Mediating Role of Financial Stress on the Relationship Between Behavioural Factors and Housing and Real Estate Loan Default

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Abstract

This study examines how financial stress mediates the impact of behavioural factors on loan defaulting behavior in the real estate sector. Using SmartPLS 3.0, data from 385 respondents across Indian metropolitan cities were analyzed through Structural Equation Modelling (SEM). The findings reveal that materialism has the strongest impact on loan defaults, while financial literacy reduces financial stress. However, financial stress shows only a minimal mediating effect between behavioural factors and loan defaulting behavior. Additionally, indebtedness, emotional factors, and crisis situations exhibit relatively minor influences on default behavior. The study is limited by its cross-sectional design and reliance on self-reported data, which restricts causal interpretations. Future research should explore technological interventions in this sector. Practically, the findings suggest that banks should promote financial literacy and implement targeted debt management programs to reduce defaults, while policymakers should focus on initiatives that enhance emotional stability and financial stress management. Overall, this study contributes by highlighting financial stress as a weak mediator in behavioral influences on loan repayment, providing new insights for financial institutions and policymakers.

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01. Introduction

A default in loan occurs when repayments are delayed over a long period of time. When a loan goes into default, it is handed over to a debt collection agency (Ross and Shibut, 2020), whose responsibility is to contact the borrower and collect the due amount (Kimmitt and Dimov, 2020). When faced with the uncertainty of making economic decisions, behavioral finance examines the complex aspects and interactions in the human brain. General human characteristics like fear, anger, greed and selflessness highly impact an individual's financial decisions (Oprean, 2014). Behavioral finance can explain why a person makes a decision through a relatively simple thought process but quantifying the implications of that decision on the individual is difficult (Rauwerda and De Graaf, 2021; Yamini, 2020). Behavioral scoring is used to make lending choices on existing clients, such as expanding or reducing credit limits (Gan et al., 2012), introducing new financial products or changing interest rates. Lenders update their behavioral ratings monthly (Malik and Thomas, 2010). Prior research in behavioral finance (Donkor-Hyiaman and Ghartey, 2017) revealed conflicting findings in demonstrating a link between demographic characteristics and indebtedness. Psychological and behavioral factors may have a significant impact on the inclination to be indebted (Rahman et al.,2020).

The residential property market dominates almost 70% of the real estate market in India. The housing demand in India is influenced by aspects like growing disposable income, demographic changes, increasing nuclear families within the urban population and the availability of bank loans. A house loan is an amount of money borrowed from a financial institution or bank to acquire a property (Wong et al.,2019). Real estate loans have a variable or fixed interest rate and payment periods. The property is mortgaged to the lender as collateral until the loan is repaid (Yip et al.,2020). As the income per capita, population, demographics improve, the housing sector boosts economic growth in a developing nation such as India. The housing sector of India contributed to around 7.9% of the nation's total gross value added (GVA) in 2017-2018. Most Indians prefer to invest in real estate till date (RBI, 2019). The information about the structure of household savings at current price in India shows that in 2017-2018, savings in physical assets constituted around 62% of overall savings (RBI, 2020). The Government of India (GOI) has taken up various actions to enhance the growth of this sector. This involves subtracting a specific sum of principal and interest payments on housing loans when calculating households' income tax obligations since 2001–2002. The Government of India has lowered the Goods and Services Tax (GST) rates for homes constructed under the Housing for All Mission 2022 (the National Mission for Urban Housing launched in June 2015) to boost housing demand and improve access to housing finance for families in India (Saha et al., 2022).

Although it is a significant sector of the Indian economy, only two empirical studies (Bandyopadhyay and Saha, 2011; Campbell et al., 2015) have identified the fundamental dynamics of default in the Indian housing loan market. Bandyopadhyay and Saha (2011), in their examination of housing loan data from 13,487 accounts of a housing finance company and public sector banks approved between 1993 and 2007, discover that key factors contributing to defaults in housing loans are the loan to value (LTV) ratio and the ratio of equated monthly installment to income. Financial strain, marked by significant drops in credit scores, frequently leads to unaffordable homeownership, suggesting that financially stressed borrowers tend to be more prone to defaulting on mortgage payments (Freddie Mac, 2022). Increased debt-to-income (DTI) ratios make this problem worse, borrowers whose DTIs surpass 43% face limited options to handle mortgage payments after experiencing income decreases, increasing the chance of default (Haughwout et al., 2020). Moreover, negative income shocks, like sudden job loss or income reduction, are closely associated with loan defaults, irrespective of borrowers' initial income levels or home equity positions (JPMorgan Chase Institute, 2019). Lower-income borrowers are particularly vulnerable

due to thinner financial buffers, making them more vulnerable to default when facing financial hardships (Do & Scheule, 2021). Additionally, financial stress can lead to mental health issues, further weakening the individuals' capacity to manage financial obligations effectively (NASA Federal Credit Union, 2023). Therefore, both financial stress and income levels are important factors affecting housing loan repayment behaviors.

1.1. Problem Statement:

The increase in loan defaults in the housing and real estate sector leads to the need to understand the behavioral and financial determinants of repayment behavior. Financial stress, driven by income irregularity and poor financial literacy, increases the risk of loan default, impacting both borrowers and financial institutions (Lusardi & Tufano, 2015). Despite existing studies, there remains a gap in exploring how financial stress is involved in these relationships. This research seeks to fill this gap by analyzing the interplay of these factors to inform better financial policies and lending practices.

