaviours like holding onto losing stocks for too long (loss aversion). Prospect theory's loss aversion suggests that people feel the hurt of losses more strongly than the pleasure of success. This may cause you to make bad investment decisions.

Market Mispricing and Behavioural Biases Market mispricing refers to a situation where the price of an asset deviates from its intrinsic or fundamental value. This can occur due to countless factors, including:

1. Inefficiency: Markets are not perfectly efficient, meaning all available information might not be fully reflected in prices.
2. Investor Psychology: Behavioural biases, such as those discussed earlier, can lead investors to make irrational decisions, pushing asset prices away from their fundamental value.
3. Behavioural Biases and Market Mispricing

There are several explanations for why this might take place:

1. Loss Aversion: Investors, fearing losses, might hold onto undervalued assets or sell overvalued ones too early, hindering price discovery.
2. Framing: The way information is presented can influence investor sentiment and lead to mispricing.

For example, a stock framed as a potential turnaround story might be overvalued based on optimism, not its current financial health. Prospect Theory has drawbacks, even if it provides insightful information about how people make decisions. First of all, it has trouble with intricate situations. It might not accurately represent real-world scenarios with several possibilities, probabilities, and timeliness because it is meant for straightforward decisions. Furthermore, Prospect Theory presupposes that the framing or presentation of a decision has no bearing. Nonetheless, studies reveal that framing can have a big impact on decisions.

Moreover, the theory depends on arbitrary utility and probabilities, which are challenging to measure precisely. Models based on Prospect Theory may become biased and inconsistent due to this. Lastly, it presents people as immutable decision-makers with fixed preferences. In actuality, people change and evolve their tactics throughout time; Prospect Theory does not specifically address this idea. These drawbacks show that Prospect Theory must be used in conjunction with other considerations to have a more complete knowledge of human decision-making.

To improve prospect theory's application and accuracy in modelling decision-making processes, academics have put forth many extensions and modifications to address the theory's shortcomings. Creating expanded versions of prospect theory that consider extra variables like multiple outcomes, probability, and temporal preferences is one way to add complexity to the model.

As a result, the theory is more suited for examining complicated decision-making scenarios that are frequently seen in everyday life. Additionally, consideration has been given to framing effects, which greatly impact preferences. Behavioural economists have developed decision-making framework models that explicitly include framing effects, which provide a more realistic depiction of how contextual elements influence people's decisions. To properly quantify subjective elements like probabilities and utility, approaches like elicitation and experimental designs have also been used, improving the accuracy of prospect theory-based decision models.

Furthermore, to account for learning and adaptation over time, dynamic models have been developed to represent the dynamic nature of decision-making processes. Through tackling these constraints and incorporating knowledge from behavioural economics and decision science, scholars endeavour to create more resilient and accurate decision-making models that expand upon the fundamental ideas of prospect theory.

## **2.2 Empirical Gap**

This study's empirical gap is the absence of reliable and current research on behavioural biases influencing Sri Lankan stock market investors' investment choices. The majority of the current scholarship on this subject ignores some of Sri Lanka's views and investors in favour of industrialized nations like Bangladesh, Pakistan, and India. In order to close this gap, this study looks at how biases influence investment decisions.

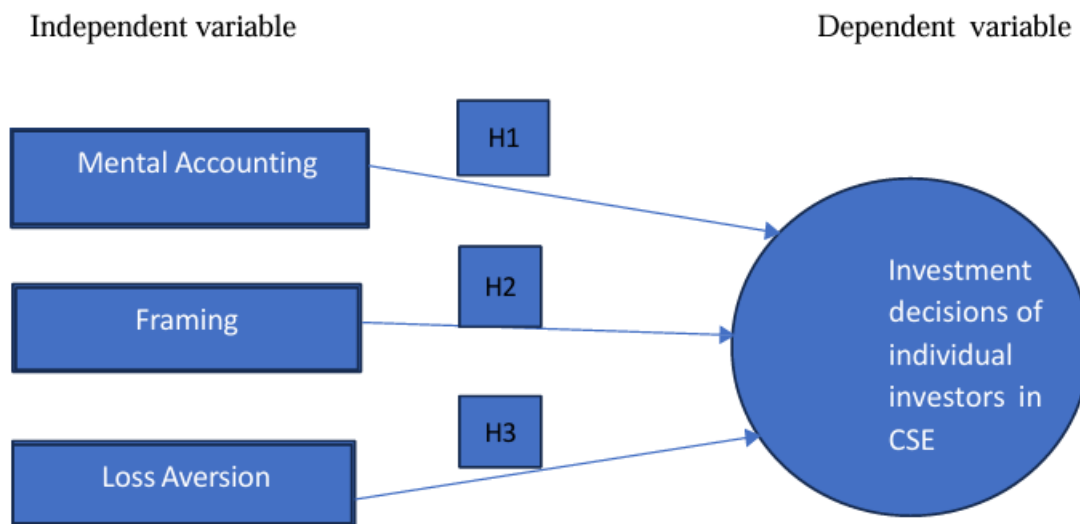
Understanding how investors make decisions is crucial for a healthy stock market. Recent research in Sri Lanka has focused on the impact of behavioural factors on investor decision-making in the Colombo Stock Exchange (CSE). These studies employ various methodologies to analyze investor behaviour and identify key influences. Several studies highlight the prominent role of overconfidence, availability bias, and herding behaviour. Mahanthe and Sugathadasa (Mahanthe, 2018) found a significant relationship between these factors and investment decisions using a sample of 75 investors in the Western Province. Their findings suggest that investors may overestimate their abilities, rely on readily available information (which can be biased), and follow the crowd, potentially leading to suboptimal investment choices.

