

**DEVELOPMENT AND VALIDATION OF PSYCHOMETRIC  
SCALE TO MEASURE FINANCIAL INTELLIGENCE  
OF ENTREPRENEURS OF KERALA: A  
MULTIDIMENSIONAL ANALYSIS**

*Thesis*

*Submitted to the University of Calicut  
for the award of degree of  
Doctor of Philosophy in Commerce*

*By*

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Dedicated to

*My Beloved Father*

**SHEIKH ABUBAKR AHMAD**

Grand Mufti of India

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## **List of Abbreviations**

ABDC	:	Australian Business Dean Council
AFPC	:	Attitude Towards Financial Planning and Controlling
ANOVA	:	Analysis of Variance
ARM	:	Attitude Towards Risk Management
ASI	:	Attitude Towards Savings and Investment
AVE	:	Average Variance Extracted
BFCB	:	Financial Consultation Behaviour
CFA	:	Confirmatory Factor Analysis
CFD	:	Confidence of Making Financial Decisions
CFI	:	Comparative Fit Index
CM	:	Cash Management
CR	:	Composite Reliability
DDS	:	Discipline During Spending
DLB	:	Discipline on Lending and Borrowing
DPIIT	:	Department of Promotion Industries and Internal Trade,
EFA	:	Exploratory Factor Analysis
ELC	:	External Locus of Control
ESH	:	Earning and Spending Habits
FA	:	Financial Attitude
FB	:	Financial Behaviour
FD	:	Financial Discipline
FDM	:	Financial Decision Making
FL	:	Financial Literacy
FLC	:	Financial Locus of Control
FM	:	Financial Management
FM	:	Financial Monitoring
FP	:	Financial Planning

FQ	:	Financial Quotient
FS	:	Financial Stability
GFI	:	Goodness of Fit Index
GST	:	Goods and Services Tax
IFI	:	Incremental Fit Index
ILC	:	Internal Locus of Control
IQ	:	Intelligence Quotients
KFP	:	Knowledge of Financial Planning
KFP	:	Knowledge of Financial Products
KFS	:	Knowledge of the Financial System
KMO	:	Kaiser-Meyer-Olkin
LKFS	:	Knowledge of Financial Statements
MFC	:	Financial Control
MFS	:	Managing Financial Stress
MI	:	Managing Insurance
MSV	:	Maximum Shared Variance
NBFC	:	Non-Banking Financial Companies
NFI	:	Normed Fit Index
PCA	:	Principal Component Analysis
PCM	:	Principal Component Method
PFD	:	Personal Financial Discipline
PG	:	Post Graduation
RFI	:	Relative Fit Index
RMR	:	Root Mean Square Residuals
RMSEA	:	Root Mean Square Error of Approximation
SD	:	Standard Deviation
SEM	:	Structural Equation Modelling
SIBIL	:	Credit Information Bureau India Limited
TLI	:	Tucker-Lewis Index
UFN	:	Updating Financial Knowledge
VAF	:	Variance Accounted For

## Abstract

Entrepreneurship is increasingly recognized as a viable solution to unemployment, particularly in states like Kerala, which faces high levels of joblessness. Entrepreneurs require financial intelligence—the ability to make informed financial decisions—as improper financial management is a primary reason for business failures. Despite its importance, no comprehensive scale exists to measure the financial intelligence of entrepreneurs. This study addresses that gap by developing and validating a multidimensional scale to measure the financial intelligence of small entrepreneurs in Kerala, with seven identified dimensions: financial attitude, financial literacy, financial behaviour, financial management, financial decision-making, financial discipline, and financial locus of control.

The study employed a rigorous methodology beginning with literature review, focus group discussions, and expert consultations to identify relevant dimensions and subdimensions. Data were collected through cluster sampling across all districts of Kerala, using BNI networks, resulting in 854 valid responses. Exploratory and Confirmatory Factor Analysis were performed to test the reliability and validity of the scale. Findings revealed strong interconnections among the dimensions, with financial attitude, financial literacy, financial behaviour, and financial discipline significantly influencing financial management, financial decision-making, and financial locus of control. Regression analysis highlighted financial discipline and financial literacy as strong predictors across multiple dimensions. Partial mediation effects were found in relationships involving financial management, financial decision-making, and financial locus of control.

Demographic analysis revealed that younger, unmarried, and more experienced entrepreneurs, as well as those with commerce backgrounds and higher education, demonstrated higher levels of financial intelligence. While gender, residence, and business type showed variations, they were not strong predictive factors. The study concludes that the financial intelligence of entrepreneurs in Kerala is generally moderate, underscoring the need for training and awareness programs. The validated scale not only contributes to theory by providing a comprehensive measurement tool but also holds practical value for training, curriculum development, and policymaking. It can serve as a model for developing similar instruments in other geographical locations, thereby enhancing entrepreneurship development and supporting economic growth.

**Keywords:** Financial Intelligence, Financial Attitude, Financial literacy, financial decision making, Financial Management, Financial locus of Control, Psychometric Scale Development

**കേരളത്തിലെ സംരംഭകരുടെ സാമ്പത്തിക ബുദ്ധി അളക്കുന്നതിനുള്ള  
മനുശാസ്ത്ര അളവുകോൽ നിർമ്മാണവും സാധൂകരണവും: ഒരു  
ബഹുമുഖ വിശകലനം**

തൊഴിലില്ലായ്മയ്ക്ക് പ്രായോഗികമായ ഒരു പരിഹാരമായി സംരംഭകത്വം കൂടുതലായി അംഗീകരിക്കപ്പെടുന്നു, പ്രത്യേകിച്ച് ഉയർന്ന തോതിലുള്ള തൊഴിലില്ലായ്മ നേരിടുന്ന കേരളം പോലുള്ള സംസ്ഥാനങ്ങളിൽ. അനുചിതമായ സാമ്പത്തിക മാനേജ്മെന്റ് ബിസിനസ്സ് പരാജയങ്ങൾക്ക് ഒരു പ്രധാന കാരണമായതിനാൽ, സംരംഭകർക്ക് സാമ്പത്തിക ബുദ്ധി ആവശ്യമാണ്. സാമ്പത്തിക തീരുമാനങ്ങൾ എടുക്കാനുള്ള കഴിവ് -. അതിന്റെ പ്രാധാന്യം ഉണ്ടായിരുന്നിട്ടും, സംരംഭകരുടെ സാമ്പത്തിക ബുദ്ധി അളക്കാൻ സമഗ്രമായ ഒരു സ്കെയിലിൽ നിലവിലില്ല. കേരളത്തിലെ ചെറുകിട സംരംഭകരുടെ സാമ്പത്തിക ബുദ്ധി അളക്കുന്നതിന്, ഏഴ് മാനങ്ങളുള്ള ഒരു ബഹുമുഖ സ്കെയിലിൽ വികസിപ്പിച്ച് സാധൂകരിക്കുന്നതിലൂടെ ഈ പഠനം ആ വിടവ് പരിഹരിക്കുന്നു: സാമ്പത്തിക മനോഭാവം, സാമ്പത്തിക സാക്ഷരത, സാമ്പത്തിക പെരുമാറ്റം, സാമ്പത്തിക മാനേജ്മെന്റ്, സാമ്പത്തിക തീരുമാനമെടുക്കൽ, സാമ്പത്തിക അച്ചടക്കം, സാമ്പത്തിക നിയന്ത്രണത്തിന്റെ സ്ഥാനം എന്നിവയാണ്.

സാഹിത്യ അവലോകനം, ഫോക്കസ് ഗ്രൂപ്പ് ചർച്ചകൾ, പ്രസക്തമായ മാനങ്ങളും ഉപമാനങ്ങളും തിരിച്ചറിയുന്നതിനായി വിദഗ്ദ്ധ കൂടിയായലോചനകൾ എന്നിവയിൽ നിന്ന് ആരംഭിച്ച് കർശനമായ ഒരു രീതിശാസ്ത്രമാണ് പഠനം ഉപയോഗിച്ചത്. BNI നെറ്റ്‌വർക്കുകൾ ഉപയോഗിച്ച് കേരളത്തിലെ എല്ലാ ജില്ലകളിലും ക്ലസ്റ്റർ സാമ്പിൾ വഴി ഡാറ്റ ശേഖരിച്ചു, അതിന്റെ ഫലമായി 854 സാധുവായ പ്രതികരണങ്ങൾ ലഭിച്ചു. സ്കെയിലിന്റെ വിശ്വാസ്യതയും സാധൂതയും പരിശോധിക്കുന്നതിനായി പര്യവേക്ഷണപരവും സ്ഥിരീകരണപരവുമായ ഘടക വിശകലനം നടത്തി. മാനങ്ങൾക്കിടയിലുള്ള ശക്തമായ പരസ്പരബന്ധങ്ങൾ കണ്ടെത്തലുകൾ വെളിപ്പെടുത്തി, സാമ്പത്തിക മനോഭാവം, സാക്ഷരത, പെരുമാറ്റം, അച്ചടക്കം എന്നിവ സാമ്പത്തിക മാനേജ്മെന്റിനെയും തീരുമാനമെടുക്കലിനെയും നിയന്ത്രണത്തിന്റെ സ്ഥാനം എന്നിവയെയും ഗണ്യമായി സ്വാധീനിക്കുന്നു. സാമ്പത്തിക അച്ചടക്കവും സാക്ഷരതയും ഒന്നിലധികം മാനങ്ങളിലുള്ള ശക്തമായ പ്രവചന ഘടകങ്ങളായി റിഗ്രഷൻ വിശകലനം എടുത്തുകാണിച്ചു. സാമ്പത്തിക മാനേജ്മെന്റ്, തീരുമാനമെടുക്കൽ, നിയന്ത്രണത്തിന്റെ സ്ഥാനം എന്നിവ ഉൾപ്പെടുന്ന ബന്ധങ്ങളിൽ ഭാഗിക മധ്യസ്ഥത ഫലങ്ങൾ കണ്ടെത്തി.

ജനസംഖ്യാ വിശകലനം വെളിപ്പെടുത്തിയത് പ്രായം കുറഞ്ഞ, അവിവാഹിതർ, കൂടുതൽ പരിചയസമ്പന്നരായ സംരംഭകർ, വാണിജ്യ പശ്ചാത്തലവും ഉന്നത വിദ്യാഭ്യാസവും ഉള്ളവർ എന്നിവർ ഉയർന്ന തലത്തിലുള്ള സാമ്പത്തിക ബുദ്ധി പ്രകടിപ്പിച്ചു എന്നാണ്. ലിംഗഭേദം, താമസസ്ഥലം, ബിസിനസ്സ് തരം എന്നിവ വ്യത്യാസങ്ങൾ കാണിച്ചെങ്കിലും അവ ശക്തമായ പ്രവചന ഘടകങ്ങളല്ലായിരുന്നു. കേരളത്തിലെ സംരംഭകരുടെ സാമ്പത്തിക ബുദ്ധി പൊതുവെ

മിതമാണെന്ന് എന്ന് പഠനം അനുമാനിക്കുന്നു. ഇത് പരിശീലനത്തിന്റെയും അവബോധ പരിപാടികളുടെയും ആവശ്യകതയെ അടിവരയിടുന്നു. സാധുതയുള്ള സ്കെയിൽ സമഗ്രമായ ഒരു അളവെടുക്കൽ ഉപകരണം നൽകിക്കൊണ്ട് സിദ്ധാന്തത്തിന് സംഭാവന നൽകുക മാത്രമല്ല, പരിശീലനം, പാഠ്യപദ്ധതി വികസനം, നയരൂപീകരണം എന്നിവയ്ക്ക് പ്രായോഗിക മൂല്യവും നൽകുന്നു. മറ്റ് പ്രദേശങ്ങളിൽ സമാനമായ ഉപകരണങ്ങൾ വികസിപ്പിക്കുന്നതിനുള്ള ഒരു മാതൃകയായി ഇത് പ്രവർത്തിക്കും, അതുവഴി സംരംഭകത്വ വികസനം വർദ്ധിപ്പിക്കുകയും സാമ്പത്തിക വളർച്ചയെ പിന്തുണയ്ക്കുകയും ചെയ്യും.

**പ്രധാന വാക്കുകൾ:** സാമ്പത്തിക ബുദ്ധി, സാമ്പത്തിക മനോഭാവം, സാമ്പത്തിക സാക്ഷരത, സാമ്പത്തിക തീരുമാനമെടുക്കൽ, സാമ്പത്തിക മാനേജ്മെന്റ്, സാമ്പത്തിക നിയന്ത്രണത്തിന്റെ സ്ഥാനം, സൈക്കോമെട്രിക് സ്കെയിൽ വികസനം.

# *Chapter 1*

## **INTRODUCTION**

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## **1.1 Understanding of the Concept of Entrepreneurship**

Entrepreneurship is the process of giving life to a new venture. Entrepreneur gives a clear mission and vision to their enterprises and apply their skills maximally to the growth and development of their organisation. An enterprise becomes successful only when the entrepreneur applies their knowledge and skill. Entrepreneurship process is understood in different contexts like the entrepreneur's knowledge, skill, attitude, innovation, risk-taking, etc. (Diandra & Azmy, n.d.)

Entrepreneurship has emerged as an interdisciplinary subject encompassing various disciplines, including economics, finance, and sociology, etc. However, it has become an independent field, and modules such as training, attitudes, and skills can be imparted through academic disciplines (Crocì, 2016). Entrepreneurship is also the process of creating a new venture (Barot, 2015). Entrepreneurship creates jobs and income, which contribute to the economic development of the nation (Hessels, 2019). The primary task of an entrepreneur is to introduce innovations into the business and take risks to run the business, thereby creating more value for the company (Maritz et al., 2015; Maritz et al., 2014). So entrepreneurship can be viewed as a discipline that involves innovation, risk-taking, creating new ventures, and contributing to jobs, income, and economic development.

## **1.2 Entrepreneurship and Economic Development**

Entrepreneurship is considered an important instrument for economic growth through employment, innovations, and social welfare (Schumpeter, 1961). An entrepreneurial ecosystem is the driving force of economic development of a nation (Isenberg, 2010).

Through entrepreneurship, innovations, and technological changes, the market undergoes significant transformations. More jobs and wealth are created in the economic system. However, the nature and structure of entrepreneurial activities vary across countries, which depend on necessities and entrepreneurial opportunities within the country (Ace,2007). In short, entrepreneurs are the nation builders and wealth creators by establishing new business ventures and bringing innovations into the market.

### 1.3 Profile of Entrepreneurship in India

According to the Department of Promotion Industries and Internal Trade, there are recognised start-ups to 1,17,254 as of 31st December 2023, which have created 12.42 lakh employment opportunities.

**Table 1.1**

*Recognised Start-ups During the Last Five Years*

Sl. No.	States/UTs	2019	2020	2021	2022	2023	Total
1	Andaman and Nicobar Islands	7	5	13	9	15	49
2	Andhra Pradesh	161	215	286	382	586	1630
3	Arunachal Pradesh	2	-	4	9	17	32
4	Assam	62	108	181	282	362	995
5	Bihar	137	236	374	517	811	2075
6	Chandigarh	37	52	63	81	126	359
7	Chhattisgarh	152	143	159	233	360	1047
8	Dadra and Nagar Haveli and Daman and Diu	3	5	12	12	11	43
9	Delhi	1,302	1,711	2,129	2,548	3,150	10840
10	Goa	39	60	78	104	98	379
11	Gujarat	565	846	1,655	2,262	3,291	8619
12	Haryana	658	787	1,036	1,327	1,740	5548
13	Himachal Pradesh	27	40	55	117	144	383
14	Jammu and Kashmir	30	57	123	167	247	624
15	Jharkhand	79	153	180	232	337	981

Sl. No.	States/UTs	2019	2020	2021	2022	2023	Total
16	Karnataka	1,566	1,648	2,082	2,546	3,032	10874
17	Kerala	597	671	901	1,070	1,294	4533
18	Ladakh	-	1	-	4	4	9
19	Lakshadweep	-	1	-	-	2	3
20	Madhya Pradesh	302	401	540	891	1,264	3398
21	Maharashtra	1,987	2,531	3,552	4,763	5,801	18634
22	Manipur	3	10	33	31	26	103
23	Meghalaya	5	-	6	10	18	
24	Mizoram	-	1	2	6	13	22
25	Nagaland	2	5	6	7	22	42
26	Odisha	170	257	367	442	620	1856
27	Puducherry	10	13	16	29	43	111
28	Punjab	86	134	239	294	443	1196
29	Rajasthan	321	459	591	986	1,443	3800
30	Sikkim	2	1	3	2	2	10
31	Tamil Nadu	556	715	1,067	1,791	2,810	6939
32	Telangana	559	754	928	1,370	1,757	5368
33	Tripura	7	17	11	25	23	83
34	Uttar Pradesh	807	1,290	1,876	2,554	3,426	9953
35	Utharakand	87	109	155	236	271	858
36	West Bengal	276	362	648	991	1170	3447
	Total	10604	13798	19371	26330	34779	104882

(Report of DPIIT 2024)

The total number of start-ups in India over the last five years is 104882. Out of these, the top contributors are Maharashtra with 18,634 start-ups, Delhi with 10,840, and Karnataka with 10,874 start-ups. Even though Kerala is a small state, the total number of startups during the last five years is 4533 (Department for Promotion of Trade and Industry and Internal Trade's, 2024). So there is a good startup ecosystem in Kerala.

**Table 1.2**

*State/UT-Wise Number of Direct Jobs (Self-Reported) Created by Recognised Start-ups During the Last Five Years*

	2019	2020	2021	2022	2023	Total
Andaman and Nicobar Islands	60	32	72	71	97	332
Andhra Pradesh	1,552	2,849	2,304	3,067	5,669	15441
Arunachal Pradesh	12		31	55	185	283
Assam	726	874	1,403	2,553	3,350	8906
Bihar	1,079	2,134	3,086	4,498	9,057	19854
Chandigarh	312	355	978	898	1,328	3871
Chhattisgarh	1,423	1,054	1,694	2,126	3,189	9486
Dadra and Nagar Haveli and Daman and Diu	29	31	136	147	138	481
Delhi	13,862	17,638	22,231	29,955	38,280	121966
Goa	349	340	494	830	824	2837
Gujarat	6,077	9,295	17,329	23,610	48,138	104449
Haryana	9,990	10,515	10,006	13,694	26,021	70226
Himachal Pradesh	195	281	344	972	1,079	2871
Jammu and Kashmir	238	447	776	1,297	2,452	5210
Jharkhand	624	1,353	1,362	1,827	3,525	8691
Karnataka	20,256	23,767	20,812	24,544	35,066	124445
Kerala	4,413	5,446	7,582	10,286	11,737	39464
Ladakh	-	3	-	32	29	64
Lakshadweep	-	7	-	-	31	38
Madhya Pradesh	3,955	3,468	6,568	11,511	12,070	37572
Maharashtra	21,979	29,133	38,354	50,913	64,974	205353
Manipur	22	116	382	309	195	1024
Meghalaya	27	-	48	61	157	293
Mizoram	-	2	15	106	79	202
Nagaland	10	32	81	71	268	462
Odisha	2,248	2,220	3,742	4,526	6,532	19268

	2019	2020	2021	2022	2023	Total
Puducherry	130	68	198	233	568	1197
Punjab	1,230	1,673	2,429	2,318	4,935	12585
Rajasthan	3,819	4,439	5,579	10,590	13,724	38151
Sikkim	6	2	29	22	8	67
Tamil Nadu	6,860	7,772	9,684	17,192	30,536	72044
Telangana	8,622	8,576	9,581	14,249	18,378	59406
Tripura	46	735	95	188	193	1257
Uttar Pradesh	8,823	13,226	18,812	22,673	33,831	97365
Uttarakhand	701	709	1,696	1,684	2,401	7191
West Bengal	3,396	2,604	6,632	9,353	11,468	33453
<b>GRAND TOTAL</b>	<b>1,23,071</b>	<b>1,51,196</b>	<b>1,94,565</b>	<b>2,66,461</b>	<b>3,90,512</b>	<b>1125805</b>

(Department for Promotion of Industry and Internal Trade (DPIIT) 2024)

A total of 1125805 jobs were created within the country. Out of which the central contributing states are Maharashtra with 205353 employments, Karnataka with 124445 employments, and Delhi with 121966 employments. Kerala's contribution to employment creation through start-ups has been 39464 over the last five years (Department of Promotion of Industry and Internal Trade, 2024)

#### 1.4 The Scenario of Kerala

Kerala is emerging as an important player in India's entrepreneurial landscape. Major cities like Kochi and Thiruvananthapuram are emerging as startup hubs, thanks to the availability of quality human resources and extensive infrastructure. Startup Mission, established in 2006, provides full support to entrepreneurs within the state. The purpose of the Kerala Startup Mission is to support technology-oriented entrepreneurship activities and to create an entrepreneurial ecosystem within the state. There are, along with sector-specific partner organisations, 2900 and above registered start-ups, 10 and above Lakh sq. feet of incubation space, more than forty incubations and 300 innovation places throughout Kerala State ([startupmission.kerala.gov.in](http://startupmission.kerala.gov.in))

**Table 1.3***The Growth of Startup Ecosystem in Kerala*

	Performance of Kerala	Global average
Value of Startup Ecosystem	1.7 billion	29.4 billion
Number of Unicorns	1	3
Software Engineer Salary	\$ 6 K	\$ 47 K
Total Early-stage Funding	\$77 Million	\$655Million
Growth of Early-stage Funding	9 in 10 point scale	9 in 10 point scale
Ecosystem Value Growth	254%	46%
Total Venture Funding	\$289 Million	\$4.6 Billion

(Global Startup Ecosystem Report 2024)

The above table clearly explains the potential of startups and the growth of entrepreneurial activities within the state of Kerala. The total value of Kerala's startup ecosystem is 1.7 billion, with one Unicorn produced by the state. Kerala startups could secure 77 million dollars in early-stage funding, marking a growth of 9 out of 10 points on a scale. Total Ecosystem growth value is 254% compared to the global average of 46%. Kerala startup could mobilise total venture funding of \$289 million.

### 1.5 Intelligence and Intelligence Quotients

Psychometry is a development of the early nineties. It is used to measure and quantify various psychological behaviours, attitudes, and skills of human beings. Intelligence and measurement of human intelligence are of the most discussed aspects in psychometry. Intelligence is the ability of a person to act and react according to the environment. There are several definitions for intelligence. According to Sternberg (1999), "Intelligence can be defined as the ability of a person to adapt to, shape, and select environments". According to Fontana (1988), "intelligence is the ability of a person to see relationships and to use this ability to solve problems".

The words intelligence and intelligence quotient are sometimes used interchangeably. Nevertheless, intelligence quotients are the measurement and quantification of the

intelligence of an individual or group. Psychometricians develop standardised tools to measure intelligence. The first attempt to measure intelligence was by Francis Gall (1758-1828). He developed a system called *Phrenology*. In 1883, **Francis Galton introduced the *Anthropometric*** measure of intelligence. **Charles E. Spearman** introduced *General intelligence factors* in 1904. At the same period, **Alfred Binet had developed an** intelligence test battery in France. **James McKeen Cattell** (1860–1944), **Clark Wissler**, etc, were pioneers in this field. Some notable theories in this field include the **Cattell–Horn–Carroll Theory of Cognitive Abilities, Multiple-Intelligences Theory by Howard Gardner, the Triarchic Theory of Successful Intelligence by Robert J. Sternberg, the Theory of Neurocognitive Processes by Jack A. Naglieri, the Biological Theory by Ceci, Social Intelligence Theory, and the Emotional Intelligence Theory by Daniel Goleman**, among others.

### 1.6 Financial Intelligence

Dealing with finance is a part of our daily life, and it is one of the complex tasks. The cost of each decision will be heavy when it goes wrong. So, we need to make financial decisions intelligently. Financial intelligence is described in different ways in the literature. It can be an individual's financial intelligence or organisational financial intelligence. Some authors defined it as financial knowledge and literacy. However, some other authors defined it as the financial planning and decision-making capacity of a person. The term "financial intelligence" is first mentioned in Robert Kiyosaki's book. He defined financial intelligence as “an individual’s ability to solve financial problems and his mindset to improve financial knowledge in order to demonstrate good financial behaviour” (*Increase Your Financial IQ: Get Smarter with Your Money*). Financial intelligence is the capacity to acquire financial knowledge and use this knowledge to make financial decision which helps in financial control (Berman, Knight, & Case, 2013). Kiyosaki explained financial intelligence by giving five financial IQs the ability to make money, protect money, budget our finances, leverage our funds and improve financial information.

Financial intelligence is used to solve our financial problems and take appropriate financial decisions, and financial quotient is the measurement of a person's financial intelligence (Kiyosaki,2008)

### **1.7 Financial Intelligence for Entrepreneurs**

Every individual deals with funds in their day-to-day life. However, entrepreneurs are dealing with a large amount of capital, which requires more intelligent involvement to manage effectively. Given their need for cautious engagement of funds, it is inevitable that all entrepreneurs require financial intelligence. By having proper financial intelligence, entrepreneurs can outperform their business and increase profitability, return on investment and face competition in the market. Financial intelligence is important not only for entrepreneurs but also for employees of the organisation because they are dealing with the day-to-day affairs of the company. (Berman, Knight, & Case, 2013).

Every entrepreneur should possess a basic understanding of financial statements, including profit and loss accounts, balance sheets, various profit types, assets, liabilities, cash flow statements, and fund flow statements. Even the employees must be able to read the financial statements. Moreover, individuals with good financial literacy will follow the appropriate financial practices. Better financial intelligence will lead to better alignment of balance sheet assets and liabilities and better financial decisions (Berman, Knight, & Case, 2013; Lusardi, 2008). Personal financial intelligence is also important for entrepreneurs to manage their daily finances.

### **1.8 Statement of the Problem**

As per the Periodic Labour Force Survey 2023-24 report, Kerala stand at the highest position in the youth unemployment rate. According to the survey, the unemployment rate among youth aged 15 to 29 is 29.9%. The joblessness among females is 47.1% and among males it is 19.3% while the national average is only 10%. One of the reasons cited for this is an improper attitude towards entrepreneurship, and the majority of youth are obsessed with white collar jobs.

Entrepreneurship is the only solution for tackling unemployment and contributing to the economic development of a nation. An entrepreneur is a person who invests funds into the business by taking risks. Investment of funds requires a basic understanding of financial aspects and a positive attitude towards managing funds. A successful entrepreneur should have the capacity to plan funds properly, the ability to manage funds and an effective mechanism for controlling of funds. He should be able to apply all his managerial abilities in the investment, management and controlling processes.

Literatures show that the failure rate of new businesses is high worldwide, and only 1 out of 12 businesses survives. Majority of startups fail within the first or second year of their inception (Start-up Genome, 2010). There may be different reasons for business failure. However, a large number of businesses fail due to a lack of skills in managing funds. The entrepreneur should acquire the ability to manage funds through learning financial management and apply these skills in both their personal and business life. The ability to learn and adapt that learning into his business is called financial intelligence. Like other skills, entrepreneurs should have financial IQ, which leads to maximising profit and the growth of the business. As with business financial intelligence, personal financial intelligence is also important. So measuring entrepreneurs' financial intelligence is of the utmost importance. But there is no standardised instrument and model for measuring entrepreneurs' financial intelligence.

In this context, the researcher aims to investigate the financial intelligence of small entrepreneurs in Kerala, encompassing financial attitude, financial literacy, financial capabilities, financial decision-making skills, financial controlling skills, and financial locus of control. As there is no standardised instrument for measuring the financial intelligence of entrepreneurs, the study focuses on developing an instrument for measuring the financial intelligence of entrepreneurs of Kerala. The study also focuses on the association between financial intelligence score and demographic factors of entrepreneurs of Kerala

### **1.9 Research question**

1. What is financial intelligence, and what are the constructs used for measuring financial intelligence?
2. Are there any internationally acclaimed models and instruments for measuring financial intelligence available in the literature?
3. If available, what are the limitations of such models?
4. Are the entrepreneurs of Kerala financially intelligent?
5. Is there any association between the financial intelligence of entrepreneurs of Kerala and demographic factors?
6. Does residing in an urban or rural area affect the financial intelligence of entrepreneurs of Kerala?
7. Is there any association between the financial intelligence of entrepreneurs of Kerala and their income?
8. Is there any association between the financial intelligence of entrepreneurs of Kerala and their total amount of initial investment?

### **1.10 Objectives**

1. To develop an instrument for measuring the financial intelligence of small entrepreneurs of Kerala.
2. To measure the impact of Financial Attitude, Literacy, Behaviour and Discipline on Financial Management, Financial Decision Making and Financial Locus of Control of Small Entrepreneurs of Kerala.
3. Exploring the mediating effect of financial literacy in the relationship between financial management and financial decision-making among small entrepreneurs in Kerala.

4. 4. Assessing the mediating effect of financial attitude in the relationship between financial decision-making and financial locus of control.
5. Investigating the mediating role of financial behaviour in the relationship between financial management and financial locus of control among small entrepreneurs in Kerala.
6. To identify the role of demographic factors in shaping the financial intelligence of Small Entrepreneurs in Kerala.
7. To ascertain the mediating role of financial intelligence in the relationship between investment and return of entrepreneurs.

### **1.11 Significance of the Study**

The study may help entrepreneurs understand the extent of their financial intelligence, which they may lack, and identify areas for improvement. This study is significant due to the non-availability of instruments for measuring the financial intelligence of entrepreneurs of Kerala. The present study focuses on constructing an instrument for measuring financial intelligence. As per the literature, no such instrument is available. Also, the study is helpful to research communities as a reference for creating an instrument for measuring financial intelligence in future.

The instrument developed can be used for measuring the financial intelligence of entrepreneurs of different sectors of Kerala and other parts of the country. It can be used by trade associations, professional bodies, training communities and academic communities for imparting knowledge and practical training on financial intelligence in schools, colleges and other academic bodies. The study is also helpful for policymakers in creating policy on financial intelligence and the government in promoting entrepreneurial activities within the state and the country.

### **1.12 Scope of the study**

The study focuses on entrepreneurs of Kerala who are engaged in the business of micro, small and medium enterprises. The respondents used for the study were collected from all the districts of Kerala. The population for the current study is micro,

small and medium entrepreneurs of Kerala. For the study measuring financial intelligence of entrepreneurs, a psychometric instrument was developed, which includes the dimensions of financial attitude, financial knowledge, financial behaviour, financial decision making, financial control and financial locus of control. To understand the personal profiles of respondents, including their age, marital status, place of residence, district of residence, personal income, income from business, initial business investment, and whether the business is the respondent's own or a family-run business, is collected.

### **1.13 Variables of study**

#### **1.13.1 Demographic Variable**

1. Age
2. Gender
3. Marital status
4. Religion
5. District of residence
6. Residing location
7. Year of starting business
8. What Type of business (service sector or manufacturing sector)
9. Monthly average revenue from both business and other sources
10. Total amount of funds invested in business
11. Educational qualification
12. Specific discipline in education (Commerce, Arts or Science)
13. Own business or family business.

**Table 1.4***Dimensions and Sub-Dimensions of Measuring Financial Intelligence*

<b>Sl. No.</b>	<b>Variables and Sub-Variables</b>
<b>F1: Financial Attitude</b>	
1	Attitude towards risk
2	Attitude towards return
3	Attitude towards insurance
4	Attitude towards saving and spending
5	Attitude towards investment
6	Attitude towards financial planning
7	Attitude towards financial control
8	Attitude towards financial institutions
9	Attitude towards financial future
<b>F2: Financial Literacy</b>	
1	Knowledge of inflation
2	Knowledge about interest in bank
3	Knowledge of financial planning
4	Knowledge of financial budgeting
5	Knowledge of net worth
6	Knowledge about bank guarantee
7	Knowledge of Demat account
9	Knowledge of mutual funds
10	Knowledge of rupee appreciation and depreciation
11	Knowledge of digital financial literacy
12	Knowledge of assets and liabilities
13	Knowledge of GST
14	Knowledge of liquidity
15	Knowledge of financial ratios
16	Knowledge of Balance Sheet and Profit and Loss Account
17	Updating financial knowledge
18	Updating stock market information
19	Update about the economic system.

