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Gender Influence on the Relationship between Financial Behavior and Financial Literacy of University Students

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Abstract: The present study emphasize show the association between financial behavior and financial literacy level is influenced by the gender of college students. The sample size of 538 (285 (52.9%) male and 253(47.1%) female)) students were selected for this study from various colleges in Delhi and NCR.A well-structured questionnaire was designed based on 5 points Likert scale to assemble the data. The relationship between variables in the study was determined by confirmation factor analysis and structural equation modeling. To assess the gender-based differences in participants' estimations, a multi-group analysis was also conducted. Using data from student samples, it is found that financial behavior and financial literacy level of students exhibit a favorable and significant relationship. The critical ratio test and regression weights in path analysis indicate that the financial behavior is positive and significant (p***<0.01). The result of the pair-wise parameter comparison (based on the critical ratio for the difference between parameters) indicates that the value between males and females is found to be 6.299. The result supports that there is anassociation between the level of financial literacy and financial behavior that is influenced by gender differences.

Keywords: Financial Literacy; financial behavior; confirmatory factor analysis (CFA); structural equation modeling (SEM); Multi-group analysis.

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1. Introduction

The financial atmosphere is changing day by day and it is becoming difficult to understand the financial environment for individuals as well as for financial organizations. There has been an increase in the extravagance of borrowing and spending due to the easy accessibility of credit facilities. Due to this, there exists misconduct of financial resources. The cost of living has increased due to inflation and unnecessary demands for goods and services. Comparison arises among people, as compared to their colleagues. In such situations, when the desires are increasing without a corresponding increase in income and credit is easily available, people are not protected. They are moving towards the risk of financial misbehavior. Because of this, the number of credit card defaulters is increasing and the majority of them are the youth of the country. India is even not set aside from this disturbing expansion. In India Rs.25000 Cr. credit card defaulters of age group 21 to 45 were present before the lockdown. This gloomy figure is a matter of concern.

One's financial wellbeing and that of his family are strongly affected by financial literacy. An individual is exposed to financial risk if he is not able to manage the funds efficiently. Braunstein & Welch (2002) observed that financial literacy reduces the risk of being deceived in the decisions related to investment. Financial literacy helps people to make sound financial decisions. They will be able to manage their income, expenses, savings, and investments efficiently. "The large number of studies that were carried out all across the world reported that the financial literacy level of individuals is very low (Lusardi and Mitchell, 2011; Atkinson and Messy, 2012)".

The financial literacy level varies from person to person based on their age, gender as well as education level (Lusardi and Mitchell, 2011). "In several studies, a substantial difference in the financial literacy level of male and female participants was observed (Atkinson and Messy 2012, Chen and Volpe 1998)". The financial literacy of female participants didn't match that of male participants, largely because female participants are even under qualified or don't work in formal employment (Roy & Jain, 2018). Singh and Kumar (2017) and Roy and Jain (2018) reported that women are unable to differentiate among saving, insurance, and investment products, due toa lack of financial knowledge. As such, financial literacy depends more on gender than on so many other demographic factors. So, in this study, we have recognized that gender might have a significant impact on our ability to measure the association between financial behavior and financial literacy.

1.1 **Review of Literature**

1.1.1 ***Financial Literacy***

Financial literacy means the understanding and capability to take well-informed financial decisions. There is no precise meaning of financial literacy. Different researchers defined financial literacy in different manners. "According to AI –Tamini and Bin Kalli (2009) and Yoong See, and Baronovich (2012) financial knowledge, financial literacy, and financial education are the same thing and can be used interchangeably. But Huston (2010) contended that financial education and financial knowledge are the only two components of financial literacy. The Organization for Economic Co-operative and Development (OECD) 2013, defines financial literacy as a combination of ability, alertness, assertiveness, behavior, and knowledge which are essential to take comprehensive financial choices for the financial welfare of an individual". The main concern is to identify which of the three components- attitude, knowledge, or behavior is influencing the financial literacy level at the most.