### 3.0 Methodology

#### *Research Design*

The study adopts a quantitative research method. Quantitative data collected from a statistically viable sample is used to achieve the research objectives and meet the research questions. The research aligns with a positivist research philosophy. The research follows a deductive research logic, which involves developing and testing hypotheses. Descriptive statistics, Regression analysis and Correlation analysis will be used to analyse the data.

*Figure 01: Conceptual Framework*



*Source: Author Compiled (2024)*

#### *Population & Sample*

The study's population comprises individual investors who trade stocks, bonds, and other financial instruments listed on Sri Lanka's Colombo Stock Exchange (CSE). According to the most recent report, there are 669,790 local individual investors in the CSE (Colombo Stock Exchange, 2022). According to the Morgan table, the sample size for a population this size is a minimum of 384. However, considering investors' availability for participation, random selection was used to establish the final sample size. A random selection technique is used to guarantee variety and sufficient representation across a range of demographic characteristics, investment experience levels, and portfolio sizes. Investors were grouped according to stratification, which included age, gender, income, education, years of investment experience, and portfolio size. In the end, 384 private investors were chosen.

Develop a clear and concise questionnaire that captures mental accounting, framing, and loss aversion tendencies. A five-point Likert scale with "1= Strongly Disagree" and "5= Strongly Agree" was used to evaluate the variables. The conceptual mode of the study, electronic mail

(Google Forms), was used to reach the investors. The data collected from structured questionnaires offers basic considerations about the factors affecting investors' decisions. The operationalization table is given for understanding variable measurement.

*Table 01: Operationalization of Variables*

<b>Variable</b>	<b>Type</b>	<b>Measurement Scale</b>	<b>Source</b>
<b>Mental Accounting</b>	Independent	Likert scale (1=Strongly Disagree to 5=Strongly Agree)	Adapted from Thaler (1985)
<b>Framing</b>	Independent	Likert scale (1=Strongly Disagree to 5=Strongly Agree)	Adapted from Tversky & Kahneman (1981)
<b>Loss Aversion</b>	Independent	Likert scale (1=Strongly Disagree to 5=Strongly Agree)	Adapted from Kahneman & Tversky (1979)
<b>Investment Decisions</b>	Dependent	Quantitative metrics Likert scale (1=Strongly Disagree to 5=Strongly Agree)	Developed based on Kahneman & Tversky (1979) Thaler (1985)

*Source: Author Compiled (2024)*

Based on the conceptual framework and operationalisation table, the following hypotheses were developed for evaluation purposes.

*Hypotheses Development*

H1: Mental accounting has a significant impact on the investment decisions of individual investors in CSE

H2: Framing has a significant impact on the investment decisions of individual investors in CSE

H3: Loss Aversion has a significant impact on the investment decisions of the individual investors in CSE.

A pilot test was conducted for a better understanding of the questionnaire. 30 samples of individual investors were selected on a random basis. The reliability and validity test results are given below.

*Table 02: Pilot Test Results*

<b>Item</b>	<b>Cronbach Alpha</b>	<b>Factor Analysis</b>
Mental Accounting	0.82	0.72 to 0.85
Framing	0.79	0.68 to 0.81
Loss Aversion	0.83	0.70 to 0.84
Investor Decision	0.75	0.71 to 0.78

*Source: Author Compiled (2024)*

The construct validity of the questionnaire (Factor loadings) is supported by these results, which show that the items are in good alignment with their respective constructs. Every Cronbach's alpha value is higher than the generally recognized cutoff point of 0.70, demonstrating the measuring scales' strong internal consistency and dependability. The pilot test revealed there are no serious issues pertaining to the questionnaire, and based on that, the final data collection was conducted for 384 individual CSE investors.