Sl. No.	Variables and Sub-Variables
20	Update about the union and state budget.
21	Knowledge of doing tax and GST
22	Updating knowledge about business opportunities
23	Knowledge about SIP
24	Knowledge about insurance
	<b>F3 Financial Behavior</b>
1	Behaviour of keeping track of income and expenses
2	Behaviour of consultation for business improvement
3	Behaviour of consultation when facing problems
4	Spending habit
5	Habits of electronic payment
6	Credit card usage behaviour
7	Habit of creating multiple sources of income
8	Purchase behaviour
9	Concern towards CIBIL Score
	<b>F4: Financial Management</b>
1	Management – planning organisational financial requirements
2	Management – planning all personal financial requirements
3	Financial Management – preparation of personal budget
4	Financial Management – preparation of organisational budget
5	Financial management – financial controlling
6	Financial management – the habit of keeping aside for emergencies
7	Financial management – Retirement planning
8	Financial management – Tax planning
9	Financial management – Consult for tax purposes
10	Financial management – Managing passive income
11	Financial management – Personal financial control
12	Financial management – organisation finance control
13	Financial management – Bank reconciliation
14	Financial management – Managing cash
15	Financial management – Using borrowed money for personal use
16	Financial management – using borrowed money for business

<b>Sl. No.</b>	<b>Variables and Sub-Variables</b>
17	Financial management – Repaying borrowed money.
18	Financial management – Purchase of health insurance
19	Financial management – Purchase of business insurance
20	Financial management – Purchase of life insurance
<b>F5: Financial Decision Making</b>	
1	Ability to make financial decisions without consultation
2	Consulting an expert while making financial decisions
3	Success of personal financial decision
4	Consult of friends and relatives for financial decisions
5	Personal decision to start a business
6	Study in advance while making financial decisions
7	Taking feedback after a financial decision
8	Correcting if the decision goes wrong
9	Feeling stressed while taking financial decisions
10	Comfort of making financial decisions
<b>F6: Financial Discipline</b>	
1	Financial discipline when in a group
2	Comparing the income and expenditure ratio for personal
3	Comparing the income and expenditure ratio for business
4	Financial discipline during purchase
5	Discipline regarding borrowing and using money
6	Discipline for credit card use
7	Discipline regarding loan repayment
8	Live within means
<b>F7: Financial Locus of Control</b>	
1	Responsible for my profit and loss
2	Success is at the will of God
3	Believe in luck
4	Believe in personal effort.
5	Confidence in solving financial problems
6	Confidence in making financial decisions

(Source: Various literature and expert opinions)

## **1.14 Operational Definitions**

### **1.14.1 Entrepreneur**

An entrepreneur is a person who invests funds in any business. An entrepreneur can be of a sole trader, a partnership firm, a limited liability partnership, a one-man company, or a private limited company. The business he started can be of the manufacturing sector or the service sector. A Person actively engaged in a business process or who invests and acts passively is also considered an entrepreneur.

### **1.14.2 Micro Entrepreneur**

This definition is as per the definition of **the Ministry of Micro, Small, and Medium Enterprises**. According to the Ministry of Micro, Small, and Medium Enterprises, “investment in Plant and Machinery or Equipment: Not more than Rs 1 crore and Annual Turnover; not more than Rs. 10 crore”

### **1.14.3 Small-scale Entrepreneur**

This definition is as per the definition of **the Ministry of Micro, Small, and Medium Enterprises**. According to **the Ministry of Micro, Small and Medium Enterprises**, “**Investment in Plant and Machinery or Equipment: Not more than Rs . 10 crore and Annual Turnover: not more than Rs. 50 crore**”

### **1.14.4 Medium-scale Entrepreneur**

This definition is as per the definition of **the Ministry of Micro, Small, and Medium Enterprises**. According to the **Ministry of Micro, Small and Medium Enterprises**, “Investment in Plant and Machinery or Equipment: Not more than Rs 50 crore and Annual Turnover; not more than Rs. 250 crore”

### **1.14.5 Financial Intelligence**

For this study, the term "financial intelligence" refers to the total of a person's scores in financial attitude, financial literacy, financial behavior, financial management, financial decision-making skill, financial discipline, and financial locus of control.

#### **1.14.6 Measurement of Financial Intelligence**

Measurement of financial intelligence means measuring the total financial intelligence score of each sample of the population by using an instrument developed by the respondents, and the overall score received for the total population.

#### **1.14.7 Financial Intelligence Quotient**

Financial intelligence quotients refer to the individual scores of each respondent, while the overall intelligence quotient represents the total score of the collected sample population.

#### **1.14.8 Financial Attitude**

For this study, financial attitude refers to a person's attitude towards various financial aspects, including risk, return, insurance, savings, spending, investment, financial planning, financial control, financial institutions, and financial management.

#### **1.14.9 Financial Literacy**

Financial literacy means knowledge of a person in inflation, interest rate in bank, financial planning, budgeting, net-worth, bank guarantee, demat account, mutual fund, rupee appreciation and depreciation, digital financial literacy, asset and liability, GST, liquidity, financial ratio, balance sheet and profit and loss account, updating day today financial knowledge, updating stock market information, update about economic system, update about union and state budget, knowledge about SIP, knowledge about insurance

#### **1.14.10 Financial Behaviour**

Financial behaviour encompasses a person's behaviour in terms of income and expenses, seeking business improvement advice, consulting others on financial issues, spending habits, the habit of using electronic payment methods, credit card usage behaviour, the habit of generating multiple income sources, purchasing behaviour, and concern for the CIBIL score.

#### **1.14.11 Financial Management**

Financial management means financial management practice of person in planning financial requirement, preparation of personal and organizational budgets, controlling personal and organizational finance, habit of keeping for emergencies, retirement planning, tax planning, consult for tax purpose, manage passive income, reconcile bank and cash book, managing cash payment, use of borrowed money for personal and organizational purpose and purchase of insurance products.

#### **1.14.12 Financial Decision Making**

Financial decision making means the ability of a person to compare income and expenditure ratios, consult an expert in making financial decisions, consider the success rate of financial decisions taken, consult friends and experts in financial decisions, consider taking advice before making financial decisions, take feedback after making financial decisions, feel stressed while making financial decisions and the comfort of making financial decisions.

#### **1.14.13 Financial Discipline**

For this study, financial discipline refers to the self-control a person exercises when managing their finances, including financial discipline within a group, the ability to compare income and expenditure ratios, the discipline during purchases, the discipline regarding borrowing and spending, the discipline in loan repayment, and the effort to live within one's means.

#### **1.14.14 Financial Locus of Control**

Financial locus of control is about a person's belief in ability to manage his finances. This can be either internal or external. Someone with an internal locus of control thinks that their financial successes are a result of their hard work; they believe in themselves and are committed. On the other hand, someone with an external locus of control believes that outside factors affect their financial situation.

### **1.15 Limitations**

1. The present study tried to include almost all constructs of financial intelligence while preparing the scale of financial intelligence. However, some of the other

constructs which may be directly or indirectly associated with financial intelligence may be missing. It will affect the inclusiveness of the scale.

2. Even though the scale was prepared in bilingual form (Both English and Malayalam) and content validity was checked by the researcher, there may be some ambiguity among the respondents in understanding the items in the scale
3. As most of the items in the scale are financial in nature, there may be reluctance on the part of respondents to fill out the questionnaire
4. As the items in the scale are psychometric, the response to some of the items would be subjective.
5. The scale is developed only for measuring the financial intelligence of small entrepreneurs; the scale may not be fit to measure the financial intelligence of other populations
6. Recall errors of the respondents while filling out the scale item would have affected the quality of the data
7. Only micro and small entrepreneurs are included in the study. So the other types of entrepreneurs are excluded.

### **1.16 Chapter schemes**

**Chapter 1 Introduction:** First chapter is introduction about the topic which deals with brief introduction on entrepreneurship, status of entrepreneurship in India and Kerala, introduction about financial intelligence, measurement of financial intelligence, statement of the problem, significant of the study, scope of the study, variable for measuring financial intelligence, operational definitions, hypothesis, limitations and chapterization.

**Chapter 2 Literature Review:** The Second chapter presents a literature review of financial intelligence. The chapter starts with a bibliometric analysis of the literature review of financial intelligence of entrepreneurs from 1970 onwards. The second part of the chapter discusses various literature regarding the concept of financial intelligence, measurement of financial intelligence, models for measuring financial intelligence, and the research gap in the field

**Chapter 3 Theoretical Background:** The third chapter discusses the theoretical concept of intelligence, various types of intelligence, theories of intelligence, social and emotional intelligence, measurement of intelligence, financial intelligence, variables for measuring intelligence, and financial intelligence for entrepreneurs.

**Chapter 4 Instruments for Measuring Financial Intelligence:** This chapter explains the process and methodology of developing instruments for measuring financial intelligence. The chapter includes the rationales for measuring financial intelligence, the Methodology of instrument development, which includes construct identification, understanding core dimensions of financial intelligence, the item generation process, and scale validation using **Exploratory Factor Analysis and Confirmatory Factor Analysis**.

**Chapter 5 Financial Intelligence and Sub-Constructs:** This chapter deals with the interrelationship among sub-constructs of Financial Intelligence, namely, Financial Attitude, Financial Literacy, Financial Behaviour, Financial Discipline, Financial Management, Financial Decision Making, and Financial Locus of Control. The chapter also deals with mediation between different sub-constructs of financial intelligence

**Chapter 6 Financial Intelligence and Demographic Variables:** This chapter demonstrates the role of demographic factors in shaping the financial intelligence of small entrepreneurs in Kerala. To achieve the same, the following demographic factors are selected: age, gender, education, subject discipline, marital status, years of experience, location, starting mode, and type of business.

**Chapter 7 Summary, Findings, and Conclusion:** This Chapter provides a summary of the research report, significant findings of the research, and conclusion

**Chapter 8: Recommendations, Implications and Scope for Future Research:** The last chapter of the study includes significant recommendations, policy implications, and scope for future research.

## References

- Acs, Z. J. (2006). How is entrepreneurship good for economic growth? *Innovations: Technology, Governance, Globalization*, 1(1), 97–107. <https://doi.org/10.1162/itgg.2006.1.1.97>
- Barot, H. (2015). Entrepreneurship – A key to success. *The International Journal of Business and Management*, 3(1), 163–165.
- Berman, K., Knight, J., & Case, J. (2013). *Financial intelligence: A manager's guide to knowing what the numbers really mean*. Harvard Business Review Press.
- Ceci, S. J. (1990). *On intelligence... More or less: A bio-ecological treatise on intellectual development*. Prentice Hall.
- Croci, C. L. (2016). Is entrepreneurship a discipline? (*Honors Theses and Capstones*, No. 296). University of New Hampshire Scholars' Repository. <https://scholars.unh.edu/honors/296>
- Diandra, D., & Azmy, A. (2020). Understanding definition of entrepreneurship. *International Journal of Management, Accounting and Economics*, 7(5), 235–241.
- Fontana, D. (1988). *Psychology for teachers* (2nd ed.). Macmillan.
- Hessels, J., & Naudé, W. (2019). The intersection of the fields of entrepreneurship and development economics: A review towards a new view. *Journal of Economic Surveys*, 33(2), 389–403. <https://doi.org/10.1111/joes.12273>
- Isenberg, D. (2010, June 20). The big idea: How to start an entrepreneurial revolution. *Harvard Business Review*. <https://hbr.org/2010/06/the-big-idea-how-to-start-an-entrepreneurial-revolution>
- Jawed Akhtar, S. M., & Abdul Azeez, N. P. (2014). Educated unemployment: A case study of Kerala. *International Journal of Education for the 21st Century*, 1(1), 93–120.

- Kiyosaki, R. T. (2008). *Increase your financial IQ: Get smarter with your money*. Business Plus.
- Lusardi, A. M. (2008). Increasing the effectiveness of financial education in the workplace. *International Conference on Financial Education*, U.S. Department of the Treasury and OECD.
- Maritz, A., & Donovan, J. (2015). Entrepreneurship and innovation. *Education + Training*, 57(1), 74–87. <https://doi.org/10.1108/ET-02-2013-0018>
- Maritz, A. P., de Waal, G. A., Buse, S., Herstatt, C., MacLachlan, R., & Heidemann, A. (2014). Innovation education programs: Towards a conceptual framework. *European Journal of Innovation Management*, 17(2), 166–182. <https://doi.org/10.1108/EJIM-09-2012-0093>
- Ministry of Micro, Small and Medium Enterprises. (n.d.). Know about MSME. Government of India. <https://msme.gov.in/know-about-msme>
- Schumpeter, J. A. (1961). *The theory of economic development*. Oxford University Press.
- Startup Genome. (2019). *Global startup ecosystem report*. <https://startupgenome.com/reports/global-startup-ecosystem-report-2019>
- Sternberg, R. J. (1999). Intelligence. In R. A. Wilson & F. C. Keil (Eds.), *The MIT encyclopedia of the cognitive sciences* (pp. 403–405). MIT Press.
- The Hindu. (2024, February 12). Unemployment continues to haunt Kerala. <https://www.thehindu.com/news/national/kerala/unemployment-continues-to-haunt-kerala/article67832686.ece>

## *Chapter 2*

# **REVIEW OF LITERATURE**

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## **2.1. Overview of Financial Intelligence Research**

The study of financial intelligence is relatively recent. Several investigations have been carried out globally on topics related to financial intelligence and its measurement variables. However, this study concentrates explicitly on financial intelligence and the financial intelligence of entrepreneurs, utilising a brief scale to assess financial intelligence. This chapter outlines the breadth of research in financial intelligence and its associated variables, along with previous literature in this domain. The first section offers a systematic review of the literature, detailing overall research, key publications, authors, and the distribution of articles across countries and journals. The second section reviews earlier studies on financial intelligence and its measurement variables.

## **2.2 Search for Systematic Literature Review.**

The Scopus database, a highly trusted data source, was used for the systematic literature review, with the search process beginning on 5 June 2024. Articles published from 1970 to 2024 are included in the study.

Initially 3522 documents are extracted using following search **Key Words:** **(("Financial Intelligence?") OR ("Financial Literacy?") OR ("Financial Management?") OR ("Money Management Skill?") OR ("Financial Behaviour") OR ("Financial Attitude") OR ("Financial Risk-taking behaviour?" ) OR ("Financial Decision Making ?") OR ("Financial Locus of Control?") OR ("Financial Discipline?") OR ("Financial knowledge?") OR ("Behavioural Finance?") OR ("Cognitive finance?") AND NOT ("Money**

**Laundering?") AND NOT ("Criminology")** )Following data refinement is done using Scopus data filtering.

Only *English-language* articles were selected for study. **3449** documents are selected after language refinement. The *Subject of Search* is limited to **Computer Science, Business, Economics, Engineering, Social Science, Decision Science, Psychology, Arts and Multi-Disciplinary Articles**. After subject refinement, **3045** documents were selected. Only *Articles* are chosen for the study to improve the reliability of the papers. Conference proceedings and book chapters are excluded. **1673** articles were chosen after document refinement.

Some of the key words which find not relevant to financial intelligence were excluded. The excluded key words are **Information Management, Data Mining, Decision Support Systems, Competition, "Optimization, Capital Structure, Construction Industry, Deep Learning, Enterprise's Financial Managements, Machine, Decision Trees, Big Data, Genetic Algorithms, Learning Algorithms, Electronic Trading, Support Vector Machines, Contractors, Internet of Things, Elder Abuse, Electronic Commerce, Data Handling**. After keyword exclusion refinement, **1325** documents were selected.

Only articles from **the Journal are used for the study—1324 documents were extracted for the** final analysis process. For descriptive analysis of the dataset, Scopus Analyse is used, and for thematic analysis, **VOSviewer 1.6.19** version is used.

**Table 2.1**

*Summary of the data set used for the study*

Period of the Study	<b>1970-2024</b>
Number of Documents	<b>1325</b>
Total Number of Journals	<b>736</b>
Total Number of Keywords	<b>3724</b>
Total Indexed Keywords	<b>312</b>
Number of Authors	<b>152</b>
Total Number of Citations	<b>2386</b>
Average Citation per Document	<b>55.53%</b>
Document per Authors	<b>8.71</b>

Source: (Extracted from Scopus Analyse)

For this study, articles published in reputable journals available in the Scopus database from 1970 to 2024 were analysed, covering 736 journals and 1325 documents. Of 3724 keywords, 312 were indexed in these articles. A total of 152 authors, with 2386 citations, are identified. The average citations per document are 55.53 per cent, and each author is associated with an average of 8.71 documents.

**Table 2.2**

*Most Popular Journals Published Articles in the Specific Field.*

<b>Name of the Journal</b>	<b>Number of Publications</b>	<b>ABDC Category</b>
Journal of Financial Counselling and Planning	24	Not Applicable
Journal of Marketing Research	24	A
International Journal of Bank Marketing	19	A
Journal of Economic Psychology	19	A
Frontiers in Psychology	18	Not Applicable
Plos One	17	Not Applicable
Journal of Consumer Affairs	16	A
Journal of Family and Economic Issues	16	B
International Journal of Consumer Studies	15	A
Sustainability Switzerland	13	Not Applicable
Corporate Ownership and Control	11	B
Journal of Consumer Research	11	A
Managerial Finance	11	A
Journal of Behavioural and Experimental Finance	10	Not Applicable
Journal of Consumer Psychology	10	A
Journal of Economic Behaviour and Organization	10	Not Applicable

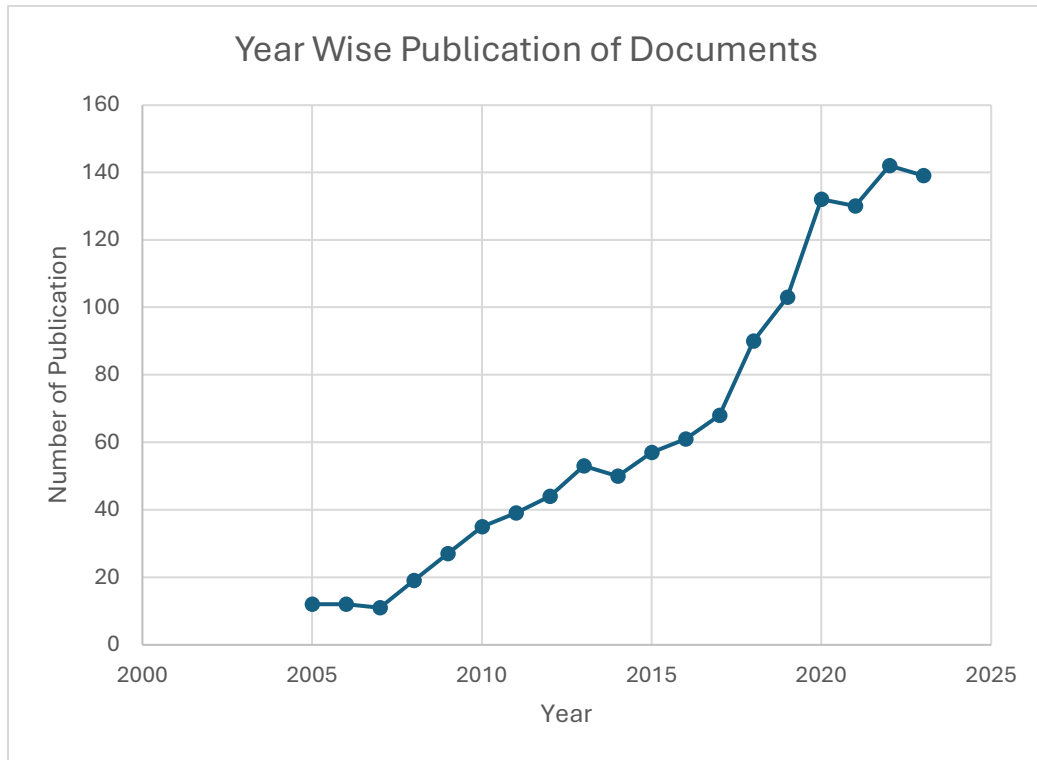
Source (Scopus database)

Most of the journals publishing articles fall under the ABDC category. Out of sixteen major journals, eight are in the A category, two in B, and six are not part of the ABDC. The journal with the most publications in the ABDC Category is the Journals of Marketing Research, with 24 articles rated as ABDC A. The second highest in ABDC

Category A is the International Journal of Bank Marketing, with 19 publications, followed by the Journal of Consumer Affairs, with 16 publications.

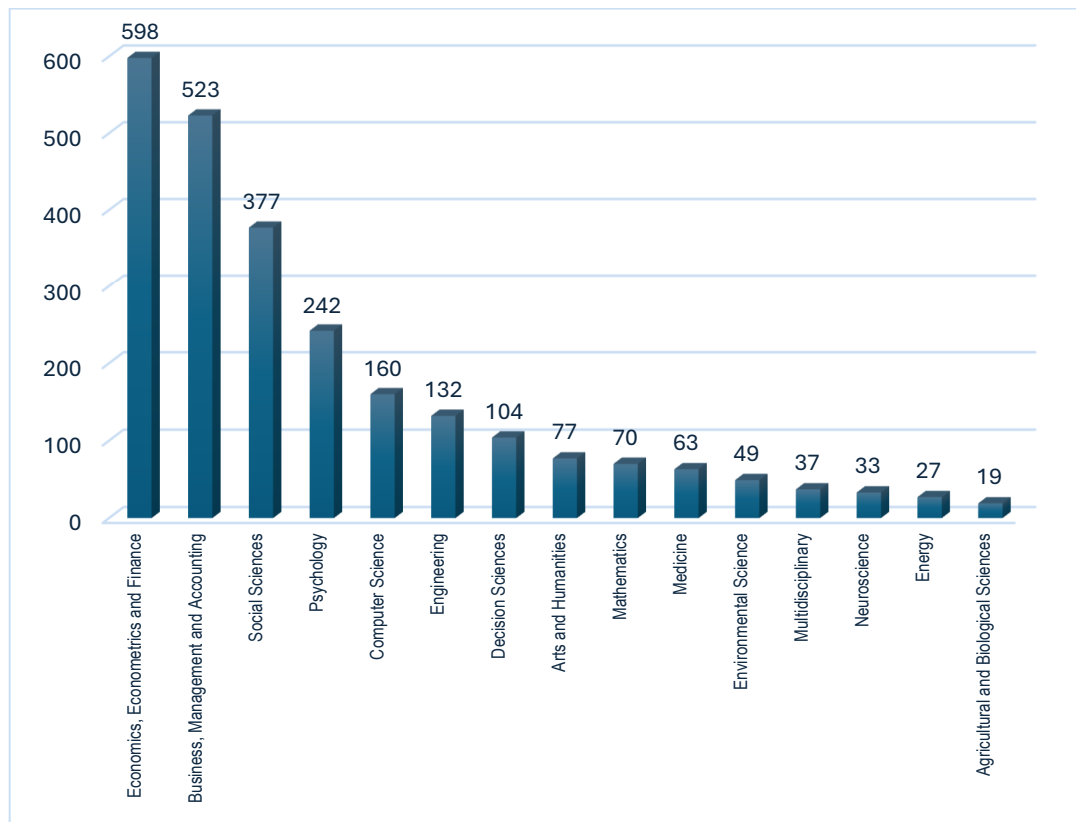
**Figure 2.1**

*Year Wise Trend of Publication of Documents*



Source: (Scopus Database)

From the above figure, it is clear that the subject of financial intelligence is relatively new. The publication of journals in this area began only in 2005, and it has continued to grow since then. The highest number of publications occurs in 2023 and 2024, indicating that a large number of studies are currently being conducted in this field.

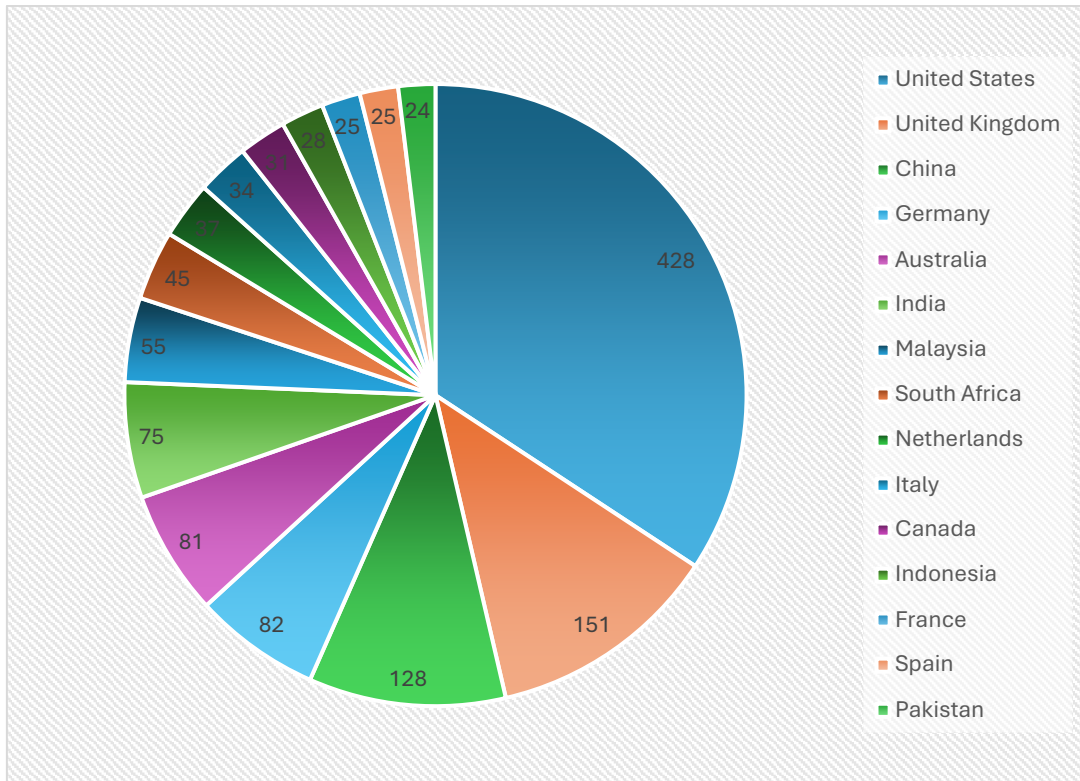
**Figure 2.2** Subject Wise Publication of Documents

Source (Scopus Database)

From the above graphs, it is observed that the highest number of articles published in the concerned topic is in Economics and econometrics with 598 articles, the second highest is in business and management with 523 articles, the third highest is in social science with 377 articles and psychology with 242 articles.

**Figure 2.3**

*Country-Wise List Publication in Concerned Subject*

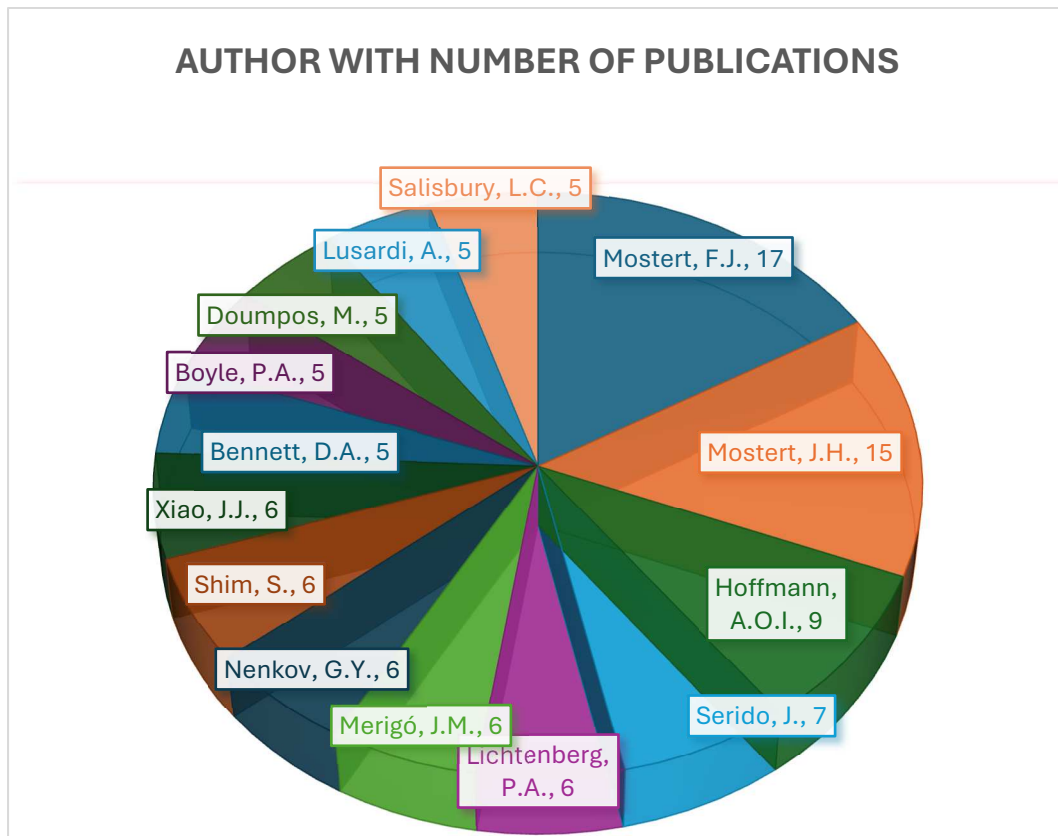


Source (Scopus Database)

The United States leads in the publication of papers in the field of financial intelligence with 428 articles, followed by the United Kingdom with 151 articles, China with 128 articles, Germany with 82 articles, Australia with 81 articles, and India with 75 articles. Although developed countries are at the forefront, developing countries are also making significant contributions to research in this area.

**Figure 2.4**

*Most Contributing Authors in the Concerned Discipline.*



(Source: Scopus Database)

In the domain of financial intelligence, Mostert FJ has authored 17 articles, Mostert J.H. 15, Hoffmann A.OI. 9, Serido J with 7, Lichtenberg P. A. 6, Marigo J.M. 6, Nankov G.V. 6, Shim S 6, Xiao J. J. 6, Bennet D. A. 5, Boyle P. A. 5, and Lusardi A. 5. While most authors are based in the UK and Europe, some major contributors come from Asia. However, there are no Indian writers among the top fifteen, suggesting that research activity in financial intelligence is less prominent in India compared to other Asian and European countries.

### 2.3 Citation Analysis

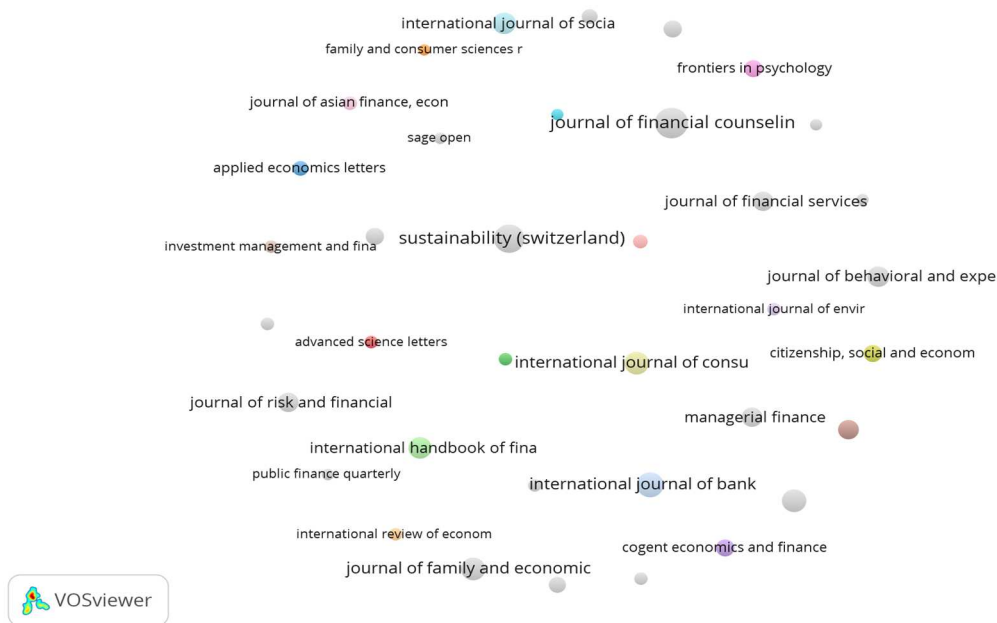
Citation analysis involves examining the bibliographic references in each academic publication, such as articles, conference proceedings, books, etc. The aim of citation analysis is to determine how often a person's research is cited by others in the specific field (Olly, G.; Haytman, et al, 1981). It is used to understand the frequency with

which other scholars cite a work. Additionally, it helps to evaluate the impact factors of individual scholars, institutions, and published journals (Öztürk, O., Kocaman, et al, 2024).

Network visualisation helps identify key authors, publications, and research trends within a field. It can enhance the literature review by highlighting influential works and authors. Different colours in the network represent various research clusters, aiding in organising the chapter around main themes and debates. The size of nodes indicates the significance of works based on citation frequency, guiding researchers to focus on seminal papers and major contributors. Lines between nodes show relationships like co-authorship or citations, revealing interdisciplinary links that can enrich the chapter with diverse perspectives.