1.1.2 ***Financial Behavior – The Most Significant Component***

To understand financial behavior, it is necessary to grasp the concept of financial attitude and knowledge. The financial attitude of a person depends upon the level of interest shown by him towards financial issues. "Bhushan and Medury (2014) established that the financial literacy level can be increased with the development of positive financial attitude. The studies established an association between financial attitude and financial behavior of youth (Kasman, Herburger& Hammond, 2018)". The positive attitude of the youth towards money management has a major impact on their financial behavior and eagerness to enhance the financial literacy level. "On the other hand, the negative attitude will harm their financial behavior (Sohn,Joo, Grable, Lee & Kim,2012). Thus, it has been concluded that the financial attitude influences the financial behavior and determines the financial literacy level of an individual".

Individuals' financial behavior depends on their level of financial knowledge. An individual will take the risk when the level of financial knowledge increase (Amgir, Groot, Maassen Brink and Wilschut (2018). Howlett et al (2008) found that those who have financial knowledge are financially competent and manage their finances with positive financial behavior. Individuals' financial attitudes and behaviors are strongly influenced by their financial knowledge both as objects as well as subjects. "Robb & Woodyard (2011) observed that financial knowledge is an important component to define the level of financial literacy and financial behavior".

According to Bhushan &Medury (2014), financial behavior means the behavior of an individual towards financial matters like planning, budgeting, and controlling finances, savings, investments, payment of bills, and so on. A positive financial behavior results in an improvement in financial well-being as compared to negative financial behavior which leads to dependence on credit or loans (Atkinson & Messey(2012). There will be more financial inclusion as a result of positive financial behavior (Banerjee, Kumar & Philip (2017). A positive financial behavior serves as an important factor in improving one's financial literacy level (Bhushan & Medury, 2014)."According to OECD (2013), financial behavior is the most important constituent of the financial literacy". Therefore, the null hypothesis can be formulated:

H1: There is no significant relationship between the students' financial behavior with their level of financial literacy.

1.1.3 ***Gender and Financial Behavior***

There exists dissimilarity in the financial behavior of individuals based on gender. According to OECD (2013), women are good at budgeting and keeping a record of funds but their financial behavior is not appropriate due to a lack of financial knowledge. Women are unable to take their investment and saving decisions for which they mostly depend upon their friends and family members (Lusardi, 2006). The study by Dwivedi Purohit and Mehta (2015) concluded that the financial understanding of men is better than women. Women's financial attitude is better than men'sbut lacks enough financial knowledge and financial behavior. Thus, it is important to study whether any difference exists in the financial behavior of college students based on their gender. So, the following null hypothesis is formulated:

H2: The difference in gender does not affect the association between college students' financial behaviors and their financial literacy levels.

2. Methods

2.1 Rationale of the Study

By extending previous research, the present work illustrates the association between college students' financial behavior and their level of financial literacy in several distinctive ways.Financial behavior is tested empirically for its direct influence on financial literacy. This study also examines the effect of gender on the relationships between financial behaviors and financial literacy variables.

2.2 Research Design and the Sample

Convenience random sampling has been used to collect the data from different colleges ofDelhi/NCR. A well-structured questionnaire was distributed to different colleges. Though, we distributed approximately 750 questionnaires to the students that only 538 responses were found to be useful for the analysis(Response rate of 71.73%). Detailed demographic information about the sample can be found in Table-1:

Table 1: Detailed Demographics

Feature	Number	%
Gender		
Male	285	52.9
Female	253	47.1
Domicile		
Rural	113	21
Urban	425	79
Courses		
Arts	49	8.9

Commerce	200	37.2
Science	52	9.7
Engineering	209	38.8
Management	29	5.4

The research sample consists of 285 (52.9%) males and 253(47.1%) females. 425 students(79%) belong to the urban background while 113 (21%) belong to the rural background. The educational background of the students indicates that 38.8% are from engineering while 37.2% are from the commerce background. The rest of the students are from the arts, science, and management field. Two scales have been developed for the study. Financial literacy is one of the dependent variable in this study, which is measured according to the earlier scales with some modification (Chen and Volpe (1998) and Jump Start Coalition (2004)). "Shockey (2002) and the OECD (2013) development scales were used to measure financial behavior, which is an independent variable". The questionnaire has 18 questions related to financial literacy and 16 questions for measuring financial behavior based on Likert's 5 points scale. For measuring financial literacy, statements linked to investment, general financial knowledge, savings, and money management skills were included whereas the financial behavior was measured by incorporating statements related to financial planning behavior, budget behavior, financial activity behavior, bill payment behavior, etc. in the questionnaire.

