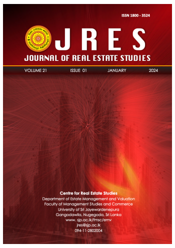


Available online at https://journals.sjp.ac.lk

JOURNAL OF REAL ESTATE STUDIES

ISSN: 1800 – 3524

Demographic Variables on Behavioral Factors and Over-Indebtedness: Insights from a Developing Nation

B. P. U. K. Biyanwila[a], P. A. N. S. Anuradha[b]*

[a, b] *University of Sri Jayewardenepura, Sri Lanka*

ABSTRACT

Household over-indebtedness is a pressing global concern with severe socioeconomic consequences. While existing research highlights macroeconomic, demographic, and behavioral factors as key drivers of over-indebtedness, behavioral aspects have received comparatively less attention. This study aims to scrutinize the impact of behavioral factors on over-indebtedness while examining how demographic factors moderate this relationship. Utilizing a positivist research philosophy and deductive approach, the study develops a novel conceptual model incorporating four behavioral and five demographic factors as causes of over-indebtedness. Data collection was conducted through a structured questionnaire utilizing a survey research approach, employing a stratified random sample that accurately represents the broader public population, specifically individuals with at least one loan acquired from the banking sector. Quantitative data collected in 2023, through a cross-sectional approach, was analyzed using structural equation modeling in SPSS AMOS 23. Findings reveal that financial literacy, risk perception, and emotions negatively correlate with over-indebtedness, while materialism demonstrates a less significant yet positive association. Additionally, demographic factors such as age, gender, income, and education moderate the relationship between behavioral factors and over-indebtedness. Religion, however, does not alter this relationship. These findings align with empirical evidence and are supported by projection bias theory and behavioral life cycle theory. The insights from this study offer valuable implications for financial institutions in devising credit risk management policies. Moreover, governments and central banks can leverage these findings when formulating macroeconomic policies of loan facilities.

ARTICLE INFO

Article History:
Received 02 January 2024
Revised 21 January 2024
Accepted 25 January 2024

Keywords:
Emotions, Financial literacy, Household over-indebtedness, Materialism, Risk perception

1. INTRODUCTION

Household well-being stands as a cornerstone expectation for citizens globally, underpinning a happy life and financial security (Rahman et al., 2020). Yet, when family income falls short, individuals often resort to borrowing, blurring the line between meeting basic needs and maintaining social status,

* Corresponding author. Tel: +94714414068; Email: anuradha@sjp.ac.lk; https://orcid.org/0000-0003-1105-455X
Institution: Department of Finance, University of Sri Jayewardenepura, Sri Lanka
[a] Co-author: https://orcid.org/0000-0003-0985-5606
Doi: 10.31357/jres.v21i1.7040

(Chamini, Thilanka & Ranjith, 2018). While debt can be constructive in certain contexts, its proliferation, especially in the form of over-indebtedness, poses significant socio-economic challenges (Lusardi & Mitchell, 2013). The pervasive nature of household over-indebtedness transcends boundaries of economic development, with severe repercussions observed worldwide (Gutiérrez-Nieto et al., 2017). Over-indebtedness exacts a toll on societal well-being, manifesting in mental illnesses, family problems, illegal behaviors, and loss of spiritual values (Ferreira et al., 2021). In Sri Lanka debt rose to unsustainable levels due to fiscal imbalances and policy missteps, leading to a crisis, (Sri Lanka, IMF country report, 2023). Identifying its root causes has thus become a critical social imperative, driving scholarly inquiry. However, defining over-indebtedness remains a complex task, with various dimensions such as loan amounts, default periods, and disposable incomes complicating the matter (Puliyakot & Pradhan, 2017). Following the Australian Bureau of Statistics (2020), households are deemed over-indebted if their debt-to-income ratio exceeds three times their annual disposable income or if their debt-to-asset ratio equals or exceeds 75% of their total asset value. Despite this complexity, studies have consistently identified macroeconomic, demographic, and behavioral factors as fundamental determinants of over-indebtedness (Lerskullawat, 2020; Waqas & Siddiqui, 2021).

Macroeconomic and demographic factors have received considerable attention, but the behavioral aspect of over-indebtedness remains relatively understudied, particularly in developing countries (Rahman et al., 2020). Behavioral theories, including Projection Bias Theory and Prospect Theory, posit that individuals often make financial decisions driven by emotions and cognitive biases rather than rational analysis (Kahneman & Tversky, 1979). Incorporating demographic characteristics into the analysis adds another layer of complexity, as these factors may moderate the relationship between behavioral factors and over-indebtedness (Ando & Modigliani, 1963). Despite the dominance of neoclassical finance, scholars acknowledge that rational choice and utility maximization are not always followed, particularly in the realm of financial decision-making (Anderloni & Vandone, 2012).

As the overarching aim, this study identifies behavioral factors driving over-indebtedness in Sri Lanka, while investigating the demographic factors that amplify the association between these behavioral factors and over-indebtedness. Specifically, it assesses the direct impact of key behavioral factors—namely, financial literacy, risk perception, materialism, and emotions—on over-indebtedness. Additionally, the study seeks to examine how demographic factors such as age, gender, education, income, and religion moderate the relationship between behavioral factors and over-indebtedness. Financial literacy, risk perception, materialism, and emotions are identified as the primary behavioral factors with the most significant impact on the propensity for over-indebtedness, as indicated by studies conducted by Waqas & Siddiqui (2021), Rahman et al. (2020), and Azma et al. (2019). This section provides an introduction, followed by a discussion on literature-related factors contributing to over-indebtedness. Subsequently, section three delves into the analytical strategy employed. Section four encompasses the findings of data analyses, coupled with a discussion. The succeeding section presents the conclusion.

2. LITERATURE REVIEW

Over-indebtedness poses significant socio-economic challenges worldwide, leading to stress, mental health issues, and even suicides. This is evident in Sri Lanka, where debt-driven suicides have risen alarmingly, with tragic cases like mothers killing their children before committing suicide due to financial strain. Sexual bribery and desperate measures like trafficking in human organs highlight the dire consequences. The root causes of over-indebtedness, spanning macroeconomic, demographic, and behavioral factors, underscore the urgency of understanding and addressing this issue (Lerskullawat, 2020; Muhammad & Iqbal, 2018).

Macroeconomic factors, including inflation, unemployment, and interest rates, significantly contribute to household over-indebtedness. Similarly, demographic factors such as age, gender, income, and education level play vital roles. Behavioral biases like overconfidence and herding tendencies further exacerbate the problem (Kumar & Goyal, 2016). Moreover, demand and supply-side factors in credit markets influence individuals' borrowing decisions, while internal (endogenous) factors like financial literacy and external (exogenous) factors like illness also contribute (Fatoki, 2015). Understanding these multifaceted causes is crucial for effective interventions to mitigate the adverse impacts of over-indebtedness (Azma et al., 2019). Therefore, comprehensive research and targeted policy measures are essential to address this pressing social issue.

Several theories in behavioral economics shed light on how individual behavioral factors influence financial decisions. Projection Bias Theory by Loewenstein et al. (2003), explains how individuals often make decisions based on their current desires or emotions, rather than considering long-term objectives. The theory suggests that people tend to project their current thoughts, feelings, and behaviors into the future, leading to impulsive financial decisions. The Behavioral Life Cycle Theory, developed by Shefrin and Thaler (1988), identifies three biases that impact financial decisions, self-control, mental accounting, and framing. Prospect Theory Kahneman and Tversky (1979), challenge the traditional expected utility theory by suggesting that individuals do not always make rational decisions when faced with risky prospects. These theories underscore the importance of understanding individual behavior in financial decision-making and how it can contribute to over-indebtedness. However, they also highlight the complex interplay between psychological factors and economic outcomes, challenging traditional economic models that assume rational decision-making. Moreover, macroeconomic factors can further complicate the relationship between individual behavior and over-indebtedness. While behavioral theories provide insights into individual decision-making processes, macroeconomic conditions such as inflation, unemployment, and interest rates can influence overall economic stability and household financial well-being. The Life Cycle Hypothesis of Savings of Ando and Modigliani (1963), offers a theoretical foundation for understanding how demographic factors influence financial decisions. According to this theory, individuals seek to smooth consumption over their lifetime by borrowing during periods of low income and saving during periods of high income. Demographic factors such as age, gender, income, and education level can affect individuals' saving and borrowing behavior, thus influencing their propensity for over-indebtedness. These behavioral theories provide valuable insights into the psychological mechanisms underlying financial decision-making and their implications for over-indebtedness. However, these theories must be considered in conjunction with macroeconomic and demographic factors to fully understand the complexities of household debt dynamics.

