

Bias-Driven Investing: An Empirical Study of Behavioral Factors Affecting Investor Decisions in the Colombo Stock Exchange – Sri Lanka

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Abstract

Investment decisions made by individual investors are often influenced by psychological and emotional factors rather than purely rational analysis, which can lead to hesitation, reduced trading activity, and unfavourable investment outcomes. This study is motivated by the observation that such behavioural tendencies contribute to the low participation of individual investors in the Colombo Stock Exchange (CSE), despite the availability of financial information and increasing financial literacy in Sri Lanka. Accordingly, the study investigates the influence of key behavioural biases, such as herding, representativeness, overconfidence, regret aversion, and loss aversion, on individual investment decision-making. A cross-sectional research design was employed, and primary data were collected from 358 individual investors using a structured questionnaire distributed through convenience and snowball sampling methods. The data were analysed using multiple linear regression techniques with SPSS to examine the proposed relationships. The results indicate that all selected behavioural biases have a significant and positive influence on investment decision-making, highlighting the critical role of behavioural factors in shaping investor behaviour in an emerging market context. These findings extend the existing behavioural finance literature by providing empirical evidence from Sri Lanka and offer practical implications for policymakers, financial institutions, and investor education programmes aimed at improving decision quality, reducing bias-driven hesitation, and encouraging more active and informed participation in the stock market.

Keywords: *Behavioural Bias, Behavioural finance, Colombo Stock Market, Investment Decision-making .*

1. Introduction

Investments are crucial for growth: foreign and domestic investments shall play a critical role in sustaining the country's high economic growth rate. Such intentions provide grounds for sustainable development goal eight; decent work and economic growth, of the UN. However, stock market investments in Sri Lanka (SL) are considerably small compared to investments in financial institutions. Considering an important barometer of economic stability, the stock market enables the transfer of resources from surplus units to deficit units, thereby providing the necessary catalytic economic growth (Rahman, 2006). It has been continuously noted that public participation in the stock market in SL, despite its importance, is low. The primary stock exchange in SL, the CSE, was established in 1985 to facilitate stock, bonds, and securities transactions. Thus, it plays an important economic role by creating an avenue for investments in securities of publicly listed companies enabling economic activities. The stock market has historically generated higher returns, yet participation by investors remains low. According to the recent data in 2022, only 3.98% of SL's working-age population engaged in stock trading with individual investments in the stock market contributing a mere 0.135% of GDP. In contrast, savings in commercial banks accounted for 15.38% of GDP (CSE, 2022; Central Bank of Sri Lanka, 2021). This trend mirrors patterns in neighboring countries, such as India, where just 10% of household earnings are invested in the securities market (Mishra, 2018). It is observed that psychological factors, fears of unfavorable outcomes, and distrust in the market seem to deter participation in the stock market. Thus, it becomes important for the government and regulators to reduce these constraints to encourage investment, which is one aspect that needs serious consideration as economic development takes on in SL.

While traditional theories like the Efficient Market Hypothesis (EMH) and Modern Portfolio Theory (MPT) propose that investor decisions follow rationality through selection of a course of action after a thorough evaluation of alternative options (Venkatapathy & Sultana, 2016), behavioural finance studies the actual investor behaviour will be deviated from this so-called rationality. Thus, behavioural finance examines how psychological and sociological factors influence investment decisions. Overconfidence, herd behaviour, loss aversion, regret aversion, and consideration of dominance represent some biases that cause inefficiency in the market. Although abundant information is available, human judgments can still be influenced by their inherent self-interests, affecting the decision-making process and ultimately contributing to increased market volatility (Perera & Gunathilaka, 2021).

While the accessibility of financial literacy in SL advances upto 57.9% in 2022 (Central Bank of Sri Lanka), the public has avoided participating in stock trading. It explodes the preference for traditional savings over investment in stocks. This might be due to some behavioural biases in the decision-

making of individuals. Even during trading, investor is beset by errors based on emotional and cognitive factors, leading to bad decisions and outcomes.

A vast body of psychological literature indicates that individuals tend to make consistent errors in their thinking (Ahmed, 2022; Faulkner, 2002; Shefrin & Thaler, 1988). Emotional and cognitive biases such as overconfidence, herding, regret aversion, loss aversion, and representativeness significantly impact investment decisions. Such tendencies may lead to distortions in decision-making and result in suboptimal investment strategies. For example, herding bias may cause individuals to follow the crowd rather than make independent decisions, while overconfidence often leads to excessive risk-taking (Ahmed & Wu, 2022; Biais et al., 2005). Behavioural finance endeavors to explore the psychological and sociological factors that impact the decision-making process of both individual and institutional investors in the realm of investments.

Despite the recognised importance of stock market participation for economic growth, individual investor involvement in the Colombo Stock Exchange remains limited, raising concerns about the factors influencing investment decision-making beyond traditional financial explanations (Kengatharan, 2014; Ranawakage et al., 2021). While classical finance theories assume rational behaviour, growing evidence suggests that psychological biases play a decisive role in shaping investor choices, particularly in emerging markets. However, existing literature provides limited and inconsistent evidence on how multiple behavioural biases jointly influence individual investment decisions in Sri Lanka. This study seeks to address this research problem by empirically examining the impact of herding, representativeness, overconfidence, regret aversion, and loss aversion on individual investment decision-making in the Colombo Stock Exchange. By offering a comprehensive analysis within an emerging market context, the study contributes to behavioural finance literature and provides practical insights for policymakers, regulators, and financial institutions seeking to design interventions that encourage informed and confident investor participation..

2. Literature Review

2.1. Investor Behaviour

An investment involves committing current funds with the expectation of future returns that compensate for the time value of money, anticipated inflation, uncertainty of future payments, and associated risks (Wallingford & Reilly, 1979). Traditional finance theories, such as the Efficient Market Hypothesis and Modern Portfolio Theory, assume that investors act rationally by weighing potential gains and losses to make optimal decisions (Ahmad, 2017; Phan et al., 2023). For such rational decision-making, investors are expected to have access to all relevant information, analyze it effectively, and think clearly and logically (Metawa et al., 2019; Sabir et al., 2021).