In this study, investigative and expressive research designs have been used. The hypotheses are formulated based on investigative design, whereas, the hypotheses are tested basis on expressive design. For testing, the level of significance was set at 5%. The factor analysis and reliability analysis were performed for scale development and tool standardization. The KMO (Kaiser-Meyer-Olkin) was used to measure sample adequacy and percentage of variance for factor analysis. CITC and Cronbach's alpha values are considered for reliability analysis. Based on the acknowledged threshold, Cronbach's Alpha minimum value of 0.70 and a CITC more than 0.50 values were considered to finalize the online questionnaire survey items for the hypotheses testing. The reliability of the questionnaire is high in the study as the alpha value was above 0.70 for each of the constructs/latent variables.

2.3 **Reliability Testing**

The Cronbach's Alpha values for financial literacy and financial behavior are 0.782 and 0.785 respectively. The composite reliability of financial literacy and financial behavior constructs are 0.7739 and 0.812028. So, it might be concluded that all the constructs meet the requirement of internal consistent reliability. As CITC value for all the items of financial literacy and financial behavior are more than 0.500, which ensures their internal reliability. Table 2 presents the findings of the reliability analysis, as well as the factor analysis:

Table 2: Reliability and Factor Analysis for FL(Financial literacy) and FB(Financial Behavior)

Variable	Cronbach's Alpha	KMO test	No. of Items	% of Variance
Financial Behavior	.782	.892	4	54.163%
Financial Literacy	.785	.871	4	54.789%

Table 3: Provides the correlation matrix and DV(discriminant Validity) between financial literacy and financial behavior. Both the variables are positively associated with each other.

Table 3: Correlation Matrix and Discriminant Validity

Variable	Financial Literacy	Financial Behavior
Financial literacy	1 (Discriminant Value=0.747)	
Financial behavior	0.437	1 (Discriminant Value=0.73)

2.4 **Structural Equation Modeling**

We perform a path analysis to determine the relationship between financial literacy and financial behavior. Our model is based upon the principle of regression and confirmatory factor analysis. SEM examines the direct influence of detected variables to decide the latent construct. Apart from this, the differences in financial literacy of males and females were also examined. For this purpose, the multi-group analysis and critical difference are used to examine whether there are any differences due to gender.

Null Hypothesis

H1 - There is no significant relationship between the students' financial behavior with their level of financial literacy.

H 2- The difference in gender does not affect the association between college students' financial behaviors and their financial literacy levels.

3. Results and Discussion

This study is designed to determine the impact of financial behavior on financial literacy among college students in Delhi/NCR. Among college students, a favorable and significant correlation exists between financial behavior and financial literacy, indicating financial behavior is a critical element of financial literacy. For verification of the factor of the variables, the validation of each construct was checked by confirmatory factor analysis. The objective of conducting confirmatory factor analysis was to check the outcomes of exploratory factor analysis. The measurement model was further developed based on construct finalized by the confirmatory factor analysis. For good model fits, all the essential model fit indices like Goodness of Fit (GFI), Adjusted GFI(AGFI),TLI,CFI,NF and RMSE were used. For each construct under the CFA, the minimum CMIN/DF was obtained. Table 4 shows the CFA results for financial behavior and financial literacy as different model fit indices and figure 1 shows the regressions between the different constructs and their factors. The AMOS output indicators approve that all the variables satisfy the goodness of fits. As a result, no changes are required in the analysis.

The chi-square value is also found to be insignificant which shows that the model is fit for both constructs. The analysis of the model fit indices shows that the CFA is a good fit model. The reliability and validity of the model are also examined which is represented in Table 5.