Empirical evidence highlights the inadequacy of solely considering macroeconomic and demographic factors in explaining over-indebtedness (Rahman et al., 2020). While developed countries have extensively studied behavioral factors, research in developing contexts remains limited (Waqas & Siddiqui, 2021). Table 02 presents some behavioral factors examined in current empirical studies, mostly in developed economies. Accordingly, key behavioral factors identified include financial literacy, risk perception, materialism, and emotions (Rahman et al., 2020; Azma et al., 2019).

Table 1: List of Behavioural Factors

Number	Behavioral factor	Author(s)	Country
1	Perceived financial risk	(Barros & Botelho, 2012)	Brazil
2	Materialism	Dawson., (2015), Watson, (2003), Flores & Vieira, (2014), Jacobs & Smit, 2010	USA, New Zealand, Brazil, South Africa
3	Financial literacy	Gutiérrez-Nieto et al., (2017), Disney & Gathergood, (2011), Rieger, (2020), Lusardi & Mitchelli, (2007), Arianti, (2018)	Spain, UK, USA, Germany, Indonesia
4	Risk Perception	Flores & Vieira, (2014), Caetano et al,(2011), Azma et al., (2019)	Brazil, USA, Malaysia
5	Emotions	Flores & Vieira, (2014) Azma et al., (2019), Yang et al. (2016)	Brazil, China, Malaysia,
6	Risk Behaviour	Flores & Vieira, 2014	Brazil
7	Lack of patience	Fatoki, (2015)	South Africa
8	Decrease in risk aversion	Fatoki, (2015)	South Africa
9	Self-Control	Disney & Gathergood, (2011)	UK
10	Self-efficacy	Ismail et al., (2020)	Malaysia
11	Impulsivity	Frigerio et al., (2020	Italy
12	Herding Behaviour	Danrimi et al., (2018), Komalasari et al., (2021), Filip et al., (2015)	Malaysia, Switzerland, Romania
13	Financial Behaviour	Fatoki, (2015)	South Africa
14	Hedonism	Arianti, (2018) Waqas & Siddiqui, (2021)	Indonesia Pakistan
15	Over-confidence	Anderloni & Vandone, (2012)	Italy
16	Locus of Control	Keese, (2012)	Germany

2.1 Financial Literacy and Over - Indebtedness

Financial literacy plays a critical role in determining household over-indebtedness, irrespective of the economic context (Widjaja et al., 2020). It encompasses the ability to comprehend and effectively utilize financial skills such as budgeting, personal financial management, and investing (Rieger, 2020). Insufficient financial literacy often leads to confusion and mismanagement of financial resources, resulting in late payments, penalties, and other financial setbacks (Waqas & Siddiqui, 2021). Studies suggest that individuals with higher financial literacy are better equipped to navigate financial decisions, minimize unnecessary losses, and achieve their financial goals through effective planning (Rieger, 2020). Research also indicates a negative correlation between financial literacy and over-indebtedness, highlighting the importance of financial knowledge in preventing financial distress (Rahman et al., 2020). Therefore, we hypothesize that,

H_1: There is a significant relationship between financial literacy and household over-indebtedness.

2.2 Risk perception and Over-Indebtedness

Risk perception refers to individuals' subjective assessment of the likelihood of negative outcomes associated with financial decisions (Flores & Vieira, 2014). It varies among individuals, influencing their risk-taking behavior and financial decisions (Caetano et al., 2011). Some individuals perceive higher risks in certain financial decisions, leading them to be more risk-averse, while others may perceive lower risks and exhibit greater risk-taking behavior (Waqas & Siddiqui, 2021). Consequently, risk-averse individuals may avoid certain financial contracts, contributing to debt aversion. Existing literature suggests a negative relationship between risk perception and the propensity for over-indebtedness, indicating that individuals with higher risk perception are less likely to become over-indebted (Barros & Botelho, 2012). Therefore, we hypothesize that,

H_2: There is a significant relationship between risk perception and household over-indebtedness.

2.3 Materialism and Over-Indebtedness

Materialism refers to the inclination to prioritize material possessions and physical comfort over spiritual values, emphasizing the importance of acquiring material goods to achieve life goals (Widjaja et al., 2020; Rahman et al., 2020). Materialistic individuals often measure success, centrality, and happiness in terms of material belongings, believing that possessions contribute to their well-being (Richins, 2004). However, research suggests that materialistic people are less satisfied with their lives compared to non-materialistic individuals and tend to focus on self-promotion through displays of wealth (Richins & Dawson, 1992). Moreover, highly materialistic individuals may exhibit poor financial management skills, leading to compulsive buying and reliance on borrowing to fulfill their desire for material possessions (Manafe & Fanggidae, 2021). This behavioral pattern is associated with a higher propensity for over-indebtedness, as evidenced by existing research, supporting the hypothesis that,

H_3: There is a significant relationship between materialism and household over-indebtedness.

2.4 Emotions and Over-Indebtedness

Emotions represent transient feelings that can sway financial choices positively or negatively (Widjaja et al., 2020). Individuals experiencing positive emotions tend to exhibit riskier financial behaviors, potentially leading to household over-indebtedness, while those experiencing negative emotions may adopt more cautious approaches (Flores & Vieira, 2014). Emotions manifest through subjective experiences, physiological responses, and expressive behaviors, encompassing feelings like shame, anger, fear, and stress (Roazzi et al., 2011). Negative emotions, particularly those related to debt, often drive individuals to seek debt reduction strategies (Widjaja et al., 2020). However, the relationship between emotions and household over-indebtedness is nuanced, as some studies suggest a negative correlation while others find a positive one, contingent upon the nature of respondents' emotions (Huy & Zott, 2019; Azma et al., 2019). Thus, we hypothesize that,

H_4: There is a significant relationship between emotions and household over-indebtedness.

2.5 Moderating Effect of Age

Prosad et al. (2015) investigated the correlation between age and behavioral biases, specifically focusing on overconfidence and familiarity bias. Similarly, Tekçe et al. (2016) observed a decline in overconfidence and familiarity bias among individual investors with increasing age, attributing this trend to the investors' heightened market knowledge. Additionally, Kumar & Goyal (2016) found that elderly investors displayed a greater tendency to identify optimal investment opportunities compared to their younger counterparts. Keese (2012) states that age plays a minor role in perceived risk. However, he further states that the findings of the study's results may differ from country to country. Previous research has predominantly delved into the origins and outcomes of materialism (Kasser, 2016), while fewer studies have explored the developmental trajectory of materialistic tendencies across individuals' lifespans. Dawson., (2015) noted that older adults generally exhibit lower levels of materialism compared to younger adults, a pattern observed across various countries. Further, Noguti and Bokeyar (2014) found a negative correlation between age and materialism. Brummer et al. (2013) corroborate previous findings indicating that negative emotions may diminish in intensity as individuals age. However, they caution against assuming that the decline of negative emotions is a universal aspect of aging. Moreover, Baker et al. (2019) provides additional evidence suggesting that emotional stability and overall well-being tend to be higher among older adults compared to younger counterparts. Accordingly, the following hypotheses are derived.

H_5: Age moderates the relationship between financial literacy and household over-indebtedness.

H_6: Age moderates the relationship between risk perception and household over-indebtedness.

H_7: Age moderates the relationship between materialism and household over-indebtedness.

H_8: Age moderates the relationship between emotions and household over-indebtedness.