However, empirical evidence shows that investment decisions are also influenced by demographic factors (e.g., age, gender, education, religion), economic conditions, and financial factors (Mishra, 2018; Sabir et al., 2021; Sivaramakrishnan et al., 2017). Beyond these, behavioural finance highlights the role of psychological and cognitive biases in shaping investor choices, challenging the assumption of full rationality proposed by conventional finance theories (Hu et al., 2019), (Humra, 2016)..

2.2. Irrational Investment Decisions

While traditional finance assumes rational decision-making, behavioural finance literature provides substantial evidence that investors frequently deviate from rational behaviour, particularly under conditions of uncertainty and risk. In emerging economies, behavioural biases are especially prevalent, influencing investors to make suboptimal decisions such as excessive risk-taking, delayed selling, and trend-following. Numerous market anomalies cannot be fully explained by conventional finance theories, prompting behavioural psychologists and finance scholars to investigate the psychological foundations of investor behaviour. Empirical studies consistently document patterns of irrationality, inconsistency, and judgment errors among investors, highlighting the role of cognitive and emotional factors in shaping financial decisions (Hossain & Siddiqua, 2022). Behavioural finance integrates these insights with traditional economics to explain how such biases contribute to inefficiencies in financial markets.

2.3. Behavioural Finance: Theoretical Foundation

Behavioural finance is rooted in the seminal work of Kahneman and Tversky, whose Prospect Theory demonstrates that individuals evaluate gains and losses asymmetrically and exhibit heightened sensitivity to losses, challenging the assumption of rational decision-making (Kahneman & Tversky, 1979). Their research on heuristics and biases further explains how cognitive shortcuts such as representativeness systematically distort judgment under uncertainty (Tversky & Kahneman, 1974). Extending these insights, (Thaler 1980, 1999) incorporated psychological principles into financial economics, highlighting phenomena such as mental accounting and market inefficiencies. Together, these foundational theories underpin the examination of behavioural biases, including herding, overconfidence, regret aversion, and loss aversion, in investment decision-making.

Building on these foundational contributions, the field of behavioural finance attempts to comprehend and anticipate the repercussions of psychological decision-making specifically related to behavioural trends and biases (Olsen, 1998). (Swell, 2005) described the behaviour of financial practitioners, and the following impact on financial markets is explored by behavioural finance through psychological factors. Moreover, he added how a market can be inefficient due to not being rational and how behavioural finance becomes a challenge for EMH. The supportive theories for behavioural finance are reviewed in this section. The foundation of behavioural finance theories is cognitive psychology, which asserts that human decision-making is subject to several cognitive illusions. Under prospect

theory, cognitive illusions can be divided into two groups: those that are the result of making heuristic choices and those that are the outcome of cognitive framing. (Waweru et al., 2008) explain that behavioural biases arise from both categorisations. On top of that, (Faulkner, 2002) points out that significant behavioural finance aspects are related to prospect theory, regret and cognitive dissonance when making a decision.

Heuristic Theory: The term heuristics, which was originally introduced by (Kahneman and Tversky, 1974), are mental shortcuts that simplify decision-making in complex and uncertain situations. These shortcuts are often based on beliefs about the likelihood of uncertain events, shaping how individuals assess probabilities and outcomes (Kartini & Nahda, 2021). (Tversky and Kahneman, 1974) categorised heuristic biases into three types: representativeness, availability, and anchoring. Investors often make errors in decision-making by relying on rules of thumb to process information. While heuristic approaches can expedite the decision-making process, they may also lead to systematic biases or errors. A common example related to the representativeness heuristic is where people judge the likelihood of an event based on how closely it resembles typical examples. For instance, an investor might believe a new company will succeed simply because it looks like other successful startups, regardless of the actual statistical odds (Kahneman & Tversky, 1974).

Prospect Theory: Prospect theory by (Tversky & Kahneman, 1979) provides a psychological alternative to expected utility theory to explain decision-making under risk. According to (Kahneman, 2003), a person is more likely to gamble in anticipation of a gain than once faced with a potential loss. It has been underscored that investors change from being risk-averse for gains into risk-seekers for losses (Kishore, 2004). Scholars further looked into this conduct whereby some traders expect losses after gains, thereby becoming more risk-averse; conversely, some traders are inclined to take excessive risks

Regret Theory: Regret Theory, introduced by (Loomes et al., 1982), models decision-making under uncertainty by emphasising the emotional impact of comparing actual outcomes with forgone alternatives. (Bell, 1982) noted that regret arises when a chosen option performs worse than the one not taken, influencing future choices. In investment contexts, this explains why individuals anticipate regret over poor outcomes, leading to behaviours such as holding underperforming stocks and selling better-performing ones prematurely (Shefrin et al., 1985), (Aigbovo et al., 2019). (Kahneman, 1979) further highlights that regret is particularly intense near reference points, reinforcing cautious or corrective decision-making.

Cognitive Dissonance: The emotional turmoil that people experience when they are shown facts to contradict their assumptions or views is known as cognitive dissonance; as a result, it can be thought of as a type of regret over incorrect beliefs. Similar to the regret theory of cognitive dissonance, (Festinger, 1957) claims that people have a propensity to take actions that would not be regarded as entirely rational

to lessen cognitive dissonance. Goetzmann et al., 1997) have suggested that the same theory of cognitive dissonance could account for the phenomenon where money enters investments in mutual funds that have performed exceptionally well more quickly than it leaves mutual funds that have performed exceptionally poorly. This is because investors in lost funds are hesitant to face the fact that selling their investments would prove they made a poor investment.

Traditional finance theories assume that investors act rationally by fully processing available information (Ahmad, 2017; Phan et al., 2023); however, empirical evidence shows that investment decisions are also influenced by demographic, economic, and psychological factors (Mishra, 2018; Sabir et al., 2021). Behavioural finance, drawing on cognitive psychology, explains this deviation from rationality through systematic behavioural biases such as herding, representativeness, overconfidence, regret aversion, and loss aversion, which have been linked to irrational investment behaviours including excessive risk-taking, delayed selling, and trend-following (Olsen, 1998; Hu et al., 2019; Barberis & Thaler, 2003; Waweru et al., 2008). While this literature provides important insights, much of the empirical evidence examines these biases in isolation or within developed market contexts, limiting understanding of their combined and comparative effects on individual investment decision-making in emerging markets.

