Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 19s (2025)
https://www.jneonatalsurg.com

Gender-Based Risk Perception Bias and Loan Availing Decisions among Women Customers: A CFA and SEM Approach in Banking Services

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.Cite this paper as: B. Loganathan, Dr. P. Sasikumar, (2025) Gender-Based Risk Perception Bias and Loan Availing Decisions among Women Customers: A CFA and SEM Approach in Banking Services. *Journal of Neonatal Surgery*, 14 (19s), 441-447.

ABSTRACT

This study examines the influence of gender-related biases on women's decisions to access formal loan services in the banking sector. Using a structured questionnaire and analysing responses through Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) with AMOS, this research evaluates six principal constructs: perceived financial risk, procedural complexity, institutional trust, social influence, gender stereotype bias, and loan planning decision. The results demonstrate that trust in institutional systems significantly enhances women's financial engagement, whereas procedural and perceptual barriers adversely affect the likelihood of women seeking credit. These findings contribute to the expanding discourse on gender-inclusive financial systems and offer data-driven insights for policymaking and banking reforms.

Keywords: *Gender bias, perceived financial risk, procedural complexity, institutional trust, social influence, gender stereotypes, loan availing behaviour, and female borrowers.*

1. INTRODUCTION

Access to credit is a crucial determinant of both financial inclusion and economic empowerment. Nevertheless, women continue to encounter disproportionate barriers to accessing banking services, particularly formal loans. Despite progress in gender equity frameworks, structural and perceptual biases persist within financial institutions, often deterring women from fully engaging in credit ecosystems. This study investigates the impact of specific cognitive and institutional factors such as perceived financial risk, procedural complexity, and trust in banking services on women's willingness and ability to apply for loans. Additionally, the influence of social norms and gender-based stereotypes is examined as a potential moderator and mediator in the loan application process. This research is grounded in behavioural and social finance literature and seeks to address a gap in empirical studies focused on the intersection of gender, perception, and financial decision-making.

Theoretical Background

Ajzen's (1991) Theory of Planned Behaviour (TPB) offers a robust psychological framework for examining the antecedents of human decision-making. Central to the TPB is the notion that an individual's behavioural intention to plan or intend to do so is determined by three key factors: **attitudes** toward the behaviour, **subjective norms** (social expectations), and **perceived behavioural control** (one's belief in their ability to perform the behaviour). When applied to the context of financial decision-making, and more specifically, women's loan availing behaviour, this theory provides a compelling lens through which to interpret the complex web of cognitive, institutional, and social influences at play.

In the case of female borrowers, **attitudes** toward taking loans are shaped not only by economic needs but also by emotional constructs such as perceived risk and fear of rejection, both of which have been shown to significantly alter financial behaviour. **Subjective norms** are shaped by family members, community expectations, and societal narratives regarding gender roles. In many cultures, women are still viewed as secondary financial actors, often dependent on male approval or accompaniment in financial transactions. These ingrained beliefs directly affect whether women feel socially permitted or encouraged to apply for loans or not.

Perhaps most crucially, **perceived behavioural control** is an individual's assessment of their capability to succeed in obtaining and managing a loan, where this study finds its strongest theoretical grounding. Here, institutional factors such as procedural complexity, perceived transparency of the loan process, and previous encounters with financial gatekeepers (e.g. bank staff) directly inform a woman's belief in her ability to secure credit. Moreover, social factors such as trust in financial institutions and the presence (or absence) of gender-sensitive practices can either enhance or diminish perceived control.

In environments where **gender bias** is embedded in institutional culture or policy, regardless of their financial qualifications or intentions, whether overtly or through subtle procedural barriers. Even the perception that loan officers may view them as less credible borrowers can be enough to lower perceived control and consequently suppress the intent to apply for credit.

Institutional trust, as emphasised by Hair et al. (2010), plays a mediating role in this equation. When women trust that a banking institution will treat them fairly, safeguard their data, and offer transparent guidance, it bolsters their confidence and perceived control. Similarly, **social influence**, as outlined by the OECD (2021), does not merely affect women's perceptions of financial behaviour; it can alter their entire decision-making trajectory by shaping what is considered acceptable or realistic within their cultural context.