2.6 Moderating Role of Gender

Chen et al. (2002) found that females typically exhibit lower financial literacy compared to males, a gender difference consistently observed across various studies. This gender gap in financial knowledge persists across different countries, including the Netherlands, Germany, and the United States, as evidenced by research conducted by Hasler and Lusardi (2017). Despite the prevalence of gender differences in financial literacy, Bucher-koenen et al. (2016) suggest that there is no single explanation sufficient to account for the observed variations between men and women. In the aspect of risk perception, Kumar and Goyal (2016) state that male investors tend to exhibit greater risk-taking behavior compared to female investors, indicating higher levels of overconfidence among males. Conversely, Baker et al. (2019) found that females are more susceptible to herding bias than males. Additionally, Flores and Vieira (2014) suggest that females generally have a lower propensity for debt compared to males. Furthermore, Rahman et al. (2020) observed that females tend to perceive higher levels of risk than males, leading to a greater tendency for risk aversion among females. In considering, the behavioral factor of materialism, Richins and Dawson (1992) found no significant difference in materialism between males and females when using the Material Values Scale. Similarly, O'Cass, (2001, 2004) also found no significant relationship between gender and materialism in two separate studies utilizing the same scale. However, Keech et al. (2019) discovered that men tend to associate material possessions more closely with happiness and life satisfaction compared to women. Despite this, there are conflicting views, as some researchers, such as Workman and Lee (2011), argue that women may be more materialistic than men. Numerous studies support the notion that individual investors' decisions are not always rational and can be influenced by emotions, heuristics, and biases (Baker et al., 2019). Among these studies, there is substantial evidence of a significant emotional disparity between men and women in financial decision-making (Gonzalez-Igual et al., 2021). Empirical research demonstrates a notable divergence between males and females regarding various behavioral biases, encompassing overconfidence, disposition effect, representativeness, mental accounting, emotional biases, and herding biases (Baker et al., 2019). Accordingly, the following hypotheses are derived.

H_9: Gender moderates the relationship between financial literacy and household over-indebtedness.

H_{10}: Gender moderates the relationship between risk perception and household over-indebtedness.

H_{11}: Gender moderates the relationship between materialism and household over-indebtedness

H_{12}: Gender moderates the relationship between emotions and household over-indebtedness.

2.7 Moderating Role of Income

Individuals with higher financial literacy tend to manage their financial goals more efficiently, evaluating diverse funding sources and their associated opportunity costs (Azma et al., 2019). They also cultivate a practice of timely payment for bills, loans, and credit cards to avoid unnecessary fees and penalties (Rahman et al., 2020). Conversely, lower financial literacy often results in substantial financial losses, especially among those with limited comprehension of financial principles, due to incurred fees and surcharges (Flores & Vieira, 2014). This disparity in financial literacy may perpetuate a cycle of economic inequality, as financially secure individuals have greater access to resources for improving their financial acumen, while those with lower incomes struggle to meet their basic needs (Lusardi & Mitchell, 2013). Research on the correlation between individuals' risk attitudes and their economic status indicates that those with higher economic standing are inclined to avoid risky situations (Rasmussen & Ewald, 2022). Specifically, studies have shown that individuals with higher incomes are less concerned about the potential risks associated with their decisions (Kumar & Goyal, 2016). Conversely, individuals with lower incomes often exhibit a greater propensity for risk-taking, possibly due to a lack of consideration for the potential consequences (Flores & Vieira, 2014). Furthermore, the relationship between risk perception and income can be influenced by factors such as self-confidence and risk acceptance, with higher-income individuals generally expecting greater satisfaction as their income levels increase (Flores & Vieira, 2014). Richins & Dawson (1992) developed the Material Values Scale to gauge materialism and explored its relationship with various aspects of life satisfaction. Their surveys revealed an inverse correlation between materialism and life satisfaction, with income levels showing an insignificant negative association with materialism. Additionally, studies in transitional economies suggest that traits like increased purchasing freedom and a shift towards capitalism are often associated with heightened materialism, potentially contributing to over-indebtedness in low-income countries (Jacobs & Smith, 2010). Renu & Christie (2019) found significant differences in biases such as mental accounting, anchoring, availability, loss aversion, representativeness, and overconfidence when investors' annual incomes were considered. Higher-income investors were generally less prone to biases compared to their lower-income counterparts, except for the overconfidence bias, where higher-income investors tended to be more overconfident. Conversely, lower-income investors exhibited biases more prominently across all other significant biases assessed. Accordingly, the following hypotheses are derived.

H_{13}: Income moderates the relationship between financial literacy and household over-indebtedness.

H_{14}: Income moderates the relationship between risk perception and household over-indebtedness.

H_{15}: Income moderates the relationship between materialism and household over-indebtedness.

H_{15}: Income moderates the relationship between emotions and household over-indebtedness.

2.8 Moderating Role of Education

Research by Flores & Vieira (2014) suggests that individuals with lower levels of education are more likely to experience a higher propensity for over-indebtedness, often due to limited financial literacy. Numerous studies have revealed a significant positive correlation between education level and risk perception (Kumar & Goyal, 2016). In this context conversely, individuals with lower levels of education exhibit greater risk exposure across various domains such as legal, ethical, health, and social risks, indicating a lower level of risk perception (Paulino et al., 2010). Consequently, a diminished risk perception may contribute to a higher susceptibility to over-indebtedness. Materialism, a concept explored across various social science disciplines, is fundamentally learned rather than innate (Richins, 2021). Studies have uncovered significant correlations between the materialism levels of children and those of their parents, suggesting an intergenerational transmission of materialistic values. While some researchers attribute this correlation to genetic factors, many argue that it reflects learned behaviors and attitudes (Richins, 2021). Longitudinal studies have shown that education can influence materialism levels over time, potentially impacting individuals' propensity for over-indebtedness (Ponchio, 2006). Behavioral biases in financial decision-making are influenced by individuals' biological characteristics, educational backgrounds, and experiences, as indicated in existing literature (Gonzalez-igual et al., 2021). Education plays a crucial role in mitigating emotional biases in financial decisions, potentially reducing irrational conduct observed in various financial bubbles throughout history, such as the dot-com bubble, the subprime mortgage crisis, and the Bitcoin bubble. Accordingly, the following hypotheses are derived.

H_{17}: Education moderates the relationship between financial literacy and household over-indebtedness.

H_{18}: Education moderates the relationship between risk perception and household over-indebtedness.

H_{19}: Education moderates the relationship between materialism and household over-indebtedness.

H_{20}: Education moderates the relationship between emotions and household over-indebtedness.

2.9 Moderating Role of Religion

Religion plays a significant role in shaping individual and institutional financial behaviors and investment decisions (McCleary & Robert, 2006). Understanding the impact of religion on attitudes and emotions is essential for comprehending how beliefs among investors influence financial decision-making processes (McCleary & Robert, 2006). Islamic financial literacy presents a unique challenge for Muslims, who often lack an understanding of Islamic financial terms and services. Disparities in financial literacy levels among religious groups, such as those observed in Malaysia, further underscore the importance of religious considerations in financial education and literacy initiatives (Mahdzan et al., 2017). In contrast, Buddhist teachings advise individuals to manage wealth by dividing it into four parts: enjoyment, investment, savings for the future, and provision for uncertainties, reflecting a nuanced understanding of risk perception (Ali et al., 2021). Similarly, Hindu philosophy emphasizes the importance of ethical conduct in acquiring wealth and satisfying desires while recognizing the challenges posed by poverty in achieving spiritual goals (Ali et al., 2021). Income and assets significantly impact people's lives and well-being, prompting a contemporary relevance to the Buddha's teachings on material wealth acquisition and investment. There is a pressing need for a comprehensive reevaluation of wealth accumulation and distribution to uplift communities, aligning with the Buddha's teachings on right livelihood. Similarly, the Bible advocates for the gradual building of wealth and prudent financial planning, emphasizing the importance of diligence and foresight in financial management. Research in behavioural economics and cognitive psychology has increasingly focused on understanding biases and cognitive processes influencing economic decisions, especially those concerning risk and uncertainty. Accordingly, the following hypotheses are derived.

H_{21}: Religion moderates the relationship between financial literacy and household over-indebtedness.

H_{22}: Religion moderates the relationship between risk perception and household over-indebtedness.