**Figure 2.5**

*Citation By Source in Concerned Discipline.*

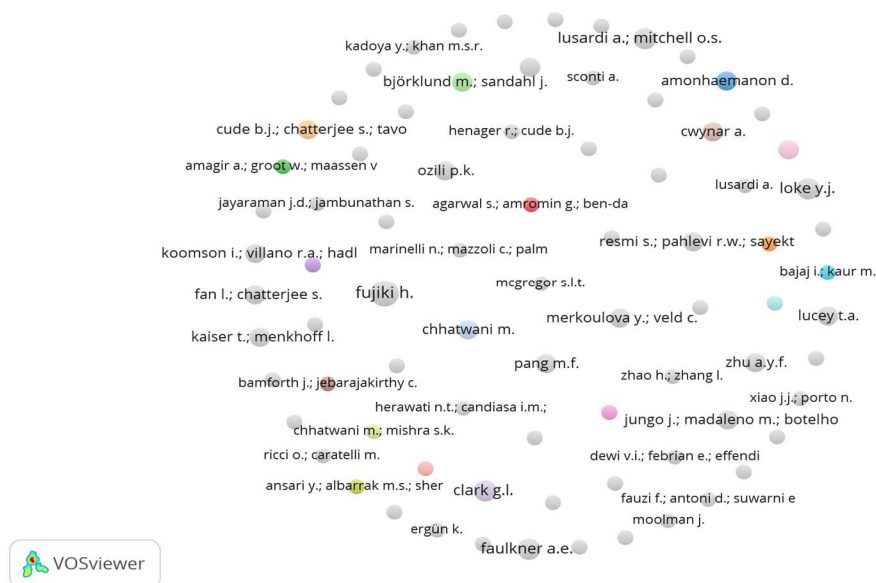


The leading contributors are the Journal of Pension Economics and Finance with 37 documents and 2720 citations, the Journal of Family and Economic Issues with 36 documents and 1660 citations, the International Journal of Consumer Studies with 37 documents and 1402 citations, the Journal of Banking and Finance with 20 documents

and 1292 citations, the Journal of Financial Counselling and Planning with 65 documents and 1321 citations, the International Journal of Bank Marketing with 42 documents and 983 citations, the Journal of Economic Psychology with 10 documents and 782 citations, and Sustainability with 57 documents and 515 citations.

## Figure 2.6

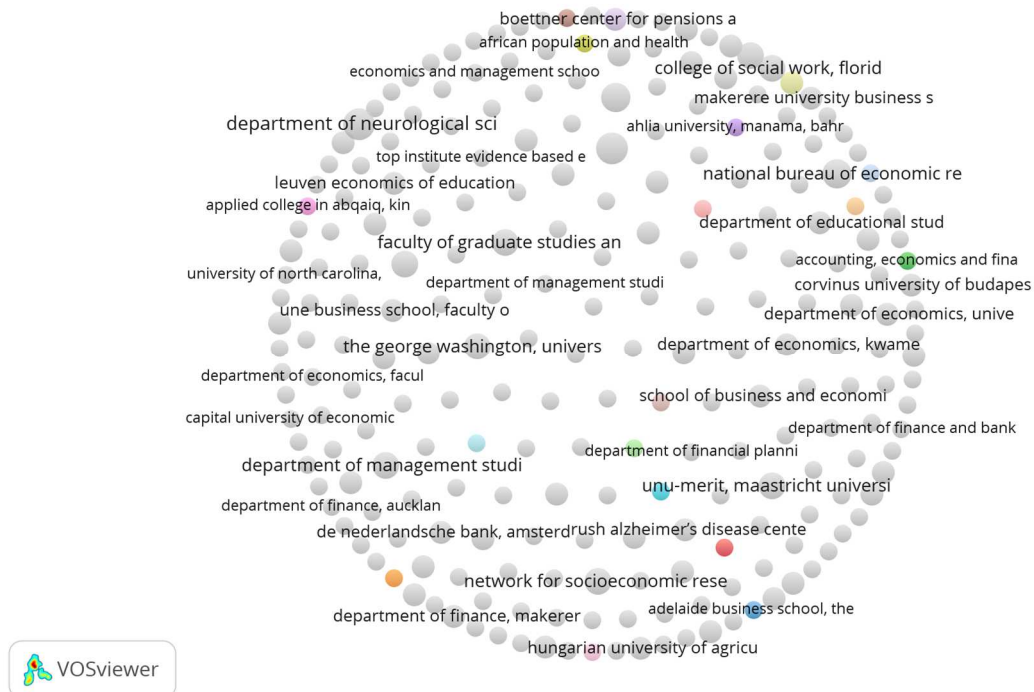
*Citation by Authors in Concerned Discipline.*



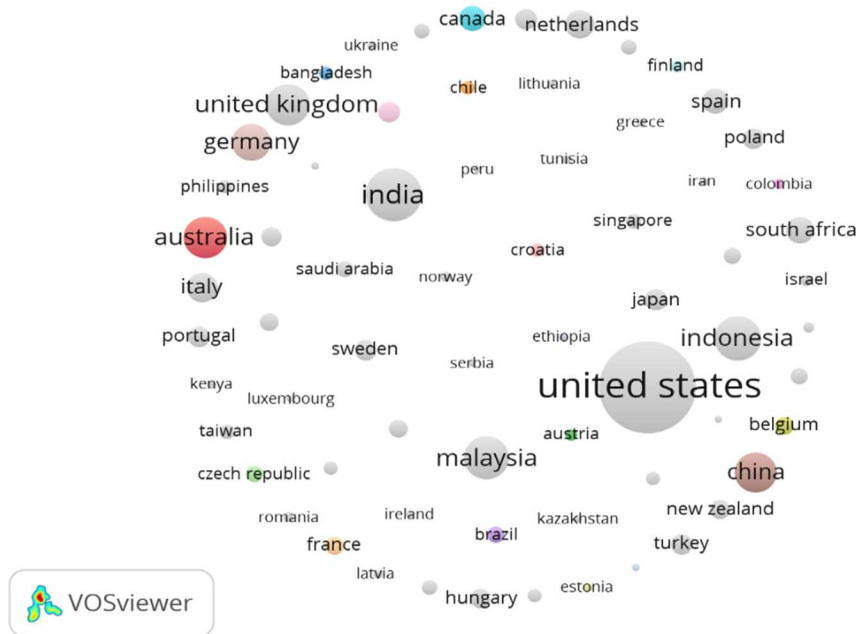
For searching purposes, the maximum number of authors per document is set at 25. The threshold for the minimum number of documents, authors, and citations for an author is 2. Out of 2377 authors, 80 meet these criteria. The top contributors include Lusardi, A., with 4 documents and 2191 citations; Loke, Y.J., with 4 documents and 61 citations; Fujiki, H., with 6 papers and 60 citations; Clark, G.L., with 4 documents and 40 citations; and Faulkner, A.E., with 4 documents and 34 citations.

**Figure 2.7**

*Citation by Organisations in Concerned Discipline.*



For the purpose of the search, the minimum number of documents and citations required for an organisation is 2. Out of 4890 organisations, 298 qualified the threshold limits. The top contributing organisations are the Department of Behavioural Science at Rush University Medical Centre, Chicago, with five documents and 164 citations; the Department of Medical Science at Rush University Medical Centre, with six documents and 152 citations; the National Bureau of Economic Research, with five documents and 540 citations; Warton School, University of Pennsylvania, Philadelphia, with 715 citations; the World Bank, with 344 citations; UWA Business School, University of Western Australia, with 61 citations; Obuda University, Hungary, with three citations; and Utrecht University, Netherlands, with 10 citations.

**Figure 2.8***Citation by Counties of Origin*

The United States has contributed the largest number of documents with citations, total 678 documents cited as 18824. Following are the Netherlands with 68 documents and 3082 citations, the United Kingdom with 142 documents and 3039 citations, Germany with 116 documents and 2,355 citations, India with 230 documents and 1939 citations, Australia with 144 documents and 1736 citations, China with 133 documents and 1720 citations, Italy with 75 documents and 1683 citations, and Malaysia with 158 documents and 1445 citations.

## 2.4 Bibliometric Coupling

Bibliometric coupling is a similarity measure that employs citation analysis to establish a relationship between documents. Two documents are bibliometrically coupled if a third document cites both of them, Kessler, M. M. (1963).

**Figure 2.9**

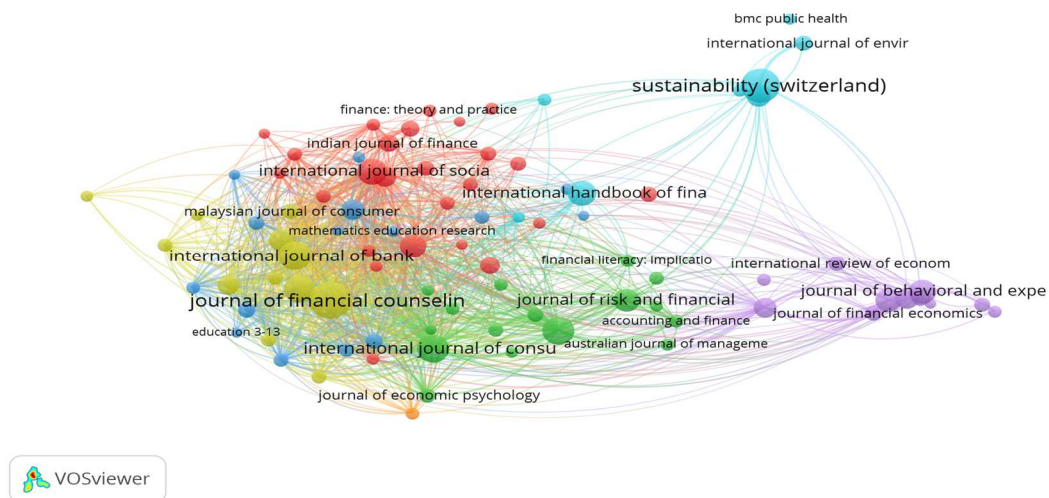
*Bibliometric Coupling By Documents*



The minimum number of citations required for a document is 5. Out of 2500 documents, 1170 met this threshold. Four clusters were created: cluster one has 100 items, cluster two has 27 items, cluster three has 20 items, and cluster four has 10 items. Some of the documents include Goyal K Kumar 2021 with 310 citations and a link strength of 149, and Dogra, P Kushal, Sharma RR 2023, with 3 citations and a link strength of 88.

**Figure 2.10**

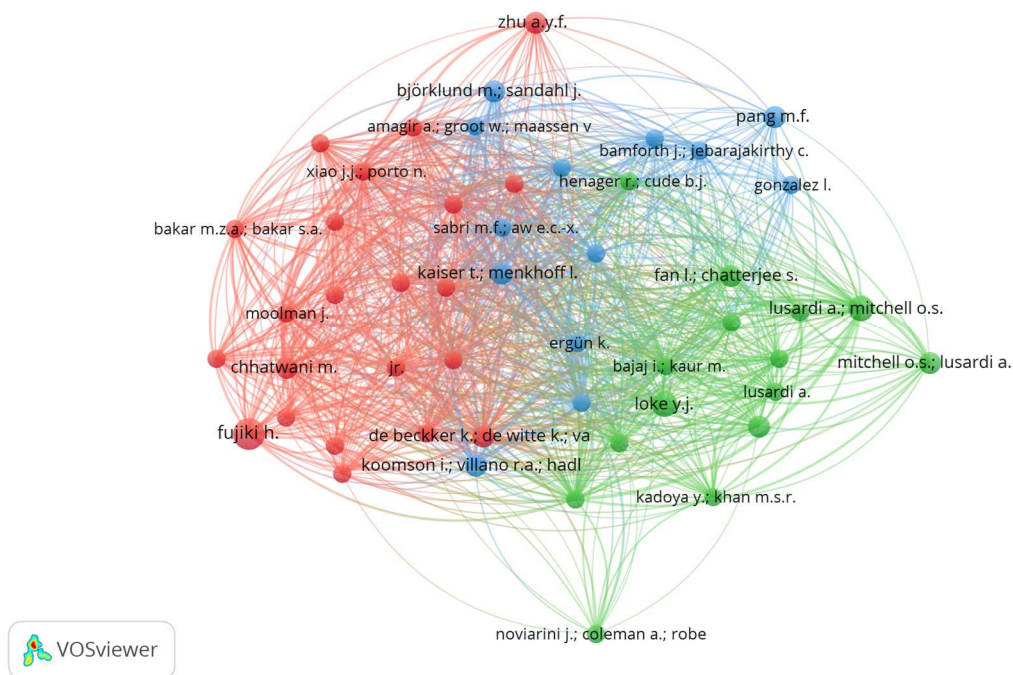
*Bibliometric Coupling by Source*



The minimum number of documents required from a source is 2. Out of 979 sources, 381 met this threshold. The leading contributors include the International Journal of Bank Marketing with 42 documents, 983 citations, and 26208 link strength; the Journal of Financial Counseling and Planning with 65 papers, 1321 citations, and 18199 link strength; the International Journal of Consumer Studies with 37 documents, 1402 citations, and 15321 link strength; and the Journal of Family and Economic Issues with 36 documents, 1660 citations, and 13918 link strength.

**Figure 2.11**

*Bibliometric Coupling by Authors*

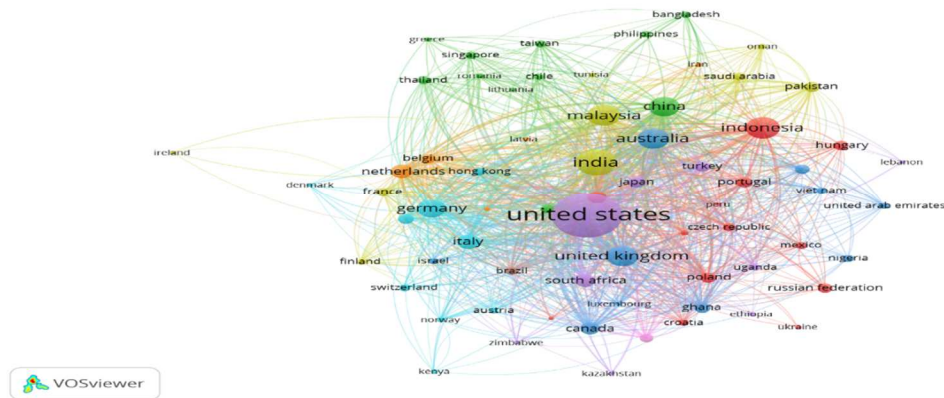


For the purpose of the search, a minimum of two documents by an author is considered. Out of 2377 documents, 95 met the threshold. Three clusters were created, with the first cluster containing 22 items, the second cluster 13 items, and the third cluster 15 items. The major documents include Lusardi and Mitchel OS, which has four documents, 2191 citations, and a link strength of 49; Bialowolski p.; Cwynar a.; Weziak-Bialowolska d., with two documents, 14 citations, and a link strength of 87; De Beckker k.; De Witte k.; van Campenhout g., with three documents, 57 citations, and 103 link strength; Kaiser t.; Menkhoff l., with three documents, 230 citations,

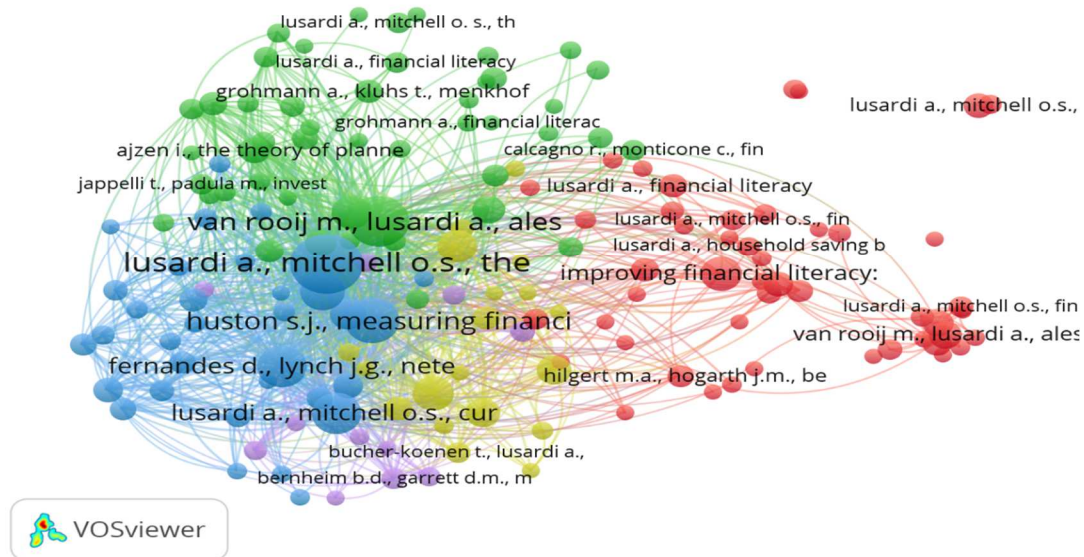
and 68 link strength; Xiao j.j.Porto n., with two documents, 185 citations, and 72 link strength.

**Figure 2.12**

*Bibliometric Coupling by Countries*



Bibliometric coupling by countries examines the scientific output of different nations by analysing the references in their published research. This helps identify patterns of collaboration, research trends, and the influence of various countries in different scientific fields. The largest label of United States indicates the highest level of bibliometric coupling activity, suggesting substantial research output and cooperation. Countries such as the United Kingdom, China, Germany, and Australia show strong connections with the United States, indicating frequent collaboration and shared references. Nations like India, Japan, and South Korea also have notable links, reflecting their growing influence in the global research landscape.

**Figure 2.13***Co-citation of Documents by References*

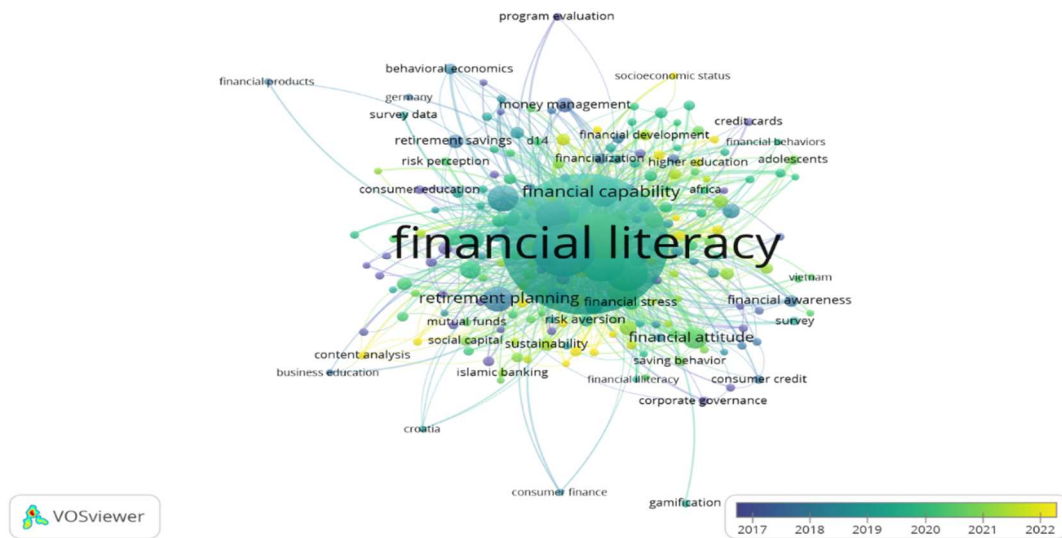
The co-citation network visualisation shows the connection between various documents based on how often they are cited together. The documents are divided into different clusters and different colours are assigned to each cluster. Each cluster displays documents in a single colour, grouped by related topics. Bigger nodes show more co-citations in a single subject. Works by Lusardi, A., and Michell. OS appears to have more nodes that are cited more times than any other work.

## 2.5 Co-occurrence of Documents by Indexed Key Words.

This figure helps to identify key research areas in the field of financial intelligence. The co-occurrence visualisation of indexed keywords highlights the area of research. Finance is the most co-occurring word, frequently appearing in conjunction with insurance, financial services, and regression analysis. The keywords are grouped into different clusters, and each cluster is assigned a different colour. Financial literacy and financial education are in the same cluster and show a strong relationship between them. The words pandemic and e-learning are in the same cluster, indicating a stronger relationship. The words human, education and health literacy show the interdisciplinary nature of the topics.

**Figure 2.14**

*Trust Area of Research in the Concerned Field.*



The above images illustrate the research focus area within the relevant discipline. Financial intelligence is the central theme, which shows the relevance of the subject. The surrounding fields are financial education, financial behaviour, financial stress, and financial retirement planning. Topics like financial awareness, financial capability, financial attitude, and other related factors are also prominent in the area of research. The picture illustrates the relationship to broader areas, including socio-economic status, consumer education, and corporate governance.

## **2.6 Introduction to Financial Intelligence**

**Robert T. Kiyosaki** explores the concept of financial intelligence in his book "**Increase Your Financial IQ**," highlighting its importance in tackling financial problems and reaching financial objectives. He defines financial intelligence as the capacity to make informed financial decisions and tackle financial issues effectively. The book outlines five essential aspects of financial intelligence, which Kiyosaki terms the Five Financial IQs. These aspects include earning more money, protecting wealth, budgeting, using funds wisely, and expanding financial knowledge. Each of these aspects is crucial for accumulating and maintaining wealth. (Kiyosaki, 2008)

The article “**Measuring Financial Intelligence of Malaysian Gen-Y: A Preliminary Study**” Highlights that Malaysians lack effective personal financial management, primarily due to low financial literacy, as reflected in the high bankruptcy rates. This emphasises the urgent need for financial education to enable individuals to make better financial choices. The study aims to evaluate the current financial knowledge level among Malaysia's Generation Y, focusing on saving and borrowing, insurance and protection, and investment. Results indicate that most respondents possess only low to moderate understanding of personal finance concepts, such as the time value of money, insurance providers, and different investment types.

“**Financial Intelligence: A Manager's Guide to Know What the Numbers Really Mean**”. **Keren Bermen and Joe Knight**. The articles highlight the importance of knowing financial numbers to employees and other stakeholders of the organisation. The documents like income statement, balance sheet, cash flow, fund flow, etc are prominent within the organisation. This document will give insight into the company's financial health. So by analysing liquidity, solvency and profitability, employees will get a clear picture about the company's financial health. They also stress the need to have financial intelligence among the team members.

The article titled “**Financial Intelligence and Quality of Higher Education in Africa**”, **Faboyede, Ben Caleb, and Obigbemi (2013)** examine financial intelligence in Africa. The author defines financial intelligence as the capacity of a person to trace and effectively manage financial matters. According to them, financial intelligence is the most relevant skill in the 21st century. They pointed out that higher education in Africa lacks comprehensive financial education, leading to poor financial planning and management. The paper emphasises the importance of incorporating financial education into university curricula to better prepare students for future challenges.

The article titled “**Measuring financial Intelligence of Malaysian Gen Y: A Preliminary Study** by **Rohani Mohd, Saadiah Mohamad, Norlin Nor, and Badrul Hisham Kamaruddin (2016)** enquired about the financial intelligence of Gen Y of Malaysia. The study developed an instrument for measuring the financial intelligence of the Y gen of Malaysia by doing exploratory factor analysis and confirmatory factor

analysis. One of the major reasons for the low financial intelligence of Y generation is household debt. The authors also emphasised the importance of financial intelligence to policymakers who should address such issues in society. The Rasch model is used for categorising Y gen in terms of financial intelligence.

**“Financial Intelligence from Human Resource Point of View: A Conceptual Framework”** is the article by **Kececioglu and Hicyilmaz (2013)** that explores how HR managers' roles are shifting from purely human resource to administering the financial aspect also. The authors stress that HR managers need to develop financial intelligence to gain respect and recognition within their organisation. The article highlights several key points. First, it emphasises the strategic importance of HR, moving from administrative duties to strategic influence, which requires HR managers to be seen as strategic partners. Second, it defines financial intelligence as the ability to understand and analyse financial data, which is crucial for HR managers to contribute effectively to organisational success. Third, it discusses various human capital metrics like revenue per employee and labour cost ratios that HR managers can use to assess the financial impact of their activities. Finally, the paper addresses challenges HR managers face in developing financial intelligence and suggests ways to incorporate financial metrics into HR practices.

The article on **“Financial Intelligence and AI 2.0”** explores how advanced artificial intelligence is being integrated into the financial industry, exploring the impact of AI in areas like wealth management, risk assessment, financial security, consulting and blockchain innovations. The author outlines the development of financial technology in three phases. Phase one is Fintech 01, Fintech 02 by internet finance, and Fintech 03 focuses on intelligent finance (Zheng et al., 2010).

The article by **Yao and Meng (2022)** titled **“The Role of Social Capital and Financial Well-Being in Reaching Successful Entrepreneurial Performance: A Moderated and Mediated Model of Financial Intelligence”** explain the relationship between social capital, financial well-being and entrepreneurial financial success. The study focused on 326 entrepreneurs in China, exploring how these factors impact the achievement of entrepreneurial goals. The article highlights the crucial role of social

capital in providing entrepreneurs with vital resources and knowledge, which are key to overcoming the challenges of the new venture (Yao L., & Meng, D., 2022)

The article titled **“The Role of Financial Intelligence Quotients and Financial Literacy for Paving a Path Towards Financial Well-being”** discusses the developing financial intelligence measurement model. The paper highlights the importance of financial intelligence, financial literacy and financial behaviour in achieving financial goals. According to the study, financial intelligence influences financial decision-making. The study also finds that financial intelligence is affected by education but not by gender or age. (Miecinskiene et al., 2023)

## **2.7 Financial Intelligence and Financial Attitude**

The article titled **“Financial Management Practice and Money Attitude as a Determinant of Financial Problems and Dissatisfaction in Young Male Australian Workers”** discusses the attitude of young workers of Australia. The study emphasises the role of financial management strategies and money attitude in influencing financial issues and satisfaction among these groups. The study highlights the influence of financial education and counselling to improve young men's financial outcomes. By enhancing money attitude and financial literacy, individuals can achieve better financial stability. The study also highlights the importance of seeking professional advice in matters of finance. (Dowling., et al 2009).

The article **“Money attitude- an Abridgement”** by **Rimple Manchanda Taneja** explores the possibility of money attitude, emphasising its multidimensional nature and importance across various social, economic, and cultural contexts. The article underscores the need for psychologists, educators, marketers, policy makers, sociologists, and anthropologists to understand money attitudes. The study highlights how money attitude develops from childhood, shaping factors such as personal experience, education, social and financial status. He also reviewed the scale developed by other authors in the topic of money attitude. (Taneja RM 2021).

**“Intergenerational Transference of Money Attitude and Behaviour”** by **Sonia L Britt (2016)** provide a resource for educators working with consumers about the

intergenerational influence of financial attitude and behaviour. An individual's attitude is shaped by social status, family, ethnicity, and gender, which in turn influence their economic decisions. Understanding these facts is essential for educators to frame effective intervention techniques. The CFPB opinion suggests that financial educators often struggle to apply soft skills due to limited practical training (Consumer Finance Protection Bureau 2020). The paper explains different strategies to be incorporated for improving financial education (Sonya L Britt, 2016)

The article by **James A. Robert and Eli Jones** investigates the complex connection between attitude towards money, credit card use, and compulsive purchasing among American college students. The authors' view that consumers' cultural attitudes towards money have greatly affected individuals and society. This culture, which dominates in society, promotes overspending rather than savings. The study identified three primary money attitudes- power, prestige, distrust and anxiety. The paper explores how this money attitude influences compulsive purchasing behaviour. These attitudes suggest that people use finance to attract attention and boost status. This can lead to compulsive buying. The distrust component marked by price sensitivity and scepticism about financial choices aims to curb compulsive buying. The anxiety dimension indicates that individuals who perceive money as a source of stress are more prone to compulsive buying. (Roberts, J.A., & Jones, E 2001).

## **2.8 Financial Intelligence and Financial Literacy**

The article titled **“The Perception-Reality Gap in Financial Literacy: Evidence from the Most Literate State in India”** by **Abdul Latheef Kiliyanni and Suitha Sivaraman (2016)** examines the level of financial literacy among educated youth in Kerala. The paper aims to analyse how demography and socio-economic factors influence financial literacy. The data for the study were collected from 736 young adults using a structured questionnaire. The findings of the study indicated that the financial literacy among young adults in Kerala is low, with an average of only 44 % of the questions answered correctly by adults.

**“Analysis of Financial Literacy Tendencies with Young People”** by **Aina Caplinska and Alina Ohotina (2019)** explores the financial literacy of young people

in Latvia. The study stresses the importance of financial education for personal well-being, national development and economic stability. The author argues that financial literacy will boost a person's ability to manage funds, making informed choices of finance and a country's development. The study also argues that although some people feel they are financially literate, the actual result may be different because some people will be overconfident of their financial knowledge.

**“Financial Literacy, Debt, Risk Tolerance and Retirement Preparedness: Evidence from New Zealand” by Jelita Noviarini et al. (2021).** The study identifies the interrelationship between financial literacy, risk tolerance, debt management and retirement readiness among people of New Zealand. The article explores how these factors shape individuals' financial behaviour and decision-making ability related to retirement planning. The study reveals that the higher the financial literacy, the better the debt management and the greater willingness to accept financial risk tolerance. These qualities will help with retirement readiness.

**“Effect of Financial Education and Financial Literacy on Creative Entrepreneurship” (2019)** clearly depicts how financial knowledge and financial education lead to creative entrepreneurship processes internationally. The view of the union is that financial education and skills lead to creative entrepreneurship. Financial education will lead the entrepreneurs to manage resources effectively, improve financial decision-making, and face entrepreneurial challenges of the future. The more financial knowledge, the more confidence and motivation to be an entrepreneur, leading to more sustainable business ventures. (Emilio Abed et al., 2019).

The article **“Effect of Financial Literacy on Sustainable Entrepreneurship”** examines how financial literacy leads to sustainable entrepreneurship within the country. They argue that financial knowledge and skill affect entrepreneurs' ability to establish and sustain a business practice. By using data from secondary database sources like the World Bank and OECD, the researcher found that there is a positive statistical relationship between financial literacy and sustainable entrepreneurial activities. According to his research, entrepreneurs with higher financial knowledge can manage better resources and finance within the organisation. The study stresses

the importance of incorporating financial education into the national educational curriculum to improve financial knowledge, which leads to sustainable entrepreneurship within the country. (Alberto Burchi et al., 2021).

**“Analysis of Financial Literacy Tendencies with Young People”**. The article written by **Aina Caplinnska and Alina Ohotina** in 2019 explains the level of financial literacy of people of Latvia. The author stresses the importance of financial literacy for managing personal finances, financial decision-making, and overall economic stability. It is said that though most of the youth rate financial knowledge very highly, the actual level of financial knowledge is very limited. So the author suggests that greater financial education and financial awareness can help people acquire the necessary skills, which is very important for financial management and economic development. (Caplinnska & Alina Ohotina, 2019).

**“The Effect of Family, Peer Behaviour, Saving and Spending Behaviour on Financial Literacy among Youth Generation”** enumerates the factors that influence financial literacy among youth in Malaysia. The study emphasises the role of family, peer group and personal behaviour on saving and spending practices, creating financial behaviour. The study also stresses that family and peers affect the level of financial literacy among youth. The paper suggests that to improve financial literacy, a comprehensive approach, like the role of family, school and peer network, needs to work together. (Jamal Muhammed et al., 2018).

**“Financial Education and Students' Financial Literacy: A Cross-Country Analysis Using PISA 2012 Data”**. This article explores the problem of how financial literacy education affects financial literacy access across countries. Using the data from the PISA 2012 module, the study tested whether teaching fundamental financial literacy aspects enhances the financial knowledge of the students, equipping them to face modern-day business challenges. The study used multilevel regression models to analyse the data. The study finds that access to financial education is positively correlated to students' financial literacy regardless of their teaching approach. (Jose Manuel Cordero et al., 2022)

**“Association of Financial Attitude, Financial Behaviour and Financial Knowledge Towards Financial Literacy: A Structural Equation Modelling Approach”** explain the impact of financial attitude, behaviour and knowledge on financial literacy among working women in Dubai and India. The study reveals that financial attitude and financial behaviour are closely related, which are linked to financial knowledge. Even if there is financial education among the people, having a positive attitude is more critical in financial literacy development. (Kamini Rai et al. 2019).

**“Religiosity, Financial Knowledge and Financial Behaviour Influence on Personal Financial Distress among Millennial Generation”** explains the factors contributing to personal financial distress among the millennial youth of Malaysia. The paper is based on social learning theory, emphasising the importance of religiosity, financial knowledge and financial behaviour. The findings reveal that financial knowledge has a positive connection with financial distress than religiosity. The suggestion is that even though religiosity is important, actual financial practice is more important for self learning and development. (Nelson Lajuni et al., 2018).

**“Role of Financial Behaviour, Financial Literacy and Financial Stress in Explaining the Financial Wellbeing of B40 Group in Malaysia”** explores the factors affecting the financial wellbeing of Malaysian bottom 40% income earners. The authors aim to understand how financial behaviour, financial literacy and financial stress are economically vulnerable groups of the population. The study finds that financial behaviour is the active predicting factor of financial well-being and financial stress, and financial literacy also plays a significant role. The author suggests that increasing financial behaviour and managing financial stress among vulnerable groups is important to enhance financial well-being. (Mahfuzu Rahman et al., 2021).

## **2.9 Financial Intelligence and Financial Management**

The article **“The Financial Management Behaviour Scale: Development and Validation”** provides a detailed discussion on financial behaviour scale development and validation. The researcher developed a financial management behavioural scale using data from nationally representative samples. The aim of the study was to develop a multidimensional psychometric scale for financial management behaviour.

The findings of the study observe a strong correlation between savings and consumer debt habits. The study stressed the importance of scale in order to improve the financial management behaviour of young adults (Jing Jian Xiao et al., 2011).

**“Validation of the Scale of Research on Personal Financial Management”** is an article that provides a detailed discussion on how the existing scale of financial management behaviour, buying impulsiveness and financial strain are validated. The author conducted empirical research by translating the scale originally published. For the purpose of research, 195 samples were collected for postgraduate students and faculty members of five Brazilian states. The study finds a negative relationship between impulsiveness in purchase and responsible financial management, with evidence that good financial management can decrease financial strain. The research suggests that making good financial habits will reduce financial stress. The study also highlights the importance of educational programs and credit marketing tactics (Ricardo Teixeira et al., 2019).