1.2. Significance/Scope of the Study

The recipients of this research consist of financial entities, decision-makers, loan recipients, and scholars. Banks and lenders, as financial institutions, can leverage the results to enhance credit risk evaluations and customize financial offerings that take into account behavioral and income-related elements affecting loan repayment (Dynan et al., 2012). Policymakers can gain advantages by creating specific interventions, including financial education initiatives and income assistance systems, to alleviate financial pressure and improve loan repayment rates (Lusardi & Tufano, 2015). Borrowers gain from increased awareness of how financial stress and income variability impact their repayment behavior, empowering them to make informed financial decisions and seek appropriate financial counseling (Gathergood, 2012). Additionally, researchers and academics can build on this study to explore further the dynamics of financial stress and income, enriching the literature on financial behavior and economic resilience (Lusardi & Mitchell, 2014).

The study opens avenues for future research in several areas. Longitudinal studies could provide insights into how fluctuations in financial stress and income levels over time affect loan repayment behaviors. Cross-cultural comparisons could reveal how different cultural differences have an impact on the relationship between financial stress, income, and defaulting tendency. Furthermore, evaluating the impact of financial literacy programs and income support policies could provide practical suggestions for policymakers to design more effective financial stability measures. Finally, exploring behavioral interventions, such as financial counseling or nudges, could offer realistic strategies to improve loan repayment outcomes and overall financial well-being (Gathergood, 2012; Lusardi & Mitchell, 2014).

1.3. Research Gap

Financial strain, marked by significant reductions in credit ratings, frequently occurs before unmanageable homeownership, suggesting that borrowers facing financial difficulties are at greater risk of defaulting on their mortgage payments (Freddie Mac, 2022). Increased debt-to-income (DTI) ratios make this problem worse, borrowers with DTIs over 43% have restricted ability to handle mortgage payments after income drops, raising the chance of default (Haughwout et al., 2020). Additionally, crisis situations, like unexpected job loss or salary-cut, are strongly linked to loan defaults, irrespective of borrowers' starting income levels or home equity situations (JPMorgan

Chase Institute, 2019). Lower-income borrowers are particularly vulnerable due to thinner financial buffers, making them more susceptible to default when facing financial hardships (Do & Scheule, 2021). Additionally, financial stress can lead to mental health issues, further impairing individuals' capacity to manage financial obligations effectively (NASA Federal Credit Union, 2023). Hence housing loan repayment behavior is greatly affected by financial stress. The increasing number of loan defaults in the housing sector leads to the need to understand the behavioral and financial factors affecting repayment behavior. Despite existing studies, there remains a gap in exploring how financial stress mediates these relationships. This study wants to fill this gap by understanding the relationship of these factors to inform better financial policies and lending practices.

02. Review of Literature

2.1 Impact of Financial Literacy on Housing Loan Repayment Behavior

Financial awareness is defined as being familiar with basic financial terms and concepts that are required to function in society on a regular basis (Atkinson and Messy, 2012; Gutter et al., 2016). According to research, individuals with higher financial literacy are can compare mortgage options, diversify risks, and experience fewer defaults in repayments (Fornero et al., 2011). Financial literacy also has a positive impact on loan repayment in developing countries, contributing to the sustainability of financial institutions (Baidoo et al., 2020). Research on the Mudra Yojana scheme of India shows that better financial management and efficient decision-making are related to financial literacy and timely loan repayments (Harshith & Ishwara, 2024). Similarly, borrowers in the financial industry, who usually have higher financial literacy, also have a low probability of mortgage default even considering income, education, and terms of the loan (Agarwal et al., 2015). These findings call for improving financial education to help better loan repayment behavior and ultimately to achieve greater financial inclusion goals. Thus, the study proposes the following hypothesis:

H_1 – There is a significant impact of Financial Literacy on Loan Repayment Behavior

2.2. Impact of Emotion on Housing Loan Repayment Behavior

Emotion is a feeling one may have about their current state or the surroundings, for example, happiness, love, fear, anger, or hatred. The psychological characteristics of values, personality, and risk estimation of the individuals are more important than the demographic factors in prediction of loan repayment behavior toward housing (Gui et al, 2022). Negative emotions and lack of positive emotions are related to increased borrowing and reduced repayment probability, and this is especially the case with online loans (Bazley & Jannati, 2022). Loan default intentions of young adults from India are influenced by financial literacy, materialism, and risk perception, but emotions and indebtedness appear to have relatively less influence (Thomas et al., 2022). Personality characteristics also play a role in this since anxiety and a desire for control are linked to riskier approaches when facing potential challenges in repaying loans (Rendall et al., 2020). Such traits as excitement, alertness, and feeling guilty among many others are traits associated with risky approaches. Emotion, rather than pure rationality, controls housing finance investors' decisions (Savio & Velan, 2020). Thus, the study proposes the following hypothesis:

H_2 – There is a significant impact of Emotion on Loan Repayment Behavior

2.3. Impact of Indebtedness on Housing Loan Repayment Behavior

Indebtedness is an aspect of predicting household financial well-being. As stated in the research by (Handayani et al., 2016), this vulnerability can be determined objectively and subjectively. Financial vulnerability is the objective ability to make ends meet, which is assessed using household income and characteristics. Household perceptions decide measurement in subjective wellbeing on their ability to make ends meet. Household behavior with various perceptions will act differently. The Ordinary Least Square method is used to analyze indebtedness using the Indonesian Family Life Survey (IFLS) 5. The inferential shows that both objective and subjective financial well-being influence household indebtedness. Low income, high indebtedness, and loan diversion increase default probabilities, while financial literacy and social cohesiveness reduce delinquency in microfinance borrowers (Sangwan et al., 2020). Households from India that borrow from formal credit sources often have higher loan amounts for consumption and social expenditure activities, adversely affecting debt servicing capabilities (Chakraborty & Gupta, 2017). In Haryana, the share of non-productive activities absorbed half of the loan amount; however, only two-fifths of farmers have a regular payment cycle for loans, and the rest are fighting the debt trap (Jakhar et al., 2023). Thus, the study proposes the following hypothesis:

H_3 – Indebtedness has a significant influence on Loan Repayment Behavior

2.4. Impact of Materialism on Housing Loan Repayment Behavior

Materialism has been described as the value system within which possession of and having physical goods is accorded excessive emphasis (Belk, 1985; Rustagi and Shrum, 2017). Material values can be expressed where acquisition and holding material objects center the life; they think that materialism epitomizes success and is indispensable to the enjoyment of happiness (Richins and Dawson, 1992). Potrich and Vieira (2018) sought to develop a model that can predict the interaction effect of financial literacy on behavioral dimensions of indebtedness, materialism, and compulsive buying. materialism influences family's financial management in Indonesia (Hengo et al., 2021) and is used as a predictor for consumer indebtedness among low-income individuals in Brazil (Ponchio & Aranha, 2008). House equity, loan characteristics, socio-demographic factors, and ability to pay determine loan default status in Malaysia, according to Saha (2021). Thus, the study proposes the following hypothesis:

H_4 – Materialism has a significant influence on Loan Repayment Behavior

2.5. Impact of Risk Perception on Housing Loan Repayment Behavior

Risk perception is one of the major factors that influences housing loan repayment behavior and mortgage choice. There are studies indicating that risk perception negatively affects customer purchase behavior and differs by geographical regions and channels of purchase (Li et al., 2020). For young adults, the risk perception is a critical factor that determines their loan default intention (Thomas et al., 2022). Liu and Zhang (2021) study the link between college students' financial literacy and risky credit behavior, establishing the existence of underlying mediating mechanisms and contextual conditions. Mortgage choice risk interpretations for borrowers fluctuate over time with changes in short-term interest rates and conditions within the housing market. When short-term rates are high, borrowers think lower risk of rate increases, favoring adjustable-rate mortgages (ARMs), while in down housing markets, they become more risk-averse, preferring fixed-rate mortgages (FRMs) (Kim & Ziobrowski, 2016). Additionally, borrower-specific features and local factors are important in determining housing

loan demand and credit loss risk in India (Bandyopadhyay & Saha, 2011). Thus, the study proposes the following hypothesis:

H_5 – Risk Perception has a significant influence on Loan Repayment Behavior

2.6. Impact of Crisis Situation on Housing Loan Repayment Behavior

Studies on real estate loan repayment behavior during crisis situations show various vital factors that influence borrower vulnerability and default risk. Socio-demographic characteristics, including age, employment status, and immigrant status, significantly affect repayment behavior (Aristei & Gallo, 2016). Economic growth plays an important role in loan demand, particularly in growing economies with high macroeconomic volatility (Shahini, 2014). This further resulted in declining mental health and anxiety levels for young homeowners; it may lead to a changed perception of housing investment value during the 2008 housing crisis (Dwyer et al., 2016). In the study, Ngene et al. examined that the macroeconomic factors of the housing market and borrower characteristics are cointegrated before the US financial crisis; however, during the crisis, this relation dissolves, thus showing that housing market segmentation could occur during major crises. Traditional instruments of monetary policy should have an adverse effect on mortgage defaults during a mortgage crisis. Monetary policy actions may reduce short-term unemployment induced by a weak housing market, but their direct contribution to the amelioration of the housing market cannot be seen as anything more than irrelevant. In emerging economies like Albania where providing a dwelling for the citizens is not one of the government's priorities, having a housing loan is almost the only alternative of purchasing a house. The problem is that the economic uncertainty especially when the living standard living, shrinks the individuals demand for borrowing funds from banks (Shahini, 2014). Thus, the study proposes the following hypothesis:

H_6 – Crisis Situation has a significant influence on Loan Repayment Behavior

2.7. Mediating effects of Financial Stress between Financial Literacy and Housing Loan Repayment Behavior

The research by Zhang and Chatterjee (2023) showed that financial literacy had a positive relationship with financial well-being. Further, the research found that perceived financial stress experienced by individuals mediated the association between financial literacy and financial well-being. In the presence of incomplete information or uncertainty, people may make irrational choices leading to distortions in their utility-maximization decisions. Thus, when people experience financial stress, they may not know what their future expected financial outcomes are. Consequently, they may perceive themselves to have lower financial well-being. Therefore, decisions made under uncertainty, or with incomplete information, may bind one's expected well-being. The study by Sabri and Falahati (2013) attempted to look at the determinant factors of the financial well-being of employees in Malaysia. The results showed that the determinants of financial well-being included financial literacy, financial behavior, financial capability, and financial problem; and financial stress had a direct and indirect impact on financial well-being. Thus, the study proposes the following hypothesis:

H_7 – Financial Stress has mediating effect between Financial Literacy and Loan Repayment Behavior

2.8. Mediating effects of Financial Stress between Emotion and Housing Loan Repayment Behavior

The study by Ismail and Ahmad (2023) sought to establish the relationship between cognitive, emotional, and behavioral, and consumer debt management among government employees. The study established that there is a

significant relationship between behavioral and consumer debt management. However, there is no significant relationship between cognitive and emotional consumer debt management. Good debt management improves the behavior of government employees to pay their debts every month and understand the relationship between solvency and credit history. On the other hand, government employees do not seriously think of their debt and are not emotional when making a decision to do financing.