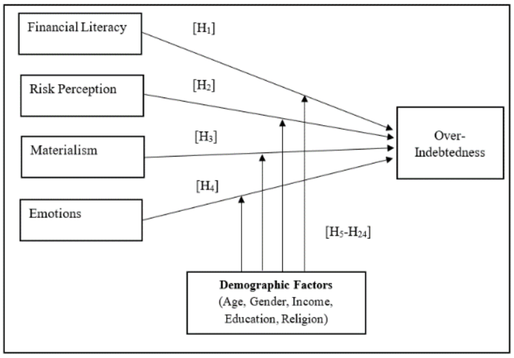
H_{23}: Religion moderates the relationship between materialism and household over-indebtedness.

H_{24}: Religion moderates the relationship between emotions and household over-indebtedness.

3. CONCEPTUAL FRAMEWORK

Drawing from theoretical and empirical insights, we developed the following conceptual framework and operationalized variables to investigate the influence of behavioral factors (including financial literacy, risk perception, materialism, and emotions) on household over-indebtedness. Furthermore, we explored the moderating effects of demographic factors (such as age, gender, income, education, and religion) on the relationships between each behavioral factor and household over-indebtedness in the context of Sri Lanka. As shown in Figure 1, resulting in 24 alternative hypotheses.

Figure 1: Conceptual Framework



4. ANALYTICAL STRATEGY

This study adopts a positivist research philosophy and employs a deductive approach, involving a seven-step research process to identify and address the issue of propensity for over-indebtedness. Drawing from theories such as projection bias theory, behavioral life cycle theory, and prospect theory, as well as the life-cycle hypothesis of savings, the study formulates 24 hypotheses. Behavioral factors and demographic factors affecting household over-indebtedness, together with the corresponding dimensions, indicators, and measuring scales, are presented in Annexure 01. Data collection is conducted through a survey instrument comprising closed-ended and Likert scale questions covering demographic information, loan obligations, and four behavioral factors (financial literacy, risk perception, materialism, and emotions). Utilizing quantitative methods, the study employs cross-sectional data collected in March 2023 from 832 household loan holders across various regions in Sri Lanka. The data collection process involves sharing a structured questionnaire electronically and in physical form among banking sector loan holders. Structural equation modeling, facilitated by AMOS software, is employed for data analysis.

5. FINDINGS AND DISCUSSION

5.1 Descriptive Analyses

A sample of 832 valid responses was collected between March 2023 and April 2023. Statistical analysis of respondent profiles reveals that males account for 52.5% of the sample, while females represent 47.5%. Regarding marital status, most participants are married (83.1%), with 12.9% being single, 1.4% divorced, and 2.6% widowed. The age distribution of respondents shows the highest proportion between 31 and 40 years (40%), followed by 41 to 50 years (36.2%), 51 to 60 years (11.5%), 18 to 30 years (9.4%), and above 60 years (2.9%). In terms of educational attainment, the largest group has completed Advanced Level (41%), followed by those with a bachelor’s degree (36.4%), a master’s degree (14.5%), ordinary level (6.7%), and those without any educational qualifications (1.3%). Employment-wise, 46.4% of respondents work in the private sector, 43.1% in the public sector, 7.6% are self-employed, and 2.9% are unemployed. Regarding religion, the majority are Buddhists (72.7%), followed by Hindus (10.8%), Catholics (5.8%), Islam (5.3%), Christians (4.7%), and other religions (0.7%). In terms of ethnicity, most respondents identify as Sinhala (79.9%), followed by Tamil (14.1%), Muslim (5.4%), and others (0.6%).

6. HYPOTHESES TESTING

6.1 Reliability and Validity Measures of Constructs

The Cronbach's Alpha coefficients for all items ranged from 0.835 to 0.896, indicating high internal consistency and reliability within the model. Further, Kaiser-Meyer-Olkin (KMO) values for individual items were also above 0.6, confirming the adequacy of the sample for factor analysis. Bartlett's Test of Sphericity yielded statistically significant results ($p < 0.00$) for each construct, indicating that correlations between items were significant enough to support advanced statistical analysis and validate the study's construct validity.

6.2 Model Requirement

The univariate normality of the data for Structural Equation Modeling (SEM) was assessed using measures of skewness and kurtosis and indicated a high level of univariate normality within the model. Furthermore, multivariate normality was evaluated using Mardia's coefficient, which yielded a value of 124.676. This value is well below the recommended cutoff of 575, suggesting that the 23 observed variables (P(P+2)) satisfy the assumption of multivariate normality. As per Table 02, the highest Pearson correlation value reported was -0.474 between materiality (MT) and risk perception (RP), indicating the non-existence of multicollinearity.

Table 2: Pearson Correlations among Latent Constructs

	MT	*Fl*	*RP*	*EM*
Materialism-MT	1			
Financial Literacy-FL	-0.115	1		
Risk Perception0RP	-0.474	0.433	1	
Emotions- EM	0.152	0.167	0.069	1

The overall fit of the measurement model was assessed using various fit indices. The CMIN/DF ratio was 2.869, indicating an acceptable fit. The Goodness of Fit Index (GFI) was 0.939, indicating the model's ability to account for the covariation among observed variables. The convergent validity of the measurement model was evaluated using standardized factor loadings, Average Variance Extracted (AVE), and composite reliabilities. All standardized factor loadings were above 0.6, meeting the criterion for reflective indicators. Additionally, AVE values exceeded the threshold of 0.5, and composite reliability measures were above 0.7, indicating satisfactory convergent validity. Overall, both convergent and discriminant validity tests supported the validity of the measurement model.

6.3 Behavioral Factors on Over-Indebtedness

Table 03 illustrates findings regarding the relationship between various behavioral factors and household over-indebtedness.

Table 3: Behavioural Factors on Over-Indebtedness

Path	**Standardised**	**Standardised path coefficient**	**Standard error**	**P- value**
FL → HHOI	-0.178	-0.269	0.049	0.001^{**}
RP → HHOI	-0.183	-0.298	0.048	0.001^{**}
MT→ HHOI	0.032	0.067	0.044	0.131
EM → HHOI	-0.056	-0.086	0.041	0.041^{*}

This Table indicates financial literacy (FL), risk perception (RP), materialism (MT), emotion (EM), and household over-indebtedness (HHOI). $p < 0.05$; $p < 0.01$

Source: Survey Data (2023)

As Table 03, financial literacy (FL) demonstrates a significant negative relationship with over-indebtedness (β = -0.269, P = 0.001), indicating that increased financial literacy reduces the likelihood of over-indebtedness among respondents, consistent with prior studies (Rahman et al., 2020; Azma et al., 2019). Secondly, risk perception (RP) also exhibits a significant negative relationship with over-indebtedness (β = -0.298, P = 0.001), suggesting that heightened risk perception diminishes the propensity for over-indebtedness, as supported by previous research (Widjaja et al., 2020; Azma et al., 2019). Additionally, emotions (EM) display a significant negative relationship with over-indebtedness (β = -0.086, P = 0.041), indicating that increased negative emotions correspond to lower levels of over-indebtedness among respondents. This finding aligns with prior studies (Widjaja et al., 2020; Huy & Zott, 2019). However, materialism (MT) exhibits an insignificant positive relationship with over-indebtedness (β = 0.067, P = 0.131), suggesting that in the Sri Lankan context, cultural factors may influence the expression of materialism and its impact on over-indebtedness. Although materialism is often associated with over-indebtedness, this study's results diverge from previous findings (Widjaja et al., 2020; Azma et al., 2019) highlighting the need for further exploration of cultural nuances. Based on the findings of Table 03, the following hypotheses were tested.

No	Alternative Hypotheses	Status of null hypothesis
H_1	There is a significant relationship between financial literacy and household over-indebtedness.	Rejected
H_2	There is a significant relationship between risk perception and household over-indebtedness.	Rejected
H_3	There is a significant relationship between materialism and household over-indebtedness.	Not Rejected
H_4	There is a significant relationship between emotions and household over-indebtedness.	Rejected

6.4 Moderating Effect of Age

Table 4 presents the moderating effect of gender on behavioral factors and household over-indebtedness.