#### **4.0 Results & Findings**

The demographic factors analysis description is explained. The provided data reveals the distribution of age groups within the research sample. The most frequent age group is 46-55, comprising 26.1% of the respondents. Following closely is the age group of 36-45 at 22.7%. The youngest age group, 18-25, accounts for 20.8% of the participants. The remaining age groups, 26-35 and 56 and above, represent 18.8% and 11.6% respectively.

The study sample's gender distribution reveals a population that is predominantly male. Of the respondents, 41.1% identified as female and 58.9% as male.

Most research participants have highly achieved levels of education. 56.5% of the respondents had a bachelor's degree, making them the largest category. Individuals holding master's degrees and PhDs make up 29% and 7.2% of the population, respectively. Only 7.2% of the participants have finished secondary school. According to this, a relatively educated sample is present in the study population, since most of them have completed secondary school or above.

The respondents' experience with investments is rather new. With 23.2% having less than a year and 35.7% having 1-3 years of experience. Just 30.4% of respondents have been investors for four to six years, and only 9.2% of respondents have been investors for more than six years.

The respondents' monthly investment amounts differ; most of them fall between LKR 50,001 and LKR 500,000. In particular, 33.8% of investors invest between LKR 50,001 and LKR 100,000 every month, and 37.7% of investors allocate between LKR 100,001 and LKR 500,000. Just 8.2% of people invest more than LKR 500,000 every month, whereas a smaller percentage (19.3%) invest less than LKR 50,000.

Reliability and validity tests were conducted for the final response of 384. The results are given in the table below.

*Table 03: Reliability & Validity Test Results*

<b>Item</b>	<b>Cronbach Alpha</b>	<b>Factor Analysis</b>
Mental Accounting	0.69	0.72
Framing	0.731	0.74
Loss Aversion	0.736	0.748
Investor Decision	0.823	0.723

*Source: Author Compiled (2024)*

The results indicate that the final respondents even met the reliability and validity, and hence, the other screening parameters were tested in the next table. The data are appropriate for factor analysis, as indicated in the above table; further, the KMO test was evaluated to measure the sampling adequacy. It gives the value of .839. In general, a KMO value of .80 or greater is regarded as appropriate. The results of Bartlett's test of sphericity indicate that there are substantial correlations between the variables. The descriptive statistics are given in the table below (Table 04).

*Table 04: Descriptive Statistics*

<b>Descriptive Statistics</b>									
	<b>N</b>	<b>Mini mum</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Varianc e</b>	<b>Skewness</b>		<b>Kurtosis</b>	
	<b>Stati stic</b>	<b>Stati stic</b>	<b>Statistic</b>	<b>Statistic</b>	<b>Statisti c</b>	<b>Statisti c</b>	<b>Std. Error</b>	<b>Statisti c</b>	<b>Std. Error</b>
Mental Accounting	384	1.00	3.5314	0.87452	0.765	-0.647	0.169	0.648	0.337
Framing	384	2.00	3.7220	0.73147	0.535	-0.121	0.170	-0.249	0.338
Loss Aversion	384	1.00	3.5784	0.84149	0.708	-0.425	0.170	0.056	0.339
Investor Decision	384	1.00	3.7402	0.95006	0.903	-0.711	0.170	0.508	0.339

*Source: Author Compiled (2024)*

The Kurtosis value shows less than 10, which indicates the data is normally distributed. And the rest of the values for 384 investors are given in the above table.

*Multicollinearity*

**Table 5: Multicollinearity**

<b>Collinearity Statistics</b>		
<b>Variables</b>	<b>Tolerance</b>	<b>VIF</b>
Mental Accounting	.930	1.075
Framing	.895	1.117
Loss Aversion	.934	1.070

*Source: Author Compiled (2024)*

Mental Accounting, Framing, and Loss Aversion all pass the multicollinearity test with no discernible problems. These variables’ tolerance values, which fall well above the 0.1 limit and vary from 0.895 to 0.934, show no signs of severe multicollinearity. Framing has the most significant Variance Inflation Factor (VIF) of 1.117, far below the threshold of 10, while all other VIF values are near 1. This demonstrates that there is little correlation between the independent variables and that their usage in regression models does not compromise the stability of the coefficients. Multicollinearity is, therefore, not an issue in this dataset.