H_8 – Financial Stress does not have a mediating effect between Emotion and Loan Repayment Behavior

2.9. Mediating effects of Financial Stress between Indebtedness and Housing Loan Repayment Behavior

The study (Field et al., 2012) indicates that flexibility in repayment lowered clients' mental stress along a number of dimensions, indicating that product design can play a crucial role in determining how microcredit impacts the financial stress of the poor. It is also seen that higher household expenditures are consistent with higher income. Confronted with the problems created by financial stress, policymakers often believe the appropriate response to is to lower overall financial indebtedness. But there are many reasons why access to credit should be particularly important for bringing about improvements in economic outcomes on the part of the poor. In this article measures were taken as reported by respondents-they enabled the researchers to ask specially about the stresses associated with making ends meet and finding money with which to cover the next instalment on some loan. The results showed that holding availability of credit constant, changing the terms of the contract can significantly alter these stress measures. In particular, increasing repayment flexibility greatly reduces the mental health burden of indebtedness. Thus, the study proposes the following hypothesis:

2.10. Mediating effects of Financial Stress between Materialism and Housing Loan Repayment Behavior

Financial stress defines the different financial reasons for inability to have holidays, have meals with family and friends, and engage in hobbies, other leisure activities, and overall financial management. Some characteristics considered included family structure and composition, source and level of household income, age, sex and marital status, ethnic background, housing value, debt repayments and credit card usage. In the study by Worthington (2006) binary logit models were used to identify the source and magnitude of factors associated with financial stress in Australian households. The evidence provided suggests that financial stress is higher in families with more children or other dependents and from ethnic minorities, especially those more reliant on government pensions and benefits, and negatively related to disposable income and housing value. Financial well-being and its role on the quality of life for the employees is among the themes studied by the research community, consumer and financial educators, practitioners and policy makers. Thus, the study proposes the following hypothesis:

H_{10} – Financial Stress does not have mediating effect between Materialism and Loan Repayment Behavior

2.11. Mediating effects of Financial Stress between Risk Perception and Housing Loan Repayment Behavior

The study (Sangwan et al. 2021) deals with the issues of credit risk factors of the borrowers, the perception towards repayments interventions of the borrowers and the problems of moral hazard impacting default in uncollateralized loans issued by MFI. PLS-SEM is used in developing a buyer-side perception-behavioural model for borrower loan default behaviour. The results suggested that borrowers perceive MFI loan repayment interventions differently, and borrowers perceive that groups are homogeneous as these reduce moral hazard problems thereby reducing delinquency. On the other hand, the house socio-economic characterizations seem also to be an important factor determining the borrowers delinquency relating to the loans. Identification of borrowers' credit risk factors

and the interlinkage between borrower's perception towards repayment interventions, group homogeneity, and moral hazard in loan negligence can provide critical insights that MFIs can consider while disbursing uncollateralized loans to control the default risk. Thus, the study proposes the following hypothesis:

H_{11} – Financial Stress has mediating effect between Risk Perception and Loan Repayment Behavior

2.12. Mediating effects of Financial Stress between Crisis Situation and Housing Loan Repayment Behavior

The research (Teresa Sánchez-Martínez et al. 2016) demonstrates that the economic and financial crisis triggered after the burst of the housing bubble brought an unemployment shock and a fall in disposable family income, which alarmingly aggravated the financial vulnerability of the mortgaged households. The most vulnerable households-and therefore those with the most threatened risk of mortgage payment default-are those whose family head is married and self-employed females. On the other hand, in social housing the mortgaged households have been less vulnerable in the context of economic and financial crisis and unlike what would have been initially expected, higher education levels have not acted as a protective factor against households' financial vulnerability. In China, it has been proved that housing stress increases the costs of health care, as a 1% increase in housing stress has caused a rise of 0.141 in the costs of health care (Liu et al., 2024). In addition, financial behavior mediates the impact of socioeconomic characteristics and neurotic personality traits on financial satisfaction. A person with high neuroticism scores has more adverse investment, debt, and spending behaviors and thus greater financial dissatisfaction (Fachrudin et al., 2022). Thus, the study proposes the following hypothesis:

H_{12} – Financial Stress has mediating effect between Crisis Situation and Loan Repayment Behavior

2.13 Purpose of the Study (Objectives)

i. To understand the factors influencing housing and real estate loan repayment behavior.

ii. To find the influence of behavioral-financial factors on housing loan default levels.

iii. To examine the mediating role of financial stress in the relationship between behavioral factors (such as financial literacy, materialism, emotions, indebtedness, and risk perception) and housing loan repayment behavior.