Table 4: Measurement of Model of Different Constructs

Variables	AGFI	GFI	RMSEA	CMIN/df	NFI	IFI	TLC
Financial Behavior	0.996	0.978	0.47	2.199	.993	.996	.988
Financial Literacy	.999	.994	.026	1.373	.998	.999	.998

Table 5: Summary of CFA

Variables	Label	Standardized Factor Loading	CR	AVE	Discriminant Validity
FL	FL 1 FL 4	0.966 0..609	0.812021	0.5562	0.747

	FL 6 FL 7	0.979 0.386			
FB	FB-1 FB-2 FB-3 FB-4	0.73 0.74 0.73 0.58	0.7739	0.533167	0.731

3.1 **Model Fit**

The effects of college students' financial behavior on their financial literacy level using structural equality modeling (SEM) were also examined, as shown in Figure 2. The values of Table 4 are more than 0.90 which satisfy the conditions of the model fitness. Even the values of CMIN/df are fewer than the suggested value, therefore, represent the better fits of the data.

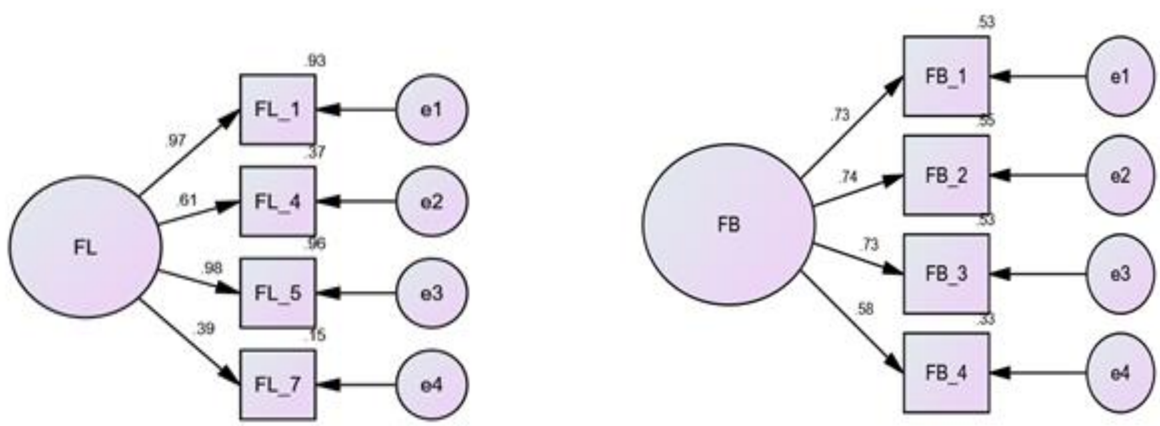

Figure-1 Assessment Model of FL(Financial Literacy) and FB(Financial behavior)

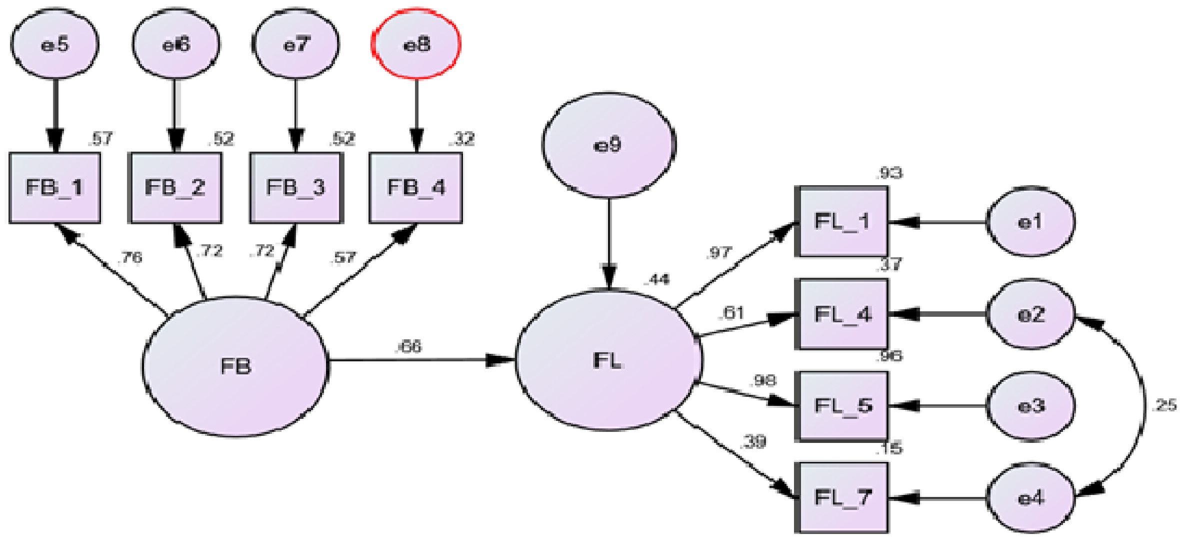

Figure 2: Path analysis of FL(financial literacy) and FB(Financial Behavior)