Collectively, the literature highlights the relevance of behavioural biases in shaping investment decisions while revealing gaps in understanding their relative and combined influence, particularly in emerging market environments characterised by uncertainty and volatility. Addressing this limitation requires an integrated empirical approach that examines multiple behavioural biases simultaneously within a specific market context.

2.4. Gap identification

Although behavioural finance literature has extensively documented the role of psychological biases in shaping investment decisions, the majority of empirical studies focus on developed markets or examine a limited number of biases in isolation (Barberis & Thaler, 2003; Kumar & Goyal, 2015). Evidence from emerging markets remains mixed, with inconsistencies in the strength and significance of individual behavioural biases (Waweru et al., 2008; Ranaweera & Kawshala, 2022).

Within the Sri Lankan context, existing studies have provided valuable insights into selected behavioural influences; however, the evidence remains fragmented, with limited emphasis on the combined and comparative effects of multiple behavioural biases on individual investment decision-making (Kengatharan & Kengatharan, 2014; Ranawakage et al., 2021). This limitation is particularly relevant given that, despite improvements in financial literacy and access to market information, individual participation in the Colombo Stock Exchange remains relatively low (Economic and Social

Survey, 2022), suggesting that behavioural factors beyond informational constraints continue to influence investor behaviour.

Accordingly, this study addresses this gap by providing a comprehensive empirical analysis of the relative and joint impact of herding, representativeness, overconfidence, regret aversion, and loss aversion on individual investment decision-making in the Colombo Stock Exchange, thereby extending behavioural finance literature and offering insights relevant to both theory and practice in an emerging market environment characterised by economic uncertainty and market volatility.

2.5. Hypothesis Development

Herding Bias and investment decision-making: Herding bias influences investment decision-making since individual investors tend to follow the rest, generally without much independent research. Previously, research suggested that herding is known to be more present among individual investors than institutional ones, particularly during market downturns (W. Kim & Wei, 2002; Goodfellow et al., 2009). Herding behaviour is often found among investors dealing in emerging markets and this bias can be highly observed when a group of investors make investment decisions based on collective information from a group of investors (Rahayu et al., 2020; Humra, 2014). Consequently, when the majority votes on the wrong decision it will impact a significant price deviation. Chen et al., (2007) stated that the herding bias is more prevailing in developing countries rather than the developed countries which has been validated for the SL context by Kengatharan & Kengatharan (2014) and Waweru et al. (2008). A study has observed that investors in SL often follow the majority, especially during times of high market uncertainty which can intensify market volatility (Kengatharan & Kengatharan, 2014). Yet it is noted that empirical evidence is contradictory even though they are tested in the same context. Kengatharan & Kengatharan (2014), Waweru et al. (2008), and Chandrasiri et al., 2021 revealed that herding bias has significantly influenced investment decisions whereas Ranaweera & Kawshala, (2022) stated insignificant impact. According to Shantha (2018), herding behaviour in SL's stock market has shown significant fluctuations over time while strongly evident during the Civil War and gradually decreased during the 2009-2018 period which constituted a stock market crisis, market bubble, and economic and political instability. Hence these findings underscore the necessity of investigating the relationship between herding and investor decision-making to better understand the nature of impact.

Hypothesis 1: Herding Bias has a significant influence on the Investment decision-making

Representativeness Bias and investment decision-making: Representativeness bias is when people tend to categorize new information based on their prior experiences and classifications. Various

discussions around behaviour finance and representativeness bias led to their testing on investment decision-making. According to research, this bias arises from people's tendency to attribute value to thoughts and objects to make sense of their experiences (Pompian, 2012; Agrawal, 2012). Representativeness bias could lead someone to end up making the wrong conclusion. For instance, investors may misattribute good characteristics of a company (eg: quality products, skilled managers, and high growth expectations (Chen et al., 2007) by overvaluing the company. Another implication of this bias that often occurs in financial markets is the belief that the best indicator of predicting future performance could be past performance (Frensidy, 2016). For instance, if a company reports high profits in consecutive years, investors tend to believe that this trend will persist, perceiving the company as successful and, therefore, a good investment. As a result, they tend to expect higher returns from stocks that have performed well in the past, using this pattern as a basis for predicting future stock movements. Based on the findings from the previous studies a hypothesis is proposed as follows;

Hypothesis 2: Representativeness Bias has a significant influence on Investment decision-making

Overconfidence and investment decision-making: Overconfidence bias is assumed to play a significant role in investment decision-making, as investors usually overevaluate their market forecast and ignore the risks (Kahneman & Tversky, 1973; Gervais & Odean, 2001). Investors who are driven by overconfidence bias often override models and data because they perceive themselves as better educated and skilled (Kartini & Nahda, 2021). Ultimately this bias could lead to negligence of potential risks and would end up with losses rather than gains. Frensidy (2016) described that an individual's tendency to become overconfident may be caused by two aspects; firstly, most people would like to have a positive self-assessment and secondly, with a psychological perspective people are having by a desire to take control over situations driven by a belief in their ability to do so. Moreover, it was identified four financial implications arise due to the overconfidence bias; 1. Investors may make incorrect financial decisions on buying and selling securities while failing to understand their lack of expertise in informational and analytical advantage, 2. Investors may trade more frequently and end up incurring more transaction costs, 3. Overconfident investors will set too narrow prediction intervals and 4. overconfident investors are more likely to experience unexpected outcomes (Frensidy, 2016). Although numerous studies have examined the impact of overconfidence bias on investment decisions, in the context of SL characterized by relatively low financial literacy the influence of overconfidence on excessive trading and mispricing has not been sufficiently explored.