Table 4: Age on Behavioural Factors and Over-Indebtedness

Path	Category	Path coefficients	Standardised path coefficients	P- value
FL → HHOI	Less than 40	-0.126	-0.211	0.001**
	40 or above	-0.201	-0.290	0.001**
RP → HHOI	Less than 40	0.149	0.215	0.001**
	40 or above	0.164	0.299	0.001**
MT→ HHOI	Less than 40	0.002	0.004	0.953
	40 or above	0.083	0.162	0.002**
EM → HHOI	Less than 40	0.054	0.092	0.153
	40 or above	-0.207	-0.297	0.001**

This Table indicates financial literacy (FL), risk perception (RP), materialism (MT), emotion (EM), and household over-indebtedness (HHOI). $p < 0.05$; $p < 0.01$

Source: Survey Data (2023)

Table 04 indicates the moderating effects of age on materialism and emotions and household over-indebtedness. Specifically, for individuals under 40 years old, materialism influences the propensity for over-indebtedness, whereas this influence diminishes for those aged 40 and above. This finding resonates with prior studies by Widjaja et al. (2020), Azma et al. (2019), and Flores & Vieira (2014). Similarly, for individuals under 40, emotions impact the propensity for over-indebtedness, but this influence diminishes for those over 40. This observation aligns with research conducted by Rahman et al. (2020), Azma et al. (2019), and Flores & Vieira (2014). Based on the findings of Table 04, the following hypotheses were tested.

No	Alternative Hypotheses	Status of null hypothesis
H_5	Age moderates the relationship between financial literacy and household over-indebtedness.	Not Rejected
H_6	Age moderates the relationship between risk perception and household over-indebtedness.	Not Rejected
H_7	Age moderates the relationship between materialism and household over-indebtedness.	Rejected
H_8	Age moderates the relationship between emotions and household over-indebtedness.	Rejected

6.5 Moderating Effect of Gender

Table 5 presents the moderating effect of gender on behavioral factors and household over-indebtedness.

Table 5: Gender on Behavioral Factors and Over-Indebtedness

Path	Category	Path coefficient	Standardised path coefficient	Standard error	P- value
FL → HHOI	Female	-0.125	-0.239	0.074	0.001**
	Male	-0.233	-0.308	0.064	0.001**
RP → HHOI	Female	-0.099	-0.204	0.078	0.010**
	Male	-0.233	-0.327	0.057	0.001**
MT→ HHOI	Female	0.026	0.075	0.073	0.287
	Male	0.071	0.113	0.061	0.067
EM → HHOI	Female	-0.023	-0.043	0.065	0.483
	Male	-0.084	-0.113	0.054	0.039*

The table indicates financial literacy (FL), risk perception (RP), materialism (MT), emotion (EM), and household over-indebtedness (HHOI). $p < 0.05$; $p < 0.01$

Source: Survey Data (2023)

Table 05 Gender moderates the relationship between emotions and household over-indebtedness. As Table 05, when examining females independently, negative emotions do not affect over-indebtedness. However, for males, there is a significant negative relationship between emotions and the over-indebtedness. This finding contrasts with previous studies by Widjaja et al. (2020), Azma et al. (2019), and Flores & Vieira (2014). The discrepancy in results may stem from differences in how emotions are expressed across gender categories. It is possible that females expressed their perceptions rather than their actual behaviors. Further research is needed to delve into this observation. Based on the findings of Table 05, the following hypotheses were tested.

No	Alternative Hypotheses	Status of Null Hypothesis
H_9	Gender moderates the relationship between financial literacy and household over-indebtedness.	Not Rejected
H_{10}	Gender moderates the relationship between risk perception and household over-indebtedness.	Not Rejected
H_{11}	Gender moderates the relationship between materialism and household over-indebtedness.	Not Rejected
H_{12}	Gender moderates the relationship between emotions and household over-indebtedness.	Rejected

6.6 Moderating Effect of Income

Table 06 presents the results of the moderating effect of income on the behavioral factors and household over-indebtedness.

Table 6: Income on Behavioural Factors and Over-Indebtedness

Path	Category	Path coefficients	Standardised path coefficients	P- value
FL → HHOI	Less than 50,000	-0.120	-0.180	0.220
	50,000 to 100,000	-0.126	-0.296	0.001**
	100,000 or above	-0.268	-0.310	0.001**
RP → HHOI	Less than 50,000	-0.046	-0.069	0.524
	50,000 to 100,000	-0.109	-0.252	0.003**
	100,000 or above	-0.272	-0.393	0.001**
MT→ HHOI	Less than 50,000	-0.007	-0.017	0.852
	50,000 to 100,000	0.023	0.072	0.329
	100,000 or above	0.048	0.079	0.248
EM → HHOI	Less than 50,000	0.045	0.064	0.587
	50,000 to 100,000	-0.038	-0.086	0.197
	100,000 or above	-0.053	-0.066	0.275

The table indicates financial literacy (FL), risk perception (RP), materialism (MT), emotion (EM), and household over-indebtedness (HHOI). $p < 0.05$; $p < 0.01$

Source: Survey Data (2023)

As per the results of Table 06, income level moderates the relationship between financial literacy and propensity for over-indebtedness. Specifically, when the income level is below Rs. 50,000, there is no significant moderating effect on the relationship between financial literacy and propensity for over-indebtedness. However, once the income level exceeds Rs. 50,000, individual financial literacy begins to influence the propensity for over-indebtedness. This finding aligns with previous studies by Azma et al. (2019) and Flores & Vieira (2014). Similarly, income level moderates the relationship between risk perception and propensity for over-indebtedness. When the income level is below Rs. 50,000, there is no significant moderating impact of income on the relationship between risk perception and propensity for over-indebtedness. However, risk perception starts to affect the propensity for over-indebtedness once the income level surpasses Rs. 50,000. Based on the findings of Table 06, the following hypotheses were tested.

No	Alternative Hypotheses	Status of null hypothesis
H_{13}	Income moderates the relationship between financial literacy and household over-indebtedness.	Not Rejected

H_{14}	Income moderates the relationship between risk perception and household over-indebtedness.	Not Rejected
H_{15}	Income moderates the relationship between materialism and household over-indebtedness.	Rejected
H_{16}	Income moderates the relationship between emotions and household over-indebtedness.	Rejected

6.7 Moderating Effect of Education

Table 07 presents the results of the moderating effect of education on the behavioral factors and household over-indebtedness.

Table 7: Education on Behavioral Factors on Over-Indebtedness

Path	Category	Path coefficient	Standardised path	Standard error	P- value
FL → HHOI	A/L or less	-0.242	-0.327	0.068	0.001**
	Graduate o above	-0.072	-0.141	0.068	0.023*
RP → HHOI	A/L or less	-0.141	-0.216	0.072	0.003**
	Graduate o above	-0.159	-0.312	0.065	0.001*
MT→ HHOI	A/L or less	0.100	0.181	0.057	0.004**
	Graduate o above	-0.034	-0.099	0.062	0.134
EM→ HHOI	A/L or less	-0.196	-0.246	0.056	0.001**
	Graduate o above	0.04	0.088	0.060	0.171

This table indicates financial literacy (FL), risk perception (RP), materialism (MT), emotion (EM), and household over-indebtedness (HHOI). $p < 0.05$; $p < 0.01$

Source: Survey Data (2023)

The relationship between materialism and propensity for over-indebtedness is moderated by the level of education, (see Table 07). Specifically, for respondents with Advanced Level education or lower, materialism significantly affects the propensity for over-indebtedness. However, for those with higher education, such as a bachelor's degree or above, materialism may not be a significant factor contributing to over-indebtedness. Similarly, the relationship between negative emotions and propensity for over-indebtedness is moderated by the level of education. For individuals with education up to Advanced Level, negative emotions significantly impact the propensity for over-indebtedness. However, for those with graduate-level education or higher, negative emotions may not have a significant influence on the propensity for over-indebtedness. This finding is in line with previous studies by Rahman et al. (2020), Azma et al. (2019), and Flores & Vieira (2014). Based on the findings of Table 07, the following hypotheses were tested.

No	Alternative Hypotheses	Status of null hypothesis
H_{17}	Education moderates the relationship between financial literacy and household over-indebtedness.	Not Rejected
H_{18}	Education moderates the relationship between risk perception and household over-indebtedness.	Not Rejected
H_{19}	Education moderates the relationship between materialism and household over-indebtedness.	Not Rejected

H_{20}	Education moderates the relationship between emotions and household over-indebtedness.	Rejected

6.8 Moderating Effect of Religion

Table 08 presents the results of the moderating effect of religion on behavioral factors and household over-indebtedness.