The article **“Segmenting Young Adults Based on Financial Management Behaviour in India”** observes how young Indian adults handle financial management. The authors aim to develop and validate a scale for financial management behaviour for emerging markets by classifying individuals into segments and analysing how demographic factors impact key behaviours using factor analysis. The study identified three main areas: cash management, credit management and savings management. The study employed cluster analysis to categorise young adults into three groups: responsible customers, credit-oriented customers and vulnerable customers. The findings display a hierarchical pattern in their financial behaviour. (Dhananjaya Bapat et al., 2019).

**“Financial Knowledge, Financial Attitude, Financial Management Behaviour: Self-Control as A Mediating”** investigating the factors influencing financial management behaviour among employees of the Islamic University. The aim of the study was to understand how financial knowledge, financial attitude and financial control contribute to financial management behaviour (Indra Siswanti & Adiyati Mayang Halida, 2020).

The article “**The Effect of Financial Literacy, Financial Knowledge, Attitude and Personality on Financial Management Behaviour in MSME**” examines how financial literacy, financial knowledge, attitude and personality traits influence the financial management behaviour of MSME enterprises in Indonesia. The research objective was to understand how these elements impact responsible financial practices among small and medium-sized enterprise owners. The findings of the study reveal that financial attitude and personality traits shape the financial management behaviour, but financial knowledge alone will not have any effect. So personality and positive attitude are more relevant than knowledge. (Wahdiyati Moko et al., 2023).

The article “**Antecedents to Responsible Financial Management Behaviour Among Young Adults: Moderating Role of Financial Risk Tolerance**” explores the factors influencing financial behaviour among young adults in India. The study emphasises how financial management risk tolerance serves as a mediating variable. The findings indicate how financial attitude fully mediates the relationship between financial knowledge and responsible financial management behaviour, with financial risk tolerance moderating this influence. Age and occupation are also identified among demographic factors that impact responsible financial management behaviour.

## **2.10 Financial Intelligence and Financial Decision Making**

“**Financial Help-seeking Behaviour: Theory and Implications**” is an article written by John E Grable and So-hyun Joo, which examines the factors that influence people to decide to seek financial assistance. The result of the study shows that younger people without a house and who are facing more financial stressors are more prone to seek help. The study emphasises the need to understand these behaviours to create more effective financial counselling and educational programs.

The article “**Financial Decision Making**” offers a comprehensive review of current literature on financial decision making. The author examines different factors affecting financial behaviour with emphasis on promoting financial well-being. The theory is organised into three key areas: behaviour that supports financial well-being, psychological influences on financial well-being, and the impact of situational factors. (Adem Eric Greenberg & Hal E. Hershfield, 2019).

The article **“Sirens’ Call: Understanding Poor Financial Decision Making and Credit Card Misuse”** examines the behavioural economic theory that sheds light on why consumers often make poor financial decisions, particularly regarding credit card misuse. The author highlighted the serious consequences of poor financial decisions, such as personal debt and related mental and physical health problems. The study emphasises the significant barriers consumers face in achieving financial stability and suggests that applying behavioural economics can be beneficial in understanding this issue. They recommend a financial therapy model to improve decision-making skills and stress, and the importance of collaboration among social workers, family economic experts, and policy makers to enhance financial literacy and develop effective interventions (Thomas E. Smith et al., 2015).

The article titled **“The Interplay of Skill, Digital Financial Literacy, Capability and Autonomy in Financial Decision Making and Wellbeing”** examines the complex relationship between various factors influencing financial decisions and perceived financial wellbeing. It highlights the mediating role of digital financial literacy, financial autonomy, financial capability and impulsivity. The study emphasises the importance of understanding how skills, digital literacy, financial capability, and autonomy interact uniquely to enhance financial decision-making and overall well-being (Sumit Agarwal & Bashker Mazunder, 2013).

The article titled **“Cognitive Abilities and Household Financial Decision Making”** by **Sumit Agarwal and Bhashkar Mazumder**, published in the *American Economic Journal: Applied Economics*, examines how cognitive skills influence household financial choices. It provides two clear examples of poor financial behaviour: using credit cards for convenience transactions following a balance transfer, and mistakes in home equity loan applications. The results show that people with higher overall cognitive test scores, particularly in mathematics, are less prone to financial errors. These mistakes are usually not connected to other non-math test scores. The study highlights the importance of cognitive abilities in making sound financial decisions and suggests that improving mathematical skills could lead to better financial outcomes for consumer households.

The article titled **“Ageing and Financial Decision Making”** by **Keith Jacks Gamble, Patricia A. Boyle, Lei Yu, and David A. Bennett**, published in *Management Science* on November 1st, 2015, explores how cognitive changes due to ageing impact the financial decision-making skills of older Americans. It finds that declining cognitive abilities are connected to reduced financial literacy. In particular, decreases in episodic memory and visuospatial skills are related to lower numeracy, while a decline in semantic memory is linked to poorer financial understanding knowledge

**“Financial Education and Behavioural Finance: New Insight into the Role of Information in Financial Decision”**. The article examines the interconnection between financial education and behavioural finance in shaping financial decision-making. The study conducted a massive literature review on empirical data from various surveys and experiments about how people use financial information in their financial decision-making process and financial choices. According to the author, psychological factors like overconfidence and lower cognitive capacity reduce the role of information in financial decisions. The aim of the study was to complement existing research by examining how people perceive and interpret financial data. (James P Smith et al., 2010).

The article **“Financial Decision-Making and Cognition in Family Context”** analyses the factors influencing the cognitive traits, especially knowledge of numbers, on family financial decisions. The study looks into how spouses’ cognitive ability affects financial decisions within the family. The study finds that significantly affect the financial results for both the respondents with or without financial expertise. The study also emphasises that cognitive traits like numeracy are crucial in determining decision makers, with a stronger effect observed for husbands compared to wives. (James P Smith et al., 2010).

## **2.11 Financial Intelligence and Financial Discipline**

The article titled **“Formation of Financially Competent Behaviour of the Population: Risks and Security Conditions”** by **Natalia Alikperova**, published in the *Humanities and Social Sciences Bulletin of the Financial University* on November

2nd, 2020, examines the potential for fostering financially competent behaviour among the population amidst growing risks and economic uncertainties. The study highlights the importance of financial literacy and security in safeguarding personal material well-being.

### **2.12 Financial Intelligence and Financial Locus of Control**

The article “**The Psychological Antecedents of Personal Financial Management Behavior: A Meta-Analysis**” by **Kirti Goyal, Satish Kumar, Jing Jian Xiao, and Sisira Colombage**, published in the International Journal of Bank Marketing in 2022, aims to synthesise previous research on the link between personal financial management behaviour (PFMB) and six psychological factors: financial attitude, financial self-efficacy, self-control, materialism, internal locus of control (LOC), and external LOC. By analysing 32 studies that examined 52 connections between these psychological factors and PFMB through meta-analysis, the findings show that self-control has a significant positive association with PFMB. Additionally, subgroup analysis indicates that self-control and materialism are key predictors of PFMB in adults, while internal LOC significantly affects the younger population.

The article “**Role of Self-Control and Money Attitude in Personal Financial Planning**” examines how self-control and attitude towards money affect personal planning for finance. The study highlights the importance of developing an appropriate financial plan to manage current and future financial needs, balancing dialysis expenses with savings. The study stresses the critical role of intrinsic factors such as self-control and money attitude in fostering disciplined financial behaviour planning (Mousumi Singha et al., 2019).

The article “**Influence of Locus of Control on Financial Literacy of Students' Financial Behaviour**” examines how locus of control and financial literacy affect students' financial behaviour. The study reveals that both factors significantly affect students' financial behaviours. The study highlighted the importance of financial control and literacy in cultivating responsible financial behaviour among students, suggesting that enhancing these areas can lead to improved financial management and decision-making (Elida Gulto, 2024).

The article “**Exploring the Relationship between Locus of Control and Financial Behaviour of Accounting Students from Social Construction Theory Approach**” examines how locus of control affects the financial behaviour of accounting students, using a social construction theory approach. The study explores the relationship of financial behaviour and social constructions. The study highlights that locus of control plays a significant role in financial behaviour. Students with a strong internal locus of control are more likely to display positive financial behaviour. The study also highlights the importance of financial knowledge and self-efficacy in improving financial practice behaviour (Wirawana ED Radianto et al., 2021).

The article titled “**The Moderator Effect of Financial Literacy on the Relationship Between Locus of Control and Financial Behaviour**” investigates how financial literacy and locus of control affect individual investors' financial behaviour. The study also explores how financial literacy influences the relationship between locus of control and financial behaviour. The finding of the study reveals that both financial literacy and locus of control have a positive effect on financial behaviour. Financial literacy strengthens the link between internal locus of control and financial behaviour, revealing that higher financial literacy enhances internal locus of control (Ummuhan Mutlu & Gokhan Ozer, 2021).

The article “**Investigates the Effect of Financial Knowledge and Financial Attitude on Financial Management Behaviour Mediated by Locus of Control**”. It examines how financial knowledge and financial attitude influence financial management behaviour, with locus of control acting as a mediating variable. The study addresses the issues related to consumptive habits and their impact on financial management. The results indicate that both financial knowledge and attitude have a significant effect on financial management behaviour, and financial locus of control mediates between financial knowledge and attitude. So individuals with a strong internal locus of control will manage finances effectively (Nur Rishka Agustina & Madian, 2020).

The article titled “**The Influence of Financial Attitude, Financial Literacy and Locus of Control on Financial Management Behaviour (Case Study Working-Age of Semarang)**” investigates how financial attitude, financial literacy and locus

of control impact financial management behaviour among working-age residents in Semarang. It aims to explore the relationship between these factors to improve financial practices. The results show that financial attitude and financial literacy significantly affect financial management behaviour, while locus of control does not have a direct significant impact. The findings highlight the importance of increasing literacy and cultivating a positive financial attitude to promote better financial management in this area (Stella Maris Juhar Baptista, 2021).

The article titled **“Psychological Beliefs and Financial Wellbeing among Working Adults: The Mediating Role of Financial Behaviour”** explores how psychological beliefs affect financial wellbeing, emphasising the mediating role of financial behaviour. The study investigates how subjective financial knowledge, financial attitude and locus of control shape financial well-being among Malaysian working adults (Long She et al., 2021).

The article titled **“Financial Socialisation, Childhood Experience: The Mediating Role of Locus of Control”** investigates how early childhood consumer experience and consumer socialisation influence the financial well-being of adults. The study emphasises the mediating role of locus of control in this relationship. The study highlights the importance of financial socialisation and early consumer experience in shaping financial wellbeing (Saifu Ullah & Yusheng Kong, 2020).

### **2.13 Measurement of Financial Intelligence of Entrepreneurs**

The article titled **“Role of Social Capital and Financial Well-Being in Reaching Successful Entrepreneurial Financial Performance”** examines the key financial and social capital factors that shape entrepreneurial intention and financial success among Chinese entrepreneurs. The study emphasises the role of financial well-being, financial intelligence and the role of social capital as vital variables. The study underscores the significance of social capital and financial well-being in boosting entrepreneurial financial performance (Lei Yao & Da Meng, 2022).

The article **“Social Capital, Financial Intelligence and Entrepreneurial Financial Performance: Evidence from Post-Pandemic Challenges”** investigates how social capital and financial intelligence collectively influence entrepreneurial financial success, especially following the pandemic. By employing a mixed approach, data

was collected from 450 respondents through survey and interviews. Finning indicates that both social and financial intelligence are vital for improving entrepreneurial financial performance. The study also stresses that post-pandemic difficulties have promoted the importance of networking and financial intelligence for facing the problems of post-pandemic (Wan Jiang et al., 2023).

The article titled “**Financial Intelligence of Small Entrepreneurs in Managing Financials**” provides deep insight into the role of financial intelligence to MSME entrepreneurs in Indonesia. The study highlights that small entrepreneurs seldom use their financial reports for their daily operation, which reduces their understanding of financial data like profit, expenses, etc. The study stressed the need for inculcating financial intelligence and financial literacy among MSME owners to improve business operation and estimate business success (Yuli Yanti Wulan et al., 2021).

The article “**Titled Descriptive Analysis of Financial Literacy MSMEs in Bandung**” examines the financial literacy level of small and medium entrepreneurs of Bandung, Indonesia. The study stresses that financial literacy is essential for MSME success, including understanding personal business financial management and accessing capital via financial institutions (Asni Harianti, 2021).

The article titled “**Investigation of Entrepreneurial Emotional Intelligence on Financial Performance of FIIRO Technology Adoptees in the South-West Geopolitical Zone, Nigeria**” explores how emotional intelligence affects entrepreneurial success and affects financial performance. The study highlights five factors of emotional intelligence, such as internal motivation, empathy, self-regulation, self-awareness and skill development. Financial success is measured through profitability, sales growth, market share, net assets increases and employment level. The result of the study indicates a modest relationship between emotional intelligence and financial success, with self-regulation and empathy having the strongest impact. The study also finds that internal motivation, self-awareness and skill development showed little effect on financial performance (Oyedele Matthew et al., 2023).

**Reference:**

- Agnew, J. R., Bateman, H., & Thorp, S. (2013). Financial literacy and retirement planning in Australia. *Numeracy*, 6(2), 7. <https://doi.org/10.5038/1936-4660.6.2.7>
- Al-Tamimi, H. A. H., & Kalli, A. A. B. (2009). Financial literacy and investment decisions of UAE investors. *The Journal of Risk Finance*, 10(5), 500–516. <https://doi.org/10.1108/15265940911001402>
- Atkinson, A., & Messy, F. A. (2012). Measuring financial literacy: Results of the OECD / International Network on Financial Education (INFE) pilot study. *OECD Working Papers on Finance, Insurance and Private Pensions*, 15, 1–73. <https://doi.org/10.1787/5k9csfs90fr4-en>
- Barot, H. (2015). Entrepreneurship - A Key to Success. *The International Journal of Business and Management*, 3(1), 163–165.
- Bhushan, P. (2014). Relationship between financial literacy and investment behavior of salaried individuals. *Journal of Business Management & Social Sciences Research*, 3(5), 82–87.
- Bhushan, P., & Medury, Y. (2013). Financial literacy and its determinants. *International Journal of Engineering, Business and Enterprise Applications*, 4(2), 155–160.
- Bosshardt, W., & Walstad, W. B. (2014). National standards for financial literacy: Rationale and content. *Journal of Economic Education*, 45(1), 63–70. <https://doi.org/10.1080/00220485.2014.859963>
- Chen, H., & Volpe, R. P. (1998). An analysis of personal financial literacy among college students. *Financial Services Review*, 7(2), 107–128. [https://doi.org/10.1016/S1057-0810\(99\)80006-7](https://doi.org/10.1016/S1057-0810(99)80006-7)

- Cole, S., Sampson, T., & Zia, B. (2011). Prices or knowledge? What drives demand for financial services in emerging markets? *The Journal of Finance*, 66(6), 1933–1967. <https://doi.org/10.1111/j.1540-6261.2011.01696.x>
- Danes, S. M., & Haberman, H. R. (2007). Teen financial knowledge, self-efficacy, and behavior: A gendered view. *Financial Counseling and Planning*, 18(2), 48–60.
- Davis, K., & Hustvedt, G. (2012). It's a matter of control: Saving for retirement. *International Journal of Consumer Studies*, 36(4), 473–479. <https://doi.org/10.1111/j.1470-6431.2011.01023.x>
- Davis, K., & Runyan, R. C. (2016). Personality traits and financial satisfaction: Investigation of a hierarchical approach. *Journal of Financial Counseling and Planning*, 27(1), 47–61. <https://doi.org/10.1891/1052-3073.27.1.47>
- De Bassa Scheresberg, C. (2013). Financial literacy and financial behavior among young adults: Evidence and implications. *Numeracy*, 6(2), 5. <https://doi.org/10.5038/1936-4660.6.2.5>
- Dorn, D., & Huberman, G. (2005). Talk and action: What individual investors say and what they do. *Review of Finance*, 9(4), 437–481. <https://doi.org/10.1007/s10679-005-5002-9>
- Dwiastanti, A. (2015). Financial literacy as the foundation for individual financial behavior. *Journal of Education and Practice*, 6(33), 99–105.
- Erasmus, E., & Coetzee, M. (2018). The relationship between financial literacy and financial behavior of salaried employees. *SA Journal of Human Resource Management*, 16, a957. <https://doi.org/10.4102/sajhrm.v16i0.957>
- Farrell, L., Fry, T. R. L., & Risse, L. (2016). The significance of financial self-efficacy in explaining women's personal finance behavior. *Journal of Economic Psychology*, 54, 85–99. <https://doi.org/10.1016/j.joep.2015.07.001>

- Furnham, A., & Cheng, H. (2017). Socio-demographic indicators, intelligence, and locus of control as predictors of adult financial well-being. *Journal of Intelligence*, 5(2), 11. <https://doi.org/10.3390/jintelligence5020011>
- Garg, N., & Singh, S. (2018). Financial literacy among youth. *International Journal of Social Economics*, 45(1), 173–186. <https://doi.org/10.1108/IJSE-11-2016-0303>
- Grohmann, A., Kouwenberg, R., & Menkhoff, L. (2015). Childhood roots of financial literacy. *Journal of Economic Psychology*, 51, 114–133. <https://doi.org/10.1016/j.joep.2015.09.002>
- Hilgert, M. A., Hogarth, J. M., & Beverly, S. G. (2003). Household financial management: The connection between knowledge and behavior. *Federal Reserve Bulletin*, 89, 309–322.
- Hung, A. A., Parker, A. M., & Yoong, J. (2009). Defining and measuring financial literacy. RAND Working Paper, WR-708.
- Huston, S. J. (2010). Measuring financial literacy. *Journal of Consumer Affairs*, 44(2), 296–316. <https://doi.org/10.1111/j.1745-6606.2010.01170.x>
- Jorgensen, B. L., & Savla, J. (2010). Financial literacy of young adults: The importance of parental socialization. *Family Relations*, 59(4), 465–478. <https://doi.org/10.1111/j.1741-3729.2010.00616.x>
- Klapper, L., Lusardi, A., & Panos, G. A. (2013). Financial literacy and its consequences: Evidence from Russia during the financial crisis. *Journal of Banking & Finance*, 37(10), 3904–3923. <https://doi.org/10.1016/j.jbankfin.2013.07.014>
- Ksendzova, M., Donnelly, G., & Howell, R. (2017). A Brief Money Management Scale and Its Associations With Personality, Financial Health, and Hypothetical Debt Repayment. *Journal of Financial Counseling and Planning*, 28(1), 62-75.

- Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5–44. <https://doi.org/10.1257/jel.52.1.5>
- Lusardi, A., & Tufano, P. (2015). Debt literacy, financial experiences, and overindebtedness. *Journal of Pension Economics and Finance*, 14(4), 332–368. <https://doi.org/10.1017/S1474747215000232>
- Mandell, L., & Klein, L. S. (2009). The impact of financial literacy education on subsequent financial behaviour. *Journal of Financial Counselling and Planning*, 20(1), 15–24.
- Morgan, P. J., & Long, T. Q. (2020). Financial literacy, financial inclusion, and savings behaviour in Laos. *Journal of Asian Economics*, 68, 101197. <https://doi.org/10.1016/j.asieco.2020.101197>
- OECD. (2014). PISA 2012 results: Students and money (Vol. VI): Financial literacy skills for the 21st century. OECD Publishing. <https://doi.org/10.1787/9789264208094-en>
- Potrich, A. C. G., Vieira, K. M., & Kirch, G. (2016). Determinants of financial literacy: Analysis of the influence of socioeconomic and demographic variables. *Revista Contabilidade & Finanças*, 27(72), 362–377. <https://doi.org/10.1590/1808-057x201501040>
- Remund, D. L. (2010). Financial literacy explicated: The case for a clearer definition in an increasingly complex economy. *Journal of Consumer Affairs*, 44(2), 276–295. <https://doi.org/10.1111/j.1745-6606.2010.01169.x>
- Robb, C. A., & Woodyard, A. S. (2011). Financial knowledge and best practice behaviour. *Journal of Financial Counselling and Planning*, 22(1), 60–70.
- Rosacker, K. M., & Rosacker, R. E. (2016). Financial literacy of first-year business students. *Journal of Education for Business*, 91(7), 379–385. <https://doi.org/10.1080/08832323.2016.1237919>

- Roy, S., & Jain, R. (2018). Financial literacy and financial behavior: A study of college students. *MUDRA: Journal of Finance and Accounting*, 5(1), 59–76.
- Rooij, M. V., Lusardi, A., & Alessie, R. (2012). Financial literacy, retirement planning and household wealth. *The Economic Journal*, 122(560), 449–478. <https://doi.org/10.1111/j.1468-0297.2012.02501.x>
- Sabri, M. F., & MacDonald, M. (2010). Savings behaviour and financial problems among college students: The role of financial literacy in Malaysia. *Cross-Cultural Communication*, 6(3), 103–110.
- Sabri, M. F., Cook, C. C., & Gudmunson, C. G. (2012). Financial well-being of Malaysian college students. *Asian Education and Development Studies*, 1(2), 153–170. <https://doi.org/10.1108/20463161211240124>
- Sakthi, S., & Sia, S. K. (2020). Financial literacy and financial behaviour of management students. *International Journal of Management*, 11(5), 44–52.
- Saurabh, K., & Nandan, T. (2018). Role of financial risk attitude and financial behavior as mediators in financial literacy–financial well-being relationship: A structural equation modeling approach. *South Asian Journal of Business Studies*, 7(2), 207–224. <https://doi.org/10.1108/SAJBS-07-2017-0088>
- Schmeiser, M. D., & Seligman, J. S. (2013). Using the right yardstick: Assessing financial literacy measures by way of financial well-being. *Journal of Consumer Affairs*, 47(2), 243–262. <https://doi.org/10.1111/joca.12009>
- Schuhen, M., & Schürkmann, S. (2014). Construct validity of financial literacy. *International Review of Economics Education*, 16(Part A), 1–11. <https://doi.org/10.1016/j.iree.2014.07.004>
- Sekar, M., & Gowri, M. (2015). A study on financial literacy and its determinants among Generation Y employees in Coimbatore city. *International Journal of Business and Administration Research Review*, 2(4), 35–39.

- Sohn, S. H., Joo, S. H., Grable, J. E., Lee, S., & Kim, M. (2012). Adolescents' financial literacy: The role of financial socialization agents, financial experiences, and money attitudes in shaping financial literacy among South Korean youth. *Journal of Adolescence*, 35(4), 969–980. <https://doi.org/10.1016/j.adolescence.2012.02.002>
- Susanti, S. (2017). Financial literacy and financial behavior of business school students. *Jurnal Economia*, 13(2), 85–100. <https://doi.org/10.21831/economia.v13i2.13983>
- Sucuahi, W. T. (2013). Determinants of financial literacy of micro entrepreneurs in Davao City. *International Journal of Accounting Research*, 1(1), 44–51.
- Taft, M. K., Hosein, Z. Z., & Mehrizi, S. M. T. (2013). The relation between financial literacy, financial well-being and financial concerns. *International Journal of Business and Management*, 8(11), 63–75. <https://doi.org/10.5539/ijbm.v8n11p63>
- Tang, N., & Baker, A. (2016). Self-esteem, financial knowledge and financial behavior. *Journal of Economic Psychology*, 54, 164–176. <https://doi.org/10.1016/j.joep.2016.04.005>
- Van Rooij, M. C. J., Lusardi, A., & Alessie, R. J. M. (2011). Financial literacy and stock market participation. *Journal of Financial Economics*, 101(2), 449–472. <https://doi.org/10.1016/j.jfineco.2011.03.006>
- Wagland, S. P., & Taylor, S. (2009). When it comes to financial literacy, is gender really an issue? *Australasian Accounting Business and Finance Journal*, 3(1), 13–25.
- Walstad, W. B., Rebeck, K., & MacDonald, R. A. (2010). The effects of financial education on the financial knowledge of high school students. *Journal of Consumer Affairs*, 44(2), 336–357. <https://doi.org/10.1111/j.1745-6606.2010.01172.x>

- Xiao, J. J., Tang, C., Serido, J., & Shim, S. (2011). Antecedents and consequences of risky credit behavior among college students: Application and extension of the theory of planned behavior. *Journal of Public Policy & Marketing*, 30(2), 239–245. <https://doi.org/10.1509/jppm.30.2.239>
- Xiao, J. J., Chen, C., & Chen, F. (2014). Consumer financial capability and financial satisfaction. *Social Indicators Research*, 118(1), 415–432. <https://doi.org/10.1007/s11205-013-0414-8>

## *Chapter 3*

# **FINANCIAL INTELLIGENCE AND IT'S MEASUREMENTS**

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### **3.1 Introduction to Intelligence**

Human beings differ from other living beings not just because they possess intelligence, but because they use it very wisely. The study of human intelligence and its measurement is among the oldest topics in psychology, dating back to the 19th century when Francis Galton began researching differences in human intelligence and sensory functions. This research has been extended by many other researchers and has evolved into the discipline known as Psychometry.

A symposium of 17 psychology experts convened by the editor of the *Journal of Educational Psychology* in 1921 summarised various definitions of intelligence. It was explained as "ability to learn" (Buckingham), as "the power of better responses from the point of truth or fact" (Thorndike), as "the ability to carry abstract thinking" (Terman), as "the ability of the individual to adapt himself completely to new situations in life" (Pintner), as "involving two factors - the capacity for knowledge and the knowledge have" (Henmon), and as "the capacity to acquire abilities" (Woodrow). Similarly, a symposium held in 1986 by Sternberg and Detterman included 25 psychology experts. There, intelligence was described as "a quality of adaptive behavior" (Anastasi), as "the end product of development in the cognitive-psychological area, " as "a societal knowledge that operates in several domains - academic, technical, social, and practical" (Carroll), as "mistake-free transmission of information through the cortex" (Eysenck), as "acquired proficiency" (Glaser), and as "mental self-government" (Sternberg). Carroll (1993). One of the most comprehensive definitions was proposed by Wechsler in 1955, describing intelligence

as “the total of global capacity of the individual to act deliberately, to think rationally, and to deal effectively with his environment”.

### **3.2 Types of Intelligence**

#### **3.2.1 Spearman's Two-factor Theory**

In 1904 Spearman developed factor analysis which he tested using correlation between variables of human intelligence. He developed two factor model of human intelligences. According to him human intelligence has two components. General components denote “g” and specific components denotes “s”. General factors are like mechanical, spatial, logical arithmetical etc. General factors vary from person to person, measurement of these factors will help to understand the general intelligence of a person. Specific factors are those components which are specific to certain aspects of intelligence.

#### **3.2.2 Thurstone's Theory of Primary Mental Abilities**

Thurstone applied multiple factor analysis for intelligence testing. Unlike Spearman's general intelligence factors he perceived that there are so many independent factors which affect human intelligence. Thurstone called it as primary factors of mental ability. Thurstone identified seven primary intelligence factors i.e. Space, perceptual speed, number facility, verbal relation, word fluency, memory and reasoning (Fogarty, 1984).

#### **3.2.3 Hierarchical Models of Intelligence**

This theory was first proposed by Phillip E. Vernon but later developed by Raymond Cattell. According to Cattell there are more than one high order factors. According to him there are two kinds of intelligence Fluid Intelligence and crystallized Intelligence. Fluid intelligence are biological characteristics such as reasoning and perceptions and crystallized intelligence are acquired through learning and education such as general knowledge and mathematical abilities.

### 3.2.4 Gardner's Multiple Intelligences

Gardner proposed his idea of multiple intelligence in his famous book *Frame of Mind*.

He proposed that there are seven set of intelligences

1. Linguistics: verbal abilities
2. Spatial: ability to visualize spatial arrangement and manipulate
3. Logical and mathematical: Power of contributing to new idea and calculation
4. Musical : The power to understand music and reproduce it
5. Interpersonal: understanding and interacting with other persons
6. Intra-personal: Understanding our self and self motivating
7. Bodily-kinesthetics: related to body movements

### 3.2.5 Sternberg's Triarchic Theory

Triarchic theory says that there are three basic aspects of human intelligence - analytic, creative, and practical. Analytic intelligence is measured by intelligence tests. Problems of testing this type of intelligence usually a) have a one correct answer, b) come with all the information needed to resolve them, and c) have little intrinsic interest. Practical problems, in contrast, tend to a) require a definition of the problem, b) be poorly defined, c) have large number of solutions, d) require everyday experience, and e) require motivation and personal involvement (Robert Sternberg's 1985).

### 3.2.6 Piaget's Theory

Jean Piaget was a Swiss psychologist was not interested in human differences in intelligence but how child learn to act in intelligent manner. His study was basically focused on cognitive development of human intelligence. The four stage of human cognitive development according to him are

1. Sensori-motor. A stage up to the age of two in which the child is capable of very little cognitive operations.

2. Pre-operational. from two to seven years in which the child starts to develop a sense of concepts such as number and weight, but only in a limited way.
3. Concrete operations. The child is capable of doing wide range of activities but is still not capable of abstract thought.
4. Formal operations. From 11 years onward the child is capable of abstract thought process.

### **3.2.7 CHC Theory of Intelligence**

CHC theory is the contribution of three prominent psychometricians i.e. Cattell, Horn, and Carroll. The theory is a synthesized version of theory of all the three persons and based on factor analysis evidence based in psychometry. According this theory there are three strata of intelligence that are hierarchically related. Strata one include narrow abilities, strata two include broad ability and strata three include general abilities. The third stratum, the general intelligent factors “g” is the most important because it is proved to be corelated with functions like income, performance, health etc.( Sternberg RJ, Kaufman SB, 2011)

### **3.2.8 Emotional Intelligence**

According to Goleman (1995), Emotional Intelligence consists of “abilities such as being capable of motivate himself and withstand in the during the time of frustrations; to control impulse and slow down gratification; to regulate one’s feeling and keep distress from swamping the ability to think : to empathize, and to hope”

### **3.2.9 Social Intelligence**

The word social intelligence is used by Danial Goalman in his book Social Intelligence in 2006. According to Goalman social intelligence consist of two aspects. i.e. social awareness and social facility. Social awareness means is empathetic understanding of others inner feeling and thoughts. Which include primal empathy, attunement, empathetic accuracy and social cognitions. Social facility is act upon the

social awareness which include synchrony, self- presentation, influence and concerns (Goleman, D.2006).

### **3.3 Measurement of Intelligence**

Each individual is unique and different from others, so is their intelligence. To understand the ability and capacity we need to measure it. Measurement is the process of assessing the individuals skill and abilities. Historically Measurement of human intelligence started during late 1800s when Francis Galton started his experiment on human abilities and intelligence. The accurate measure of intelligence started by Binet and Simon started the test batteries of measuring IQ in 1905. They could differentiate between low intelligent and high intelligent children using their test instrument. Another important contribution was Wechsler–Bellevue developed a test batteries in late 1930s. But the explosion in the field of research in intelligence witnessed since 1950's. At present there are thousands of instruments are available to measure human intelligence, aptitude, skill etc.

### **3.4 Financial Intelligence**

Handling finance is part of our daily life and one of the challenging tasks. The cost of each decision can be significant if it goes wrong. Therefore, we must make financial decisions wisely. Financial intelligence is described in various ways in literature. It can refer to an individual's financial intelligence or organisational financial intelligence. Some authors define it as financial knowledge and literacy, while others see it as a person's capacity for financial planning and decision-making. The term financial intelligence was first mentioned in Robert Kiyosaki's book, 'Increase Your Financial IQ: Get Smarter with Your Money.' Kiyosaki described financial intelligence as “Financial intelligence is an individual's ability to solve financial problems and his attitude to improve financial knowledge in order to demonstrate a good financial behaviour.”

Kiyosaki focused five major area of financial intelligence (five financial IQ's)

1. Making more money
2. Protecting your money
3. Budgeting your money
4. Leveraging your money
5. Improve your financial information

Financial intelligence is used to address our financial problems and make appropriate financial decisions, while the financial quotient is a measure of a person's financial intelligence (Kiyosaki, 2008). Financial intelligence can be seen as an extension of financial literacy, which assesses a person's aptitude in financial knowledge, skills, and confidence in making decisions that lead to financial wellbeing (Nik Kamil N.S. et al., 2013). According to Dedrick, “Financial intelligence is not just access to financial information and advice. It is the capacity to know, monitor, and effectively use financial resources to enhance the well-being and economic security of an individual, their family, and their business. Every individual should be aware of their financial situation. Having good financial IQ is not about simply investing money in various avenues like mutual funds, shares, options, commodities, etc. It is about creating wealth and assets that generate income both in the short and long term.” Financial intelligence is also defined within an organisational context. In this context, this quality should be possessed by both owners and employees.