*Breusch-Pagan test for Heteroscedasticity*

**Table 6: Breusch-Pagan Test**

<b>Model</b>	<b>t</b>	<b>Sig.</b>
(Constant)	3.991	<.001
Mental Accounting	-1.409	.161
Framing	.044	.965
Loss Aversion	-3.151	.002

*Source: Author Compiled (2024)*

With a t-value of -3.151 and a p-value of 0.002 ( $p < 0.05$ ), the Breusch-Pagan test for heteroscedasticity indicates that Loss Aversion strongly contributes to heteroscedasticity. However, Mental Accounting and Framing’s p-values are not statistically significant ( $p > 0.05$ ), so they do not contribute to heteroscedasticity. This implies that whilst Mental Accounting and Framing have no such effect, Loss Aversion makes the variance of residuals non-constant.

*Testing Auto-correlation – Durbin Watson*

**Table 7: Durbin Watson Test**

<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Durbin-Watson</b>
.395	.156	.143	1.755

Source: Author Compiled (2024)

According to the Durbin-Watson test result, there is no autocorrelation in the residuals of the regression model, which displays a statistic of 1.755. The value indicates that the residuals are not correlated with time because it is close to 2 and falls between 1.5 and 2.5, which is an acceptable range. As a result, autocorrelation in the model doesn't require any more attention.

**Table 8: Model Summary**

<b>Behavioural Factors</b>	<b>Coefficients</b>	<b>Sig.</b>
Mental Accounting	.065	.010
Framing	.079	.045
Loss Aversion	.068	.001

Source: Author Compiled (2024)

Mental Accounting, Framing, and Loss Aversion can predict the dependent variable significantly. Mental accounting has a favourable impact with a significance value of 0.010 and a coefficient of 0.065. Framing also has a positive effect with a significance value of 0.045 and a coefficient of 0.079. With a highly significant p-value of 0.001 and a coefficient of 0.068, loss aversion is the most powerful predictor. The effects of all three factors are positive and statistically significant.

#### **4.1 Discussion**

The three main behavioural biases identified in the study, Mental Accounting, Framing, and Loss Aversion, substantially impact the choices made by individual investors at the CSE. Because mental accounting causes investors to regard money differently depending on where it comes from, it can limit portfolio diversity and lead to illogical decisions. Depending on how investment possibilities are presented, framing bias influences decisions and may result in unduly optimistic evaluations. The biggest bias, loss aversion, makes investors extra cautious by making them concentrate on preventing losses. The study highlights the significance of tackling these biases through education and disciplined investment practices to enhance decision-making and long-term financial results.

**Table 9: List of Hypotheses**

<b>Null Hypotheses</b>	<b>Result</b>
There is a significant impact of the Mental Accounting Factor on the Investment Decisions of Individual Investors.	Not Rejected / Accepted
There is a significant impact of the Framing Factor on the Investment Decisions of Individual Investors	Not Rejected /Accepted
There is a significant impact of the Loss Aversion Factor on Investment Decisions of Individual Investors.	Not Rejected /Accepted

*Source: Author Compiled (2024)*

## **4.2 Conclusion**

Biased decision-making results from mental accounting, which is defined as the propensity to regard money differently depending on its source or planned purpose. Investment preferences and risk perception are influenced by framing or the presentation of information. Making logical decisions can be hampered by loss aversion, which is the propensity to prevent losses before pursuing profits. Investors and financial experts alike must know how common these behavioural biases are. By identifying and correcting these cognitive biases, people can reduce the possibility of unfavourable outcomes and make better financial decisions. The best predictor of loss aversion is the investors' propensity to prevent losses ahead of making gains. This can lead to overly cautious investment methods and restrict development potential. Investors' propensity to group funds based on specific objectives or sources may have hampered portfolio diversification, making mental accounting another significant factor. The study proved that Mental Accounting, Framing & Loss aversion significantly affect individual investor decisions, where Herding negatively impacts investor performance (Rajeshwaran, 2020); where Kengatharan & Kengatharan (2014) stated that the herding factor and loss aversion do not have an influence on investment performance. The study is providing valuable insights that may change over time.

These results highlight how crucial it is to recognize and deal with behavioural biases when making financial decisions. Investors can create more efficient plans and make better decisions by understanding the impact of loss aversion and mental accounting.