Table 8: Religion on Behavioral Factors and Over-Indebtedness

Path	Category	Path coefficient	Standardi sed path	Standard error	P- value
FL → HHOI	Buddhism	-0.153	-0.280	0.055	0.001*
	Other	-0.170	-0.203	0.100	0.037
RP → HHOI	Buddhism	-0.106	-0.181	0.055	0.002
	Other	-0.314	-0.490	0.083	0.001
MT→ HHOI	Buddhism	0.034	0.086	0.052	0.097
	Other	-0.035	-0.049	0.082	0.569
EM → HHOI	Buddhism	-0.043	-0.077	0.048	0.102
	Other	-0.047	-0.061	0.080	0.426

This Table indicates financial literacy (FL), risk perception (RP), materialism (MT), emotion (EM), and household over-indebtedness (HHOI). $p < 0.05$; $p < 0.01$

As per Table 08, religion does not appear to moderate the relationship between any behavioral factor and household over-indebtedness. This finding contrasts with the results reported by Hon & Woo (2021). Jlassi & Mansour (2014). It is hypothesized that this discrepancy may stem from varying behaviors within the same religious groups. Given Sri Lanka's interconnectedness among different religious communities, the expected moderating impact could not be identified. However, further research is warranted to clarify this aspect within the Sri Lankan context. Based on the findings of Table 08, the following hypotheses were tested.

No	Alternative Hypotheses	Status of null hypothesis
H_{21}	Religion moderates the relationship between financial literacy and household over-indebtedness.	Not Rejected
H_{22}	Religion moderates the relationship between risk perception and household over-indebtedness.	Not Rejected
H_{23}	Religion moderates the relationship between materialism and household over-indebtedness.	Not Rejected
H_{14}	Religion moderates the relationship between emotions and household over-indebtedness.	Not Rejected

7. CONCLUSION

In conclusion, this study uncovers significant associations between behavioral factors such as financial literacy, risk perception, and emotions, and the propensity for household over-indebtedness. Moreover, age groups, gender, income levels, and education levels moderate various relationships between behavioral constructs and over-indebtedness. However, religion does not demonstrate significant moderation in these relationships.

These findings hold significant implications for policymakers and scholars who recognize the urgency of addressing over-indebtedness. By pinpointing key behavioral factors contributing to this issue, such as financial literacy and risk perception, this study underscores the importance of targeted interventions and awareness campaigns to empower individuals to make informed financial decisions and mitigate excessive debt. Furthermore, policymakers, financial institutions, and educational bodies can leverage these insights to develop tailored policies and initiatives aimed at preventing over-indebtedness and providing support to those facing financial distress. This research contributes to a deeper understanding of the multifaceted dynamics involved in over-indebtedness, laying the foundation for future studies and interventions in Sri Lanka and beyond.

Future researchers may engage in cross-cultural investigations to explore the long-term implications of the current study's findings, which are grounded in survey data from the Sri Lankan context. Employing interview methods for data collection could mitigate the risk of careless responses. This study utilized a stratified sampling approach, allocating proportional strata based on the population density of each province, and the questionnaire was distributed exclusively to individuals with at least one bank loan. However, these sampling limitations may render the sample less than perfectly representative. Subsequent researchers might consider collecting data that offers equal participation opportunities to all Sri Lankan citizens. Also, Longitudinal studies are crucial for gaining a comprehensive understanding of how macroeconomic, demographic, and behavioral factors interact to influence over-indebtedness over time. Longitudinal studies involve collecting data from the same subjects at multiple points over time to track changes in their characteristics, behaviors, or outcomes, enabling researchers to analyze trends, patterns, and causal relationships.

8. REFERENCES

Anderloni, L., & Vandone, D. (2012). Risk of Overindebtedness and Behavioural Factors. *SSRN Electronic Journal, January*. https://doi.org/10.2139/ssrn.1653513.

Ando, A. – Modigliani, F. (1963). The "life cycle" hypothesis of saving: Aggregate implications and tests. *The American Economic Review*. 1963, 53(1), 55 — 84.

Ali, M. A., Hussain, S., & Rehman, S. U. (2021). Impact of Islamic Financial Literacy, Subjective Norms, Risk Perception and Impact of Islamic Financial Literacy, Subjective Norms, Risk Perception and Perceived Behavioral Control on Adoption of Islamic Banking in Pakistan. *Www.Revistageintec.Net, ISSN: 2237-0722*, *3*(July), 220–233. https://doi.org/10.47059/revistageintec.v11i3.1929

Arianti, B. F. (2018). The Influence of Financial Literacy, Financial Behavior and Income on Investment Decision. *European Research Studies Journal*, 20(3), 635–648. https://doi.org/10.32493/eaj.v1i1.y2018.p1-10.

Australian Bureau of Statistics. (2020). General Social Survey: Summary Results, Australia. ABS. https://www.abs.gov.au/statistics/people/people-and-communities/general-social-survey-summary-results-australia/latest-release.

Azma, N., Rahman, M., Adeyemi, A. A., & Rahman, M. K. (2019). Propensity toward indebtedness: evidence from Malaysia. *Review of Behavioral Finance*, 11(2), 188–200. https://doi.org/10.1108/RBF-05-2017-0046.

Baker, H. K., Kumar, S., Goyal, N., & Gaur, V. (2019). How financial literacy and demographic variables relate to behavioral biases. *Managerial Finance*, 45(1), 124–146. https://doi.org/10.1108/MF-01-2018-0003.

Barros, L., & Botelho, D. (2012). Hope, perceived financial risk and propensity for indebtedness. *BAR - Brazilian Administration Review*, 9(4), 454–474. https://doi.org/10.1590/s1807-76922012000400006

Bucher-Koenen, T., Lusardi, A., Alessie, R. J. M., & Rooij, M. C. J. Van. (2016). How financially literate are women? An overview and new insights. GFLEC Working Paper Series. February.

Brummer, L., Stopa, L., and Bucks, R. (2013). The influence of age on emotion regulation strategies and psychological distress. *Behavioural and Cognitive Psychotherapy*. 42, 668–681. doi: 10.1017/s1352465813000453

Chamini, H.R.A., Thilanka., and Sri Ranjith, J. G. (2018). The Impact of Public Debt on Private Investment: Sri Lankan Experience. International Journal of business and Social Research, doi: 10.18533/IJBSR.V8I8.1122

Caetano, G.S., Palacios, M. and Patrinos, H.A., (2011). Measuring aversion to debt: An experiment among student loan candidates *(World Bank Policy Research Working Paper No. 5737).* https://doi.org/10.1596/1813-9450-5737.

Chen, H., Ronald, P., & Volpe. (2002). Gender differences in personal Financial literacy among college students .Financial Service Review 11, 289–307.

Danrimi, M. L., Abdullah, M., & Alfan, E. (2018). Investors' herding practice: do IFRS and national economic culture matter? *Managerial Finance,* 44(9), 1117–1133. https://doi.org/10.1108/MF-08-2017-0311

Disney, R., & Gathergood, J. (2011). Financial literacy and indebtedness: New evidence for UK consumers. *Available at SSRN 1851343.*

Dawson, S. (2015). A Consumer Values Orientation for Materialism and Its Measurement: *Scale Development and Validation. March.* https://doi.org/10.1086/209304

Fatoki, O. (2015). The Causes and Consequences of Household Over-Indebtedness in South Africa. *Journal of Social Sciences*, 43(2), p97–103. https://doi.org/10.1080/09718923.2015.11893427.