From an organizational context Financial intelligence is ability of a person to acquire financial knowledge and use these knowledge to take financial decision which helps in financial control (Berman, Knight, & Case, 2013). In any organization financial intelligence start with recording routine transactions related data, make interpretations using tools and techniques which help up to assess past performance, assess risk involved in business and future way forwards (Poznanski Julie, et al. 2013)

### **3.5 Measurement of Financial Intelligence**

The measurement of financial intelligence is particularly relevant because the failure of financial decisions can be costly for entrepreneurs and organisations. Personal household financial decisions will also be influenced by wise choices. Unlike other intelligence quotients, measuring financial intelligence does not assess aptitude but rather gauges skill in basic financial concepts and their practical application, which leads to increased financial well-being ((Nik Kamil N.S. et. al 2013). One of the challenges faced by researchers is the absence of universally accepted tools to measure financial intelligence worldwide. Although there are tools available to measure some sub-variables such as financial literacy, financial behaviour, and financial management, a comprehensive measurement remains elusive.

### **3.6 Financial Intelligence for Entrepreneurs**

Every individual deals with funds in their day-to-day life. However, entrepreneurs handle large amounts of capital that require more intelligent management. Since they need cautious engagement with funds, it is essential for all entrepreneurs to possess financial intelligence. By acquiring proper financial knowledge, entrepreneurs can outperform their competitors and increase profitability, return on investment, and market position. Financial intelligence is important not only for entrepreneurs but also for employees of the organisation because they deal with the company's daily affairs. (Berman, Knight, & Case, 2013).

Every entrepreneur should possess basic financial knowledge of financial statements such as the profit and loss account, balance sheet, different types of profit, assets, liabilities, cash flow, and fund flow statements, etc. Even employees must be capable of reading financial statements. Moreover, a person with a level of financial literacy will adopt appropriate financial practices. Better financial intelligence will lead to improved alignment of balance sheet assets and liabilities and better financial decision-making (Berman, Knight, & Case, 2013, Lusardi, 2008). Personal financial intelligence is also important for entrepreneurs to manage their daily lives.

**Conclusion:**

Financial intelligence is the ability of a person to make appropriate financial decisions as and when required. Extensive studies on intelligence and its types have been conducted since 1900. Even now, a large number of studies are ongoing in the field of intelligence. Unlike other types of intelligence quotients, financial intelligence has not been studied as extensively. Therefore, further research is needed in this area. The present study can significantly contribute to both the theoretical and practical applications of this research field.

## **Reference**

- Anasthasi Anne (1976). *Psychological Testing*, fourth edition, Macmillan Publishing Co., Inc. New York
- Berman K. and Knight J. (2006), *Financial Intelligence: A Managers Guide to Knowing What the Numbers Really Mean*, Harvard Business School Press.
- Citigroup Inc. (NYSE:C) (2011), Citi FIN Q survey on Asian Consumers.
- Carroll, J.B. (1993). *Human cognitive abilities: A survey of factor analytic studies*. Cambridge: Cambridge University Press.
- Cattell, R.B. (1941). Some theoretical issues in adult intelligence testing. *Psychological Bulletin*, 38, 592.
- Fogarty, G. (1984). *Abilities involved in performance on competing tasks*. Unpublished doctoral dissertation, University of Sydney.
- Goleman, D. (1998). *Working with emotional intelligence*. New York: Bantam Books.
- Goleman, D., Boyatzis, R. & McKee, A. (2002). *Primal Leadership: Realizing the Importance of Emotional Intelligence*, Harvard Business School Press: Boston.
- Goleman, D. (2006). *Social intelligence: The new science of human relationships*. Bantam Books.
- Enhance Your Financial Intelligence: Strategies for Taking Control" by Jeff Dedrick: Dedrick, J. (2012). *Enhance your financial intelligence: Strategies for taking control*. Barnes & Noble.
- Financial intelligence: A guide for social enterprise (2013)
- Kiyosaki, R. T. (2008). *Increase your financial IQ: get smarter with your money*. New York: Business Plus.
- Lusardi, A.M. (2008). *Increasing the effectiveness of financial education in workplace*, International Conference on Financial Education, U.S.

- Syerina Nik Kamil N.S., Musa R. and Zaleha Sahak S. (2014), Examining the Role of Financial Intelligence Quotient (FiQ) in Explaining Credit Card Usage Behavior: A Conceptual Framework, INCOMaR 2013, Procedia -Social and Behavioral Sciences 130 ( 2014 ) 568 – 576
- Sternberg, R.J. (1985). *Beyond IQ: A triarchic theory of human intelligence*. New York: Cambridge University Press.
- Sternberg, R.J., & Kaufman, J.C. (1998). Human abilities. *Annual Review of Psychology*, 49, 479-502.
- Sternberg RJ, Kaufman SB, eds. *Cambridge Handbook of Intelligence*. New York, NY: Cambridge University Press; 2011.
- Wechsler, D. (1955). *Wechsler Adult Intelligence Scale—Re-standardized (WAIS)*. New York: Psychological Corporation.

## *Chapter 4*

# **INSTRUMENT FOR MEASURING FINANCIAL INTELLIGENCE: METHODOLOGY, DEVELOPMENT AND VALIDATION**

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#### **4.1 Rationales for Measuring Financial Intelligence**

Financial intelligence helps individuals and organisations to make informed decisions about investing, financial planning and budgeting, risk management, savings, debt management, etc. By understanding the financial intelligence concept, individuals can formulate financial strategies that help them to achieve financial stability in future. Understanding the idea of financial intelligence and measuring it will help to understand the measurement of financial risk and assess the losses due to wrong financial decisions. These will help individuals to form long-term and short-term financial plans and control them. On a personal level, financial intelligence will help individuals achieve financial growth by better financial planning and financial management, which reduces financial stress and increases financial well-being. The basic objectives of measuring financial intelligence are to understand how people behave in different situations of financial decision-making. This includes the knowledge of finance and the ability to make financial decisions. Measuring financial intelligence will help identify to which a person is capable of financial decision-making. Individuals can use this measurement as a tool for personal growth

#### **4.2 Modals for Financial Intelligence**

Understanding various literature on the definition of financial intelligence and variables to measure it will help us to make an in-depth study on financial intelligence and to construct a scale on measuring financial intelligence.

Financial intelligence is a set of psychomotor and emotional skills that help people to negotiate, transfer information and financial knowledge, manage risk and increase the

social and economic advancement of the country. Science in future is driving towards the development of financial intelligence technology (Zhaoyi & Xinyu, 2017). Policies of government, such as improving childhood education and health care, will increase human intelligence will creating demand for financial intelligence technology in the market (Hafer 2016). Individuals with more financial intelligence are likely to save more than of others. Countries with above-average Intelligence Quotients have a higher level of savings and a more developed financial market. People with low Intelligence quotient keep more physical assets than financial assets (Salahodjaev,2015) (Kodila Tedika and Asongu, 2015).

Financial intelligence includes understanding critical financial concepts to a certain degree and confidently managing one's finances in the short term and long term, as is appropriate for one's time of life and changing economic conditions. Financial intelligence is critical to explaining the relationship between one's level of financial knowledge and one's perceptions of financial management. (Remund 2010).

Omorieg (2019) stressed that financial intelligence quotients (FIQs) could be used to measure financial intelligence and emphasised that there is no single objective method for calculating this. The scientific literature generally needs to reach a consensus on financial literacy and ways to measure financial intelligence (Remund, 2010; Social and Enterprise Development Innovations [SEDI], 2004, 2005). Thus, researchers are searching for a metric that covers a wide range of questions and accurately reflects an individual's level of financial literacy or financial IQ (Office of Fair Trading [OFT], 2007). Mohd et al. (2016) identified components of FIQ, including financial knowledge, attitude, confidence and behaviour. Kamil et al. (2014) noted that financial intelligence quotients are not like global IQ as assessed with a standard IQ test and state that a financial intelligence quotient measures an individual's knowledge of critical financial concepts and skills, which inform financial behaviour. The authors note that financial intelligence quotients can be used to assess a person's familiarity with fundamental financial concepts and their suitability for making reasonable and responsible personal economic choices.

(Nik Kamil et al., al 2014) In their article “Examining the role of financial intelligence in explaining credit card behaviour: A conceptual framework, ” they developed a conceptual model for measuring financial intelligence. The purpose of this study was to create an instrument for measuring financial intelligence, with a focus on its impact on the behavioral intention of young urban Malaysian adults towards credit card spending and repayment behaviour.

(Mohd et al. 2016) In their article “Measuring financial intelligence of Malaysian Gen Y: A preliminary study, ” they tried to develop a conceptual model for measuring financial intelligence. The basic objectives of their paper were to measure the validity and reliability of the instruments designed for measuring financial intelligence and to develop a financial intelligence logit rule in classifying Y based on their level of financial intelligence. The constructs used in this study are financial knowledge, attitude and behaviour. Rasch analysis is employed for this purpose.

Citigroup Inc. (2015) surveyed financial intelligence to measure the financial well-being of consumers across the Asia Pacific regions. The survey was designed to assess various aspects like financial well-being, including financial literacy, budgeting, saving, investing and financial planning. The FinQ score was calculated based on the response to the survey questions. Each score was assigned a weight, and the score was aggregated to create an overall score of financial intelligence of each participant. The maximum score assigned was 100. The results were then analysed to identify trends and patterns in financial well-being across different demographics

(Miečinskienė et al., 2023) “The Role of Financial Intelligence Quotient and Financial Literacy for Paving a Path Towards Financial Well-Being”. The study aimed to design a conceptual model for measuring financial intelligence, including guidelines for adequately handling personal finances in four developed areas to serve as benchmarks of financial intelligence. A well-structured questionnaire was used for this purpose. The results show that an individual’s FIQ influences financial decision-making in essential areas of personal finance management and varies due to education, but is not dependent on gender or age.

### **4.3 Research Gap in Financial Intelligence Scale Development**

The existing literature provides number of instruments and dimensions for measuring financial intelligence, like (Nik Kamil, et, all 2014) developed scale for measuring financial intelligence of credit card users behavior (Mohd et al. 2016) created scale for measuring financial intelligence of Y gen, Citigroup Inc. (2015) create scale for measuring financial wellbeing which lead to financial intelligence, Yu, C., & Zhang, H. (2016) created scale to measure financial intelligence of parents and children's and Miečinskienė et al., 2023) created an intelligence scale which measure the interlink between financial intelligence, financial literacy and financial wellbeing.

Even though there are a number of studies in the area of financial intelligence, none of the study covers the financial intelligence of entrepreneurs. Moreover, most of the scales cover only a limited number of variables and dimensions, which are not comprehensive enough to cover various aspects of financial intelligence. So the researcher felt the need of develop a scale for measuring the financial intelligence of entrepreneurs and also covering various aspects of financial intelligence.

### **4.4 Methodology for Instrument Development**

#### **4.4.1 Construct Identification**

The construct identification is done in three stages. In the first stage, an extensive review of various authors who have contributed to the literature of financial intelligence is conducted, which helps to understand the existing gap in the literature regarding variables to measure financial intelligence. In the second stage, three focus group discussions with experts in the field of finance were conducted. In this stage, a larger number of new dimensions were added. In the third stage, three personal interviews with experts in the field of finance, i.e. one from banking, one from insurance and one from entrepreneurship, are done. In the third stage, more dimensions which are directly associated with entrepreneurs could be identified. The dimensions which are explored from the literature are given in Table 1

**Table 4.1**

*Dimensions of Financial Intelligence from Various Literature*

<b>SL No</b>	<b>Year</b>	<b>Authors</b>	<b>Items extracted</b>
1	1998	Chen & Volpe	Saving and Investment
2	2002	Hogarth & Hilgert	Financial Literacy
3	2003	Hilgert, et. al.	Money Management Skill
4	2006	Berman, et al.	Knowledge of Accounting and Finance
5	2008	Kiyosaki	Making more money Protecting your money Budgeting your money Leveraging your money Improve your financial information
6	2008	Lusardi	Overall financial knowledge (Asset, liquidity, net worth, financial planning) Knowledge of savings and loans Knowledge of investment
7	2009	Grable, Park & Joo	Spending and Saving Behaviour
8	2010	Remund	“Literacy of Financial Concepts, communication ability of financial concepts, aptitude in finance, skill in economic decisions and the plan of financial requirements”.
9	2014	Kamila et al.	Financial Liability, Risk and Financial Protections.
10	2014	Shih and Ke	Financial Attitude
11	2014	City Fin Q Survey	Regular savings patterns Current retirement savings Optimism about one’s financial future Confidence that their retirement savings will lead to a comfortable life Budgeting, Saving, Credit card repayment, Home ownership, Insurance, Retainment Savings, Knowledge about investing, updating financial knowledge, Financial attitude, future financial prospectus,

SL No	Year	Authors	Items extracted
			financial concerns, Complexity of current finance, knowledge of digitalisation, Channel of financial advice and products,
12	2015	Mien and Thao	Impact of Financial Knowledge on Financial Behaviour
13	2016	Yu, C., & Zhang, H.	Spending Credit and Debt Career and Income Investing Financial Planning Risk and protections
14	2018	Suryanto et al.	Earnings, Spending
15	2018	Kesavayuth, D., Ko, K. M., & Zikos, V.	Financial Risk, Risk-Taking Attitude, and Locus of Control
16	2019	Halimatussakdiyah & Sudarma,	Savings, Investment, Retainment planning, Career Planning.
17	2020	OECD Digital Financial Survey	Financial Knowledge Financial attitude Financial behavior
18	2022	Chujan, W., Ngoc, N. L. B., & Faizi, A. S	“Internal and External Financial Locus of Control, Financial Behaviour and Attitude of Risk-taking”
19	2023	Keçecioglu, T., & Hiçyılmaz, M.	Human Capital

Source: (Various Literature)

#### 4.4.2 Core Dimension of Financial Intelligence

An extensive literature survey is conducted to identify various dimensions of measuring financial intelligence. A total of seven dimensions which constitute financial intelligence are selected. The core dimensions of financial intelligence are Financial attitude, financial literacy, financial behaviour, financial management, financial decision making, financial discipline and financial locus of control.

Financial literacy is directly connected to entrepreneurial success (World Bank, 2018). Business owners who test high scores in financial literacy are most successful in their business (Njoroge, R. M., 2013). Young entrepreneurs positively changed their business practices after one week of training in financial literacy (Bruhn and Zia, 2011). In tune with the common understanding that financial knowledge and behaviour are higher if they better reflect the attitude of the individuals, the mediation effect of financial attitude strengthens the financial knowledge and financial behaviour relationship (Çoşkun, A., & Dalziel, N, 2020). (Setiawan et al. 2016) show that the better the financial attitude, the better the individual financial investment behaviour. Financial management behaviour improves the welfare of life of individuals (Kholilah and Iramani 2013). The study shows that there is a positive link between knowledge and the financial practices of households. Those who know more are likely to practice more. In addition to that, certain types of financial variables are significant to financial practices like knowing about credit, investment and savings (Hogarth & Hilgert, 2003). (Dohman, et al 2011) suggest that there is a positive correlation between positive locus of control and investment attitude and risk-taking mentality. Self-esteem, optimism, and trust are important predictors of economic behaviours and outcomes, including schooling, wages, productivity, portfolio delegation, and stock market development (Bowles et al., 2001). Locus of control is also linked to financial satisfaction (Sumarwan & Hira, 1993). Jorgensen et al (2016) claimed that the internal locus of control is more applicable in studies related to individual financial management. In their study, Van de Venter et al (2012) revealed that the locus of control was positively related to financial risk tolerance. If an individual has a high financial risk tolerance, their financial vulnerability is less. Hence, the locus of control has negatively influenced the financial vulnerability.

#### **4.4.3 Item Generation**

The item generation started after an extensive literature review of dimensions and variables. At the first stage, a variable log book is created to record different dimensions which are either derived from literature, expert interviews or focus group discussions. At the initial stage, 15 dimensions and corresponding 120 items are

recorded in the logbook. In the second stage consultation with an expert in psychometry is done to filter the variable. After filtering, seven dimensions and corresponding 85 variables are selected for study. Table 4.2 will explain each dimension and the corresponding items.

**Table 4.2**

*Dimensions and Corresponding Variables Selected for Study*

<b>SL No</b>	<b>Dimensions</b>	<b>Variables Corresponding to Dimensions</b>
<b>1</b>	<b>Financial Attitude</b>	Risk-taking attitude Attitude towards return Attitude towards insurance Attitude towards saving and spending Attitude towards investment Attitude towards financial planning Attitude towards financial control Attitude towards financial institutions Attitude towards financial future
<b>2</b>	<b>Financial Literacy</b>	Knowledge of inflation Knowledge about the interest in a bank Knowledge of financial planning Knowledge of financial budgeting Knowledge of net worth Knowledge about bank guarantees Knowledge of demat account Knowledge of mutual funds Knowledge of Rupee appreciation and depreciation Digital financial literacy Knowledge of assets and liabilities Knowledge of GST Knowledge of liquidity Knowledge of financial ratios

<b>SL No</b>	<b>Dimensions</b>	<b>Variables Corresponding to Dimensions</b>
		Knowledge of the balance sheet and profit and loss account Updating financial knowledge Updating stock market information Update about economic system Update about the union and state budget Knowledge of tax Planning Updating knowledge about business opportunities Knowledge about SIP Knowledge about insurance
<b>3</b>	<b>Financial Behavior</b>	Behaviour of keeping track of income and expenses Behaviour of consultation for business improvement Behaviour of consultation when facing problems Spending habit Habits of electronic payment Credit card usage behaviour Habit of creating multiple sources of income Purchase behaviour Concern towards CIBIL Score
<b>4</b>	<b>Financial Management</b>	planning organisational financial requirements planning all personal financial requirements preparation of personal budget preparation of organisational budget financial controlling habit of keeping for emergencies Retirement planning Tax planning Consult for tax purposes

SL No	Dimensions	Variables Corresponding to Dimensions
		Managing passive income Personal financial control Organisation finance control Bank reconciliation Managing Cash Using borrowed money for personal use using borrowed money for business Returning back borrowed money Purchase of health insurance Purchase of business insurance Purchase of life insurance
5	<b>Financial Decision Making</b>	Ability to take Financial decisions without consultation Consulting an expert while making a financial decision Success of personal financial decision Consult of friends and relatives for financial decisions Personal decision to start a business Study in advance while making financial decisions Taking feedback after a financial decision Correcting if the decision goes wrong Feeling stressed while making financial decisions Comfort of making financial decisions
6	<b>Financial Discipline</b>	Financial discipline when in a group Comparing the income and expenditure ratio for personal Comparing the income and expenditure ratio for business Financial discipline during purchase

<b>SL No</b>	<b>Dimensions</b>	<b>Variables Corresponding to Dimensions</b>
		Discipline regarding borrowing and using money Discipline for credit card use Discipline regarding loan repayment Live within means
<b>7</b>	<b>Financial Locus of Control</b>	I am responsible for my profit and loss Success is at the will of God Believe in luck Believe in personal effort Confidence in solving financial problems Confidence in taking financial decisions

Source: Compiled from Various literature, focus group discussion and expert interview.

#### **4.4.4 Scale Development Process and Face Validation**

As there are 15 dimensions and 120 sub-dimensions, items are created for each sub-dimension. Each question represents one item. The items are prepared in bilingual forms, i.e. in English and in Malayalam. After preparation of questions, face validation is done by discussing with experts in the industry. Expert discussions are made with persons from financial planning, banking, insurance and entrepreneurship. After supplying printed question forms, they were told to make a detailed study on questions and accept the question, reject it or modify the question. After the face validation process, seven dimensions and 85 items corresponding to each dimension were selected. Table 3 shows the sub-dimension and corresponding items to develop the instruments.

**Table 4.3***Sub-Dimensions and Corresponding Item Modified After Face Validation*

Sl. No.	Dimensions	Corresponding Items
1	Risk-taking attitude	I don't like to invest in risky ventures (റിസ്ക് കൂടുതലുള്ള സംരംഭങ്ങളിൽ നിക്ഷേപിക്കാൻ ഞാൻ ഇഷ്യൂപ്പെടുമ്പില്ല)
2	Attitude towards return	It is worthy to take risk to get more return (കൂടുതൽ റിട്ടേൺ ലഭിക്കാൻ കൂടുതൽ റിസ്ക് എടുക്കാൻ ഞാൻ തയ്യാറാണ്)
3	Attitude towards insurance	I always take insurance policies to reduce risks (റിസ്ക് കുറയ്ക്കാൻ ഞാൻ എപ്പോഴും ഇൻഷുറൻസ് പോളിസികൾ എടുക്കാറുണ്ട്)
4	Attitude towards saving and spending	saving is equally important like spending (ചെലവഴിക്കുന്നത് പോലെ പ്രധാനമാണ് സമ്പാദ്യവും)
5	Attitude towards investment	Investment is essential tool for wealth creation (നിക്ഷേപം സമ്പത്ത് ഉണ്ടാകുന്നതിനുള്ള പ്രധാന മാർഗമാണ്)
6	Attitude towards financial planning	An entrepreneur should have proper financial planning in his life (ഒരു സംരംഭകന് തന്റെ ജീവിതത്തിൽ കൃത്യമായ സാമ്പത്തിക ആസൂത്രണം ഉണ്ടായിരിക്കണം)
7	Attitude towards financial control	An entrepreneur should have proper financial control in his life (ഒരു സംരംഭകന് തന്റെ ജീവിതത്തിൽ കൃത്യമായ സാമ്പത്തിക നിയന്ത്രണം ഉണ്ടായിരിക്കണം)
8	Attitude towards financial institutions	Whenever there is financial requirement entrepreneurs should approach Financial institutions (Bank, Cooperative banks, BNFC) (സാമ്പത്തിക ആവശ്യങ്ങൾ ഉണ്ടാകുമ്പോൾ, സംരംഭകർ ധനകാര്യ സ്ഥാപനങ്ങളെ സമീപിക്കണം)
9	Attitude towards financial future	I am optimistic about my financial future (എന്റെ സാമ്പത്തിക ഭാവിയെക്കുറിച്ച് എനിക്ക് ശുഭാപ്തി വിശ്വാസമുണ്ട്)
10	Knowledge of inflation	Inflation will adversely affect my business, investment and return (പണപ്പെരുപ്പം എന്റെ ബിസിനസ്സ്, നിക്ഷേപം, വരുമാനം എന്നിവയെ പ്രതികൂലമായി ബാധിക്കും)
11	Knowledge about interest in the bank	Interest for saving account and fixed deposits are equal (സേവിംഗ് അക്കൗണ്ടിനും ഫിക്സ്ഡ് ഡിപ്പോസിറ്റ് അക്കൗണ്ടുകൾക്കുമുള്ള പലിശ തുല്യമാണ്)
12	Knowledge of financial planning	budget deficit means actual expenses of a person is less than expense budgeted (ഒരു വ്യക്തിയുടെ യഥാർത്ഥ ചെലവുകൾ അയാൾ പ്ലാൻചെയ്ത ചെലവുകളേക്കാൾ കുറവാണെങ്കിൽ ബജറ്റ് കമ്മി ഉണ്ടാകും)

Sl. No.	Dimensions	Corresponding Items
13	Knowledge of financial budgeting	Budgets are prepared to know the existing asset, liability, income and expenditure. – (നിലവിലുള്ള ആസ്തി, ബാധ്യത, വരവ്, ചെലവ് എന്നിവ അറിയാനാണ് ബജറ്റുകൾ തയ്യാറാക്കുന്നത്)
14	Knowledge of net worth	Net worth means difference between assets and liabilities (ആസ്തികളും ബാധ്യതകളും തമ്മിലുള്ള വ്യത്യാസമാണ് net worth)
15	Knowledge about bank guarantees	Standing for guarantee of will make you responsible to loan repayment. (നിങ്ങൾ ഒരു ലോണിന് ജാമ്യം നിൽക്കുന്നുണ്ടെങ്കിൽ, നിങ്ങളുടെ സുഹൃത്ത് വീഴ്ച വരുത്തിയാൽ വായ്പ തിരിച്ചടവിന് നിങ്ങൾ ഉത്തരവാദിയാകും)
16	Knowledge of a demat account	Demat account is used for depositing shares (ഓഹരികൾ നിക്ഷേപിക്കാൻ ഡിമാറ്റ് അക്കൗണ്ട് ഉപയോഗിക്കുന്നു)
17	Knowledge of mutual funds	Mutual funds are pooling of funds from investors and invest in stock and other investment avenues (മുച്യുൽ ഫണ്ട് നിക്ഷേപകരിൽ നിന്നുള്ള ഫണ്ടുകൾ ശേഖരിക്കുകയും ഓഹരിയിലും മറ്റ് നിക്ഷേപ മാർഗങ്ങളിലും നിക്ഷേപിക്കുകയും ചെയ്യുന്നു)
18	Knowledge of Rupee appreciation and depreciation	Dollar value appreciation against Indian Rupee is a risk for Indian business man who export goods to foreign countries (ഇന്ത്യൻ രൂപയ്ക്കെതിരെ ഡോളറിന്റെ മൂല്യം ഉയരുന്നത് വിദേശ രാജ്യങ്ങളിലേക്ക് ചരക്ക് കയറ്റുമതി ചെയ്യുന്ന ഇന്ത്യൻ വ്യവസായിക്ക് റിസ്കാണ്)
19	Digital financial literacy	When my friend transfer money through Google Pay, it is a Virtual Banking system- (എന്റെ സുഹൃത്ത് Google Pay വഴി പണം കൈമാറുമ്പോൾ അത് വെർച്യുൽ ബാങ്കിംഗ് സംവിധാനമാണ്)
20	Knowledge of assets and liabilities	Asset of a firm should be equals to liability (ഒരു സ്ഥാപനത്തിന്റെ ആസ്തി ബാധ്യതയ്ക്ക് തുല്യമായിരിക്കണം)
21	Knowledge of GST	Input credit is applicable to income tax- (ഇൻപുട്ട് ക്രെഡിറ്റ് ആദായ നികുതിയുടെ ഭാഗമാണ്)
22	Knowledge of liquidity	Liquidity is the ability to convert assets in to cash in short run (സാമ്പത്തിക 23സ്രോതസ്സുകളെ എളുപ്പത്തിൽ ഉപയോഗിക്കാവുന്ന പണമാക്കി മാറ്റാനുള്ള കഴിവിനെ ലിക്വിഡിറ്റി എന്ന് പറയുന്നു)
23	Knowledge of financial ratios	Liquidity ratio is the long term financial position of a company- ലിക്വിഡിറ്റി അനുപാതം ഒരു കമ്പനിയുടെ ദീർഘകാല സാമ്പത്തിക സ്ഥിതി കാണിക്കുന്നു)

Sl. No.	Dimensions	Corresponding Items
24	Knowledge of the balance sheet and profit and loss account	If somebody invites me to invest in their business, I will ask for their balance sheet and profit and loss account and will analyse their financial strengths and weakness before investing (ആരെങ്കിലും എന്നെ അവരുടെ ബിസിനസ്സിൽ നിക്ഷേപിക്കാൻ ക്ഷണിച്ചാൽ ഞാൻ അവരുടെ ബാലൻസ് ഷീറ്റ് ലാഭനഷ്ട അക്കൗണ്ടും പരിശോധിക്കും. നിക്ഷേപിക്കുന്നതിന് മുമ്പ് അവരുടെ സാമ്പത്തിക ശക്തിയും ബലഹീനതയും വിശകലനം ചെയ്യും)
25	Updating financial knowledge	I read newspaper every day and update my business and financial knowledge (ഞാൻ എല്ലാ ദിവസവും പത്രം വായിക്കുകയും എന്റെ ബിസിനസ്സ്, സാമ്പത്തിക വിവരങ്ങൾ എന്നിവ അപ്ഡേറ്റ് ചെയ്യുകയും ചെയ്യുന്നു)
26	Updating stock market information	I keep track record of stock market indexes and stocks prices ഓഹരി വിപണി സൂചികകളുടെയും ഓഹരി വിലകളുടെയും ട്രാക്ക് റെക്കോർഡ് ഞാൻ നോക്കാറുണ്ട്)
27	Update about the economic system	I am aware that my country is going for an economic boom or depression because I get update it in newspaper, TV, or social media (എന്റെ രാജ്യം ഒരു സാമ്പത്തിക കുതിച്ചുചാട്ടത്തിലേക്കോ മാന്ദ്യത്തിലേക്കോ പോകുകയാണെന്ന് എനിക്കറിയാം, കാരണം ഞാൻ അത് പത്രങ്ങളിലോ ടിവിയിലോ സോഷ്യൽ മീഡിയയിലോ വാഴിച്ച അപ്ഡേറ്റ് ചെയ്യാറുണ്ട്)
28	Update about the union and state budget	I keep watching the union and state budget to check for any opportunities or problems to my business (എന്റെ ബിസിനസിന് എന്തെങ്കിലും അവസരങ്ങളോ പ്രശ്നങ്ങളോ ഉണ്ടോ എന്നറിയാൻ ഞാൻ യൂണിയൻ, സംസ്ഥാന ബജറ്റ് നിരീക്ഷിക്കാറുണ്ട്)
29	Knowledge of tax Planning	I am confident to submit all my GST documents without the help of an expert (പരസഹായം ഇല്ലാതെ GST ഡോക്യുമെന്റുകൾ ചെയ്യാൻ എനിക്ക് ആത്മവിശ്വാസം ഉണ്ട്)
30	Updating knowledge about business opportunities	I used to critically analyse the development in financial and economic field to understand it's effect on my business and economy. (ബിസിനസിലും സമ്പദ്വ്യവസ്ഥയിലും ഉള്ള സ്വാധീനം മനസ്സിലാക്കാൻ ഞാൻ സാമ്പത്തിക മേഖലകളിലെ വികസനം വിമർശനാത്മകമായി വിശകലനം ചെയ്യാറുണ്ട്)
31	Knowledge about SIP	I believe that SIP is a better method to create wealth. (സമ്പത്ത് സൃഷ്ടിക്കുന്നതിനുള്ള മികച്ച മാർഗമാണ് SIP എന്ന് ഞാൻ വിശ്വസിക്കുന്നു.)
32	Knowledge about insurance	Insurance is an invest, not risk transfer method (ഇൻഷുറൻസ് ഒരു നിക്ഷേപമാണ്, അപകടസാധ്യത കൈമാറുന്ന രീതിയല്ല എന്ന് ഞാൻ വിശ്വസിക്കുന്നു)

Sl. No.	Dimensions	Corresponding Items
33	Behaviour of keeping track of income and expenses	I keep written or electronic record of my monthly expenses (എന്റെ പ്രതിമാസ ചെലവുകൾ എഴുതിയോ ഇലക്ട്രോണിക് രേഖകളോ ആയി ഞാൻ സൂക്ഷിക്കാറുണ്ട്)
34	Behaviour of consultation for business improvement	I consult with financial analyst for betterment of my business (എന്റെ ബിസിനസ്സ് മെച്ചപ്പെടുത്തുന്നതിന് ഞാൻ സാമ്പത്തിക വിദഗ്ദ്ധരുമായി കൂടിച്ചോർന്നിരിക്കാറുണ്ട്)
35	Behaviour of consultation when facing problems	When there is financial problems I seek advice from experts (സാമ്പത്തിക പ്രശ്നങ്ങൾ ഉണ്ടാകുമ്പോൾ ഞാൻ വിദഗ്ദ്ധരുടെ ഉപദേശം തേടാറുണ്ട്)
36	Spending habit	I prefer branded items (ഞാൻ സാദനങ്ങൾ വാങ്ങുമ്പോൾ ബ്രാൻഡഡ് ഐറ്റംസ് വാങ്ങാനാണ് ഇഷ്ടം)
37	Habits of electronic payment	If I get a chance to choose between online or cash payment I prefer online payment.( ഓൺലൈൻ പേയ്മെന്റോ ക്യാഷ് പേയ്മെന്റോ തിരഞ്ഞെടുക്കാൻ എനിക്ക് അവസരം 38ലഭിക്കുകയാണെങ്കിൽ, ഞാൻ ഓൺലൈൻ പേയ്മെന്റാണ് തിരഞ്ഞെടുക്കുന്നത്)
38	Credit card usage behaviour	I always use credit card for my day to day transaction (എന്റെ ദൈനംദിന ഇടപാടുകൾക്കായി ഞാൻ എപ്പോഴും ക്രെഡിറ്റ് കാർഡ് ഉപയോഗിക്കുന്നു)
39	Habit of creating multiple sources of income	I have multiple source of income (എനിക്ക് ഒന്നിലധികം വരുമാന മാർഗങ്ങളുണ്ട്)
40	Purchase behaviour	I like to change my house hold items frequently (എന്റെ വീട്ടിലെ സാധനങ്ങൾ ഇടയ്ക്കിടെ മാറ്റാൻ ഞാൻ ആഗ്രഹിക്കുന്നു)
41	Concern towards CIBIL Score	I am always Concerned about my CIBIL Score (ഞാൻ എപ്പോഴും SIBIL സ്കോറിനെക്കുറിച്ച് ശ്രദ്ധാലുവാണ്)
42	Planning organisational financial requirements	I plan all my organisational financial requirements in advance (എന്റെ സ്ഥാപനത്തിന്റെ എല്ലാ സാമ്പത്തിക ആവശ്യങ്ങളും ഞാൻ മുൻകൂട്ടി ആസൂത്രണം ചെയ്യാറുണ്ട്)
43	Planning all personal financial requirements	I plan all my personal financial requirements in advance (എന്റെ എല്ലാ വ്യക്തിഗത സാമ്പത്തിക ആവശ്യങ്ങളും ഞാൻ മുൻകൂട്ടി ആസൂത്രണം ചെയ്യാറുണ്ട്)
44	Preparation of personal budget	I prepare a personal budget every year (എല്ലാ വർഷവും ഞാൻ ഒരു വ്യക്തിഗത ബജറ്റ് തയ്യാറാക്കാറുണ്ട്)
45	Preparation of organisational budget	I prepare an organisational budget every year (ഞാൻ എല്ലാ വർഷവും എന്റെ സ്ഥാപനത്തിന്റെ ബജറ്റ് തയ്യാറാക്കാറുണ്ട്)