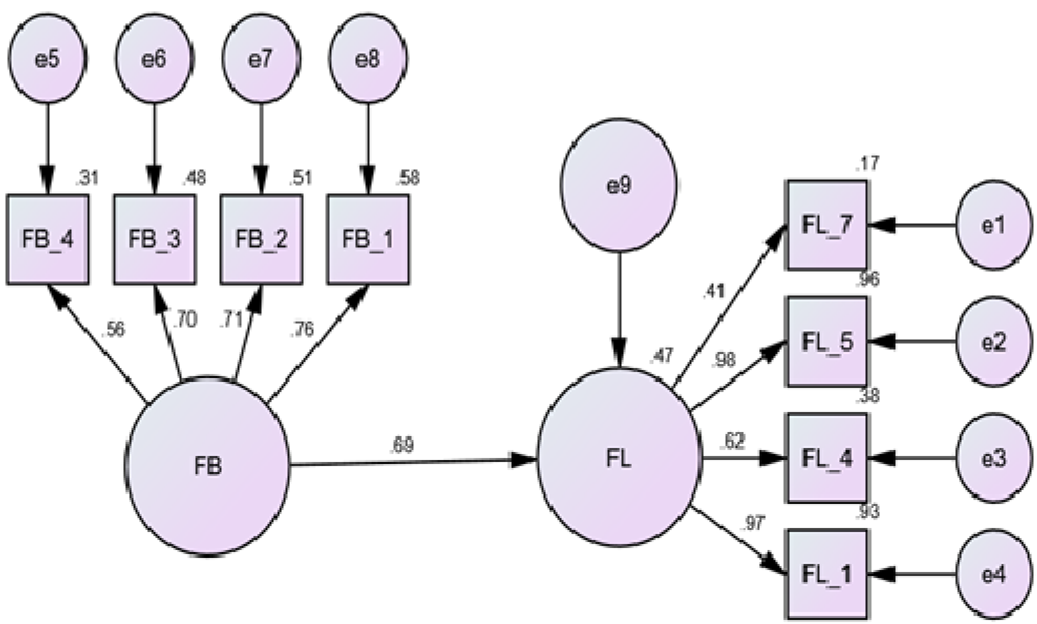

Figure3: Structural Model for Gender –Male

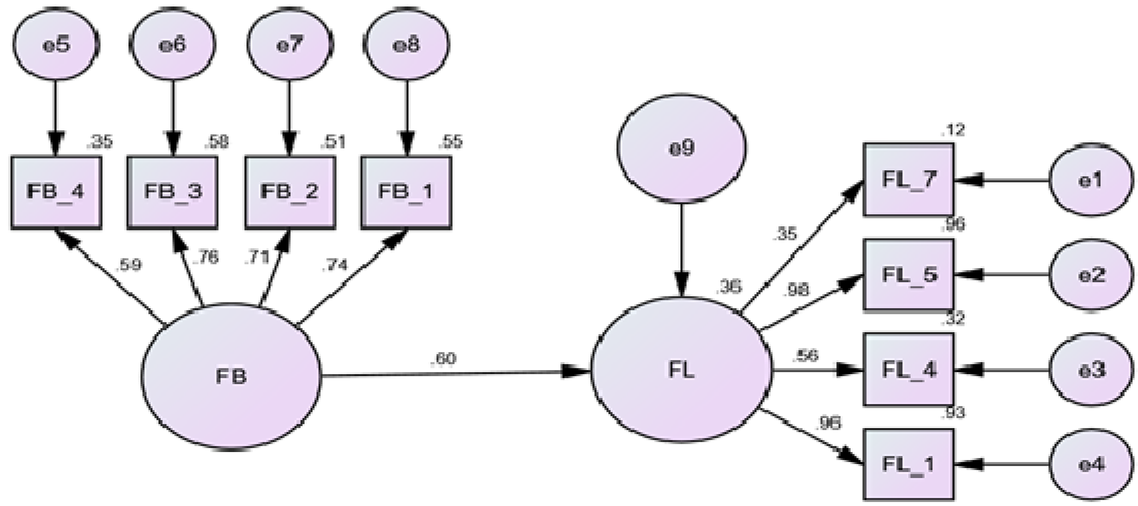

Figure 4: Structural Model for Gender- Female

3.2 **Path Analysis**

The path analysis is performed in AMOS to determine the association among the variables under study. The critical ratio test and regression weights indicate that the financial behavior is positive and significant (p***<0.01) and there is a correlation between the financial behavior and the financial literacy level of the college students (Table 6).

Table 6: Standard Regression Estimates: Independent Variable->Dependent variable

Direct Path	Estimates	S.E	C.R.	P
Financial literacy<- -- Financial Behavior	0.66	0.090	13.487	0.001

The standard regression estimate between financial behavior and financial literacy is found to be 0.66 which indicates that if there is a change in financial behavior by 1 SD then, the financial literacy will also change by 0.66 % SD. The low value of standard error (0.09) indicates the same that the sample belongs to the selected population and the size of the sample is sufficiently large enough. The critical ratio (CR=13.487) is > 1.96, thus, in the 5% level of significance, it is evident that the covariance between FL(financial literacy) and FB(financial behavior) differs substantially from zero. Thus, the findings of our study support the H1 hypothesis.

To test the H2 hypothesis, a multi group analysis was conducted to determine the differences in the estimated gender of the study participants. In the case of male participants, the impact of financial behavior on financial literacy is 51.9% and this is significant with a p-value (****<0.001) whereas, in the case of female participants, the impact is 40.8% with a p-value (***<0.001). The square multiple correlation values in the case of the male are .471 indicating that 47% variation in FL level is explained by FB, whereas,35.8% variation is explained for female participants.

Table7: Standard Regression Estimates Gender Wise:

Independent Variable->Dependent Variable

Direct path	Estimates	S.E	C.R.	P
FL<--------FB (Male Participants)	.519	.085	6.106	0.001
FL<-----------FB (Female Participants)	.408	.106	3.865	0.001