Hypothesis 3: Overconfidence Bias has a significant influence on Investment decision-making

Regret Aversion and Investment Decision-making: Regret aversion is a bias, in which an investor feels bad about choosing the incorrect stock to invest in when the alternative stock generates a higher

return. Investors who suffer from regret aversion bias tend to refrain from taking action out of a concern of making poor choices. Instead of selling shares that are dropping and selling shares that are rising, investors avoid regret. When they sell the rising equities early and retain the declining ones for a longer amount of time, their regret grows (Lehenkari & Perttunen, 2004; Fogel & Berry, 2006). According to Bailey and Kinerson (2005), regret aversion can be further categorized into two aspects; experienced regret and anticipated regret. Experienced regret means the actual discomfort witnessed by the investor after realizing that the decision has led to a negative outcome whereas anticipated regret indicates the emotional distress or the discomfort that is expected to be felt in the future by an individual if their decisions turn out poorly. Limited studies have attempted in the SL context to discover the impact of regret aversion towards investor decisions hence the study pertains to test the below hypothesis;

Hypothesis 4: Regret Aversion Bias has a significant influence on Investment decision-making

Loss Aversion and investment decision-making: The loss aversion bias plays a crucial role in grasping investment decisions as investors are excessively prone to losses in comparison to equivalent gains and make irrational decisions due to this misconception (Tversky and Kahneman, 1991; Barberis and Thaler, 2003). The concept of loss aversion has been derived from prospect theory, suggesting that investors are not risk averse by loss averse (Kartini & Nahda, 2021). According to Thaler and Johnson (1990) the degree of loss aversion basically depends on past results witnessed by the decision maker. For instance, if an investor has experienced gains from the previous trades he/she will be less averse to loss, but if it was a loss investors become strongly averse to loss.

Hypothesis 5: Loss Aversion Bias has a significant influence on Investment decision-making;

3. Methodology

A positivist research philosophy will be used to assess the influence of behavioural biases on individual investment decision-making in Sri Lanka. It is in close conformity to natural scientists' position, where what is observable will yield data that is objective and can be generalised (Saunders & Lewis, 2019). The deductive research approach will be used in the study; the purpose will be to test the concrete theories of behavioural finance, such as overconfidence, herding, and loss aversion, and to how far it can show their impact on investment behaviours. This will be supported by some literature, which has analyzed and empirically proven the behavioural biases affecting market volatility and decision-making (Kumar & Goyal, 2015; Badola et al., 2023).

The mono method is used with a quantitative research choice, which uses numerical data in the collection of behavioural biases' effects according to (Bogner et al., 2009) collect numerical quantity.

The primary tool of data collection is structured questionnaires, which may follow the tradition of previous research strategies in behavioural finance (Saunders & Lewis, 2019). The study will gather quantifiable and numerical information from a large number of investors to assess how they behave regarding their investment decisions. Quantitative methods have been effectively used to analyze the cognitive bias effects on an investor's behaviour in previous studies (Bhatia et al., 2020; Bloomfield et al., 2000).

At the same time, the dynamic time horizon exists, being used in a cross-sectional design, which means analyzing many investors in a snapshot position to scrutinize their behaviours relating to behavioural biases. This has been agreed upon in studies conducted in the past (Barberis & Thaler, 2003; Shefrin & Statman, 1985) to understand how psychological biases manipulate investment decisions within certain market conditions.

The use of a survey design enables the methods of collecting responses to reach individual investors in the Colombo Stock Market. These methods will be comparatively studied in relation to the extent and effects of behavioural biases such as overconfidence, herding, and regret aversion towards investor behaviour, providing insights into how these biases manifest themselves in normal investment practices.

3.1. Conceptual Framework and Operationalization

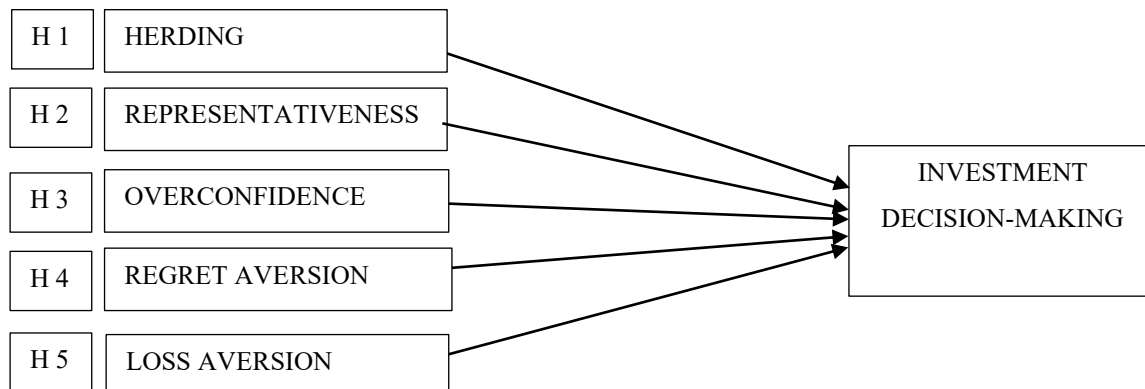


Figure 1: Conceptual Framework

The study pertains to examining the impact of herding, representativeness, overconfidence, regret aversion and loss aversion on investor decisions in the Sri Lankan stock market.

Table 1: Operationalization

Variable	Indicators	Measurement	Reference
Herding	<i>investment choices are affected by the choices of choosing stocks of other investors</i> <i>investment choices are affected by the choices of the stock volume of other investors</i> <i>investment decisions are affected by the decisions of buying and selling stocks of other investors</i> <i>I generally respond fast to the fluctuations of other investors; choices and track their responses to the stock market</i>	Five-point Likert Scale	Tan et al., 2008
Representativeness	<i>I prefer to invest in only in familiar stocks</i> <i>Even if my best researched stock does not perform according to my expectation, still I hold to the same.</i> <i>I use trend analysis to make investment decisions</i> <i>If other stocks of a company are performing well and the same company offers new shares, I will buy the same</i> <i>I buy "hot" stocks and avoid stocks that have performed poorly in the recent past.</i>	Five-point Likert Scale	Jain et al., 2021
Overconfidence	<i>I sense more assurance in my own investment views over others</i>	Five-point Likert Scale	Ngoc, 2014

I don't look up to others in case of making investment decisions

I am certain of my expertise and experience in outpacing the stock market

I am successful in an environment where others fail

Regret Aversion	<i>I sell shares that have increased in value faster</i>	Five-point Likert Scale	Jain et al., 2021
	<i>I avoid selling shares that have decreased in value</i>		
	<i>I feel more sorrow about holding losing stocks too long than about selling winning stocks to soon</i>		
Loss Aversion	<i>A large loss in my investment is more important to me than missing a substantial gain</i>	Five-point Likert Scale	Chun & Ming, 2009
	<i>A large price drops in my invested stocks make me nervous</i>		
	<i>I will not sell shares that have observed a decline in value whereas sell shares that have a rise in value</i>		
	<i>I will avoid increasing my investment when the market performs poorly</i>		
Investment decision-making	<i>When making investments, I rely upon my instincts</i>	Five-point Likert Scale	M. A. Ahmad & Wu, 2022
	<i>I generally make investments that feel right for me</i>		
	<i>When I make investment, I tend to rely on my intuition</i>		