Sl. No.	Dimensions	Corresponding Items
46	Financial controlling	I use my organisational budgets for controlling the expenses. (സ്ഥാപനത്തിന്റെ ബജറ്റ് ഉപയോഗിച്ച ഞാൻ ചിലവ് കുറക്കാൻ ശ്രമിക്കാറുണ്ട്.)
47	Habit of keeping for emergencies	I save some amount separately for meeting emergency expenses (അടിയന്തിര സാഹചര്യങ്ങൾക്കായി ഞാൻ കുറച്ച് തുക നീക്കിവെക്കാറുണ്ട്)
48	Retirement planning	I have clear cut idea about the time of my retirement. So I have started investing for that (എന്റെ വിരമിക്കൽ സമയത്തെക്കുറിച്ച് എനിക്ക് വ്യക്തമായ ധാരണയുണ്ട്, അതിനായി ഞാൻ അതിനുവേണ്ടി നിക്ഷേപം ആരംഭിച്ചു).
49	Tax planning	I do tax planning to reduce tax burden (നികുതി ഭാരം കുറയ്ക്കാൻ ഞാൻ നികുതി ആസൂത്രണം ചെയ്യാറുണ്ട്)
50	Consult for tax purposes	I have appointed a tax consultant for me and for my organisation (എനിക്കും എന്റെ സ്ഥാപനത്തിനും വേണ്ടി ഞാൻ ഒരു ടാക്സ് കൺസൾട്ടന്റിനെ നിയമിച്ചിട്ടുണ്ട്)
51	Managing passive income	I am ready to invest to get a passive income (പാസ്സീവ് ഇൻകം നേടുന്നതിനായി ഞാൻ നിക്ഷേപിക്കാൻ തയ്യാറാണ്)
52	Personal financial control	Last year my actual personal expenses were almost equal to my budgeted expenses (കഴിഞ്ഞ വർഷം എന്റെ യഥാർത്ഥ വ്യക്തിഗത ചെലവുകൾ എന്റെ ബജറ്റ് ചെലവുകൾക്ക് ഏതാണ്ട് തുല്യമായിരുന്നു)
53	Organisation finance control	Last year my actual organisational expenses were almost equal to budgeted expenses (കഴിഞ്ഞ വർഷം എന്റെ യഥാർത്ഥ സംഘടനാ ചെലവുകൾ ബജറ്റ് ചെലവുകൾക്ക് ഏതാണ്ട് തുല്യമായിരുന്നു)
54	Bank reconciliation	I used to reconcile my cash book and bank pass book (ഞാൻ എന്റെ ക്യാഷ് ബുക്കും ബാങ്ക് പാസ് ബുക്കും തമ്മിൽ ഒതുനോക്കാറുണ്ട്)
55	Managing Cash	I am good at managing cash (എനിക്ക് നന്നായി പണം കൈകാര്യം ചെയ്യാൻ കഴിയും)
56	Using borrowed money for personal use	I borrow money for meeting my personal expenses (എന്റെ സ്വകാര്യ ചെലവുകൾക്കായി ഞാൻ പണം കടം വാങ്ങാറുണ്ട്)
57	using borrowed money for business	I borrowed money for doing business (ഞാൻ ബിസിനസ് ആവശ്യങ്ങൾക്ക് പണം കടം വാങ്ങാറുണ്ട്)
58	Returning borrowed money	I am confident that whatever I borrow money, it can be returned without much difficulty (ഞാൻ കടം

Sl. No.	Dimensions	Corresponding Items
		വാങ്ങിയ പണം വലിയ ബുദ്ധിമുട്ടില്ലാതെ തിരികെ നൽകാൻ എനിക്ക് സാധിക്കുമെന്ന് ഉറപ്പുണ്ട്)
59	Purchase of health insurance	I should purchase adequate health insurance policy (ഞാൻ മതിയായ ആരോഗ്യ ഇൻഷുറൻസ് പോളിസി വാങ്ങണം എന്ന് ഞാൻ വിശ്വസിക്കുന്നു)
60	Purchase of business insurance	I should purchase an insurance policy for my business. എന്റെ ബിസിനസിന് ആവശ്യമായ ഇൻഷുറൻസ് പോളിസി വാങ്ങേണ്ടതുണ്ട്
61	Purchase of life insurance	I should purchase adequate life insurance policies (മതിയായ ലൈഫ് ഇൻഷുറൻസ് പോളിസികൾ ഞാൻ വാങ്ങേണ്ടതുണ്ട്)
62	Ability to take Financial decision without consultation	I am able to take all my financial decision alone (എന്റെ എല്ലാ സാമ്പത്തിക തീരുമാനങ്ങളും എനിക്ക് ഒറ്റയ്ക്ക് എടുക്കാൻ കഴിയും)
63	Consulting expert while taking financial decision	I will consult experts for taking financial decision (സാമ്പത്തിക തീരുമാനങ്ങൾ എടുക്കുന്നതിന് ഞാൻ വിദഗ്ദ്ധരുമായി കൂടിയാലോചിക്കും)
64	Success of personal financial decision	Majority of my financial decision in my personal life was successful (എന്റെ വെക്കി ജീവിതത്തിൽ എടുത്ത സാമ്പത്തിക തീരുമാനങ്ങൾ കൂടുതലും വിജയകരമായിരുന്നു എന്ന് ഞാൻ വിശ്വസിക്കുന്നു)
65	Consult of friends and relative for financial decision	I will consult with my friends and relatives for taking financial decision (സാമ്പത്തിക തീരുമാനങ്ങൾ എടുക്കുന്നതിന് ഞാൻ സുഹൃത്തുക്കളോടും ബന്ധുക്കളോടും കൂടിയാലോചിക്കാറുണ്ട്)
66	Personal decision to start a business	It was my own decision to enter in to business field (ബിസിനസ് രംഗത്തേക്ക് കടക്കണമെന്നത് എന്റെ സ്വന്തം തീരുമാനമായിരുന്നു)
67	Study in advance while taking financial decisions	When I take a financial decision I will thoroughly study the situations in advance (ഞാൻ ഒരു സാമ്പത്തിക തീരുമാനം എടുക്കുമ്പോൾ, ഞാൻ മുൻകൂട്ടി സ്ഥിതിഗതികൾ നന്നായി പഠിക്കാറുണ്ട്)
68	Taking feedback after a financial decision	Whenever I take a financial decision I will try to check the results by taking a feedback (ഞാൻ ഒരു സാമ്പത്തിക തീരുമാനം എടുത്താൽ, അതിന്റെ ഫീഡ് ബാക്ക് എടുത്ത് ഫലം പരിശോധിക്കാൻ ഞാൻ ശ്രമിക്കും.)
69	Correcting if the decision goes wrong	I am ready to correct my financial decision whenever there is mistake (എന്റെ സാമ്പത്തിക തീരുമാനങ്ങളിൽ എന്തെങ്കിലും തെറ്റുണ്ടെങ്കിൽ ഞാൻ തിരുത്താൻ തയ്യാറാണ്)

Sl. No.	Dimensions	Corresponding Items
70	Feeling stressed while taking financial decisions	I don't feel stressed when there is a financial problem (സാമ്പത്തിക പ്രശ്നങ്ങൾ ഉണ്ടാകുമ്പോൾ എനിക്ക് സമ്മർദ്ദം അനുഭവപ്പെടാറില്ല)
71	Comfort of making financial decisions	I am very comfortable in taking financial decision (സാമ്പത്തിക തീരുമാനങ്ങൾ എടുക്കുന്നത് എനിക്ക് വളരെ എളുപ്പമുള്ള കാര്യമാണ്)
72	Financial discipline when in a group	I spend a lot of money while I am with my friends (ഞാൻ എന്റെ സുഹൃത്തുക്കളോടൊപ്പം ആയിരിക്കുമ്പോൾ ധാരാളം പണം ചിലവഴിക്കും)
73	Comparing income and expenditure ratio for personal	I always compare income and expenditure ratio in my daily spending (ഞാൻ എപ്പോഴും എന്റെ ദൈനംദിന ചെലവുകളിൽ വരവും ചെലവും അനുപാതം താരതമ്യം ചെയ്യാറുണ്ട്)
74	Comparing income and expenditure ratio for business	I always calculate income and expenditure ratio in my day today business transactions (ഇന്നത്തെ ബിസിനസ് ഇടപാടുകളിൽ ഞാൻ എപ്പോഴും വരുമാനവും ചെലവും തമ്മിലുള്ള അനുപാതം നോക്കാറുണ്ട്)
75	Financial discipline during purchase	I like people watching me spending a lot of money (ഞാൻ ദാരുളം പണം ചെലവഴിക്കുമ്പോൾ ആളുകൾ എനെ നിരീക്ഷിക്കുന്നത് എനിക്ക് ഇഷ്ടമാണ്)
76	Discipline regarding borrowing and using money	If I borrow money, will repay on time (പണം കടം വാങ്ങിയാൽ ഞാൻ കൃത്യസമയത്ത് തിരിച്ചടക്കും)
77	Discipline for credit card use.	If there is credit card for me I don't like to have overdue in it. (എനിക്ക് ക്രെഡിറ്റ് കാർഡ് ഉണ്ടെങ്കിൽ അതിനെ തിരിച്ചടവ് മുടങ്ങാൻ ഞാൻ ഇഷ്ടപ്പെടുന്നില്ല)
78	Discipline regarding loan repayment.	I don't have overdue loan in my name (എന്റെ പേരിൽ തിരിച്ചടവ് മുടങ്ങിയ വായ്പയില്ല)
79	Live within means.	I shall try to live within my budget (ഞാൻ എന്റെ ബജറ്റിൽ ഒതുങ്ങി ജീവിക്കാൻ ആഗ്രഹിക്കുന്നു)
80	I am responsible for my profit and loss.	I am responsible for profit and loss of my business (എന്റെ ബിസിനസിന്റെ ലാഭത്തിനും നഷ്ടത്തിനും ഞാനാണ് ഉത്തരവാദി)
81	Success is at the will of god.	My success in business is a blessing of God (എന്റെ ബിസിനസ്സിന്റെ വിജയം ദൈവാനുഗ്രഹം മാത്രമാണ്)
82	Believe in luck.	It is my luck that I am running a smooth business (ഞാൻ സുഗമായി ബിസിനസ് നടത്തുന്നത് എന്റെ ഭാഗ്യം കൊണ്ടാണ്)

Sl. No.	Dimensions	Corresponding Items
83	Believe in personal effort.	If there is profit in my business, I believe it is by the efforts of my team work (എന്റെ ബിസിനസ്സിൽ ലാഭമുണ്ടെങ്കിൽ അത് എന്റെ ടീമിന്റെ പരിശ്രമം കൊണ്ടാണെന്ന് ഞാൻ വിശ്വസിക്കുന്നു)
84	Confidence in solving financial problems.	If there is a financial problem in my organisation I am confident that I can handle it effectively (എന്റെ സ്ഥാപനത്തിൽ സാമ്പത്തിക പ്രശ്നമുണ്ടെങ്കിൽ അത് ഫലപ്രദമായി കൈകാര്യം ചെയ്യാൻ കഴിയുമെന്ന് എനിക്ക് ഉറപ്പുണ്ട്)
85	Confidence in taking financial decisions.	I am confident that none of my financial decision would go wrong (എന്റെ സാമ്പത്തിക തീരുമാനങ്ങളൊന്നും തെറ്റായി പോകില്ലെന്ന് എനിക്ക് ഉറപ്പുണ്ട്)

Source: Compiled by expert opinion, focus group discussion and literature review.

#### **4.5 Scaling Process of the Instrument**

After doing face validation of the questionnaire and selecting 85 items from the total item pool of 120. Five-point Likert scale is employed to assess the attitude of entrepreneurs. A scale starting from strongly disagree to agree strongly is given. Out of 85 items, nine items were reversely coded. The reverse coding is done to make a check and balance in the questionnaire-filling process.

#### **4.6 Content Validation**

After preparation of the instrument, content validity is done to identify the factual errors, linguistic errors, grammatical errors, or ambiguity in sentences, etc. For this purpose, again an expert in the particular field is consulted and checked by giving printed forms of instruments to entrepreneurs for initial reading. The opinions are collected regarding misunderstandings in bilingual forms or grammatical errors in sentences in both English and Malayalam. During the content validation process, ambiguous sentences were corrected and modified according to the expert opinions. After the instrument development, demographic factors like age, gender, religion, district of residence, place of residence, annual income from business, year of starting business, type of business, total amount of funds invested, educational qualification and whether first-generation businessman or not, are added to the questionnaire.

#### **4.7 Sample Size**

According to Comrey, A. L., & Lee, H. B., a total sample of less than 100 is very poor, 200 samples are fair, 300 samples are good, 500 samples are very good, 1000 samples are excellent and a subject-to-item ratio 1 of 10 is desirable. Hair et al (2010). Recommended minimum 5 to 10 observations per item for factor analysis with a minimum total sample size of 100 to 150, depending on model complexity. A widely accepted guideline for determining sample size in psychometric scale development is to collect data from at least 5 to 10 participants per item, as suggested by Comrey and Lee (1992), Hair et al. (2010), and Gorsuch (1983). However, more recent research (MacCallum et al., 1999) indicates that the required sample size depends on additional factors such as item communalities and factor overdetermination. For the present study, the researcher collected 10 samples for each item. Sixty-five responses were collected from each district. After cleaning of the data, 854 data samples were collected for the study.

#### **4.7 Sample Design and Data Collection**

After the pilot testing process, the sample design for final data collection is prepared. For this purpose, systematic sampling methods are selected for the first stage. Total Kerala is divided into 14 districts. The list of BNI in each city of different districts of Kerala is selected from which a random selection is made to select which BNI unit must be included to collect the samples. From every district, two BNI units were selected by lottery method for data collection. In the second stage, the Cluster sampling technique is used to collect data from each member. 65 samples from each district are collected at the initial stage. After data collection, the data cleaning process is done, in which partially filled and factual error samples are deleted. After completing the data cleaning process, a total of 855 samples are selected for the study. The collected data is coded using MS Excel software. For coding purposes, the RTO district number is used. E.g. 1 for Trivandrum, 2 for Kollam, 10 for Malappuram, etc.

#### **4.8 Measurement Scale Validation**

“Validity means to what extent the data collected conceives the actual area of investigation” (Ghauri & Gronhaug, 2010). There are two types of validity: Content and Construct Validity. Construct Validity is further divided into Convergent and Discriminant Validity. Content validity is defined as “the degree to which items in an instrument reflect the content universe to which the instrument will be generalised” (Straub et al., 2004). Construct Validity explains the empirical relationship between measuring instruments and theoretical concepts.

The instrument employed to measure the variable ‘Financial Intelligence’ was confirmed in two folds. Firstly, Exploratory Factor Analysis (EFA) is performed on 130 samples collected for a pilot study, and then Confirmatory Factor Analysis (CFA) is performed on a total of 854 samples. Here, factors derived from Exploratory Factor Analysis (EFA) were confirmed by using Confirmatory Factor Analysis (CFA) and then assessed for reliability and construct validity through suitable techniques. It is applied to evaluate the quality of the factors by statistically assessing the significance and correlation between items of the scale on the sample data.

Here, the validation of the measurement scale is done for the Likert scale items, namely, Financial Attitude (FA), Financial Literacy (FL), Financial Behaviour (FB), Financial Management (FM), Financial Decision Making (FDM), Financial Discipline (FD) and Financial Locus of Control (FLC). In order to check the validity requirements, the results of Exploratory and Confirmatory Factor Analysis are used, and the results are presented below.

#### **4.9 Validation of the Measurement Scale of Financial Attitude (FA)**

Two methods were used to validate the scale for measuring the ‘Financial Attitude’ (FA) of small entrepreneurs in Kerala. Firstly, an Exploratory Factor Analysis (EFA) was conducted, followed by a Confirmatory Factor Analysis (CFA). These analyses assess the quality of the factors by statistically examining the model's significance and the relationship between factors and scales using sample data.

#### 4.9.1 Exploratory Factor Analysis (EFA) – Financial Attitude (FA)

“Exploratory Factor Analysis (EFA) requires certain assumptions to be fulfilled, namely, association and sampling adequacy. The KMO Bartlett test includes the Bartlett test of Sphericity that measures the multifaceted normality of variables, in addition to analysing whether the correlation matrix is an identity matrix. The Kaiser-Meyer-Olkin (KMO) test can measure whether the sample size is adequate for conducting factor analysis” (George & Paul Mallery, 1999).

“The Cronbach's alpha Coefficient is used to test the reliability. A Cronbach's alpha value of greater than or equal to 0.70 is considered acceptable for the factor to be reliable” (Hair et. al. 2010) regarding the proposed variable of the study.

An exploratory Factor Analysis (EFA) using the Principal Component Method (PCM) was conducted to examine the factor structure and relationships among the nine items in the scale measuring the ‘Financial Attitude’ (FA) of small entrepreneurs in Kerala. The findings are summarised below.

#### Table 4.4

*Result of KMO and Bartlett's Test – Financial Attitude (FA)*

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.722
	Approx. Chi-Square	3404.953
Bartlett's Test of Sphericity	Df	36
	Sig.	.000

*Source: Primary Data*

A Principal Component Analysis (PCA) was performed on nine statements using Varimax Rotation. The Kaiser-Meyer-Olkin (KMO) measure, at 0.722, confirms that the sample is appropriate for this analysis, exceeding the recommended threshold of 0.70. Bartlett's Test of Sphericity, with a Chi-Square value of 3404.953 and  $p < 0.01$ , further supports the adequacy of the relationships among the constructs for PCA, indicating that the correlation matrix is suitable for factor analysis.

A primary analysis is run to obtain Eigen Values for each construct in the data. Three constructs have Eigen Values over and above Kaiser’s criterion of **1**, and in combination, explained **77.044 per cent** of the variance. The result of Exploratory Factor Analysis is presented below.

**Table 4.5**

*Result of Exploratory Factor Analysis – Financial Attitude (FA)*

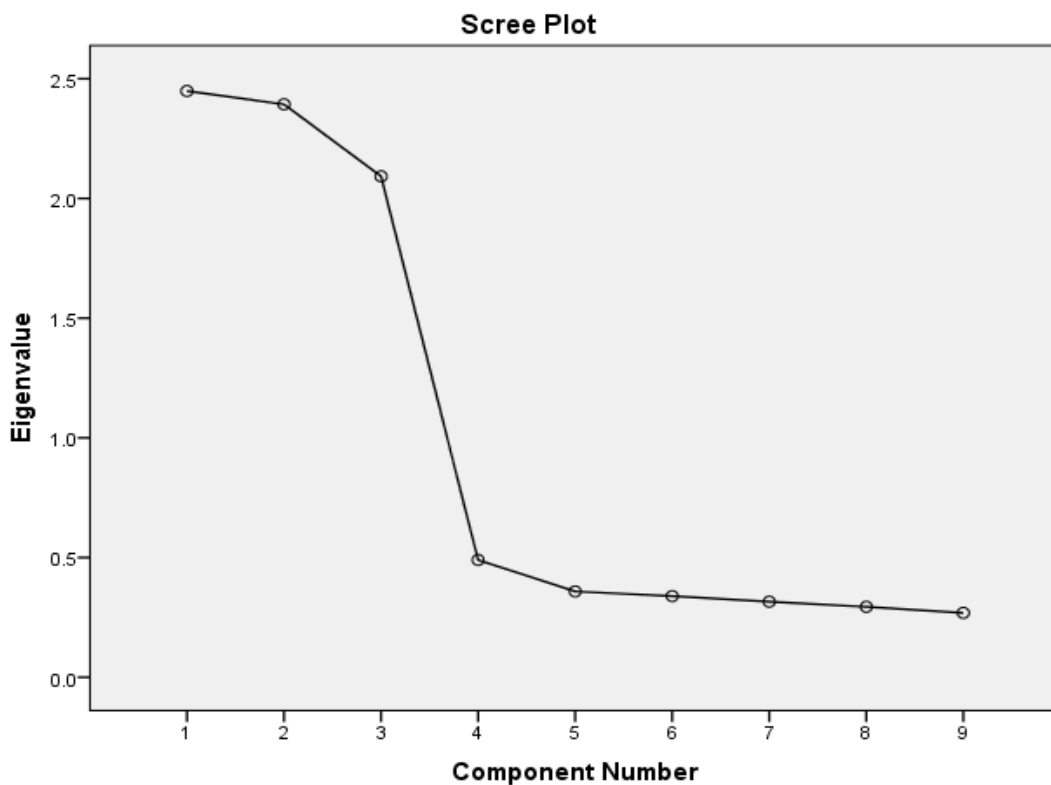
Construct	Statements	Code	Factor Loadings	Eigen Value	Variance Explained	Cronbach’s Alpha
Attitude towards Risk Management	I don’t like to invest in risky ventures	FARM1	.885			
	It is worth taking risk to get a higher return	FARM2	.889	2.449	27.20%	0.862
	I always take insurance policies to reduce risks	FARM3	.882			
Attitude towards Savings and Investment	Saving is equally important as spending	FASI1	.882			
	Investment is an essential tool for wealth creation	FASI2	.900			
	Whenever there is a financial requirement, entrepreneurs should approach Financial institutions (banks, Cooperative banks, NBFCs)	FASI3	.877	2.393	26.58%	0.863
Attitude towards Financial Planning and Controlling	An entrepreneur should have proper financial planning in their life	FAFPC1	.871			
	An entrepreneur should have proper financial control in their life	FAFPC2	.889	2.092	23.24%	0.818
	I am optimistic about my financial future	FAFPC3	.814			
<b>Total Variance Explained – 77.044%</b>						

*Source: Primary Data*

The Exploratory Factor Analysis (EFA) given above depicts that the solution is based on 3 constructs, and items are loading on the correct factors. The **three-factor solution** explains **77.044%** of the total variance. A total of three indicators are included in first factor ‘Attitude towards Risk Management’ (ARM) which explaining over **27.20%** of variance, three items are included in the second factor ‘Attitude towards Savings & Investment’ (ASI) which explaining over **26.58%** of variance and three items are included in the third factor ‘Attitude towards Financial Planning and Controlling’ (AFPC) which explaining over **23.24%** of the total variance. In total, the three-factor solution elucidates over **77.044%** of the total variance explained.

**Figure 4.1**

*Scree-Plot of Exploratory Factor Analysis – Financial Attitude (FA)*



*Source: Primary Data*

The scree plot displays eigenvalues decreasing in a curve, ordered from largest to smallest. The scree-test identifies the ‘elbow’ point where the eigenvalues flatten,

indicating the cutoff for significant factors. In this case, three constructs have eigenvalues greater than 1, which is evident in the scree plot.

***Construct Validity: -***

The above table (Table 4.5) shows that all the factor loadings are above 0.40, and criteria of ***Construct Validity***, including both the ***Discriminant Validity*** (loading of at least 0.40, no cross-loadings of items above 0.40) and ***Convergent Validity*** Eigen values of 1, loadings of at least 0.40, items that load on posited constructs. (Straub et al., 2004) (Hair et.al. 2010). The Exploratory Factor Analysis results indicate that the factors identified within the ‘Financial Attitude’ (FA) dimension demonstrate good validity.

***Reliability: -***

The reliability of the factors is assessed using Cronbach’s Alpha Coefficient. A value of 0.70 or higher indicates strong internal consistency. In this study, the constructs and variables have been measured accordingly. The Cronbach’s Alpha values for all variables within the study's constructs, specifically Attitude towards Risk Management (0.862), Attitude towards Savings and Investment (0.863), and Attitude towards Financial Planning and Controlling (0.818), are all above 0.70. This confirms strong internal consistency, and the variables are thus considered highly reliable.

*Next, we need to conduct a Confirmatory Factor Analysis (CFA) on the ‘Financial Attitude’ (FA) variable and its factors identified through Exploratory Factor Analysis (EFA). This will help us confirm whether the factors we derived from the analysis match the original measurement framework's core structure, with each construct's fundamental factors aligned within the same dimensions (Hair et.al. 2010).*

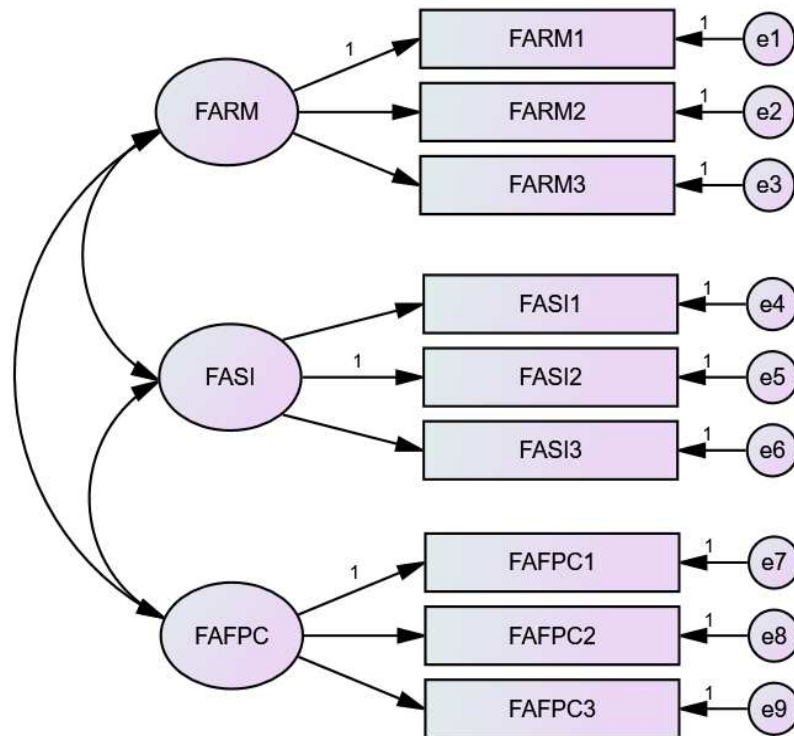
**4.9.2 Confirmatory Factor Analysis – Financial Attitude (FA)**

A Confirmatory Factor Analysis (First Order CFA) is conducted to validate the measurement scales of ‘Financial Attitude’ (FA). CFA is a comprehensive statistical technique used to verify the relationship between observed variables and their underlying constructs. It assesses the adequacy of the factor structure for measuring

these variables. The results of CFA are interpreted through the proposed measurement model, model fit indices, and validity and reliability assessments.

**Figure 4.2**

*Proposed Model of First Order CFA – Financial Attitude*

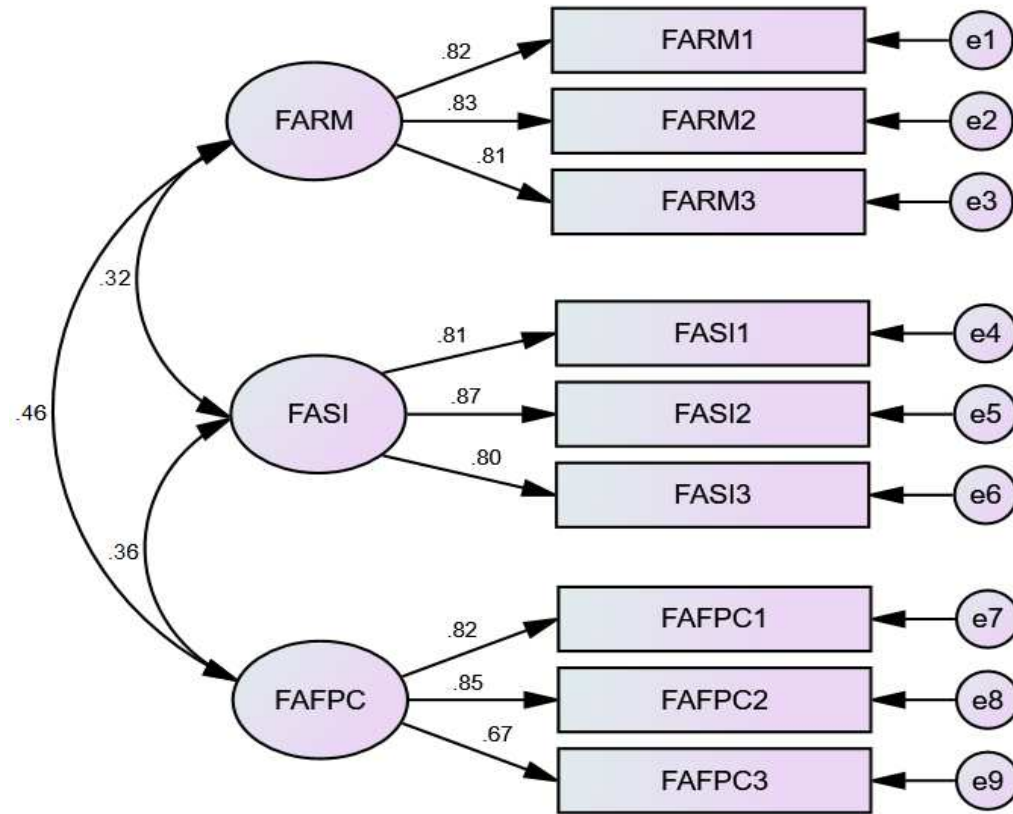


Source: Primary Data

The proposed model of Financial Attitude was tested using various model fit indices, including Normed chi-square (CMIN/df), Root Mean Square Residuals (RMR), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Incremental Fit Index (IFI), Tucker-Lewis Index (TLI), Normed Fit Index (NFI), Relative Fit Index (RFI), and Root Mean Square Error of Approximation (RMSEA). The results for the Model Fit Indices, Measurement Model, and the Reliability & Validity requirements are presented below.

**Figure 4.3**

*Measurement Model of First Order CFA – Financial Attitude (FA)*



Source: Primary Data

Figure 4.3 illustrates the measurement model that explains the relationship between the constructs and items used to assess ‘Financial Attitude’ (FA). It analyses three constructs identified through Exploratory Factor Analysis, supported by observed variables. The model includes three sub-dimensions of Financial Attitude: Attitude towards Risk Management, Attitude towards Savings and Investment, and Attitude towards Financial Planning and Controlling. All factor loadings exceed 0.70, indicating a good fit, which is confirmed by the fit indices listed below. Additionally, the results for model fit, validity, and reliability are detailed below.

**Table 4.6***Model Fit Indices of First Order CFA – Financial Attitude*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	1.395	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.036	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.997	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.991	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.911	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.997	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.996	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.990	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.985	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.022	$< 0.08$	$= 0.08$

Source: Primary Data

The acceptability of first-order CFA (Figure 4.3) is assessed using the aforementioned modification indices. All key fit measures—CFI, GFI, AGFI, IFI, NFI, RFI, and TLI—exceed the recommended threshold of 0.90 for good fit. The CMIN/df ratio is 1.395, well within the acceptable limit of less than 3. Additionally, RMR is 0.036, below the good fit cutoff of 0.05, and RMSEA is 0.022, under the 0.08 threshold. Consequently, the model for assessing ‘Financial Attitude’ (FA) demonstrates good fit indices and is deemed acceptable for evaluating scale validity.

**Table 4.7**

*Validity and Reliability Statistics – Financial Attitude*

Constructs	Statements	Factor Loadings	CR	AVE	MSV
			$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum Var(\varepsilon_i)}$	$AVE = \frac{\sum_{i=1}^n \lambda_i^2}{n}$	= square of highest correlation b/w latent constructs
<b>Attitude towards Risk Management</b>	FARM1	.825	0.839	0.574	0.211
	FARM2	.832			
	FARM3	.811			
<b>Attitude towards Savings and Investment</b>	FASI1	.812	0.863	0.614	0.129
	FASI2	.866			
	FASI3	.796			
<b>Attitude towards Financial Planning and Controlling</b>	FAFPC1	.816	0.838	0.567	0.211
	FAFPC2	.853			
	FAFPC3	.673			

*Source: Primary Data*

Table 4.7 presents the Standardized Factor Loadings, Composite Reliability (CR), Average Variance Extracted (AVE), and Maximum Shared Variance (MSV) for each construct measuring the ‘Financial Attitude’ (FA). All Standardized Factor Loadings exceed 0.70, indicating that each factor significantly contributes to the measure constructs.

To establish Convergent Validity, three conditions must be met: the Composite Reliability (CR) should exceed 0.70, the Average Variance Extracted (AVE) should be above 0.50, and CR should be greater than AVE. The CR and AVE values for Attitude towards Risk Management are 0.839 and 0.574, for Attitude towards Savings and Investment are 0.863 and 0.614, and for Attitude towards Financial Planning and Controlling are 0.838 and 0.567. All these values satisfy the criteria, confirming the validity.