Ferreira, M. B., de Almeida, F., Soro, J. C., Herter, M. M., Pinto, D. C., & Silva, C. S. (2021). On the Relation Between Over-Indebtedness and Well-Being: An Analysis of the Mechanisms Influencing Health, Sleep, Life Satisfaction, and Emotional Well-Being. *Frontiers in Psychology*, 12(April). https://doi.org/10.3389/fpsyg.2021.591875

Filip, A., Pochea, M., & Pece, A. (2015). The Herding Behaviour of Investors in the CEE Stocks Markets. *Procedia Economics and Finance*, *32*(15), 307–315. https://doi.org/10.1016/s2212-5671(15)01397-0

Flores, S. A. M., & Vieira, K. M. (2014). Propensity toward indebtedness: An analysis using behavioral factors. *Journal of Behavioral and Experimental Finance*, *3*, 1–10. https://doi.org/10.1016/j.jbef.2014.05.001.

Frigerio, M., Ottaviani, C., & Vandone, D. (2020). A meta-analytic investigation of consumer over-indebtedness: The role of impulsivity. *International Journal of Consumer Studies*, 44(4), 328–342. https://doi.org/10.1111/ijcs.12570.

Gonzalez-igual, M., Corzo, T., & Rua, A. (2021). Heliyon Impact of education, age and gender on investor's sentiment: A survey of practitioners. Heliyon, 7(January 2020), e06495. https://doi.org/10.1016/j.heliyon.2021.e06495

Gutiérrez-Nieto, B., Serrano-Cinca, C., & de la Cuesta González, M. (2017). A multivariate study of over-indebtedness' causes and consequences. *International Journal of Consumer Studies*, 41(2), 188–198. https://doi.org/10.1111/ijcs.12324.

Hasler, A., & Lusardi, A. (2017). *The Gender Gap in Financial Literacy: A Global Perspective.* Global Financial Literacy Excellence Center https://gflec.org/wp-content/uploads/2017/07/The-Gender-

Gap-in-Financial-Literacy-A-Global-Perspective-Report.pdf

Huy, Q., & Zott, C. (2019). Exploring the affective underpinnings of dynamic managerial capabilities: How managers' emotion regulation behaviors mobilize resources for their firms. *Strategic Management Journal*, 40(1), 28–54. https://doi.org/10.1002/smj.2971.

Hon, T. Y., Moslehpour, M., & Woo, K. Y. (2021). Review on behavioral finance with empirical evidence. Advances in Decision Sciences, 25(4), 1-30.

Ismail, S., Koe, W., Mahphoth, M. H., & Karim, R. A. (2020). Saving Behavior Determinants in Malaysia *:* An Empirical Investigation. 2020, 731–743. https://doi.org/10. 18502/kss.v4i6.6639.

International Monetary Fund, Country Report (2023). Sri Lanka. IMF country report, doi: 10.5089/9798400238987.002

Jacobs, G., & Smit, E. V. D. M. (2010). Materialism and indebtedness of low-income consumers: Evidence from South Africa's largest credit granting catalogue retailer. *South African Journal of Business Management*, 41(4), 11–33. https://doi.org/10.4102/sajbm.v41i4.527.

Jlassi, M., Naoui, K., & Mansour, W. (2014). Overconfidence behavior and dynamic market volatility: evidence from international data. *Procedia Economics and Finance*, 13, 128-142.

Kahneman, B. Y. D., & Tversky, A. (1979). *World Scientific Handbook in Financial Economic Series.,* 47(2), 263–291.

Kasser, T. (2016). Materialistic Values and Goals. *Annual Review of Psychology*, 67, 489–514 https://doi.org/10.1146-122414-033344

Keech, J., Papakroni, J., & Podoshen, J. S. (2019). Gender and differences in materialism, power, risk aversion, self-consciousness, and social comparison. J*ournal of International Consumer Marketing,* 0(0), 1–11. https://doi.org/10.1080/08961530.2019.1647125

Keese, M. (2012). Who feels constrained by high debt burdens? Subjective vs. objective measures of household debt. *Journal of Economic Psychology*, 33(1), 125–141. https://doi.org/10.1016/j.joep.2011.08.002.

Komalasari, P. T., Asri, M., Purwanto, B. M., & Setiyono, B. (2021). Herding behaviour in the capital market: What do we know and what is next? In *Management Review Quarterly* (Issue 0123456789). Springer International Publishing.

Kumar, S., & Goyal, N. (2016). Evidence on rationality and behavioural biases in investment decision making. *Qualitative Research in Financial Markets*, 8(4), 270–287. https://doi.org/10.1108/QRFM-05-2016-0016.

Lerskullawat, A. (2020). Factors affecting household debt in Thailand. *International Journal of Economic Policy in Emerging Economies*, 13(4), p327–336. https://doi.org/10.1504/IJEPEE.2020.109584.

Loewenstein, G., O'donoghue, T., & Rabin, M. (2003). Projection Bias in Predicting Future Utility. *The Quarterly Journal of Economics, 118*(4), 1209–1248. https://about.jstor.org/terms

Lusardi, A., & Mitchelli, O. (2007). Financial literacy and retirement preparedness: Evidence and implications for financial education. *Business Economics*, 42(1), 35–44. https://doi.org/10.2145/20070104.

Lusardi, A. and Mitchell, O. S. (2013) an overview of financial literacy around the world : an overview, *Journal of Pension Economics an*d Finance *10(4)*, 497–508. http:// doi: 10.1017/S1474747211000448.

Mahdzan, N. S., Mohd-Any, A. A., & Chan, M. K. (2017). The influence of financial literacy, risk aversion and expectations on retirement planning and portfolio allocation in Malaysia. *Gadjah Mada International Journal of Business*, *19*(3), 267–289. https:// doi.org/10.22146/gamaijb.24441

Manafe, J. D., & Fanggidae, J. P. (2021). Materialism and Individuals' Over-indebtedness: A Case of Indonesia.

Advances in Social Science, Education and Humanities Research, *544*, 62–65.

McCleary, Rachel M., and Robert J. Barro. (2006). Religion and Economy. *Journal of Economic Perspectives*. 20(2), 49−72.

Muhammad, M., & Iqbal, A. (2018). Causes and Decision of Women's Involvement into Prostitution and Its Consequences in Punjab, Pakistan.4(December), 398–411.

Noguti, V., & Bokeyar, A. L. (2014). Who am I? The relationship between self-concept uncertainty and materialism. *International Journal of Psychology*, 49(5), 323–333.

O'Cass, A. (2001) Consumer self-monitoring, materialism and involvement in fashion clothing. *Australasian Marketing Journal*, 9, 46–60.

O'Cass, A. (2004) Fashion clothing consumption: antecedents and consequences of fashion clothing involvement. *European Journal of Marketing*, 38, 869–882.

Paulino, J. A., Ferrarez, R., & Lopes, F. (2010). Risk Behavior and Skill Levels Cognitive in a Group of Adolescents in Situation of Social vulnerability. *Psychology Science and Profession*, 30(4), 752–765.

Ponchio, M.C., (2006). The influence of materialism on consumption indebtedness in the context of low-income consumers from the City of Sao Paulo. 175 (Doctoral thesis), *São Paulo School of Business Administration of the Getulio Vargas Foundation.*

Prosad, J.M., Kapoor, S. and Sengupta, J. (2015), Behavioral biases of Indian investors: a survey of Delhi-NCR region. *Qualitative Research in Financial Markets,* Vol. 7 No. 3, 230-263

Puliyakot, S. and Pradhan, H.K., (2017), Determinants of Over-Indebtedness in Microfinance: An Empirical Investigation. *Available at SSRN 2896568.*

Rahman, M., Azma, N., Masud, M. A. K., & Ismail, Y. (2020). Determinants of indebtedness: Influence of behavioral and demographic factors. *International Journal of Financial Studies*, 8(1). https://doi.org/10.3390/ijfs8010008.

Rasmussen, J., & Ewald, J. (2022). The Relation Between Socioeconomic Status and Risk Attitudes : A Nuclear Accident Scenario in Sweden. *Economics of Disasters and Climate Change*, 541–555. https://doi.org/10.1007/s41885-022-00118-6

Renu, I., & Christie, P. (2019). The relationship between the income and behavioural biases. 24(47), 127–144. https://doi.org/10.1108/JEFAS-10-2018-0111

Richins, M. L., & Dawson, S. (1992). A Consumer Values Orientation for Materialism and Its Measurement: Scale Development and Validation. *Journal of Consumer Research,* 19(3), 303. https://doi.org/10.1086/209304.