*When making an investment I
trust my inner feelings and
reactions*

*When making an investment, it is
more important for me to feel the
investment is right than have a
rational reason for it*

The study focuses on individual investors in the Colombo Stock Exchange in Sri Lanka, employing a structured questionnaire for primary data collection. The sample size, obtained from the Morgan Table, is 384, with convenience and snowball sampling techniques used. To minimize bias in the convenience and snowball sampling methods used in this study, several techniques were implemented during the data collection. Efforts were taken to diversify the sample pool by targeting participants from varied demographic backgrounds, including differences in age, gender, education, occupation, and geographic location. Survey distribution was conducted through multiple channels, such as social media, professional networks, and via email, to ensure a broad reach and reduce reliance on any single source.

The questionnaire was adapted from established scales in the literature to measure behavioural biases and investment decisions. The questionnaire items were taken directly from established scales in the literature and applied to the Sri Lankan context without altering their original content, ensuring that the source instruments' validity was maintained while being relevant to local investors. A pilot test with 50 participants was conducted to verify the reliability and validity of the questionnaire, with Cronbach's Alpha and KMO values exceeding 0.7 for all variables, providing confidence in the internal consistency and construct validity of the measurement tools.

Multiple linear regression analysis has been used as the main statistical tool to test the impact of each behavioural bias (overconfidence, representativeness, regret aversion, loss aversion, and herding) towards investment decision-making. Each hypothesis was developed to test the individual impact which these biases may have on investor behaviour, with investment decision-making serving as the dependent variable and the behavioural biases as independent variables. The regression model allowed for the identification of strength and direction, therefore giving a quantitative view on how these biases impact decision-making. This method was chosen due to its effectiveness in testing relationships and assessing the predictive power of independent variables.

All participants will be informed about the purpose of the study, and their responses will be kept confidential and used solely for research purposes, ensuring that ethical standards are maintained throughout the research process.

4. Analysis

This chapter depicts the analysis of the data collection across different sections: descriptive statistics, reliability, validity, statistical analysis including correlations and regression followed by assumptions of regression to test the hypothesis and ensure internal consistency and demographic analysis.

The descriptive statistics of the demographic variable can be carried out by analysing and reporting the frequency of gender, age, education level of the respondent, and monthly income. In this research, the frequencies and percentages of the demographic attributes of the respondents were determined with a view of presenting an analytically clear profile of the respondents. Hence, through this analysis of these statistics, the study seeks to provide a demographic profile of the sample.

Table 2: Descriptive Statistics of the Demographic Factors

Demographic Factor	Majority	Minority
Gender	Male - 51.4%	Female - 48.60%
Age	26-35 Years - 34.36%	50 Years above - 10.61%
Educational Level	Bachelor's Degree - 41.34%	Doctorate - 1.96%
Occupation	Private Limited Company employees - 37.71%	Students - 8.10%
Experience in the stock market	1-3 Years – 36.31%	over 10 years - 10.61%

This section analyzes descriptive statistics, focusing on central tendency (mean, mode, median) and dispersion (variance, standard deviation) of variables. It emphasizes the importance of these measures in summarizing data, as noted by (Sekaran & Bougie, 2016), particularly for both independent and dependent variables.

Table 3: Descriptive Statistics of the Variables of the Research

Variable	Mean	SD	Satisfaction Level
Herding (H)	4.1355	0.633	Agree
Representativeness (R)	4.256	0.828	Agree
Overconfidence (O)	4.1375	0.094	Agree
Regret Aversion (RA)	4.617	0.653	Agree
Loss Aversion (LA)	4.3715	0.826	Agree
Investment Decision-Making (IDM)	4.4532	0.797	Agree

Source: Data Survey 2024

Table 4: Skewness & Kurtosis

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
H_Mean	358	-1.033	0.129	1.069	0.257
R_Mean	358	-1.129	0.129	1.976	0.257
O_Mean	358	-1.309	0.129	2.66	0.257
RA_Mean	358	-1.491	0.129	3.055	0.257
LA_Mean	358	-1.526	0.129	3.3	0.257
IDM_Mean	358	-1.312	0.129	2.756	0.257
Valid N (listwise)	358				

Source: Data Survey 2024

According to Table 4, skewness and kurtosis are analyzed since the values of the skewness are less than -1 this distribution is left-skewed. Also, values for the kurtosis are greater than 1 therefore it depicts that the distribution is **leptokurtic**.

1: **Leptokurtic: A skewness of less than -1 signifies high left-skewness and a kurtosis of more than 1 indicates a greater peak and extreme values at the tails than a normal distribution (greater peak, heavier tails than a normal distribution).*

4.1. Reliability Testing

Table 5 : Reliability

Variable	Cronbach's Alpha	Number of Items
Herding (H)	0.974	4
Representativeness (R)	0.909	5
Overconfidence (O)	0.85	4
Regret Aversion (RA)	0.788	3
Loss Aversion (LA)	0.721	4
Investment Decision-Making (IDM)	0.921	5

Source: Data Survey 2024

The Cronbach's Alpha values for the independent variables (herding bias, representativeness, overconfidence, regret aversion, and loss aversion) and the dependent variable (investment decision-making) exceed 0.7, indicating strong internal consistency and reliability. The dependent variable, investment decision-making has an alpha value of 0.921. All Cronbach's alpha values are above 0.7, which points to a strong internal consistency among the indicators. This confirms their reliability.

4.2. Validity Testing

Table 6: Factor Analysis

Construct	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Sig. Value
Herding (H)	0.759	0.000
Representativeness (R)	0.890	0.000
Overconfidence (O)	0.818	0.000
Regret Aversion (RA)	0.687	0.000
Loss Aversion (LA)	0.731	0.000
Investment Decision-Making (IDM)	0.883	0.000

Source: Data Survey 2024

Test results from the KMO indicate that representativeness (0.890), overconfidence (0.818), and investment decision-making (0.883) present quite strong correlations. On the other hand herding (0.759) and regret aversion (0.687) are on the average and mediocre levels respectively. All the coefficients are statistically significant with $p < 0.05$.