Furthermore, the Discriminant Validity of the scale is confirmed by the criterion that the Average Variance Extracted (AVE) should exceed the Maximum Shared Variance (MSV). This condition is satisfied here, as the AVE for all constructs is greater than the MSV. Specifically,  $0.574 > 0.211$  for Attitude towards Risk Management,  $0.614 > 0.129$  for Attitude towards Savings and Investment, and  $0.567 > 0.211$  for Attitude towards Financial Planning and Controlling, meeting the specified requirements. Consequently, the criteria for Discriminant Validity are met. The model is considered a good fit for assessing the 'Financial Attitude' (FA) of Small Entrepreneurs in Kerala.

#### 4.10 Validation of Measurement Scale of Financial Literacy (FL)

The scale is used to measure the variable 'Financial Literacy' (FL) of small entrepreneurs in Kerala is validated in two steps. Firstly, an Exploratory Factor Analysis (EFA) and then a Confirmatory Factor Analysis (CFA) are performed. It is applied to assess the quality of the factor structure by statistically testing the significance of the overall model, as well as associations among items and scales based on sample data.

##### 4.10.1 Exploratory Factor Analysis (EFA) – Financial Literacy (FL)

Exploratory Factor Analysis (EFA) using Principal Component Method (PCM) is employed for analyzing the factor structure and association between 22 statements included in the scale for measuring the 'Financial Literacy' (FL). The results are presented below.

**Table 4.8**

*Result of KMO and Bartlett's Test – Financial Literacy (FL)*

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.831
Bartlett's Test of Sphericity	Approx. Chi-Square	8805.727
	Df	231
	Sig.	.000

*Source: Primary Data*

A Principal Component Analysis is conducted on the 22 statements with Varimax Rotation. The Kaiser-Meyer-Olkin (KMO) measure verifies the sample adequacy for the analysis, The KMO value is 0.831, which is above the recommended limit of 0.70. Bartlett’s test is another indication of the power of the relationship among variables. The Chi-Square of Bartlett’s Test of Sphericity = 8805.727,  $p < 0.01$ , indicates that the association between the items is sufficiently large for Principal Component Analysis (PCA).

An initial analysis is run to obtain Eigen Values for each component in the data. Five constructs have Eigen values over and above Kaiser’s criterion of **1** and, in combination, explained **68.646 per cent** of the variance. The result of EFA is presented below.

**Table 4.9**

*Result of Exploratory Factor Analysis – Financial Literacy (FL)*

Construct	Statements	Code	Factor Loadings	Eigen Value	Variance Explained	Cronbach’s Alpha
<b>Knowledge of the financial system</b>	Inflation will adversely affect my business, investment and return	FLKFS1	.767	3.651	16.59%	0.844
	Interest in savings accounts and fixed deposits is equal	FLKFS2	.782			
	If you act as a surety for a loan, you are responsible for repaying it if your friend defaults.	FLKFS3	.778			
	Dollar value appreciation against the Indian Rupee is a risk for Indian businessmen who export goods to foreign countries	FLKFS4	.808			
	Input credit is applicable to income tax	FLKFS5	.781			

Construct	Statements	Code	Factor Loadings	Eigen Value	Variance Explained	Cronbach's Alpha
Knowledge of financial planning	A budget deficit occurs when a person's actual expenses are lower than their planned expenses.	FLKFP1	.881			
	Budgets are prepared to know the existing assets, liabilities, income and expenditure.	FLKFP2	.892	3.412	15.51%	0.849
	I am confident to submit all my GST documents without the help of an expert	FLKFP3	.847			
Knowledge of financial statements	Net worth means the difference between assets and liabilities	FLKFSs1	.815			
	The assets of a firm should be equal to the liabilities	FLKFSs2	.791			
	Liquidity refers to the ease of converting financial resources into available cash.	FLKFSs3	.805			
	Liquidity ratio is the long-term financial position of a company	FLKFSs4	.807	3.142	14.28%	0.872
	If somebody invites me to invest in their business, I will ask for their balance sheet and profit and loss account and will analyze their financial strengths and weakness before investing	FLKFSs5	.844			
Knowledge of financial products	Demat account is used for depositing shares	FLKFPPr1	.856			
	Mutual funds are a pooling of funds from investors and invest in stocks and other investment avenues	FLKFPPr2	.874	2.656	12.07%	0.872
	I believe that SIP is a better method to create wealth.	FLKFPPr3	.848			
	Insurance is an investment, not a risk transfer method	FLKFPPr4	.812			

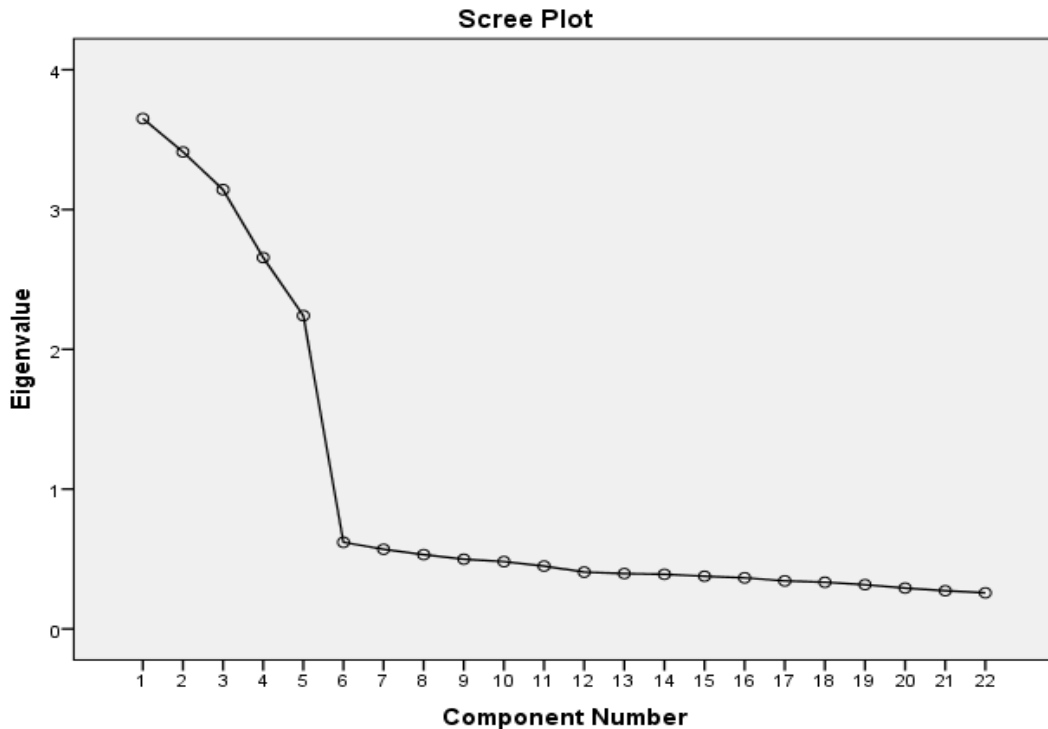
<b>Construct</b>	<b>Statements</b>	<b>Code</b>	<b>Factor Loadings</b>	<b>Eigen Value</b>	<b>Variance Explained</b>	<b>Cronbach's Alpha</b>
<b>Updating financial knowledge</b>	I read the newspaper every day and update my business and financial knowledge	FLUFN1	.816	2.241	10.18%	0.885
	I keep a track record of stock market indexes and stock prices	FLUFN2	.844			
	I am aware that my country is going through an economic boom or depression because I get updates on it in the newspaper, TV, or social media	FLUFN3	.816			
	I keep watching the union and state budget to check for any opportunities or problems for my business	FLUFN4	.832			
	I used to critically analyze the development in the financial and economic field to understand its effect on my business and economy	FLUFN5	.824			
<b>Total Variance Explained – 68.646%</b>						

*Source: Primary Data*

The results of the Exploratory Factor Analysis (EFA) indicate a solution based on five constructs, with all items loading onto their respective factors. This five-factor model accounts for 68.646% of the total variance. The first factor, 'Knowledge of financial system,' includes five indicators and explains over 16.59% of variance. The second factor, 'Knowledge of financial planning,' contains three items and explains more than 15.51% of variance. The third factor, 'Knowledge of financial statements,' comprises five indicators and accounts for over 14.28% of variance. The fourth factor, 'Knowledge of financial products,' includes four items and explains over 12.07% of variance. The fifth factor, 'Updating financial knowledge,' consists of five items and explains more than 10.18% of the total variance. Overall, these five factors together explain 68.646% of the variance.

**Figure 4.4**

*Scree-Plot of Exploratory Factor Analysis – Financial Literacy (FL)*



Source: Primary Data

The scree plot shows Eigenvalues decreasing in a curve, arranged from largest to smallest. Based on the scree test, the 'elbow' point, where the eigenvalues begin to level off, marks the cutoff. Factors to the left of this point are significant. In this case, five constructs have Eigenvalues greater than 1, which is evident in the scree plot.

#### ***Construct Validity: -***

The above table (Table 4.6) shows all the factor loadings are above 0.40, and criteria of ***Construct Validity*** including both the ***Discriminant Validity*** (loading of at least 0.40, no cross-loadings of items above 0.40) and ***Convergent Validity*** (Eigen values of 1, loadings of at least 0.40, items that load on posited constructs) (Straub et al., 2004). The Exploratory Factor Analysis results indicate that the chosen factors within the 'Financial Literacy' (FL) dimension demonstrate strong validity.

***Reliability: -***

The reliability of the factors was evaluated using Cronbach's Alpha Coefficient, with a value of 0.70 or higher indicating strong internal consistency. In this study, the constructs and variables were measured accordingly. The Cronbach's Alpha values for all variables within the study's constructs—namely, Knowledge of the financial system (0.844), Knowledge of financial planning (0.849), Knowledge of financial statements (0.872), Knowledge of financial products (0.872), and Updating financial knowledge (0.885)—all surpassed 0.70. This confirms strong internal consistency, and the variables are considered highly reliable.

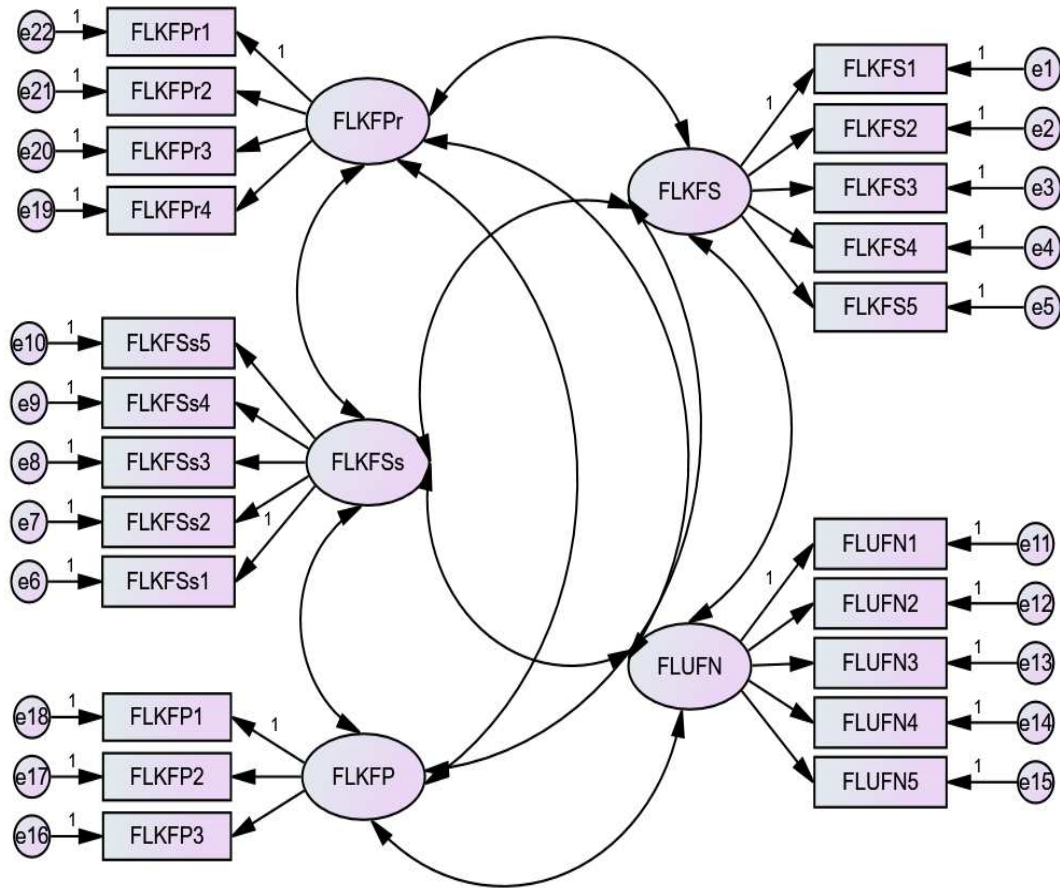
*The next step is to perform a Confirmatory Factor Analysis (CFA) on the 'Financial Literacy' (FL) variable and its factors identified through Exploratory Factor Analysis (EFA). This will determine whether the resulting factors share the same core structure as the intended measurement model, ensuring that each construct's fundamental factors align within the same dimensions.*

**4.10.2 Confirmatory Factor Analysis – Financial Literacy (FL)**

A Confirmatory Factor Analysis (First Order CFA) is used to validate the measurement scales of 'Financial Literacy' (FL). CFA is a complex statistical tool that assesses the relationship between observed variables and their underlying constructs. It evaluates the accuracy of the factor structure in measuring the variables. The CFA results are presented using the proposed measurement model, model fit indices, and validity and reliability outcomes.

**Figure 4.5**

*Proposed Model of First Order CFA – Financial Literacy (FL)*

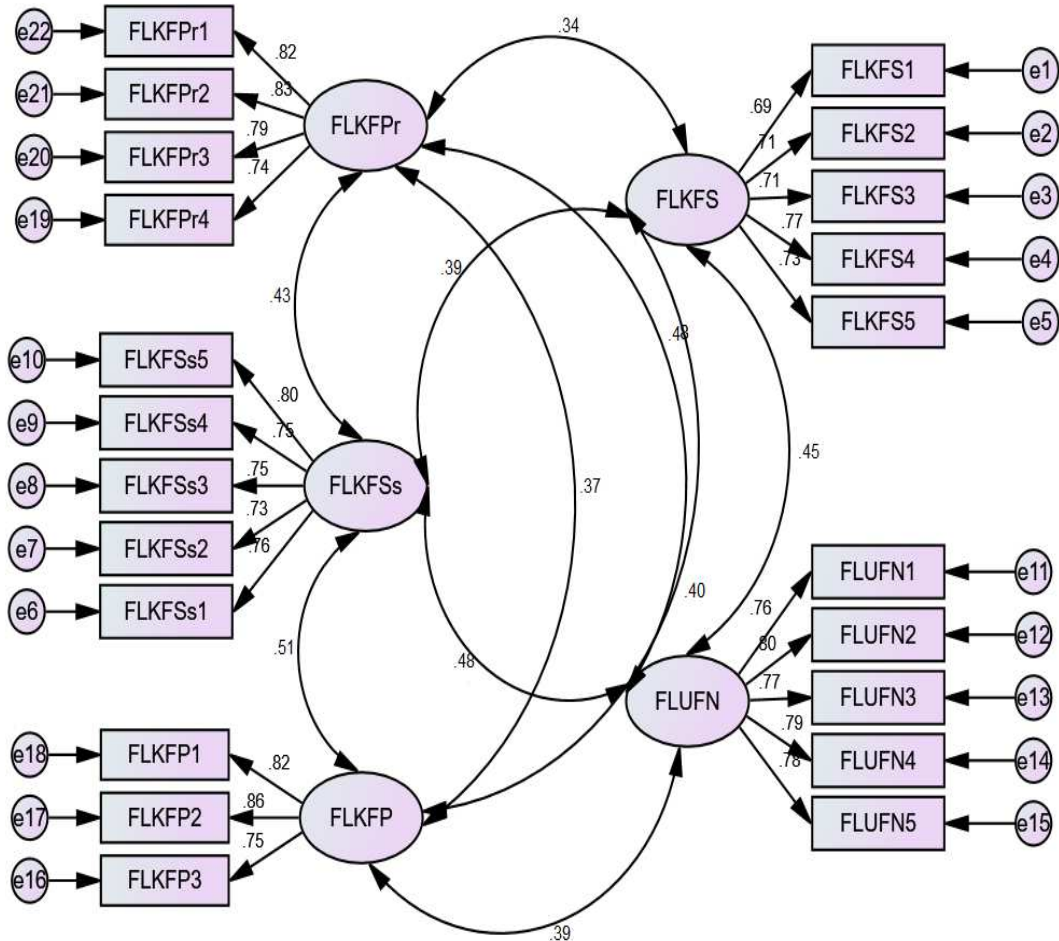


Source: Primary Data

The proposed model of Financial Literacy was evaluated using various model fit indices, including Normed chi-square (CMIN/df), Root Mean Square Residuals (RMR), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Incremental Fit Index (IFI), Tucker Fit Index (TLI), Normed Fit Index (NFI), Relative Fit Index (RFI), and Root Mean Square Error of Approximation (RMSEA). The results for the Model Fit Indices, Measurement Model, and the Reliability & Validity requirements are summarised below.

**Figure 4.6**

*Measurement Model of First Order CFA – Financial Literacy (FL)*



Source: Primary Data

Figure 4.6 illustrates the measurement model that explains the relationship between the constructs and items used to assess ‘Financial Literacy’ (FL). It analyses five constructs identified through Exploratory Factor Analysis, supported by observed variables. The model includes five sub-dimensions of Financial Literacy: Knowledge of the financial system, financial planning, financial statements, financial products, and updating financial knowledge. All factor loadings exceed 0.70, indicating a good fit, as confirmed by the specified indices below. Additionally, the model fit indices, validity, and reliability results are provided below.

**Table 4.10***Model Fit Indices of First Order CFA – Financial Literacy (FL)*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	2.292	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.049	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.970	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.954	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.941	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.970	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.966	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.949	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.970	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.039	$< 0.08$	$= 0.08$

Source: Primary Data

The suitability of the first-order CFA (Table 4.10) is assessed using the specified modification indices. All key fit measures—CFI, GFI, AGFI, IFI, NFI, RFI, and TLI—exceed the recommended threshold of 0.90, indicating good fit. The CMIN/df value of 2.292 is within the acceptable limit of less than 3. Additionally, the RMR (0.049) is below the cutoff of 0.05, and the RMSEA (0.039) is under 0.08. Thus, the model for measuring ‘Financial Literacy’ (FL) demonstrates acceptable validity with satisfactory fit indices.

**Table 4.11**

*Validity and Reliability Statistics – Financial Literacy*

Constructs	Statements	Factor Loadings	CR	AVE	MSV
			$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum Var(\varepsilon_i)}$	$AVE = \frac{\sum_{i=1}^n \lambda_i^2}{n}$	= square of highest correlation b/w latent constructs
Knowledge of financial system	FLKFS1	.687	0.844	0.521	0.216
	FLKFS2	.712			
	FLKFS3	.715			
	FLKFS4	.766			
	FLKFS5	.727			
Knowledge of financial planning	FLKFP1	.823	0.850	0.655	0.260
	FLKFP2	.856			
	FLKFP3	.745			
Knowledge of financial statements	FLKFSs1	.761	0.872	0.577	0.260
	FLKFSs2	.731			
	FLKFSs3	.751			
	FLKFSs4	.750			
	FLKFSs5	.804			
Knowledge of financial products	FLKFPPr1	.816	0.873	0.632	0.184
	FLKFPPr2	.832			
	FLKFPPr3	.789			
	FLKFPPr4	.742			
Updating financial knowledge	FLUFN1	.755	0.885	0.607	0.216
	FLUFN2	.803			
	FLUFN3	.766			
	FLUFN4	.791			
	FLUFN5	.780			

Source: Primary Data

Table 4.11 presents the Standardized Factor Loadings, Composite Reliability (CR), Average Variance Extracted (AVE), and Maximum Shared Variance (MSV) for each construct measuring 'Financial Literacy' (FL). All Standardized Factor Loadings exceed 0.70, demonstrating that all factors adequately contribute to the constructs.

To establish Convergent Validity, three conditions must be met: the Composite Reliability (CR) should exceed 0.70, the Average Variance Extracted (AVE) should be over 0.50, and CR must be greater than AVE. The CR and AVE values for various knowledge areas are as follows: Knowledge of financial system = 0.844 & 0.521, Knowledge of financial planning = 0.850 & 0.655, Knowledge of financial statements = 0.872 & 0.577, Knowledge of financial products = 0.873 & 0.632, and Updating financial knowledge = 0.885 & 0.607, all of which meet these criteria. Therefore, Convergent Validity is confirmed.

Furthermore, the scale's Discriminant Validity is confirmed because its Average Variance Extracted (AVE) exceeds the Maximum Shared Variance (MSV). Specifically, all constructs meet this criterion, with AVE values greater than their corresponding MSV values:  $0.521 > 0.216$  for Knowledge of Financial System,  $0.655 > 0.260$  for Knowledge of Financial Planning,  $0.577 > 0.260$  for Knowledge of Financial Statements,  $0.632 > 0.184$  for Knowledge of Financial Products, and  $0.607 > 0.216$  for Updating Financial Knowledge. Thus, the criteria for Discriminant Validity are satisfied, indicating that the model effectively measures the 'Financial Literacy' (FL) of small entrepreneurs in Kerala.

#### **4.11 Validation of the Measurement Scale of Financial Behaviour (FB)**

The scale used to measure the 'Financial Behaviour' (FB) of small entrepreneurs in Kerala is validated through two steps. First, an Exploratory Factor Analysis (EFA) is conducted, followed by a Confirmatory Factor Analysis (CFA). These methods evaluate the quality of the factor structure by statistically testing the overall model's significance and the relationships among items and scales, using sample data.

#### **4.11.1 Exploratory Factor Analysis (EFA) – Financial Behaviour (FB)**

Exploratory Factor Analysis (EFA) with the Principal Component Method (PCM) is used to analyse the factor structure and relationships among the 9 statements in the scale measuring ‘Financial Behaviour’ (FB). The findings are shown below.

**Table 4.12**

*Result of KMO and Bartlett’s Test – Financial Behaviour (FB)*

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.873
	Approx. Chi-Square	3599.498
Bartlett's Test of Sphericity	Df	36
	Sig.	.000

*Source: Primary Data*

A Principal Component Analysis (PCA) is performed on the nine statements using Varimax Rotation. The Kaiser-Meyer-Olkin (KMO) measure confirms the sample's suitability for analysis, with a value of 0.873, surpassing the recommended threshold of 0.70. Bartlett’s Test further supports the adequacy of relationships among variables, with a Chi-Square of 3599.498 and  $p < 0.01$ , indicating a strong enough association for PCA.

An initial analysis calculates Eigen Values for each data component. Two constructs have Eigen values exceeding Kaiser’s criterion of 1 and together explain 67.980% of the variance. The EFA results are shown below.

**Table 4.13***Result of Exploratory Factor Analysis – Financial Behaviour (FB)*

Construct	Statements	Code	Factor Loadings	Eigen Value	Variance Explained	Cronbach's Alpha
<b>Earning and Spending Habits</b>	I maintain a written or digital record of my monthly expenses.	FBESH1	.804			
	I prefer branded items	FBESH2	.789			
	If I get a chance to choose between online and cash payment, I prefer online payment.	FBESH3	.798			
				4.201	42.71%	0.889
	I always use a credit card for my day-to-day transactions	FBESH4	.818			
	I have multiple sources of income	FBESH5	.788			
	I like to change my household items frequently	FBESH6	.769			
<b>Financial Consultation Behaviour</b>	I consult with a financial analyst for the betterment of my business	FBFCB1	.887			
	When there are financial problems, I seek advice from experts	FBFCB2	.852	1.918	25.26%	0.827
	I am always Concerned about my CIBIL Score	FBFCB3	.824			
<b>Total Variance Explained – 67.980%</b>						

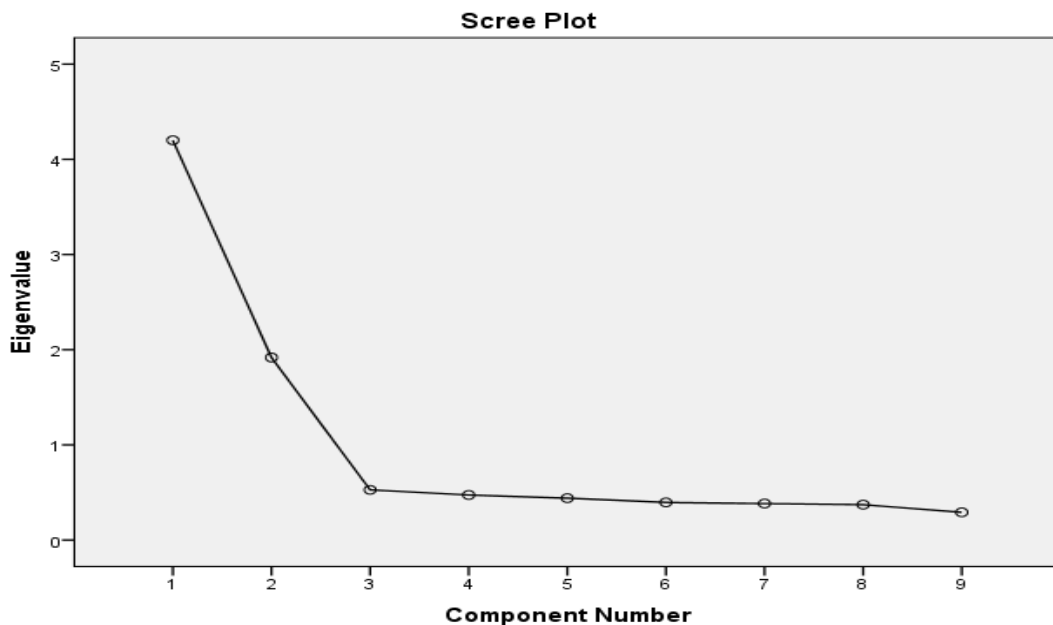
*Source: Primary Data*

The result of Exploratory Factor Analysis (EFA) shows that the solution is based on **2 constructs**, and all items are loading on their own factors. The **two-factor solution**

explains **67.980%** of variance of the total variance. A total of six indicators are included in the first factor ‘Earning and Spending Habits’, which explains over **42.71%** of the variance; two items/statements are included in the second factor ‘Financial Consultation Behaviour’, which explains over **25.26%** of the total variance. In total, the two-factor solution explains over **67.980%** of the variance of the total variance explained.

**Figure 4.7**

*Scree-Plot of Exploratory Factor Analysis – Financial Behaviour (FB)*



*Source: Primary Data*

The scree plot shows eigenvalues decreasing in a curve, arranged from largest to smallest. The scree test identifies the 'elbow' point—where eigenvalues begin to level off—and suggests retaining factors to the left of this point. In this case, two constructs have eigenvalues greater than 1, as indicated by the scree plot.

***Construct Validity: -***

The above table (Table 4.10) shows all the factor loadings are above 0.40, and criteria of ***Construct Validity*** including both the ***Discriminant Validity*** (loading of at least 0.40, no cross-loadings of items above 0.40) and ***Convergent Validity*** (Eigen values

of 1, loadings of at least 0.40, items that load on posited constructs) (Straub et al., 2004). The result of Exploratory Factor Analysis shows that the selected factors under the dimension ‘**Financial Behaviour**’ (FB) has a good level of validity.

***Reliability: -***

The reliability of the factors is assessed using **Cronbach’s Alpha Coefficient**. An alpha value of 0.70 or higher indicates strong internal consistency. In this study, the constructs and variables have been evaluated accordingly. The **Cronbach’s Alpha** values for all variables within the study's constructs—Earning and Spending Habits (0.889) and Financial Consultation Behaviour (0.827)—exceed 0.70. Therefore, these variables demonstrate high internal consistency and are considered highly reliable.

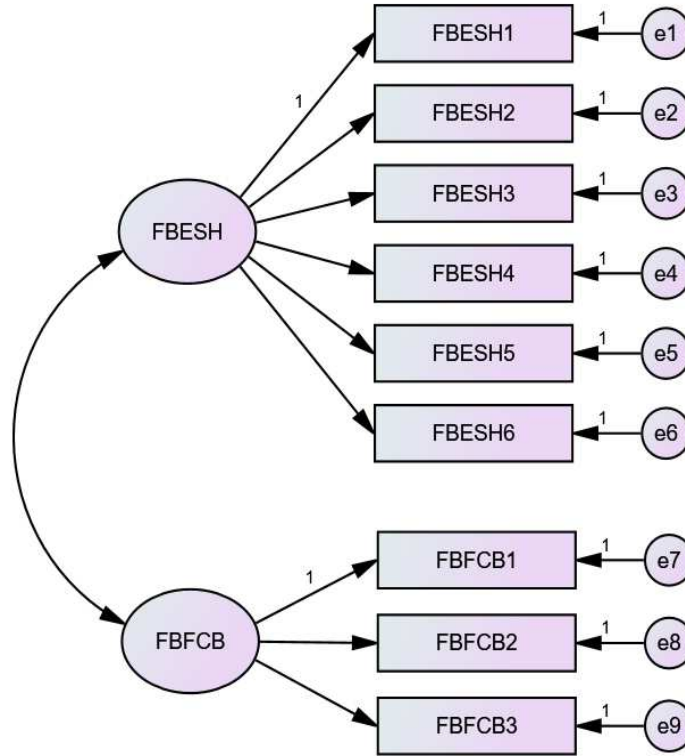
*The next step is to perform a Confirmatory Factor Analysis (CFA) on the ‘Financial Behaviour’ (FB) variable and its factors identified through Exploratory Factor Analysis (EFA). This will determine whether the factors derived from the results align with the original measurement structure—specifically, whether the fundamental factors of each construct reside within the same dimensions.*

**4.11.2 Confirmatory Factor Analysis – Financial Behaviour (FB)**

A Confirmatory Factor Analysis (First Order CFA) is conducted to validate the measurement scales of ‘Financial Behaviour’ (FB). CFA is a comprehensive statistical technique used to assess the relationship between observed variables and their underlying constructs. It evaluates the adequacy of the factor structure in measuring these variables. The CFA results are presented through the proposed measurement model, model fit indices, and assessments of validity and reliability.

**Figure 4.8**

*Proposed Model of First Order CFA – Financial Behaviour (FB)*

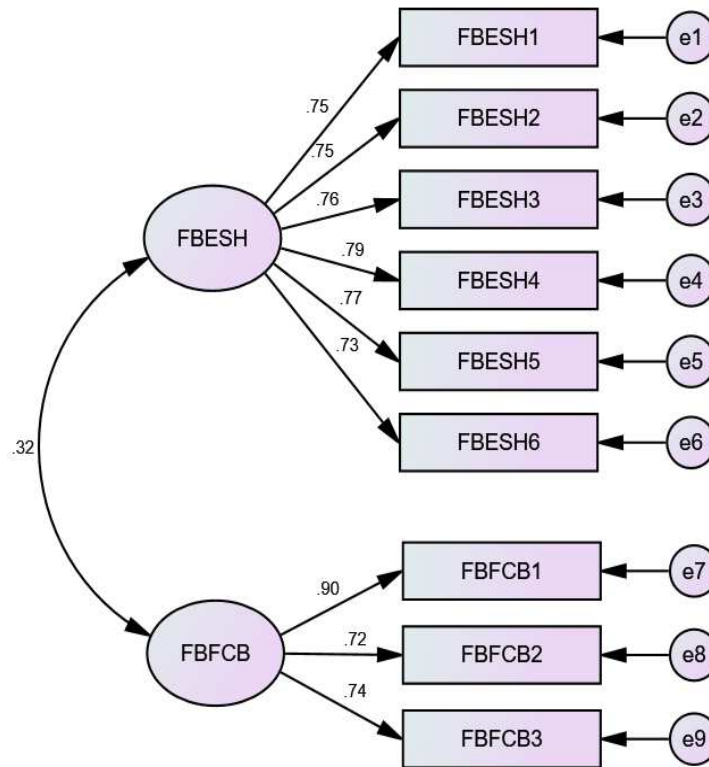


Source: Primary Data

The proposed model of Financial Behaviour is evaluated using various model fit indices, including Normed chi-square (CMIN/df), Root Mean Square Residuals (RMR), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Incremental Fit Index (IFI), Tucker Fit Index (TLI), Normed Fit Index (NFI), Relative Fit Index (RFI), and Root Mean Square Error of Approximation (RMSEA). The results of these fit indices, along with the Measurement Model and the Reliability & Validity Assessments, are summarised below.

**Figure 4.9**

*Measurement Model of First Order CFA – Financial Behaviour (FB)*



Source: Primary Data

Figure 4.9 illustrates the measurement model that explains the relationship between the constructs and items used to assess 'Financial Behaviour' (FB). It analyses two constructs, derived from Exploratory Factor Analysis, using observed variables. The model includes two sub-dimensions of Financial Behaviour: 'Earning and Spending Habits' and 'Financial Consultation Behaviour'. All factor loadings exceed 0.70, indicating a good fit, which is supported by the fit indices listed below. Additionally, the results for model fit indices, as well as the validity and reliability metrics, are provided below.