The result of the pair-wise parameter comparison (based on the critical ratio for the difference between parameters) indicates that the value between males and females is found to be 6.299. The critical value for acceptance of the null hypothesis is +1.96 to -1.96 indicating the rejection of the null hypothesis. According to the study's results, male and female financial literacy assessments differ significantly. Financial behavior has a greater impact on financial literacy among males than females. The results are consistent with other studies indicating the same results(Azeer and Akhtar, 2020).The reason is that most of the financial decisions are taken by males in Indian households. The females are having awareness regarding all financial literacy but their risk-taking capacity is low as compared to male members in the family. The results provide that to have a direct effect on financial behavior among females, various programs should be initiated by the government for enhancing the level of financial literacy.

4. Conclusion

According to the findings, financial behavior is considered an important tenet of financial literacy. Students will develop a higher level of financial literacy if they have a high level of financial knowledge and financial behavior. The influence of financial behavior on financial literacy differs significantly different between the views of men and women. The reason for this is that most financial decisions in Indian households are made by men. Women know all financial literacy well, but their willingness to take risks is low compared to male family members. The main reason is dependency; women depend more on their families to make decisions. Financial behavior has a greater impact on financial literacy among males than females. This research offers an insight and implications to be considered for enhancing the financial literacy level of college students. The study can contribute and support the measures taken by the government to develop positive financial behavior among college students. Ultimately we can say that financial behavior is a crucial and fundamental part of financial education.

5. Limitation and Future Scope of Study

There are limitations about the data in the current study, and there are also opportunities for research in the future. The study has selected college students in Delhi/NCR, which can be extended to more cities of Tier –I & II categories. Increased data size and more participation of students can help in understanding more about the financial behavior and financial literacy level. The research also focused only on the impact of gender on financial literacy level. The impact of socio-economic status, parental education, domicile, and education level can also be studied to have a deeper understanding of financial literacy.

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