03. Methodology

3.1 Conceptual Framework

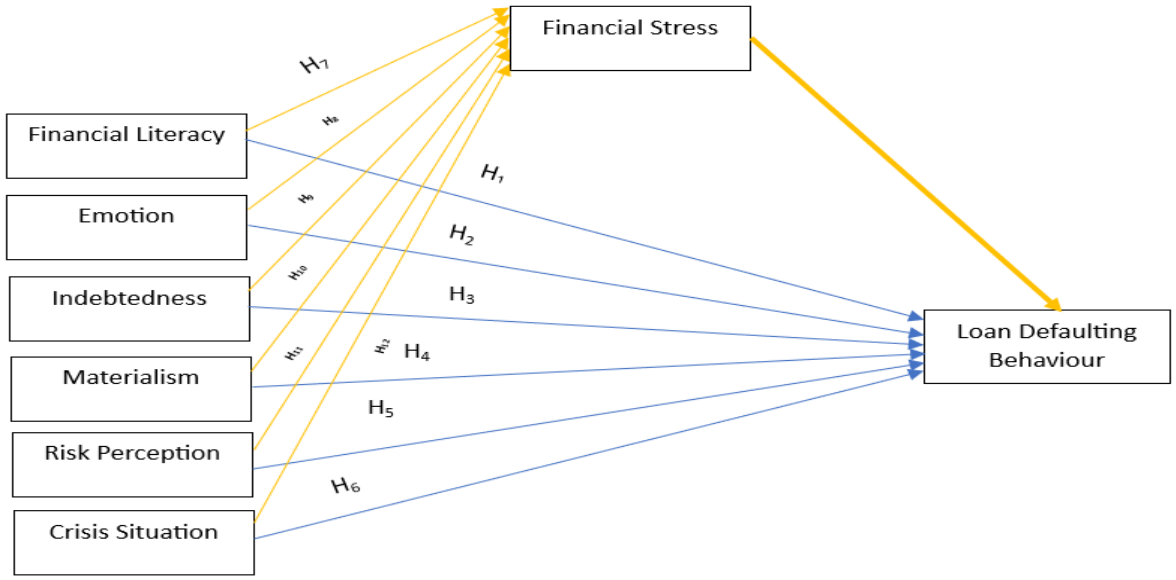

Figure 1: Conceptual Framework

A cross-sectional and quantitative data collection method was employed in this study. Self-reported questionnaires were used to measure the constructs, test the hypotheses and infer the associations of relationships among the constructs. The questionnaire was prepared carefully and tested before the data collection started. The research questionnaire contained two sections. The 1st Section consisted of a cover letter that explained the purpose of the study and a consent form confirming voluntary participation and anonymity of the responses. It also collected demographic information including gender, age, profession and monthly income for analysis. Section 2 focused on measuring the main variables like Financial Literacy, Emotion, Indebtedness, Materialism, Risk Perception, Crisis Situation, Financial Stress and Loan Defaulting Behavior. The questions for the variables were taken from validated scales in the literature. The questions for the variables were taken from validated scales in the literature. Questions for all the variables were prepared using a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The different levels of agreement towards housing loan repayment behavior by the respondents can be easily understood using the five-point Likert scale.

A pilot study was conducted using a sample of 30 respondents to determine the questionnaire's reliability and validity. The Cronbach's alpha coefficient is used to measure internal consistency. It gave a value of 0.884 that indicates strong reliability. The validity was further confirmed using correlating items and calculating the square root of AVE values. Responses were collected from various metropolitan cities of India using a convenience sampling method. This sampling method was chosen as secondary data about individuals dealing with real estate loan repayments was not readily available. Convenience sampling has certain limitations but it is considered appropriate for the study as it shall provide important inferences about the urban population and their behavior towards loan repayment. The respondents were of different professions but the inclusion criteria specified age above 23 years, literate and exhibiting loan repayment practices. Around 384 responses were collected for carrying out both descriptive and inferential statistical analysis. The demographic information and some key variables were

studied using descriptive statistics methods. Reliability was tested using Cronbach's alpha coefficient and validity was calculated using the square root of AVE and correlation analysis.

Table 1: *Measurement Scale Description*

Construct	No. of Items	Sources	Variable
Financial Literacy	FL1 FL2 FL3 FL4 FL5	(Azma, et al., 2019)	Exogenous variable
Emotion	E1 E2 E3 E4 E5	(Azma, et al., 2019)	Exogenous variable
Indebtedness	IN1 IN2 IN3 IN4	(Azma, et al., 2019)	Exogenous variable
Materialism	M1 M2 M3 M4	(Mahdzan, et al., 2023)	Exogenous variable
Risk Perception	RP1 RP2 RP3	(Azma, et al., 2019)	Exogenous variable
Crisis Situation	CS1 CS2 CS3 CS4	Author's contribution	Exogenous variable
Financial Stress	FS1 FS2 FS3 FS4	Author's contribution	Mediating variable
Loan Defaulting Behavior	LD1 LD2 LD3 LD4 LD5	Author's contribution	Endogenous variable

04. Analysis

4.1 Descriptive Statistics

Based on the demographic profile of the respondents, the results show that almost 52% of them were male and 48% were female. 42.3% of the respondents fell in the age group of 24-45, 31.7% were between 45-60 and 26% of them were above 60 years of age. A clear majority of the respondents were private employees (25.5%), followed by freelancers (15.6%), part-timers (13.5%), government employees (13.2%) and others. Coming to Monthly Income, equivalent proportion of people (22.9%) earn between Rs 20,000-60,000 and Rs 60,000-100,000 followed by Below Rs 20,000 (22.6%).