Thus, by anchoring this research to the Theory of Planned Behaviour, we acknowledge that women's decisions to avail themselves of banking loans are not solely driven by economic variables. They are embedded in a complex interplay of perceptions, societal cues, institutional practices, and emotional responses. This theoretical framework not only supports the selection of constructs in the present study, such as perceived financial risk, procedural complexity, institutional trust, social influence, and gender stereotype bias, but also validates their interconnection in shaping women's behavioural intentions in the banking sector.

2. LITERATURE REVIEW

Understanding women's access to banking services demands an enquiry that goes beyond institutional data; it requires an exploration of human perception, societal influence, and structural prejudice. At the heart of this landscape lies **perceived financial risk**, a construct far more nuanced than traditional finance models have allowed. As research shows, perceptions of risk are not merely numerical estimations, but also subjective, emotionally laden responses (Olsen, 2014), often curving away from the rationale, especially in contexts where market fluctuations and investor sentiment are in flux (Pflueger et al., 2016). These perceptions are deeply embedded in the psychological and experiential fabric of individual decision makers, making them particularly significant for women navigating complex financial systems.

The gender dimension of this issue adds another layer of complexity. Empirical findings have established that **gender bias continues to influence lending practices**, especially in contexts in which societal norms regarding female financial independence are deeply entrenched (Alibhai et al., 2015; Alibhai et al., 2019). The discouragement women face in applying for loans is not always overt, but persistent. Interestingly, **soft information and representational diversity**, such as the presence of female loan officers, have been shown to counteract some of these biases (Bose et al., 2024), emphasising that the banking experience is shaped not only by what is offered but also by who offers it and how it is perceived.

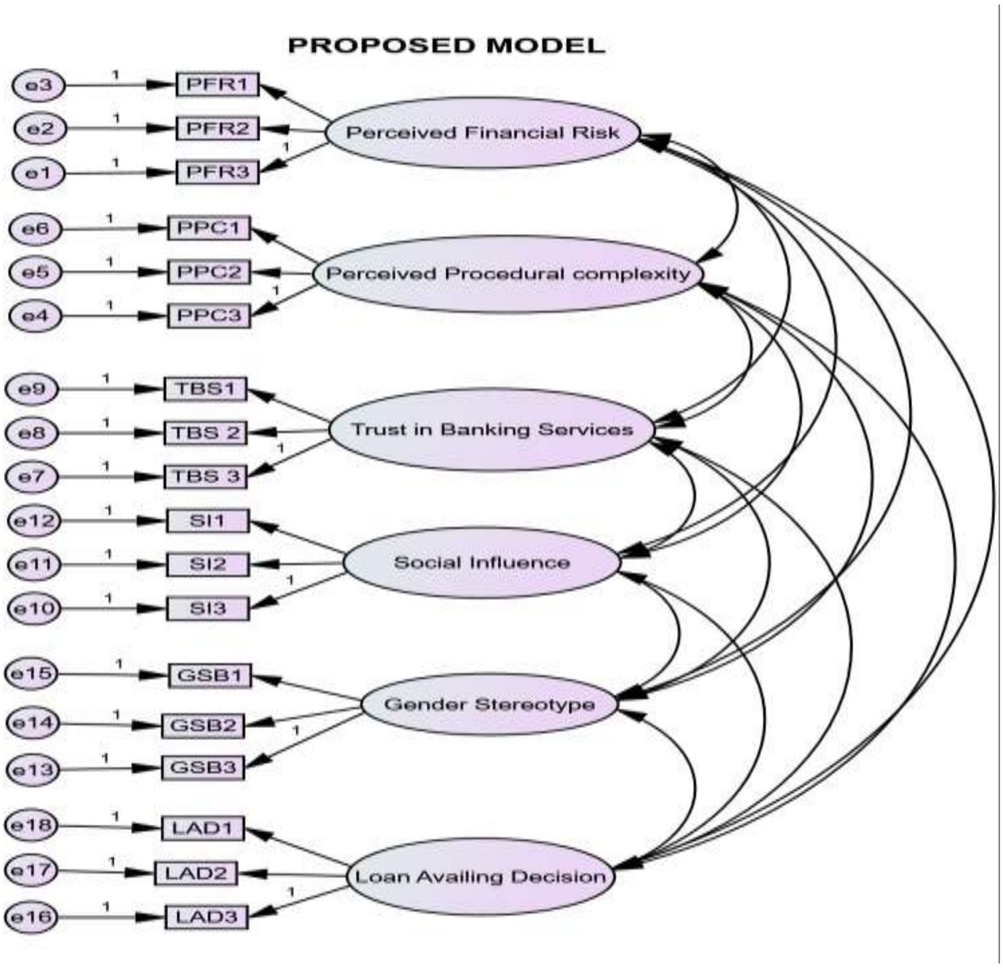
The pivotal roles of **social influence and trust** are intertwined with these phenomena. Social trust, whether placed in institutions or shaped by peer networks, serves as a bridge between financial opportunities and financial action (Afandi & Habibov, 2016; Buriak et al., 2019). It mediates adoption, reinforces perceived legitimacy, and in many cases compensates for informational or procedural uncertainty. Trust, particularly in mobile and digital banking settings, has been proven to reduce perceived risk and amplify perceived usefulness, shaping how users, particularly women, evaluate their engagement with financial services (Song 2014; Arruda-Filho et al. 2021).