Richins, M. L. (2004). The Material Values Scale: Measurement Properties and Development of a Short Form. *Journal of Consumer Research*, 31(1), 209–219.

Richins, M. L. (2021). Materialism Pathways: The Processes that Create and Perpetuate Materialism ScienceDirect Materialism pathways : The processes that create and perpetuate materialism. *Journal of Consumer Psychology*, May. https://doi.org/10.1016 /j.jcps.2017.07.006

Rieger, M. O. (2020). How to Measure Financial Literacy? *Journal of Risk and Financial Management*, *13*(12), 324. https://doi.org/10.3390/jrfm13120324

Roazzi, A., Bompastor, G., Dias, B., Oliveira, J., Barboza, L., & Monteiro, M. (2011). What is Emotion? Searching the Organizational Structure of Children's Concept of Emotion. *Science Journal of University of Pittsburgh, USA,* 24(1), 51–61.

Shefrin, H. M., & Thaler, R. H. (1988). the Behavioral Life-Cycle Hypothesis. *Economic Inquiry*, 26(4), p609–643. https://doi.org/10.1111/j.1465-7295.1988.tb01520.

Tekçe, B., Yilmaz, N., & Bildik, R. (2016). What factors affect behavioral biases? Evidence from Turkish individual stock investors. *In Research in International Business and Finance*, 37. Elsevier B.V. https://doi.org/10.1016/j.ribaf.2015.11.017.

Waqas, M., & Siddiqui, D. A. (2021). Does Materialism, Emotions, Risk and Financial Literacy Affects the Propensity for Indebtedness in Pakistan: The Complementary Role of Hedonism and Demographics. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3942317.

Watson, J. J. (2003). The relationship of materialism to spending tendencies, saving, and debt. *Journal of Economic Psychology*, 24(6), p723–739. https:// doi.org/10.1016/j. joep.2003.06.001.

Widjaja, R., Pertiwi, D., & Program, I. (2020). The Influence of Emotional Factors, Materialism, Risk Perception, and Financial Literacy on The Tendency of debt of Millennial generation in Surabaya. *International Journal of Financial and Investment Studies* 1(2), 85–93. https://doi.org/10.9744/Ijfis.1.2.85-93.

Workman, J. E., & Lee, S. (2011). Materialism, fashion consumers and gender: a cross-cultural study Theoretical background : 35, 50–57. https://doi.org/10.1111/j.1470-6431.2010.00935.x

Yang, H., Qin, C., Li, Y. H., Tao, L., Zhou, J., Yu, C. Y., Xu, F., Chen, Z., Zhu, F., & Chen, Y. Z. (2016). Therapeutic target database update 2016: Enriched resource for bench to clinical drug target and targeted pathway information. Nucleic Acids Research, 44(D1).

Annexure 1: Operationalization of the variables

Variable	Dimension	Indicator	Scales
Financial Literacy	Financial Knowledge	General personal finance knowledge	Based on the scale of Caetano et al. (2011) and Flores and Vieira (2014) The "Big Three" Financial Literacy Questions of Annamaria Lusardi and Professor Olivia S. Mitchell
	Savings and borrowing	Ability to answer the questions on savings and borrowings	
	Investment	Skills and attitudes on investments	
Risk Perception	Lucas of control	Perception about the leading underlying causes of events. Ex. Lottery tickets, signing guarantors etc.	Based on the scale of Caetano et al. (2011) and Flores and Vieira (2014)
	Impulsivity	Impulsive buying habits	
	Self-efficacy	Individuals' belief in their capacity to act in the ways necessary to reach specific goals.	
	Risky attitudes	Risk seeking behaviour	
Materialism	Success	Success represents the use of possessions as an indicator of success in life. Materialists tend to judge their own and others' success by the number and quality	Five-point Likert Scale questions (Using the scale of Ponchio (2006)/ Richins & Dowson, 1992

		of possessions accumulated. (Possession-defined success)	
	Centrality	Centrality concerns the importance of acquisition and possession. Materialists place possessions and their acquisition at the centre of their lives. (Acquisition centrality)	
	Happiness	Happiness concerns the perception that possessions are needed for happiness. Materialist assumes that possession is essential to their satisfaction and well-being in life. (Acquisition as the Pursuit of happiness)	
Emotions	Subjective experience	Feelings of ashamed, nervousness, etc.	Quelch and Jocz (2007)
	Physiological responses	Depression, family relations, etc.	
	Expressive responses	Smoking, reduced work performance, etc.	
Household over-indebtedness	Cost of servicing debt	Households spending more than 50% of the gross monthly income on total borrowing repayment (secured and unsecured)	Adopted from the scale of D'Alessio & Lezzi (2013)
	Loan arrears	Households more than one year in arrears on a credit commitment or household bills.	
	Number of loans or number of limit exceeded credit cards	Households with four or more credit commitments and four or more limit-exceeded credit cards.	
	Subjective perception of burden	Households declaring that their borrowing repayments are a heavy burden.	

Annexure 2

	Dimension	Identity	Questionnaire
Financial Literacy	Financial Knowledge	FL 1 (Simple Interests)	If you borrowed Rs.1 000 at 10% interest per annum for one year, what is the total payable amount at the year-end?
		FL 2 (Compound Interest)	If you invested Rs. 1 000 in a fixed deposit at 10% per annum for two years which interest accumulated annually, how much is your total interest income at the end of 2nd year?
		FL 3	I am mostly interested in the news, such as finance, economics and business reviews.
	Savings and borrowin	FL 4	I can understand the details quickly when I read information about financial

			services such as loans, leases or credit cards.
		FL 5	I am well-organized in handling my money.
		FL 6	The borrowed money will never be reduced if I pay only the interest.
	Investment	FL 7	I usually invest my money in different options, such as fixed deposits, treasury bills and unit trusts.
Risk Perception	Lucas of control	RP 1	I used to spend money on lottery tickets.
		RP 2	I do not hesitate to be a guarantor for someone.
	Impulsivity	RP 3	I spend money impulsively, without thinking about the future.
		RP 4	I tend to buy unwanted items under cash discounts or instalment plans.
	Self-efficacy	RP 5	I tend to settle one loan by taking another loan.
		RP 6	I usually tend to borrow when unexpected expenses arise.
	Risky attitudes	RP 7	I used to spend my money on betting, gambling and Casino.
		RP 8	I usually deposit my money in finance companies and private banks due to high interest rather than government banks.
Materialism	Success	MT 1	I like to possess certain things to impress other people.

	Centrality	MT 2	I like people who own expensive homes, cars, and clothes.
	Happiness	MT 3	Buying luxury things gives me a lot of pleasure.
		MT 4	It bothers me when I cannot buy everything I want.
Emotions	Subjective experience	EM 1	I would feel ashamed to be indebted.
	Physiological responses	EM 2	If I were indebted, it would affect my dietary habits and sleeping.
		EM 3	If I go into debt, it will harm my relations with my relatives and friends.
	Expressive responses	EM 4	My work performance would be affected if I were indebted.
		EM 5	I would be more tempered than usual if I were indebted.
Propensity for over-indebtedness	Cost of servicing debt	POI 1	How much loan obligations currently do you have?
		POI 2	What percentage of your monthly income is spent on loan instalment payments?
	Loan arrears	POI 3	How long have you been in arrears on your loan instalments?
	Numb er of loans	POI 4	Excluding credit cards, how many loan obligations do you have?

		POI 5	How many credit cards do you have that exceed the designated credit limit?
	Subjective perception of burden	POI 6	I am confident that I can pay off my loans in the future.
		POI 7	What types of loans have you obtained?
Demographic Factors	Age	DG 1	What is the correct category for your age?
	Gender	DG 2	What is your sex?
	Marital status	DG 3	What is your marital status?
	No.of dependents	DG 4	How many dependents do you have?
	Ethnicity	DG 5	What is your ethnic background?
	Religion	DG 6	What is your religion?
	Employment	DG 7	What is your current employment status?
	Monthly Income	DG 8	Which best describes your monthly income last year?
	Work Experience	DG 9	How many years of working experience do you have?
	Education	DG 10	What is your highest educational attainment?
	Residential Province	DG 11	What province do you live in?

Source: Authors compiled based on literature