Table 2: *Demographic profile of the Respondents*

	N	**Range**	**Minimum**	**Maximum**	**Mean**		**Std. Deviation**	**Variance**
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
Gender	385	1.0	1.0	2.0	1.481	.0255	.5003	.250
Age (in years)	385	2.0	1.0	3.0	1.836	.0413	.8112	.658
Profession	385	6.0	1.0	7.0	3.686	.1004	1.9705	3.883
Monthly Income	385	4.0	1.0	5.0	2.797	.0702	1.3771	1.896

4.2 Reliability

SPSS software was used to analyze the data in this study. The internal consistency of the variables was checked by the reliability test and measured using Cronbach's alpha value. (Bonnett & Wright, 2014) The overall alpha value for the constructs is 0.787 which indicates good internal consistency among the items in the dataset. A value between 0.7 and 0.8 suggests that the scale is acceptable for academic and professional use.

4.3 Test of Normality

Table 3: *Tests of Normality*

	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Financial Literacy	.077	385	.000	.987	385	.002
Emotion	.071	385	.000	.991	385	.015
Indebtedness	.078	385	.000	.987	385	.002
Materialism	.102	385	.000	.962	385	.000
Risk Perception	.105	385	.000	.980	385	.000
Crisis Situation	.105	385	.000	.978	385	.000
Financial Stress	.089	385	.000	.983	385	.000
Loan Default Behaviour	.074	385	.000	.988	385	.004

All the p-values in the table with respect to all the items under all explanatory, mediating and dependent variables are less than 0.05. Hence, the data does not follow a normal distribution. As a result of this, further analysis pertaining to the study should be carried out using non-parametric tests.

4.4 SEM Analysis

Measurement Model Assessment

Smart PLS 3.0 was used to evaluate the hypotheses of the study and the partial least square approach was used to do structural equation modelling (PLS-SEM) (Henseler, et al., 2015). The SEM illustrates the relationships among different factors influencing Loan Defaulting Behaviour. The path coefficients suggest the strength and direction of these relationships. Clearly Materialism has the strongest direct effect on Loan Defaulting Behaviour (0.835), which implies that higher materialism. Financial Stress is considered as the mediating variable but is has a relatively weak impact on Loan Defaulting Behaviour (0.009), suggesting limited mediation. Financial Literacy negatively impacts Financial Stress (-0.093), suggesting that better financial literacy reduces financial stress. Indebtedness and Emotion have minor positive effects on Financial Stress (0.093 and 0.053, respectively), whereas Crisis Situation has a small direct influence on Loan Defaulting Behaviour (0.040). Overall, the model highlights Materialism as the most significant predictor of loan defaulting, with other variables playing supporting roles.