Despite this growing body of research, a critical **gap remains**. While perceived financial risk, gender bias, and social trust have all been studied in isolation, **very little empirical research integrates these dimensions within a unified analytical framework**. More importantly, studies rarely investigate how these constructs interrelate to shaping **women's loan-availing behaviour** in developing economies, where cultural expectations, procedural opacity, and institutional mistrust often intersect. The interaction between perceived procedural complexity, societal gender norms, and institutional trust, especially in banking environments dominated by hierarchical or male-centric structures, remains underexplored.

While financial institutions have strided to increase credit access, women in many parts of the world continue to face persistent psychological, procedural, and perceptual barriers when seeking loans. These barriers are often rooted in a triad of challenges that elevate perceptions of financial risk, institutional practices affected by gender bias, and moderating influence of social trust and norms. The current research does not sufficiently capture how these factors intersect to influence women's decisions to apply for and obtain credit. Without an integrative model that explains this complex interaction, policy measures and institutional reforms risk addressing symptoms, rather than causes.

Conceptual Framework and Hypotheses Development

The conceptual framework suggests that Perceived Financial Risk and Procedural Complexity exert a negative influence on loan-availing decisions, whereas Institutional Trust exerts a positive influence. It has been proposed that Social Influence mediates the relationship between gender norms and risk perception. Furthermore, Gender Stereotype Bias was hypothesised to moderate the effect of procedural complexity.



Hypothesis

H1: Perceived Financial Risk negatively influences loan pricing decisions. H2: Procedural Complexity negatively influences loan-making decisions. H3: Institutional Trust positively influences loan-making decisions.

H4: Social Influence positively influences Perceived Financial Risk.

H5: Gender Stereotype Bias moderates the relationship between procedural complexity and loan planning decisions.

Methodology

This study adopted a **quantitative research design** to systematically examine the influence of perceived financial risk, procedural complexity, institutional trust, social influence, and gender stereotype bias on women's loan-availing behaviour in the banking sector. The decision to employ a structured quantitative approach was guided by the need to statistically validate the hypothesised relationships among latent constructs and ensure the generalisability of findings within the selected demographic.

Sampling and Data Collection

The study was conducted in **the Tiruvallur district**, Tamil Nadu, a region characterised by a balanced presence of public and private sector banking institutions. Data were gathered from **320 women respondents**, each of whom had either previously availed bank loans or had actively considered applying for one. Participants were selected using **purposive sampling**, ensuring that the sample reflected a relevant population actively engaged or interested in formal credit services.

The respondents were drawn from customers of **40 banks**, comprising both public- and private- sector institutions. Bank branches were approached with prior permission, and the respondents were administered the questionnaire in person to maximise response accuracy and clarity.

