

MODELING THE FACTORS AFFECTING FINANCIAL LITERACY OF INVESTORS USING ISM AND MICMAC APPROACH

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Abstract

In today's financial environment, the financial literacy does not only advantage the individual or group of investors in taking the creative decision with bearing lowest risks but it also offers huge benefits to the nation as well because the country's whole economic and social welfare depend on the development of it. This study includes demographic factors such as gender, age, education qualification, nature of occupation, income level, marital status and family size. It is also very important to know that how much an investor can bear the risk, risk value may fluctuate it can be either high and low or it be mediocre, intensity of risk defines what decisions investor is going to take. This paper points out the factors that have significance in the procedure of decision making. The study also contains the information that can help the investigators in future.

Keywords:

Financial Literacy, Investors, ISM Model, MIC-MAC

1. INTRODUCTION

Financial literacy can be stated as accepting of financial concepts to minimize risk and approach for better opportunities among various alternatives. It helps an individual to administer their money, make better selections in investments and set up the same business portfolios. Financial literacy has been experimental as a broader concept due to difficult market fluctuations; it is very complex to make an investment decision. Insufficient financial knowledge and understanding put the investors in a condition to invest without focusing on the risk and long run profits. It helps investors who have not enough resources but try to gain more advantages from their inadequate resources [15].

Investment decision is a process which involves one or more individuals. It depends on the situation of a person that rely on financial knowledge, size of risk, logical reasoning which based on the approach, past experiences, judgments and perception. When elements are clear individual will take preventive measures to avoid risk in the future, to knowing about the factors which have huge significance and relationship in financial decisions is an extremely important aspect for an individual investor or for the development of an economy.

1.1 WHAT IS FINANCIAL LITERACY?

Financial literacy is the aptitude to understand and successfully apply in various financial skills, which includes personal financial management, budgeting, and investing. Financial literacy helps one or another individual to become a self-sufficient so that they can accomplish financial stability.

Financial literacy also includes the skill of financial principles that are financial planning, compound interest, managing debt and the time value of money.

2. OBJECTIVES OF THE STUDY

- To determine the factors affecting financial literacy of Investors.
- To ascertain the interrelationship among these factors affecting the financial literacy of Investors in India.

3. LITERATURE REVIEW

Lusardi et al. [6] examined financial literacy among the young Youth. It was analyzed that financial literacy is low in young ones; less than one-third of young adults possess their basic knowledge of interest rates, inflation, and risk diversification. It was concluded that financial literacy is mainly related to socio demographic characteristics and family financial difficulty.

Huston et al. [12] stated that Financial literacy was generally used as an input to model, the need for financial education explain variation in financial outcomes. It was termed that financial literacy is important to understand educational impact as well as barriers to effective financial choice. It was concluded that the broad range of measurements were studied in reference to financial literacy and it highlights the limitations and establishments which were commonly accepted in financial literacy.

According to Gallery et al. [5], financial literacy amongst consumers is a global occurrence, occurred from the complexity of financial markets and products, and government concerns. They analyzed that pensions are giving risk and uncertainty of defined contribution of pension funds where fund members who made choices and decisions were made on their behalf. It was concluded that it make an appropriate one person should have financial knowledge and skills to make investment decisions.

Nash et al. [11] stated that financial literacy is nothing but knowledge about finance. It was identified that financial education has improved in recent years, in financial markets as well as demographic, economic and policy changes. India was ranked second in the list of highest financial literacy countries in the world. It was analyzed that the Reserve bank of India, which is the central bank, has been enthusiastically participating in the field of financial literacy in the country.

Bhushan et al. [14] stated that financial literacy is an understanding of financial matters which enables them to process financial information and make informed decisions about personal finance. He identified that it was difficult for a common man to understand the risk associated with the new age financial products, in order to understand risk and return associated with these products, a minimum level of financial literacy should be there. It was concluded that the financial literacy level of

individuals affects the awareness as well as investment preferences of individuals towards financial products.

Sekar and Gowri [9] stated that the financial literacy is the mix of one's knowledge and attitude towards financial matters, this process helps an individual to make financial decisions and inform them about their well-being. They have identified that Financial literacy is higher in poor level and it was analyzed that how employees make their financial decisions. It was concluded that gender, education, income and age impacts the level of financial literacy.

Naidu [8] stated that due to rapid growth in Indian economy in the past few years and the expansion of financial markets through liberalization, privatization and globalization have accessed many financial products in banking and investment. It was analyzed that low level of financial literacy prevented individuals in making right choices regarding financial decisions. According to him to achieve the objectives, an individual must invest his/her savings in right investment alternatives.