4.3. Assumptions of Regression

4.3.1. Linearity

Table 7: Linearity

IDM Mean	H Mean	R Mean	O Mean	RA Mean	LA Mean
Linearity - F	607.74	673.72	400.068	421.234	439.103
Deviation from linearity - F	3.420	3.237	2.591	3.785	3.044
Sig.	0.000	0.000	0.000	0.000	0.000

Source: Data Survey 2024

The ANOVA table shows a significant linear relationship between Herding and Investment Decision-Making ($F = 607.740$, $p < .001$), with minor nonlinear effects ($F = 3.420$, $p < .001$). Also, data depicts a strong linear relationship between Representativeness and Investment Decision-Making ($F = 673.720$, $p < .001$), with minor nonlinear effects ($F = 3.237$, $p < .001$). There is a significant linear relationship between Overconfidence and Investment Decision-Making ($F = 400.068$, $p < .001$), with minor nonlinear effects ($F = 2.591$, $p < .001$). Regret Aversion and Investment Decision-Making has a significant linear relationship ($F = 421.234$, $p < .001$), with minor nonlinear effects ($F = 3.785$, $p < .001$). Table reveals a significant linear relationship between Loss Aversion and Investment Decision-Making ($F = 439.103$, $p < .001$), with minor nonlinear effects ($F = 3.044$, $p < .001$).

4.3.2. Multicollinearity

Table 8: Multicollinearity

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	-0.227	0.119		-1.911	0.057		
H_Mean	0.249	0.03	0.276	8.222	0	0.426	2.347
R_Mean	0.286	0.032	0.296	8.95	0	0.44	2.275
O_Mean	0.16	0.028	0.18	5.738	0	0.49	2.043
RA_Mean	0.208	0.033	0.202	6.345	0	0.476	2.103
LA_Mean	0.157	0.035	0.151	4.507	0	0.429	2.333

a. Dependent Variable: IDM_Mean

Source: Data Survey 2024

The coefficients table assesses the relationship between independent variables and the dependent variable, while also checking for multicollinearity. All predictors significantly influence Investment Decision-Making ($p < .001$). The tolerance values (ranging from 0.426 to 0.490) are above 0.1, and the VIF values (ranging from 2.043 to 2.347) are below 10, indicating no severe multicollinearity among the variables. These results confirm that the model is reliable and stable.

4.3.3. Homoscedasticity

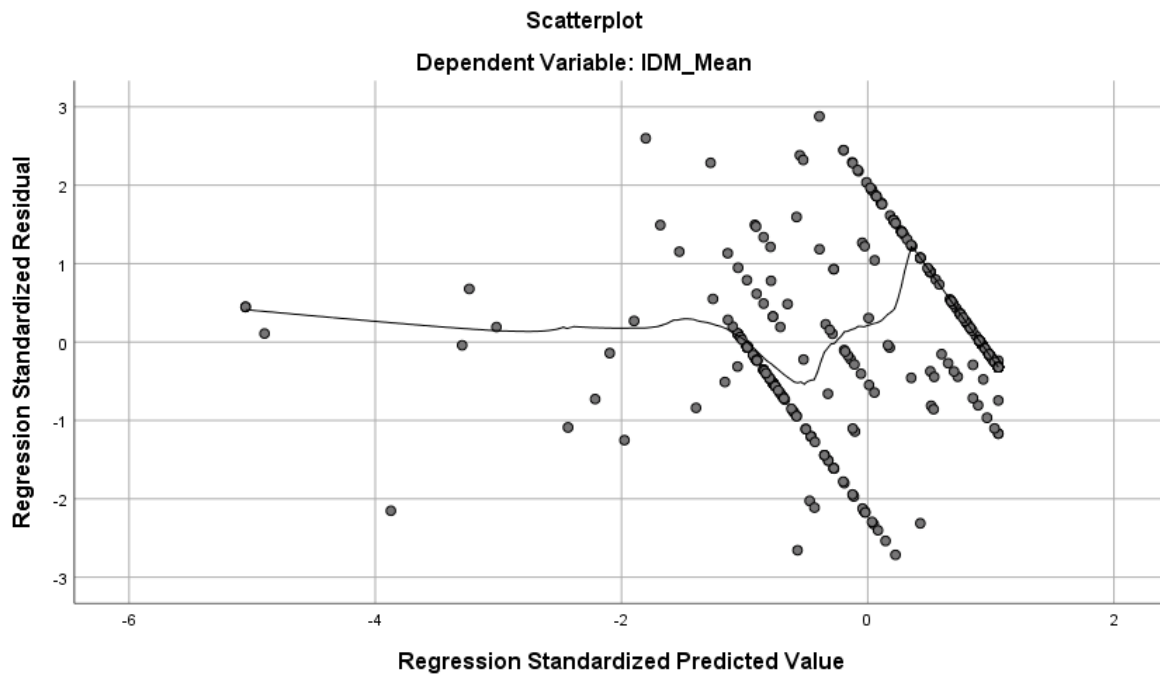


Figure 2: Homoscedasticity

The scatterplot assesses the homoscedasticity assumption by plotting standardized residuals against predicted values for Investment Decision-Making. The slight funnel shape indicates mild heteroscedasticity, as variability increases at certain predicted value ranges. Based on this visual evidence, the homoscedasticity assumption appears to be violated. As a decision, the assumption of homoscedasticity is rejected.

4.3.4. Normality

Table 9: Normality

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
IDM_Mean	0.278	358	0	0.751	358	0
H_Mean	0.243	358	0	0.772	358	0
R_Mean	0.25	358	0	0.784	358	0
O_Mean	0.167	358	0	0.825	358	0
RA_Mean	0.29	358	0	0.751	358	0
LA_Mean	0.21	358	0	0.802	358	0

a. Lilliefors Significance Correction

Source: Data Survey 2024

The Tests of Normality assess whether the variables follow a normal distribution using the Kolmogorov-Smirnov and Shapiro-Wilk tests. For all variables Investment Decision-Making (KS = 0.278, SW = 0.751), Herding (KS = 0.243, SW = 0.772), Representativeness (KS = 0.250, SW = 0.784), Overconfidence (KS = 0.167, SW = 0.825), Regret Aversion (KS = 0.290, SW = 0.751), and Loss Aversion (KS = 0.210, SW = 0.802) both tests yield significant results ($p < .001$), indicating deviations from normality. However, in larger samples ($N = 358$), the impact of non-normality is often mitigated due to the robustness of statistical methods. In order to mitigate the issue, the Central Limit Theorem ensures that the sampling distribution of the mean approximates normality, minimizing the impact of non-normality (Field, 2017). To further mitigate its effects, bootstrapping techniques were applied to estimate robust confidence intervals and standard errors, as recommended by (Hayes and Cai, 2007). Additionally, visual assessments (e.g., Q-Q plots) were conducted to confirm the distributions, and transformations were applied where necessary to address extreme skewness. Robust standard errors were also used to ensure reliable regression estimates.