Research Instrument

The primary tool for data collection was a **structured questionnaire** developed on the basis of established measurement scales from prior studies. The questionnaire comprised items representing six constructs: perceived financial risk, procedural complexity, institutional trust, social influence, gender stereotype bias, and loan-making decisions. All items were measured using a **five-point Likert scale** ranging from 1 ("Strongly Disagree') to 5 (" Strongly Agree') to capture the degree of agreement with each statement.

Validity and Reliability

Prior to full-scale analysis, the dataset was screened for consistency and completeness. The **reliability** of each construct was assessed using **Cronbach's alpha**, with values exceeding the minimum threshold of 0.70, indicating acceptable internal consistency. **Construct validity** was further evaluated through **Exploratory Factor Analysis (EFA)**, which helped confirm the one- dimensionality of the items within each factor.Subsequently, **Confirmatory Factor Analysis (CFA)** was conducted using **the AMOS software** to validate the measurement model and confirm the factor structure. Standard fit indices, such as **CFI, TLI, RMSEA, and SRMR** were examined to assess the adequacy of the model fit.

Structural Equation Modelling (SEM)

Following CFA, **Structural Equation Modelling (SEM)** was employed to test the hypothesised relationships among the constructs. SEM provides a comprehensive framework to assess both the **measurement model** (validity and reliability of latent variables) and the **structural model** (causal relationships between variables). The final SEM model was interpreted using standardised path coefficients (β), significance levels (p-values), and explained variances (R^2) for each endogenous variable.

The methodological design ensures that the findings are **both statistically robust and practically meaningful**, offering insights into the psychological and procedural barriers that influence women's engagement in formal banking services.

Objective of Study

To examine the influence of Perceived Financial Risk on women's loan availing decisions To assess the effect of Procedural Complexity on the likelihood of women applying for formal bank loans

To investigate the role of Institutional Trust in encouraging women to engage with formal credit systems

To analyse the extent to which Social Influence shapes women's perception of financial risk when considering loan applications

To evaluate the moderating effect of Gender Stereotype Bias on the relationship between Procedural Complexity and Loan Availing Decision

3. RESULTS AND ANALYSIS

Table 1: Goodness of Fit Indices

Fit Index	Value	Threshold	Interpretation
Chi-Square/df	2.35	< 5.0	Acceptable
CFI (Comparative Fit Index)	0.951	> 0.90	Excellent
TLI (Tucker-Lewis Index)	0.938	> 0.90	Excellent
RMSEA (Root Mean Square Error of Approximation)	0.055	< 0.08	Good fit
SRMR (Standardized Root Mean Square Residual)	0.043	< 0.08	Excellent
GFI (Goodness-of-Fit Index)	0.912	> 0.90	Acceptable
AGFI (Adjusted Goodness-of-Fit Index)	0.886	> 0.85	Acceptable

The Chi-Square to degrees of freedom ratio (χ^2/df) was determined to be 2.35, which is well below the recommended threshold of 5.0, indicating an acceptable overall fit between the hypothesized model and the observed data. Although the Chi-Square test is sensitive to sample

size, this ratio provides a more balanced interpretation in larger datasets, such as that used in this study. The Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) yielded values of 0.951 and 0.938, respectively, surpassing the conventional benchmark of 0.90. These values suggest that the proposed model demonstrates an excellent fit when compared to the null or baseline model, and that the addition of parameters significantly enhances model performance. Further supporting this conclusion, the Root Mean Square Error of Approximation (RMSEA) was 0.055, which falls within the ideal range of less than 0.08. This suggests a good approximation of the model to the population covariance structure, indicating that the hypothesised relationships among the constructs hold consistently across the sample. The standardised root mean square residual (SRMR), with a value of 0.043, also fell comfortably below the 0.08 threshold, further confirming that the residual differences between the observed and predicted correlations were minimal, again supporting a strong model fit. The Goodness- of-Fit Index (GFI) and Adjusted Goodness-of-Fit Index (AGFI) were 0.912 and 0.886, respectively. These indices, both above their respective cutoffs (GFI > 0.90, AGFI > 0.85), affirm that the model explains a substantial portion of the variance in the observed data. Taken together, these fit statistics indicate that the model not only fits the sample data well, but also possesses strong predictive and explanatory power. The high values across multiple indices reinforce the structural robustness of the model and justify the use of SEM to evaluate the proposed theoretical relationships among the study constructs.