According to Agarwal et al. [10], the growth of the development of any country depends on its financial system, to achieve the goal of the financial system; there must be an accurate solution which was financial literacy. It was analyzed by them that, financial literacy can be stated as "understanding of economics and how economic conditions and circumstances affect household decisions" and the decision directly or indirectly affect the financial system. It was concluded that the basic topics of financial education must be included in schools so that it enhances the investment behavior of people and results in financial well-being of individuals.

According to Vig [1], the financial literacy is a fundamental knowledge that people required to attain their financial wellbeing; with the help of it they could evaluate different investment decisions in relation with demographic and socio-economic factors. His study revealed that financial literacy levels in whole nation are far from the needed level. Income, education and gender are affected the most. He stated the relationship between financial literacy and investment decisions, which was useful for policy makers to work out strategies in order to improve financial literacy level.

Chhetri [2] stated how to identify, rank and classify the challenges with the help of Interpretive Structural Modeling (ISM), which is used to establish interrelationship among the challenges. ISM technique helped to designate the elements in a hierarchical model with associations. The model which was derived could feasibly help the policymakers in decision making when planning strategies.

According to Sarma [3], the financial literacy managed to guide people in personal finance and helped to develop as a social responsible citizen. They identified that technical education do not have adequate financial literacy levels as compared to non-technical education. Due to this they analyzed the levels of knowledge about financial literacy, personal financial planning among the technical and non-technical education and in the end it was concluded that there is no huge difference between the perceptions.

According to Maheshwary [4], the financial literacy became a prominent concern for India in past years due to changes in financial landscape. It was a high concern for government,

banking and non-banking-corporation and educational institutions, national and international organizations and many others. They analyzed that financial literacy was a fundamental idea of knowledge which must be managed by every person and it is provided as ability to the individuals to use financial concepts, products and instruments. With the help of financial literacy, individuals can make their own decision and it was also identified that Financial Education is different for every person based on they time period.

4. RESEARCH METHODOLOGY

Interpretive Structural Modeling (ISM) is applied to identify and analyze the critical success factors i.e., factors affecting Financial literacy of investors in Indian economy. This integrated model illustrates the relationship among the different inhibiting factors.

5. CONCEPTUAL FRAMEWORK

There are certain factors which affects financial literacy of investors in India. For this study, following factors are considered as the major factors affecting financial awareness of common investors.

5.1 FACTORS AFFECTING FINANCIAL LITERACY OF INVESTORS

- *Gender*: Many studies on financial literacy provide a sign that gender significantly affects investment decisions. The results of mainly of the studies show that males are more financially literate as compared with females. Studies have shown in different colleges also discovered that male students are more knowledgeable on financial matters. It is also witnessed that male investors are more risk seekers in comparison with female investors.
- *Income-Level*: The previous literature delivers evidence that Income level of the individual positively connected with financial literacy and shows an impact on his investments decisions. It can be witnessed that high income individuals are more aware about the different financial products and scores high in financial literacy level.
- *Educational Qualification*: Education is also one of the important demographic elements which affect investment decisions of the investors. Different studies indicate that education qualification is positively connected with financial awareness. Highly qualified investors are more financially experienced. It was surveyed that higher the education qualification, higher the level of knowledge of complexities involved in investment decisions.
- *Nature of Occupation*: Different studies give imitations that work activity also have an effect on investment decisions of an individual. White collar employees and self-employed individuals have better financial knowledge levels in comparison with lower level employees. The occupation of the investors has an important role in growing financial knowledge of investors.
- *Age*: It is also witnessed that young people are attracted more towards risky investment alternatives and want to invest, but

they are hesitant due to lack of resources and awareness. A study discloses that young investors in the age category of 25-35 years are more interested in investing in financial market products than the adult investors in age grouping of 40 years and above.

- **Marital Status:** The marital status of an investor has an effect on his investments decisions. Young married couples are found to more financially literate and experienced in comparison to unmarried single domestic individuals. Cole et al. [] provides proof that in India, people who are living in rural areas have the lowest level of financial literacy.
- **Family Size:** Different studies have shown to survey impact of family size and concluded that the factor has significant influence on investment decisions of investors. The family whose size is large are more experienced in financial matters i.e. their Financial literacy is high. Joint-family and consultative decision-making procedure are found relatively better.