## **4.3 Implications**

The results of this study suggest several areas for further investigation. Additional demographic variables, such as gender, wealth, and educational attainment, might be studied to find out how they affect investment decisions and behavioural biases, even though the study only looked at the effects of age and investment experience. An awareness of innate biases may improve decision-making by encouraging more rational, long-term approaches to investing. Understanding the consequences of loss aversion can help investors find a balance between the potential for losses and the desire for profits, which will encourage a more growth-oriented strategy to investment. By

placing more emphasis on overall portfolio performance than on precise fund classification, mental accounting biases may be reduced. Investors can also continue to assess the way information is presented and make decisions based on objective assessments of risk and return rather than emotionally charged presentations by recognizing framing bias.

#### **4.4 Recommendation**

This study can improve the long-term outcomes of their investments, reduce irrational behavior, and improve their capacity to make informed decisions. Conferences, seminars, and online resources can increase awareness and equip investors with the knowledge and abilities to manage these biases. Investors may make better decisions if they work with portfolio managers or financial advisors who have been trained to identify and lessen behavioral biases. Advisors can assist investors in controlling their emotions, adhering to long-term financial objectives, and developing a rational approach to risk evaluation. The Colombo Stock Exchange (CSE) and financial institutions can help investors objectively balance risks and rewards. By adopting tools that offer objective data presentation and historical performance analysis for various scenarios, investors may be empowered to make data-driven decisions rather than emotionally motivated ones..

#### **4.5 Suggestions for future research**

Future research might examine additional behavioural biases such as overconfidence, herd behaviour, and anchoring to obtain a more thorough grasp of how different cognitive biases affect investing decisions. By carrying out a longitudinal study, one can learn how behavioural biases alter over time and react to market shifts or individual financial situations. This can help determine whether biases such as loss aversion become less pronounced or more pronounced with time.

Future studies could use experimental designs to investigate the effects of behavioural biases in controlled settings. To evaluate the framing effect, experiments could, for instance, test how investors behave when hazards given in various frames. Examine how technology (such as decision-support systems, behavioural nudges, and robo-advisors) can lessen biases. In conclusion, it is essential to investigate novel approaches, including technological tools, financial education initiatives, and behavioural nudges, to lessen the influence of biases on investing choices. A better understanding of behavioural biases in investing decision-making and developing workable plans for enhancing financial results will result from future research considering these suggestions.

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## Appendix

### Appendix 01 - Questionnaire

#### Part 1: Demographic Information (For Control Variables)

##### 1. Age:

- 18-25
- 26-35

- 36-45
  - 46-55
  - 56 and above
- 2. Gender:**
- Male
  - Female
  - Other
- 3. Education Level:**
- Secondary School
  - Bachelor's Degree
  - Master's Degree
  - PhD
  - Other (Please specify)
- 4. Years of Investment Experience:**
- Less than 1 year
  - 1-3 years
  - 4-6 years
  - More than 6 years
- 5. Monthly Investment Amount:**
- Less than LKR 50,000
  - LKR 50,001 - 100,000
  - LKR 100,001 - 500,000
  - More than LKR 500,000

**Part 2: Mental Accounting**

<b>Statements</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
I maintain different accounts or treat money separately for various types of investments (e.g., stocks, bonds, real estate).					
The way I handle money depends on its source or intended use (e.g., salary, savings, investment returns).					
I am more cautious with money that I have earmarked for a specific purpose (e.g., retirement, child's education) than with other funds.					

I allocate funds to different types of investments depending on how I perceive their purpose or goals.					

**Part 3: Framing**

<b>Statements</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
My investment decisions are influenced by how risks are presented (e.g., loss vs. gain).					
When investment opportunities are framed positively, I am more likely to invest, even if the underlying risk remains the same.					
The way investment outcomes are framed (as losses or gains) plays a major role in my decision to buy or sell stocks.					
I feel more confident in my investment decisions when information is framed in a way that emphasizes growth opportunities.					

**Part 4: Loss Aversion**

<b>Statements</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
I worry more about potential losses than potential gains when making investment decisions.					
I tend to avoid making new					

investments if I have recently experienced a loss.					
My investment strategy is focused on avoiding losses rather than achieving large gains.					
I am cautious to sell an investment at a loss, even if it might be a rational decision.					

**Part 5: Investment Decisions**

<b>Statements</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
I trade frequently based on market conditions and other information.					
I invest in a wide range of asset categories (e.g., bonds, stocks, real estate).					
The level of risk in my investment portfolio is carefully managed according to my financial goals.					
I diversify my investments to reduce the overall risk of my portfolio.					
My investment decisions are influenced by both short-term and long-term financial goals.					