4.3.5. Autocorrelation

Table 10: Autocorrelation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.912a	0.831	0.829	0.23629	1.207

a. Predictors: (Constant), LA_Mean, O_Mean, RA_Mean, R_Mean, H_Mean

b. Dependent Variable: IDM_Mean

Source: Data Survey 2024

The Model Summary assesses autocorrelation in the regression model, indicated by the Durbin-Watson statistics. A value of 1.207 suggests the presence of some positive autocorrelation, as ideal values range between 1.5 and 2.5 for no autocorrelation. The model shows a strong overall fit, with an R-value of 0.912, indicating a high correlation between predictors (Herding, Representativeness, Overconfidence, Regret Aversion, Loss Aversion) and the dependent variable (Investment Decision-Making). The R Square value of 0.831 means that 83.1% of the variability in Investment Decision-Making is explained by the model, with a low standard error of 0.23629, supporting the model's predictive accuracy.

4.3.6. Regression Analysis

The coefficient obtained In this analysis enables determination of how efficient every independent variable in explaining the dependent variable. Regression coefficients can be expressed in a mathematical equation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon$$

Based on the Behavioural Finance Theory and using multiple regression analysis, the five variables: herding bias, representativeness, overconfidence, regret aversion, and loss aversion were able to explain 83% fluctuations in making investment decisions as shown by the adjusted R-squared of value of 0.829. R^2 should also be more than 0.5 as seen above R^2 is at a satisfactory level, hence meeting the standard requirements can be concluded as the model is fitted.

Table 11: Regression Coefficients

Variables	Unstandardized Coefficients		Sig.
	B	Std. Error	
Constant	-0.227	0.119	
Herdling (H)	0.249	0.200	0.000
Representativeness (R)	0.286	0.032	0.000
Overconfidence (O)	0.160	0.028	0.000
Regret Aversion (RA)	0.208	0.033	0.000
Loss Aversion (LA)	0.157	0.035	0.000

Source: Data Survey 2024

The model can be derived through this equation

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

$$Y = -0.227 + 0.249H + 0.286R + 0.160O + 0.208RA + 0.157LA$$

The beta values demonstrate the influence of each independent variable on investment decision-making, with the highest beta value being that of representative bias which is 0.286. All significance values are less than 0.05, so it can be concluded that each variable is statistically significant in investment decision-making.

4.3.7. Hypothesis Testing

Table 12: Hypothesis

Hypothesis	Beta Value	Sig Value	Significant or Not Significant
H1: Herding bias has a significant influence on investment decision-making (H)	0.249	0.000	Significant
H2: Representativeness bias has a significant influence on investment decision-making (R)	0.286	0.000	Significant

H3: Overconfidence bias has a significant influence on investment decision-making (O)	0.160	0.000	Significant
H4: Regret Aversion bias has a significant influence on investment decision-making (RA)	0.208	0.000	Significant
H5: Loss Aversion bias has a significant influence on investment decision-making (LA)	0.157	0.000	Significant

Source: Data Survey 2024

According to the analysis carried out it was discovered that herding has a significant positive influence which is based on significant value (Beta value = 0.249, sig value = 0.000). Therefore it can be accepted on a solid basis. These current studies are aligned with the findings of (Hirshleifer & Teoh, 2003) noted in their review, that this behavioural component of herding can cause notable variation in asset valuations beyond the bounds of what should be possible during market chaos.

According to the analysis carried out it was discovered that representativeness has a significant positive influence which is based on significant value (Beta value = 0.286, sig value = 0.000). Therefore, it can be accepted on a solid basis. (He & Li, 2015) explore in the article how representativeness bias can impact investment decisions. They also underline the fact that investors often base their predictions on past performance and visible patterns which may very likely cause them to be overconfident in their judgments.

According to the analysis carried out it was discovered that overconfidence has a significant positive influence which is based on significant value (Beta value = 0.160, sig value = 0.000). Therefore, it can be accepted on a solid basis. (Biais et al., 2005) Investigate the link between judgmental arrogance, self-monitoring and trading results. According to what was discovered overconfident traders believe they know more and are more skilled than they are, which causes them to make poor trades.

The analysis reveals regret aversion significantly influences decision-making (Beta = 0.208, p = 0.000). (Loomes and Sugden, 1982) introduced regret theory as an alternative to expected utility theory, highlighting how regret affects decisions. People often make irrational choices to avoid regret, emphasizing the emotional impacts on rational decision-making under uncertainty.

The analysis shows loss aversion significantly influences decision-making (Beta = 0.157, p = 0.000). (Kahneman and Tversky, 1979), in Prospect Theory, highlights loss aversion as a key concept, where individuals feel losses twice as intensely as gains. This asymmetry drives risk aversion with gains and

risk-seeking behaviour with losses, influencing investment decisions. Scholars agree on its role in shaping behaviour under risk, emphasizing its impact on decision-making frameworks.

5. Discussion

This study explores the behavioural biases that impact investment decision-making amongst individual investors in the Colombo Stock Exchange, in order to address the low participation rate despite high literacy levels in Sri Lanka. The study identifies some of the key gaps in the literature on the behavioural factors influencing investment decisions in such a context.