6. INTERPRETIVE STRUCTURAL MODELING

6.1 INTRODUCTION

ISM is a communicating learning process. In this technique, a set of different directly and indirectly related elements are arranged into a comprehensive organized model. Interpretive Structural Modeling (ISM) is a well-established procedure for classifying relationships among specific items, which describe a problem or an issue. Though, the direct and indirect relationships between the factors describe the situation far more correctly than the individual factor taken into separation. Therefore, ISM improves insights into collective understandings of these relationships.

6.2 STRUCTURAL SELF-INTERACTION MATRIX (SSIM)

Structural Self interaction Matrix (SSIM) shows the relationships between two elements (*i* and *j*). Based on the estimation of our research and knowledge, SSIM as shown in Table.1 was developed. Four symbols were used to recognize the direction of relationship between the elements (*i* and *j*)

The symbols are:

- V is used for the relation from an element *i* to element *j* but not in both directions
- A is used for the relation from an element *j* to element *i* but not in both directions
- X is used for both the direction relations from an element *i* to *j* and *j* to *i*.
- 0 (zero) is used if the relation between the elements does not appear valid.

Table.1. Structural Self-Interaction Matrix (SSIM)

Sl. No	CSFs	7.	6.	5.	4.	3.	2.	1.
1.	Gender	0	0	V	V	V	0	
2.	Age	0	0	V	0	X		
3.	Education Qualification	A	A	X	X			

4.	Nature of Occupation	0	V	X				
5.	Income Level	V	X					
6.	Marital Status	V						
7.	Family Size							

6.3 REACHABILITY MATRIX

The SSIM layout was changed into the reachability matrix layout Table.2 by transforming the information in each entry of the SSIM into 1's and 0's in the reachability matrix.

The rules for changing 1's and 0's are:-

- If the (*i,j*) entry in the SSIM is a V, then (*i,j*) entry in the reachability matrix will be 1 and (*j,i*) entry will be 0.
- If the (*i,j*) entry in the SSIM is an A, then (*i,j*) entry in the reachability matrix will be 0 and (*j,i*) entry will be 1.
- If the (*i,j*) entry in the SSIM is an X, both (*i,j*) entry and (*j,i*) entry of the reachability matrix will be 1.
- If the (*i,j*) entry of the SSIM is a 0, then both (*i,j*) entry and (*j,i*) entry of the reachability matrix will be 0.

Table.2. Reachability Matrix

Sl. No.	1.	2.	3.	4.	5.	6.	7.
1.	1	0	1	1	1	0	0
2.	0	1	1	0	1	0	0
3.	0	1	1	1	1	0	0
4.	0	0	1	1	1	1	0
5.	0	0	1	1	1	1	1
6.	0	0	1	0	1	1	1
7.	0	0	1	0	0	0	1

This matrix was further divided into a final reachability matrix as shown in Table.3. The final reachability matrix was made by incorporating transitivity. The transitivity of the context relation is a basic hypothesis made in ISM. It states that if an element A is related to B and B is related to C, then A is indirectly related to C. The Table.3 shows the final reachability matrix with all the transitivity.

Table.3. Final Reachability Matrix

Sl.No.	1.	2.	3.	4.	5.	6.	7.	Driving Power
1.	1	0	1	1	1	1	0	5
2.	0	1	1	0	1	0	1	4
3.	1	1	1	1	1	0	0	5
4.	1	0	1	1	1	1	0	5
5.	1	1	1	1	1	1	1	7
6.	1	0	1	0	1	1	1	5
7.	0	1	1	0	0	1	1	4
Dependence	5	4	7	4	6	5	4	

6.4 ITERATION TABLE

In next step we create Table.4 and Table.5. It is the expansion of partition level. A series of iteration table can be made on the

final reachability matrix. These partitions are made to decide the hierarchy of the elements. If the relationship in reachability and the interaction completely agree then the top priority is obtained and the remaining is removed from the subsequent interaction, so this process leads to final interaction.