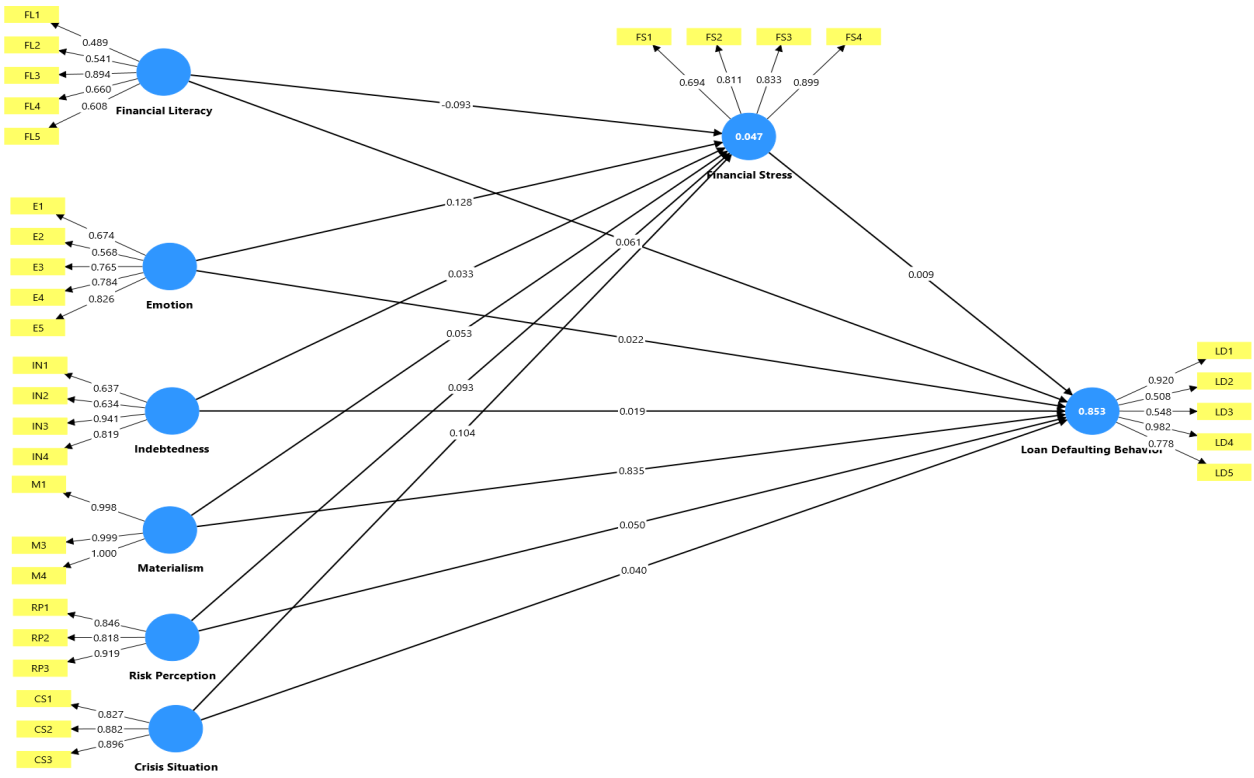

Figure 2: Structural Equation Model

Indicator Reliability: The item loadings serve as an important measure of indicator reliability. The acceptable threshold for indicator reliability is 0.708. In this study, the item loadings range from 0.489 to 1.000, indicating that some indicators fall below the recommended threshold. Specifically, FL1 (0.489) and FL2 (0.541) have lower loadings, suggesting possible measurement issues. However, most indicators meet the required reliability standard.

Internal Consistency Reliability: Cronbach's Alpha values, which measure the internal consistency of constructs, exceed the acceptable threshold of 0.7 for all constructs. The Composite Reliability (CR) values also support internal consistency, as they exceed 0.7 across constructs.

Convergent Validity: Convergent validity is assessed using the Average Variance Extracted (AVE), which should exceed 0.5. Only for Financial Literacy, AVE = 0.427 which does not meet the minimum threshold, indicating low convergent validity.

***Table 4**: Construct Reliability and Validity*

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Crisis Situation	0.840	0.870	0.902	0.755
Emotion	0.779	0.808	0.848	0.532
Financial Literacy	0.708	1.043	0.781	0.427
Financial Stress	0.830	0.876	0.885	0.661
Indebtedness	0.801	1.275	0.849	0.591
Loan Defaulting Behavior	0.827	0.971	0.873	0.595
Materialism	0.790	0.999	0.898	0.748
Risk Perception	0.826	0.837	0.896	0.742

Discriminant Validity: The discriminant validity was assessed using the Heterotrait-Monotrait (HTMT) ratio. The HTMT values among constructs are within acceptable ranges, confirming that the constructs are distinct from each other.

***Table 5**: HTMT Matrix*

	Crisis Situation	Emotion	Financial Literacy	Financial Stress	Indebtedness	Loan Defaulting Behavior	Materialism	Risk Perception
Crisis Situation								
Emotion	0.129							
Financial Literacy	0.212	0.440						
Financial Stress	0.138	0.184	0.076					
Indebtedness	0.195	0.348	0.472	0.107				
Loan Defaulting Behavior	0.269	0.303	0.700	0.106	0.532			
Materialism	0.193	0.252	0.691	0.071	0.547	0.885		
Risk Perception	0.198	0.304	0.252	0.165	0.203	0.269	0.171	

Structural Model Assessment

The bootstrapping model evaluates the statistical significance of path coefficients by generating multiple resamples. In this model, paths with values close to zero indicate that the relationships may be less statistically significant, as seen in Financial Literacy → Financial Stress (0.309) and Indebtedness → Loan Defaulting Behavior (0.517). However, stronger paths, such as Emotion → Loan Defaulting Behaviour (0.689), suggest a more substantial impact. The bootstrapping results help determine whether these relationships hold across different samples, reinforcing the reliability of significant paths while questioning the validity of weaker ones.

Collinearity Assessment: Variance Inflation Factor (VIF) values were examined to check for collinearity issues. Since VIF values of all the variables are below the critical value of 5, collinearity is not a concern in this study.

***Table 6**: Collinearity statistics*

Item	VIF
CS1	2.002
CS2	1.840
CS3	2.538
E1	1.369
E2	1.253
E3	1.523
E4	1.585
E5	1.796
FL1	1.210
FL2	1.264
FL3	1.338
FL4	1.322
FL5	1.305
FS1	1.480
FS2	1.645
FS3	2.139
FS4	2.412
IN1	1.472
IN2	1.502
IN3	1.801
IN4	1.985
LD1	4.840
LD2	2.016
LD3	.863
LD4	4.118
LD5	1.980
M1	3.088
M3	4.398
M4	1.511
RP1	1.832
RP2	1.873
RP3	2.626

Path Coefficients and Hypothesis Testing: Path coefficients indicate the strength and direction of relationships between constructs. All paths were assessed for significance using bootstrapping, and relationships with p-values below 0.05 are considered significant.