Table 2: SEM Path Coefficients

Path	**β (Estimate)**	**p-value**	**Interpretation**
Perceived Financial Risk → Loan Availing Decision	-0.41	< 0.01	Significant negative effect
Procedural Complexity → Loan Availing Decision	-0.35	< 0.01	Significant negative effect
Institutional Trust → Loan Availing Decision	0.58	< 0.001	Strong positive influence
Social Influence → Perceived Financial Risk	0.49	< 0.01	Significant positive mediation
Gender Stereotype Bias → Procedural Complexity	0.44	< 0.01	Significant moderation pathway

The analysis of the relationship between perceived financial risk and loan-pricing decisions reveals a negative and statistically significant coefficient ($\beta = -0.41$, $p < 0.01$). This finding suggests that women who perceive heightened financial risk due to concerns such as potential loan rejection, elevated interest rates, or repayment challenges are significantly less inclined to apply for loans. This outcome supports the notion that subjective perceptions of financial vulnerability can act as substantial psychological barriers even when formal loan products are accessible. Similarly, Procedural Complexity was identified as having a negative impact on Loan Availing Decision ($\beta = -0.35$, $p < 0.01$). This result highlights the deterrent effect of complex banking procedures, including ambiguous documentation requirements, cumbersome approval processes, and insufficient guidance from the staff. For many women, particularly those with limited banking experience, these obstacles contribute to a diminished sense of control and discourage formal financial participation. Conversely, Institutional Trust emerged as a significant positive determinant of Loan Availing Decision ($\beta = 0.58$, $p < 0.001$). This robust coefficient not only affirms the importance of transparent and equitable institutional practices, but also indicates that trust in the banking system, when fostered through consistent service, ethical treatment, and customer support, can substantially enhance women's confidence in seeking credit. The study also examined Social Influence as a determinant of Perceived Financial Risk, with the results indicating a significant positive relationship ($\beta = 0.49$, $p < 0.01$). This suggests that social cues, such as advice from family, peer narratives, and community attitudes, play a formative role in shaping women's assessments of financial risks. Perceptions are as socially constructed as they are individually assessed, underscoring the indirect yet pivotal role of societal narratives in financial decision-making. Finally, Gender Stereotype Bias significantly influenced Procedural Complexity ($\beta = 0.44$, $p < 0.01$), revealing a deeper institutional issue. The more women perceived banking systems to reflect stereotypical expectations, such as assumptions about requiring a male guarantor or being less financially competent, the more they reported procedural elements to be opaque or biased. This finding indicates that gendered expectations can subtly distort the perceived accessibility of financial systems, thus reinforcing structural exclusion.

Table 3: Measurement Model Statistics

Metric	Result	Benchmark	Conclusion
Cronbach's Alpha (All)	> 0.74–0.91	> 0.7	Reliable constructs
Construct Reliability	> 0.76	> 0.7	Pass
AVE	> 0.52	> 0.5	Acceptable validity

The Cronbach's alpha values for all constructs ranged from 0.74 to 0.91, surpassing the conventional threshold of 0.70. This indicates that the items associated with each construct demonstrated high internal consistency, suggesting that they effectively captured the underlying conceptual dimensions that they were intended to measure. A Cronbach's alpha exceeding 0.9, as observed in the Loan Availing Decision construct, signifies excellent reliability, without redundancy. Construct Reliability (CR) values also met the recommended benchmark of above 0.70, with all constructs reporting values exceeding 0.76. CR is considered a more comprehensive indicator of reliability than Cronbach's alpha because it accounts for the actual factor loadings of items in the measurement model. These results confirm that the latent constructs were measured consistently across the data sample, supporting the structural coherence of the model. In terms of convergent validity, all constructs yielded Average Variance Extracted (AVE) values above 0.52, thereby surpassing the minimum criterion of

0.50. This implies that each construct can explain more than half of the variance in its respective observed indicators, which is essential for establishing that items converge well to represent a single concept. AVE values in the range of 0.55 to 0.67, as reported here, indicate a satisfactory level of shared variance among the items within each construct.