Table.4. Iteration (i)

CSFs	Reachability Set	Antecedent Set	Intersection Set	Level
1.	1,3,4,5,6	1,2,6,7	1,6	
2.	2,3,5,7	1,2,4,6,7	2,7	Level I
3.	1,2,3,4,5	3,6,7	3	
4.	1,3,4,5,6	1,2,6,7	1,6	
5.	1,2,3,4,5,6,7	1,2,6,7	1,6,2,7	
6.	1,3,5,6,7	1,2,4,6	1,6	
7.	2,3,6,7	1,2,4,5,7	2,7	Level I

Table.5. Iteration (ii)

CSFs	Reachability Set	Antecedent Set	Intersection Set	Level
1.	1,3,4,5,6	1,2,6,7	1,6	Level II
4.	1,3,4,5,6	1,6,2,7	1,6	Level II
6.	1,3,5,6,7	1,2,4,6	1,6	Level II
3.	1,2,3,4,5	3,6,7	3	Level III
5.	1,3,4,5,6	1,6	1,6	Level IV

6.5 FORMATION OF ISM BASED MODEL

To generate this ISM model, the levels of the elements identified above with the help of final reachability matrix is used. The diagram of the ISM model shows that ‘Income Level’ is at the bottom suggesting that this element directly influence other factors. The next level which influences other factors is ‘Education Qualification’. This shows that remaining factors is directly influenced by this factor. Next Level is three way modes, namely ‘Gender’, ‘Nature of Occupation’ and ‘Marital Status’.

Since, Nature of Occupation is in the middle it directly influence the remaining two factors which are Gender and Marital Status. The Next Level is a two way mode, namely ‘Age’ and ‘Family Size’.

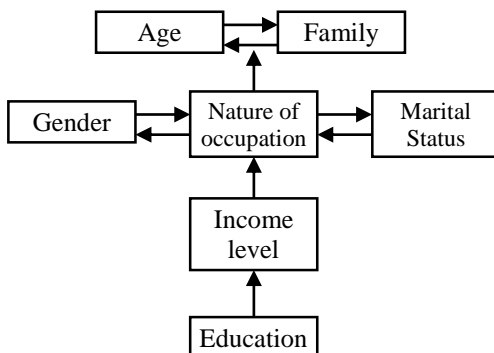


Fig.1. Interpretive Structural Modeling (ISM)

6.6 MIC-MAC ANALYSIS

The Mic-Mac Analysis as shown in Fig.2 helps to classify the variables into four clusters that are autonomous, dependent, linkage and independent dimensions. The autonomous group is located in the south-west quadrant. It states those variables which have weak driving power and weak dependence. They are relatively incoherent from the model. The dependent group is located in the south-east quadrant and has weak driving power but very strong dependence.

Third group or the linkage group is located in the north-east quadrant. The linkage variables have very strong driving power and also very strong dependence. Fourth group is located in the north-west quadrant it includes the independent quality extent which have strong driving power but weak dependence.

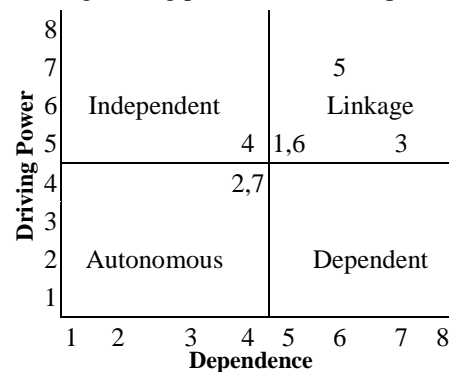


Fig.2. MIC-MAC

6.7 LIMITATIONS OF THE STUDY

There may be many elements to a problem or issue. Increase in the number of elements to a problem or issue increases the difficulty of the ISM methodology. So consider limited number of elements in the development of ISM model. Other elements which are least affecting a problem may not be taken in the construction of ISM model. Further, according to our knowledge analyzing the driving and dependence power of the elements of a problem or issue.

7. CONCLUSION

The study of this paper shows 7 factors affecting Financial Literacy of Investors in India. Factors are analyzed with the help of ISM; it is classified into two groups which are driving power and dependence. After dividing all the factors in two groups, a hierarchy is formed on the basis of the rating which is concluded from driving power and dependence. This process is taken place by the investors to find out one factor which affects financial literacy in India.

According to ISM model education factor is the establishment for other factors especially for those which are located above. The final result of this study is accomplished from Mic-Mac analysis which shows that age and family size are those factors which have weak driving power as well as weak dependence power and they lie in autonomous group. This shows that investors need to focus the least on these two factors as compare to other factors.

Gender, education qualification, income level and marital status are those factors which lie in the linkage group. Also,

investors have to give high importance to these factors when doing a survey on financial literacy because they have high driving power and dependence power. Last factor which is nature of occupation have low dependence power but high driving power and lie in independent group. These factors must be treated before important factors are looked.

Factors which are termed as important by the investors are those factors which must be looked by them in every financial period and comparatively the factors which are less important must be looked by the investors in the end. This process is further carried forward with the help of ISM model, which helped investors to make a hierarchical model and to find the factors which affects financial literacy of investors in India.

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