Table 7: *Hypothesis Testing*

	Path coefficients
Crisis Situation -> Financial Stress	0.104
Crisis Situation -> Loan Defaulting Behavior	0.040
Emotion -> Financial Stress	0.128
Emotion -> Loan Defaulting Behavior	0.022
Financial Literacy -> Financial Stress	-0.093
Financial Literacy -> Loan Defaulting Behavior	0.061
Financial Stress -> Loan Defaulting Behavior	0.009
Indebtedness -> Financial Stress	0.033
Indebtedness -> Loan Defaulting Behavior	0.019
Materialism -> Financial Stress	0.053
Materialism -> Loan Defaulting Behavior	0.835
Risk Perception -> Financial Stress	0.093
Risk Perception -> Loan Defaulting Behavior	0.050

Coefficient of Determination (R-squared, R^2): The R^2 values in the model indicate the proportion of variance explained by the independent variables. The overall R-squared value came out to be 0.853 suggesting that the 85% probability of loan default among individuals is caused by the independent and mediating variables considered in the study and remaining 15% is due to other unknown reasons. Crisis Situation (0.755), Financial Stress (0.661), Materialism (0.748), and Risk Perception (0.742) show strong explanatory power. Emotion (0.532), Indebtedness (0.591), and Loan Defaulting Behaviour (0.595) demonstrate moderate variance explanation, while Financial Literacy (0.427) has a weaker impact. These values highlight the strong influence of certain financial and psychological factors on loan defaulting behaviour.

Common Method Bias: VIF values below 3.3 suggest that common method bias is not a concern in this study. It can be concluded from the PLS-SEM analysis that the measurement and structural models demonstrate reliability and validity. While Financial Literacy has a lower AVE, the overall model exhibits good predictive power and statistical significance in hypothesis testing. Future research could refine the measurement model by addressing lower indicator loadings and AVE values.

Mediation effect: Financial stress has slight mediating effects on loan defaulting behaviour. Crisis situations, emotions and risk perception have negligible indirect effects, whereas financial literacy shows a bit of protective influence due to its negative value of indirect effect. On the other hand, materialism has the strongest total effect value on loan default behaviour and financial stress has minor direct impact.

***Table 8**: Indirect Effects*

	Specific indirect effects
Crisis Situation -> Financial Stress -> Loan Defaulting Behavior	0.001
Emotion -> Financial Stress -> Loan Defaulting Behavior	0.001
Financial Literacy -> Financial Stress -> Loan Defaulting Behavior	-0.001
Indebtedness -> Financial Stress -> Loan Defaulting Behavior	0.000
Materialism -> Financial Stress -> Loan Defaulting Behavior	0.000
Risk Perception -> Financial Stress -> Loan Defaulting Behavior	0.001

***Table 9:** Direct Effects*

	Total effects
Crisis Situation -> Financial Stress	0.104
Crisis Situation -> Loan Defaulting Behavior	0.041
Emotion -> Financial Stress	0.128
Emotion -> Loan Defaulting Behavior	0.023
Financial Literacy -> Financial Stress	-0.093
Financial Literacy -> Loan Defaulting Behavior	0.060
Financial Stress -> Loan Defaulting Behavior	0.009
Indebtedness -> Financial Stress	0.033
Indebtedness -> Loan Defaulting Behavior	0.019
Materialism -> Financial Stress	0.054
Materialism -> Loan Defaulting Behavior	0.836
Risk Perception -> Financial Stress	0.093
Risk Perception -> Loan Defaulting Behavior	0.050

05. Discussion and managerial implications

The findings from the analysis contribute significant results to the existing studies in behavioural finance and personal finance management. The relationships between financial literacy, emotions, indebtedness, materialism, risk perception, crisis situations, and financial stress with loan defaulting behaviour have been discussed in detail. The structural model confirms that financial stress acts as the mediating variable, linking financial literacy, emotions, and other factors to loan defaulting behaviour. Financial literacy showed a negative relationship with financial stress indicating that improved financial knowledge can reduce stress levels (Atkinson & Messy, 2012; Gutter et al., 2016). Meanwhile, variables like indebtedness and materialism had strong direct impacts on loan defaulting behaviour (Ponchio & Aranha, 2008). Emotions and crisis situations also significantly influence financial stress, emphasising on the psychological and environmental factors at play (Baklouti, 2015). The study examines the various behavioural factors that could influence any individual's likelihood to default on a home loan in urban regions of India. The findings match with those of Wang et al. (2020), who identified borrowers' psychological and behavioural characteristics as the main causes for the intention to default on loans in China.

The study's interpretations offer valuable insights for financial institutions, policymakers, and financial educators. Banks and lending institutions should focus on improving financial literacy programs for customers to lessen financial stress and ultimately reduce loan defaults (Aydin & Akben Selcuk, 2019). Educational initiatives that

emphasize financial planning, budgeting, and debt management can enhance consumer decision-making capabilities. Moreover, financial service providers should consider developing programs for individuals exhibiting high materialism and indebtedness tendencies, as they are more prone to default risks (Ponchio & Aranha, 2008). Policymakers can use the insights to design interventions that target psychological aspects like emotional stability and crisis preparedness to enhance financial resilience (Rahman et al., 2020).

5.1 Limitations and further scope of study

The study provides meaningful insights but some limitations must also be addressed. The sample size may restrict the application of the findings to larger populations. The data for study was collected using, which might lead to social desirability biases or recall errors. The cross-sectional nature of the analysis may also affect the causation of different factors. Future research can expand the present findings by exploring additional moderating variables such as personality traits, financial attitudes, or family dynamics. Exploring technological advancements like financial apps or AI-driven budgeting tools could offer further insights into strategies to mitigate financial stress and prevent loan defaults. Moreover, future studies can adopt mixed-method approaches to gain deeper qualitative insights into consumer behaviours, enhancing the understanding of the psychological and social factors driving financial decision-making. Extending the study to different demographic groups, such as low-income households or marginalized communities, could provide further actionable insights for improving financial stability.

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