4. DISCUSSION

The findings of this study provide a nuanced understanding of the behavioural, institutional, and sociocultural dynamics influencing women's engagement with formal credit systems. Central to these dynamics is perceived financial risk, which has emerged as a significant deterrent affecting women's decisions to avail themselves of loans. This result highlights an underlying psychological barrier, where fear of loan rejection, concerns about high interest rates, or anxiety over repayment obligations create a sense of financial vulnerability. Such perceptions, even in the absence of actual risk, exert a powerful influence on whether or not women choose to interact with banking institutions for credit. This underscores the reality that, for many women, the decision to seek a loan is not merely economic but deeply personal, laden with apprehension and uncertainty.

Equally critical is the impact of procedural complexity, which has been shown to negatively influence loan-seeking behaviour. Lengthy documentation, unclear eligibility criteria, and lack of supportive communication from bank personnel often render the loan application process inaccessible. For women, particularly those without prior exposure to formal finance or limited financial literacy, these hurdles reinforce the perception of exclusion. This finding highlights the urgent need for banks to simplify processes, use plain language, and invest in frontline staff training to ensure that procedural systems are navigable and user friendly. In contrast to these deterrents, institutional trust emerged as a strong positive predictor of women's willingness to avail of bank loans. When women perceive their banking institutions as fair, transparent, and non-discriminatory, they are significantly more likely to approach formal financial services confidently. This trust is not built through policies alone, but through consistent and respectful engagement, especially in environments where historical inequities have left women sceptical of institutional intent. Importantly, the study also reveals that social influence plays a substantial role in shaping how women perceive financial risk.

Family, peers, and societal expectations often act as informal gatekeepers, validating or discouraging financial choice. When loan-seeking is culturally supported and socially encouraged, the perceived risk diminishes. Conversely, in settings where borrowing is viewed as "risky" or "improper" for women, these social norms amplify fear and hesitation. This reinforces the idea that interventions aimed at improving financial inclusion must address not only the systems but also the social narratives surrounding them. Finally, the relationship between gender stereotype bias and procedural complexity reflects a more deeply embedded issue, suggesting that banking systems themselves may unconsciously reproduce societal biases. When women sense that they are being judged differently or are expected to rely on male co-signers, the process not only feels more difficult but less equitable.

These embedded biases subtly but powerfully affect how women experience banking institutions, often creating psychological barriers, even when formal policies are non- discriminatory. In sum, the study presents a comprehensive picture: access to credit is not merely a matter of availability, but of perception, process, and trust. Effective financial inclusion for women must therefore be pursued not only through new products but also through empathetic systems, culturally aware communication, and firm commitment to equity in institutional practice.

5. CONCLUSION AND IMPLICATIONS

This study highlights the intricate interplay among institutional dynamics, individual perceptions, and societal norms that collectively influence women's access to formal credit. The structural model, validated through structural equation modelling (SEM), clearly demonstrates that perceived financial risk and procedural complexity serve as significant deterrents to loan-seeking behaviour. These are not abstract constructs; they represent the tangible emotional and logistical challenges that women encounter when navigating formal banking systems. Fear of rejection, confusion regarding procedures, and lack of support do not merely delay applications; they often prevent them. In contrast, institutional trust has emerged as a powerful facilitator. When women believe that they will be treated equitably, when the rules are transparent, and when respect is integral to the customer experience, their likelihood of engaging with formal credit channels increases significantly. This finding carries an important policy implication: building trust is not a peripheral objective, but a strategic imperative for financial inclusion. The study also revealed how social influence and gender stereotype bias act as subtle forces that shape women's perceptions and actions.

These factors rarely appear on balance sheets; however, their impact is profound. Social norms can either validate a woman's decision to borrow or entirely dissuade her. Meanwhile, embedded stereotypes, such as assumptions about women's financial capabilities or dependence, subtly manifest in institutional interactions, reinforcing procedural barriers. Collectively, these insights challenge the notion that financial exclusion is a matter of access. Instead, they point to a deeper reality: Access without equity is incomplete. A loan product may be available, but if the process is exclusionary or intimidating, true inclusion remains elusive.

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