First, it confirms the influence of herding behaviour on the trading decision and the volume preference of the stock by others indeed is one of the factors affecting such a decision. The significant impact of herding behaviour on trading decisions aligns with (Bikhchandani et al. , 1992) and (Spyrou, 2013), who identify herding as a common bias in financial markets. Recent studies in emerging markets also show herding persists even when investors have access to more market information (Cheng et al., 2021; Nguyen & Le, 2022), although some evidence suggests higher literacy may reduce herding, which contrasts with our findings. The second objective ascertains representativeness bias. A trend analysis highly influencing the decision-making aspect of the potential investors finds an apparent reflection. Similarly, representativeness bias influencing decision-making is supported by (Kahneman and Tversky, 1974) and (Barberis et al., 1998). Recent research indicates that representativeness continues to influence investors in emerging markets (Chen et al., 2020), although exposure to diverse information sources may mitigate this effect (Lim & Ho, 2021). The third objective covers overconfidence, finding that reliance on others' analysis is a causal determinant of individual investment decisions, which implies a general overconfidence bias among investors. Overconfidence bias, as seen in reliance on external analysis, is consistent with findings by (Odean, 1998) and (Barber et al. 2001). Interestingly, even moderately experienced investors displayed overconfidence, suggesting that experience alone may not reduce this bias (Li et al., 2019). The fourth objective addresses regret aversion, in which a high susceptibility to selling to the operation of price changes is found since investors are deterred by the results of poor decisions. Regret aversion, where investors avoid acting due to fear of prior poor decisions, is explained by (Loomes et al., 1982) and (Zeelenberg et al., 2007). Recent studies also show regret aversion causes delayed selling or trend-following behaviour (Bhana et al., 2021), with our results indicating the effect is stronger in newer investors compared to experienced ones. Finally, the research discusses loss aversion and locates that loss aversion is indeed a very critical factor because people do not want to sell their losing stocks or increase investments when the market is performing badly. Loss aversion is well-documented in Prospect Theory (Kahneman & Tversky, 1979) and (Shefrin et al., 1985), highlighting its influence on holding and losing stocks during market downturns. This is consistent with recent findings in emerging markets where loss aversion strongly affects investor

behaviour during volatile periods (Wang et al., 2022). Overall, these findings allow deeper insight into the behavioural factors causing decision-making in investment in the stock market of Sri Lanka. The study both confirms and extends prior research while highlighting context-specific insights, such as persistent herding despite high literacy levels and stronger regret aversion among new investors, offering a novel contribution to the current literature on behavioural finance in emerging markets.

6. Conclusion

The current study examines how behavioural biases influence the investment decision-making of Sri Lankan individual investors, grounded in behavioural finance theory. By investigating biases such as herding, representativeness, overconfidence, regret aversion, and loss aversion, the research contributes to the understanding of retail investor behaviour in the Colombo Stock Market, enhancing the body of knowledge within behavioural finance.

The study lays a foundation for future research focusing on specific behavioural characteristics that drive investment decisions, particularly examining how biases affect market mechanisms under various conditions.

Practically, the findings can inform tailored investor education programs aimed at helping individual investors better manage biases and make informed decisions. Financial institutions can utilize this knowledge to create customized services and advertising strategies addressing behaviours like loss aversion and overtrading, leading to improved client satisfaction and investment outcomes.

Investment managers can also apply insights from herding behaviour to enhance decision-making strategies, while educational initiatives in financial literacy can prepare future investors. Collaborations between regulatory agencies and educational institutions can promote financial management courses in schools and universities, nurturing a culture of financial literacy. Community outreach programs can further improve access to financial education, fostering a more informed and financially responsible society.

6.1. Limitations & Recommendations for Future Research

The current study investigates cross-sectional data that can be changed with the market conditions therefore in the future behavioural biases can be examined in different market conditions. The sample size and diversity of participants may limit the study's ability to capture the full range of behaviours exhibited by all individual investors in Sri Lanka. A smaller or less diverse sample could restrict the generalizability of the findings to the broader population. Adding to that diversifying the sample would

provide more generalizable data. Since the focus on Specific Behavioural Biases in this research brings to light some of these behavioural biases, does not take into account other key factors which could affect the investment decision, like the state of the individual's income, demographic factors, economic indicators or the individual investor's experience. This may cause the analysis to lack comprehensiveness. Moreover, using a mediator or a moderator since Sri Lankans according to the census and statistics department have a better level of financial literacy that can be applied it how it would influence investment decision-making.

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Appendix

FIGURES & TABLES

Descriptive Statistics

	Mean	Std. Deviation	N
IDM_Mean	4.5241	.57079	358
H_Mean	4.4384	.63189	358
R_Mean	4.4726	.59090	358
O_Mean	4.3778	.63917	358
RA_Mean	4.5744	.55300	358
LA_Mean	4.5363	.54819	358

Correlations

		H_Mean	R_Mean	O_Mean	RA_Mean	LA_Mean	IDM_Mean
H_Mean	Pearson Correlation	1	.626**	.678**	.522**	.593**	.778**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	358	358	358	358	358	358
R_Mean	Pearson Correlation	.626**	1	.594**	.610**	.636**	.794**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	358	358	358	358	358	358

O_Mean	Pearson Correlation	.678**	.594**	1	.476**	.481**	.711**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	358	358	358	358	358	358
RA_Mean	Pearson Correlation	.522**	.610**	.476**	1	.682**	.714**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	358	358	358	358	358	358
LA_Mean	Pearson Correlation	.593**	.636**	.481**	.682**	1	.727**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	358	358	358	358	358	358
IDM_Mean	Pearson Correlation	.778**	.794**	.711**	.714**	.727**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	358	358	358	358	358	358

** . Correlation is significant at the 0.01 level (2-tailed).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.912 ^a	.831	.829	.23634	.831	346.061	5	352	.000

a. Predictors: (Constant), LA_Mean, O_Mean, RA_Mean, R_Mean, H_Mean

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	96.651	5	19.330	346.061	.000 ^b
	Residual	19.662	352	.056		
	Total	116.313	357			

a. Dependent Variable: IDM_Mean

b. Predictors: (Constant), LA_Mean, O_Mean, RA_Mean, R_Mean, H_Mean

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-.227	.119		-1.911	.057	-.460	.007
	H_Mean	.249	.030	.276	8.223	.000	.190	.309
	R_Mean	.286	.032	.296	8.952	.000	.223	.349
	O_Mean	.160	.028	.180	5.738	.000	.105	.216
	RA_Mean	.208	.033	.201	6.332	.000	.143	.272
	LA_Mean	.157	.035	.151	4.514	.000	.089	.226

a. Dependent Variable: IDM_Mean