**Table 4.14**

*Model Fit Indices of First Order CFA – Financial Behaviour (FB)*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	2.535	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.045	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.989	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.983	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.971	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.989	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.985	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.982	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.975	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.042	$< 0.08$	$= 0.08$

Source: Primary Data

The suitability of the first-order CFA (Figure 4.9) is evaluated using the specified modification indices. All key fit measures—CFI, GFI, AGFI, IFI, NFI, RFI, and TLI—exceed the good fit threshold of 0.90. The CMIN/df ratio is 2.535, which is within the acceptable limit of less than 3. Additionally, RMR is 0.045, below the recommended maximum of 0.05, and RMSEA is 0.042, within the acceptable range of less than 0.08. Therefore, the model assessing ‘Financial Behaviour’ (FB) demonstrates good fit indices, indicating it is acceptable for validating the scale.

**Table 4.15***Validity and Reliability Statistics – Financial behavior*

Constructs	Statements	Factor Loadings	CR	AVE	MSV
			$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum Var(\varepsilon_i)}$	$AVE = \frac{\sum_{i=1}^n \lambda_i^2}{n}$	= square of highest correlation b/w latent constructs
Earning and Spending Habits	FBESH1	.753	0.889	0.572	0.102
	FBESH2	.751			
	FBESH3	.757			
	FBESH4	.786			
	FBESH5	.765			
	FBESH6	.726			
Financial Consultation Behaviour	FBFCB1	.900	0.833	0.627	0.102
	FBFCB2	.723			
	FBFCB3	.741			

*Source: Primary Data*

Table 4.15 presents the Standardized Factor Loadings, Composite Reliability (CR), Average Variance Extracted (AVE), and Maximum Shared Variance (MSV) for each construct used to measure 'Financial Behaviour' (FB). All Standardized Factor Loadings exceed 0.70, demonstrating that all factors adequately contribute to the constructs.

To establish Convergent Validity, three conditions must be met: The Composite Reliability (CR) should exceed 0.70, the Average Variance Extracted (AVE) should be above 0.50, and CR should also be greater than AVE. In this case, the CR and AVE values for Earning and Spending Habits are 0.889 and 0.572, respectively, while for Financial Consultation Behaviour, they are 0.833 and 0.627. These values meet the specified criteria, thus confirming the presence of Convergent Validity.

The Discriminant Validity of the scale is confirmed by the criterion that the Average Variance Extracted (AVE) should exceed the Maximum Shared Variance (MSV). In this case, this condition is met as the AVE for all constructs surpasses the MSV. Specifically,  $0.572 > 0.102$  for Earning and Spending Habits, and  $0.627 > 0.102$  for Financial Consultation Behaviour, fulfilling the required conditions. Therefore, the criteria for Discriminant Validity are satisfied. The model is considered a good fit for assessing the 'Financial Behaviour' (FB) of Small Entrepreneurs in Kerala.

#### **4.12 Validation of Measurement Scale of Financial Management (FM)**

The scale used to analyse the 'Financial Management' (FM) variable of small entrepreneurs in Kerala is validated through two steps: first, an Exploratory Factor Analysis (EFA), and then a Confirmatory Factor Analysis (CFA). The CFA assesses the quality of the factor structure by statistically testing the overall model's significance and examining the relationships among items and scales based on sample data.

##### **4.12.1 Exploratory Factor Analysis (EFA) – Financial Management (FM)**

Exploratory Factor Analysis (EFA) with the Principal Component Method (PCM) is used to examine the factor structure and relationships among the 20 statements in the scale measuring 'Financial Management' (FM). The findings are detailed below.

**Table 4.16**

*Result of KMO and Bartlett's Test – Financial Management (FM)*

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<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.791
	Approx. Chi-Square	5564.703
Bartlett's Test of Sphericity	Df	190
	Sig.	.000

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*Source: Primary Data*

A Principal Component Analysis (PCA) was performed on 20 statements using Varimax Rotation. The Kaiser-Meyer-Olkin (KMO) measure confirmed the sample's

suitability for analysis, with a value of 0.791, exceeding the recommended threshold of 0.70. Bartlett's Test of Sphericity further supports the adequacy of the data, with a Chi-Square statistic of 5564.703 and a p-value less than 0.01, indicating a sufficiently strong relationship among variables for PCA.

An initial analysis calculates Eigen Values for each data component. Five constructs have Eigen values exceeding Kaiser's criterion of 1 and collectively account for 61.714% of the variance. The results of the EFA are shown below.

**Table 4.17**

*Result of Exploratory Factor Analysis – Financial Management (FM)*

Construct	Statements	Code	Factor Loadings	Eigen Value	Variance Explained	Cronbach's Alpha
Financial Planning	I plan all my organisational financial requirements in advance	FMFP1	.767	4.381	21.90%	0.858
	I plan all my personal financial requirements in advance	FMFP2	.798			
	I prepare a personal budget every year	FMFP3	.780			
	I prepare an organisational budget every year	FMFP4	.748			
	I have a clear-cut idea about the time of my retirement. So I have started investing for that	FMFP5	.737			
	I do tax planning to reduce the tax burden	FMFP6	.711			
Managing Financial Stress	I have appointed a tax consultant for me and for my organization	FMMFS1	.881	2.520	12.60%	0.772
	I am ready to invest to get a passive income	FMMFS2	.879			

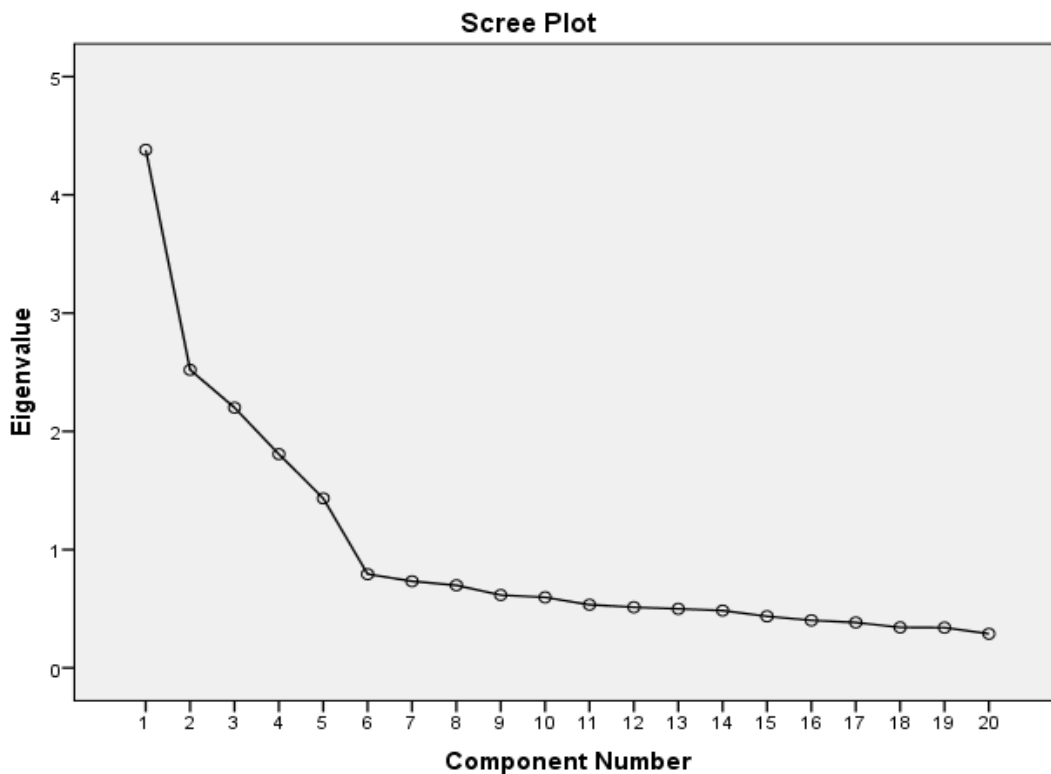
<b>Construct</b>	<b>Statements</b>	<b>Code</b>	<b>Factor Loadings</b>	<b>Eigen Value</b>	<b>Variance Explained</b>	<b>Cronbach's Alpha</b>
<b>Financial Control</b>	I use my organisational budgets to control the expenses.	FMFC1	.721			
	I save some amount separately for meeting emergency expenses	FMFC2	.656			
	Last year, my actual personal expenses were almost equal to my budgeted expenses	FMFC3	.768	2.201	11.00%	0.802
	Last year, my actual organisational expenses were almost equal to the budgeted expenses	FMFC4	.788			
	I used to reconcile my cash book and bank passbook	FMFC5	.756			
<b>Cash Management</b>	I am good at managing cash	FMCM1	.663			
	I borrow money to meet my personal expenses	FMCM2	.730			
	I borrowed money for doing business	FMCM3	.825	1.807	9.037%	0.730
	I am confident that whatever money I borrow, it can be returned without much difficulty	FMCM4	.732			
<b>Managing Insurance</b>	I should purchase an adequate health insurance policy	FMMI1	.810			
	I should purchase an insurance policy for my business	FMMI2	.727	1.434	7.168%	0.714
	I should purchase adequate life insurance policies	FMMI3	.760			
<b>Total Variance Explained – 61.714%</b>						

*Source: Primary Data*

The results of the Exploratory Factor Analysis (EFA) indicate a five-construct solution, with each item loading onto its respective factor. This five-factor model accounts for 61.714% of the total variance. The first factor, 'Financial Planning,' includes six indicators and explains over 21.90% of the variance. The second factor, 'Managing Financial Stress,' consists of two items and accounts for more than 12.60% of the variance. The third factor, 'Financial Control,' contains five indicators, explaining over 11.00% of the variance. The fourth factor, 'Cash Management,' includes four items and explains over 9.037% of the variance. The final factor, 'Managing Insurance,' comprises three items and accounts for more than 7.168% of the total variance. Overall, the five-factor solution explains approximately 61.714% of the total variance.

**Figure 4.10**

*Scree-Plot of Exploratory Factor Analysis – Financial Management (FM)*



Source: Primary Data

The scree plot shows Eigenvalues in a descending curve, arranged from largest to smallest. The scree-test identifies the 'elbow' point where Eigenvalues begin to level off, indicating the number of factors or constructs to retain. In this plot, five constructs have Eigenvalues greater than 1, which is evident from the graph.

***Construct Validity: -***

The table (Table 4.14) shows all factor loadings are above 0.40, meeting the criteria for Construct Validity, which include both Discriminant Validity (loads of at least 0.40, with no cross-loadings above 0.40) and Convergent Validity (Eigenvalues of 1, loadings of at least 0.40, and items loading on the intended constructs) (Straub et al., 2004). The results from the Exploratory Factor Analysis indicate that the factors within the 'Financial Management' (FM) dimension demonstrate good validity.

***Reliability: -***

Reliability of the factors is assessed using Cronbach's Alpha coefficient. An alpha value of 0.70 or higher indicates strong internal consistency. In this study, the constructs and variables have been measured accordingly. The Cronbach's Alpha reliability coefficients for all variables within the study's constructs—namely, Financial Planning (0.858), Managing Financial Stress (0.772), Financial Control (0.802), Cash Management (0.730), and Managing Insurance (0.714)—are all above 0.70. This confirms strong internal consistency, making these variables highly reliable.

*The next step is to perform a Confirmatory Factor Analysis (CFA) on the 'Financial Management' (FM) variable and its factors identified through Exploratory Factor Analysis (EFA). This will evaluate whether the factors derived from the results share the same core structure as the intended measurement model, specifically ensuring that the fundamental factors of each construct align within the same dimensions.*

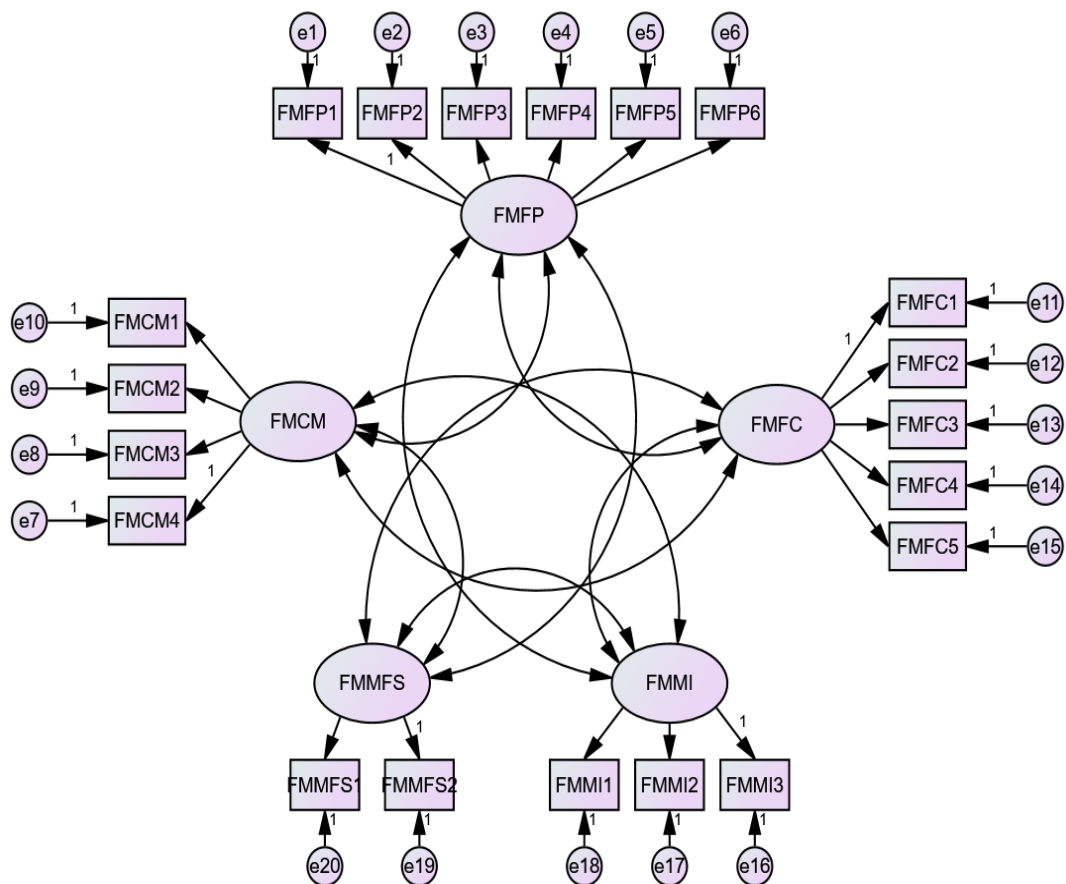
**4.12.2 Confirmatory Factor Analysis – Financial Management (FM)**

A First Order Confirmatory Factor Analysis (CFA) is performed to verify the measurement scales of 'Financial Management' (FM). CFA is a sophisticated

statistical method that examines the relationship between observed variables and their underlying constructs. It assesses the accuracy of the factor structure in measuring these variables. The results are shown through the proposed measurement model, model fit indices, and the validity and reliability findings.

**Figure 4.11**

*Proposed Model of First Order CFA – Financial Management (FM)*

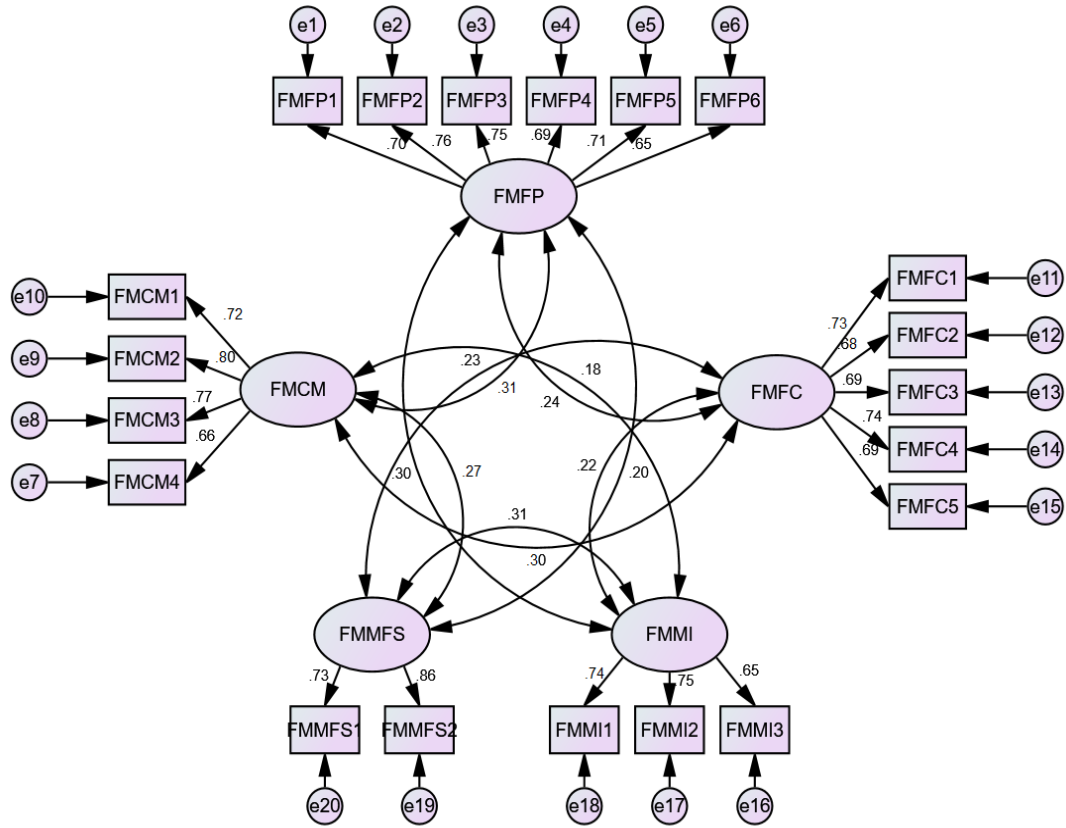


Source: Primary Data

The proposed model of Financial Management is evaluated using various model fit indices, including Normed chi-square (CMIN/df), Root Mean Square Residuals (RMR), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Incremental Fit Index (IFI), Tucker Fit Index (TLI), Normed Fit Index (NFI), Relative Fit Index (RFI), and Root Mean Square Error of Approximation (RMSEA). The results for the Model Fit Indices, Measurement Model, and the Reliability & Validity Requirements are summarised below.

**Figure 4.12**

*Measurement Model of First Order CFA – Financial Management (FM)*



Source: Primary Data

Figure 4.12 illustrates the measurement model that explains the direct relationship between the constructs and the items used to assess ‘Financial Management’ (FM). Five constructs identified through Exploratory Factor Analysis are evaluated using observed variables. This measurement model includes five sub-dimensions of Financial Management: Financial Planning, Managing Financial Stress, Financial Control, Cash Management, and Managing Insurance. All factor loadings exceed 0.70, indicating a good fit, as confirmed by the fit indices listed below. Additionally, the table presents the model fit indices along with validity and reliability assessments.

**Table 4.18***Model Fit Indices of First Order CFA – Financial Management (FM)*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	4.435	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.071	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.899	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.921	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.896	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.899	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.880	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.874	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.850	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.063	$< 0.08$	$= 0.08$

Source: Primary Data

The first-order CFA (Table 4.18) is evaluated using the specified modification indices. All key fit indices (CFI, AGFI, IFI, NFI, RFI, and TLI) are above the acceptable threshold of 0.80. The GFI score of 0.921 suggests a good model fit. Moreover, the CMIN/df ratio of 4.435 is within the acceptable limit of less than 5. The RMR (0.071) is below the maximum recommended value of 0.08, and the RMSEA (0.063) also falls within the acceptable range. In summary, the model measuring 'Financial Management' (FM) shows good fit indices and is suitable for evaluating the scale's validity.

**Table 4.19**

*Validity and Reliability Statistics – Financial Management (FM)*

Constructs	Statements	Factor Loadings	CR	AVE	MSV
			$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum Var(\varepsilon_i)}$	$AVE = \frac{\sum_{i=1}^n \lambda_i^2}{n}$	= square of highest correlation b/w latent constructs
Financial Planning	FMFP1	.704	0.861	0.510	0.096
	FMFP2	.763			
	FMFP3	.752			
	FMFP4	.694			
	FMFP5	.714			
	FMFP6	.654			
Managing Financial Stress	FMMFS1	.734	0.778	0.638	0.090
	FMMFS2	.859			
Financial Control	FMFC1	.734	0.835	0.503	0.057
	FMFC2	.683			
	FMFC3	.692			
	FMFC4	.744			
	FMFC5	.693			
Cash Management	FMCM1	.723	0.829	0.550	0.096
	FMCM2	.801			
	FMCM3	.772			
	FMCM4	.664			
Managing Insurance	FMMI1	.744	0.761	0.516	0.090
	FMMI2	.753			
	FMMI3	.654			

Source: Primary Data

Table 4.19 shows the Standardised Factor Loadings, Composite Reliability (CR), Average Variance Extracted (AVE), and Maximum Shared Variance (MSV) for each construct measuring the ‘Financial Management’ (FM) variable. All Standardized Factor Loadings exceed 0.70, indicating that all factors adequately contribute to the constructs.

To establish Convergent Validity, three conditions must be met: the Composite Reliability (CR) should be above 0.70, the Average Variance Extracted (AVE) should exceed 0.50, and CR must be greater than AVE. The CR and AVE values for different constructs are as follows: Financial Planning = 0.861 & 0.510, Managing Financial Stress = 0.778 & 0.638, Financial Control = 0.835 & 0.503, Cash Management = 0.829 & 0.550, and Managing Insurance = 0.761 & 0.516. All these values meet the specified criteria, thereby confirming that Convergent Validity is established.

Furthermore, the scale's Discriminant Validity is confirmed by the criterion that the Average Variance Extracted (AVE) should surpass the Maximum Shared Variance (MSV). This condition is satisfied as all constructs have an AVE greater than their respective MSV values. Specifically,  $0.510 > 0.096$  for Financial Planning,  $0.638 > 0.090$  for Managing Financial Stress,  $0.503 > 0.057$  for Financial Control,  $0.550 > 0.096$  for Cash Management, and  $0.516 > 0.096$  for Managing Insurance, meeting the required conditions. Therefore, the Discriminant Validity criteria are met. The model is considered a good fit for assessing the 'Financial Management' (FM) of small entrepreneurs in Kerala.

#### **4.13 Validation of Measurement Scale of Financial Decision Making (FDM)**

The scale for assessing 'Financial Decision Making' (FDM) among small entrepreneurs in Kerala is validated through two steps: first, an Exploratory Factor Analysis (EFA), followed by a Confirmatory Factor Analysis (CFA). These steps evaluate the quality of the factor structure by statistically testing the overall model's significance and examining the relationships between items and scales based on sample data.

##### **5.13.1 Exploratory Factor Analysis (EFA) – Financial Decision Making (FDM)**

Exploratory Factor Analysis (EFA) using the Principal Component Method (PCM) is conducted to examine the factor structure and relationships among the 10 statements in the scale measuring 'Financial Decision Making' (FDM). The findings are summarised below.

**Table 4.20**

*Result of KMO and Bartlett's Test – Financial Decision Making (FDM)*

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.764
	Approx. Chi-Square	2283.739
Bartlett's Test of Sphericity	Df	45
	Sig.	.000

*Source: Primary Data*

A Principal Component Analysis (pca) is performed on the 10 statements using Varimax Rotation. The Kaiser-Meyer-Olkin (KMO) measure confirms the sample's suitability for the analysis, with a value of 0.764, exceeding the recommended threshold of 0.70. Bartlett's Test of Sphericity provides additional evidence of meaningful relationships among the variables, with a Chi-Square value of 2283.739 and  $p < 0.01$ . This indicates that the items are sufficiently correlated to justify conducting PCA.

An initial analysis is conducted to determine Eigen Values for each data component. Four constructs have Eigen values greater than Kaiser's criterion of 1 and collectively account for 70.784 per cent of the variance. The EFA results are shown below.

**Table 4.21**

*Result of Exploratory Factor Analysis – Financial Decision Making (FDM)*

<b>Construct</b>	<b>Statements</b>	<b>Code</b>	<b>Factor Loadings</b>	<b>Eigen Value</b>	<b>Variance Explained</b>	<b>Cronbach's Alpha</b>
<b>Confidence of taking financial decision</b>	I am able to make all my financial decisions alone	FDMCFD1	.891	3.348	33.47%	0.776
	It was my own decision to enter in to business field	FDMCFD2	.674			

Construct	Statements	Code	Factor Loadings	Eigen Value	Variance Explained	Cronbach's Alpha
Financial consultation	I will consult experts for making financial decisions	FDMFC1	.815	1.472	14.72%	0.760
	The majority of my financial decisions in my personal life were successful	FDMFC2	.722			
	I will consult with my friends and relatives to make financial decisions	FDMFC3	.840			
Financial Monitoring	When I make a financial decision, I will thoroughly study the situation in advance	FDMFM1	.822	1.215	12.15%	0.758
	Whenever I make a financial decision, I will try to check the results by taking feedback	FDMFM2	.806			
	I am ready to correct my financial decision whenever there is a mistake	FDMFM3	.766			
Financial Stability	I don't feel stressed when there is a financial problem	FDMFS1	.846	1.044	10.43%	0.784
	I am very comfortable making financial decisions	FDMFS2	.808			
<b>Total Variance Explained – 70.784%</b>						

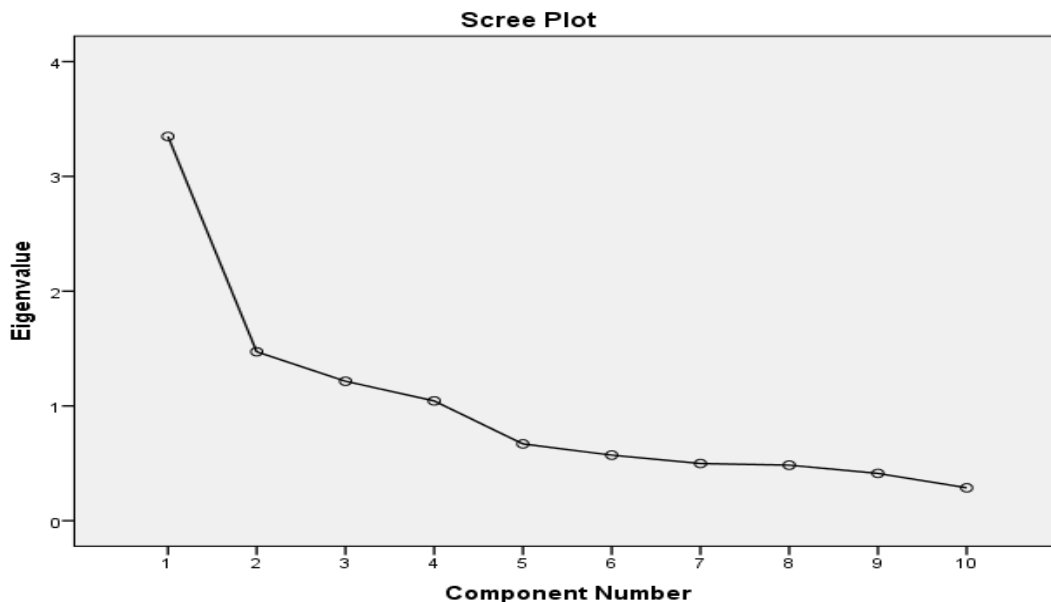
Source: Primary Data

The results of the Exploratory Factor Analysis (EFA) indicate a four-factor solution, with all items loading on their respective factors. This four-factor model accounts for 70.784% of the total variance. The first factor, 'Confidence in making financial

decisions,' includes two indicators and explains over 33.47% of the variance. The second factor, 'Financial consultation,' contains three items and accounts for more than 14.72% of the variance. The third factor, 'Financial Monitoring,' also comprises three indicators and explains over 12.15% of the variance. The fourth factor, 'Financial Stability,' includes two items and accounts for over 10.43% of the variance. Overall, the four-factor solution explains more than 70.784% of the total variance.

**Figure 4.13**

*Scree-Plot of Exploratory Factor Analysis – Financial Decision Making (FDM)*



*Source: Primary Data*

The scree plot shows Eigenvalues in a downward curve, arranged from largest to smallest. According to the scree test, the 'elbow' of the graph—where eigenvalues begin to level off—is identified, indicating that factors to the left of this point should be retained. In this case, four constructs have Eigenvalues greater than 1, which is also evident in the scree plot.

***Construct Validity: -***

The table (Table 4.18) indicates that all factor loadings exceed 0.40, meeting the criteria for Construct Validity, which includes both Discriminant Validity (loadings of

at least 0.40, with no cross-loadings above 0.40) and Convergent Validity (Eigen values of 1, loadings of at least 0.40, and items loading on the specified constructs) (Straub et al., 2004). The Exploratory Factor Analysis results demonstrate that the factors identified under the ‘Financial Decision Making’ (FDM) dimension possess a strong level of validity.

***Reliability: -***

The reliability of the factors was assessed using Cronbach’s Alpha Coefficient. An alpha value of 0.70 or higher indicates strong internal consistency. In this study, the constructs and variables were measured accordingly. The Cronbach’s Alpha values for all variables under the study's constructs—namely, Confidence in making financial decisions (0.776), Financial Consultation (0.760), Financial Monitoring (0.758), and Financial Stability (0.784)—all exceeded 0.70. This confirms strong internal consistency, indicating that these variables are highly reliable.

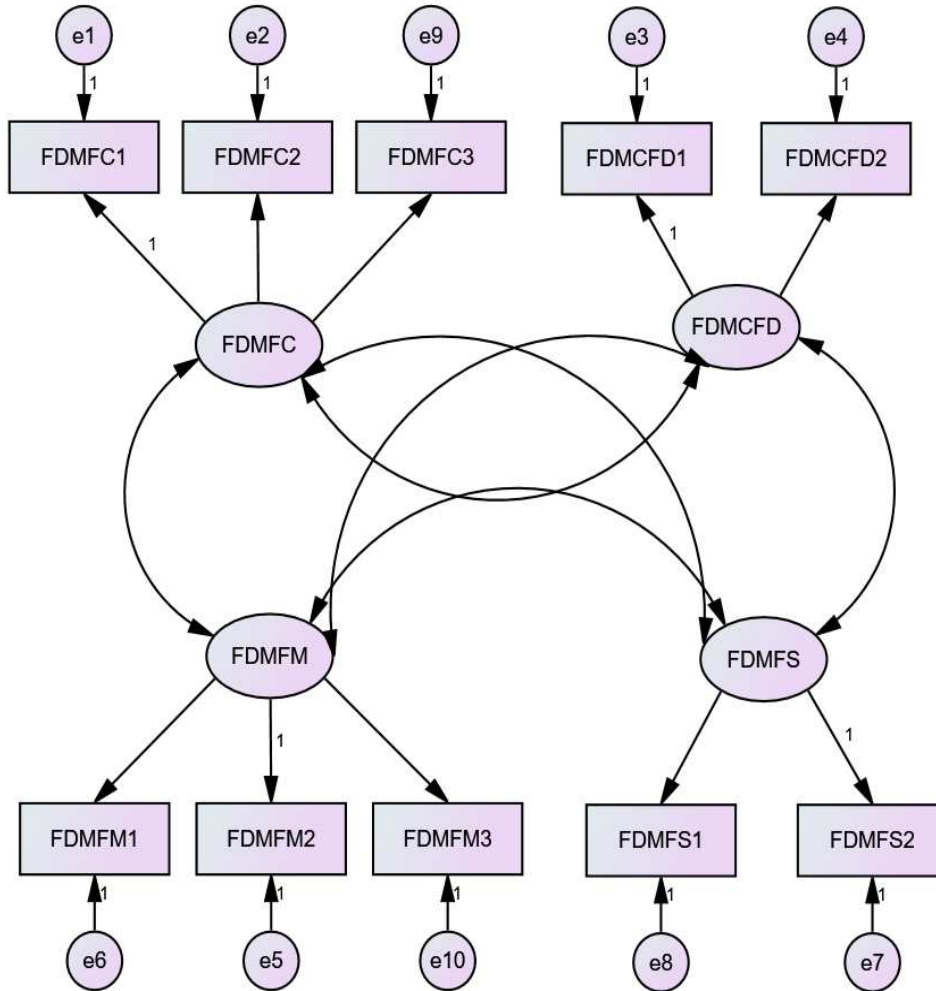
*The next step is to perform a Confirmatory Factor Analysis (CFA) on the ‘Financial Decision Making’ (FDM) variable and its factors identified through Exploratory Factor Analysis (EFA). This will evaluate whether the factors derived from the results share the same core structure as the intended measurement framework, meaning the fundamental factors of each construct should align within the same dimensions.*

**4.13.2 Confirmatory Factor Analysis – Financial Decision Making (FDM)**

A Confirmatory Factor Analysis (First Order CFA) is used to validate the measurement scales of ‘Financial Decision Making’ (FDM). CFA is a complex statistical technique that examines the relationship between observed variables and their underlying constructs. It assesses how well the factor structure measures the variables. The results of CFA are presented through the proposed measurement model, model fit indices, and validity and reliability outcomes.

**Figure 4.14**

*Proposed Model of First Order CFA – Financial Decision Making (FDM)*

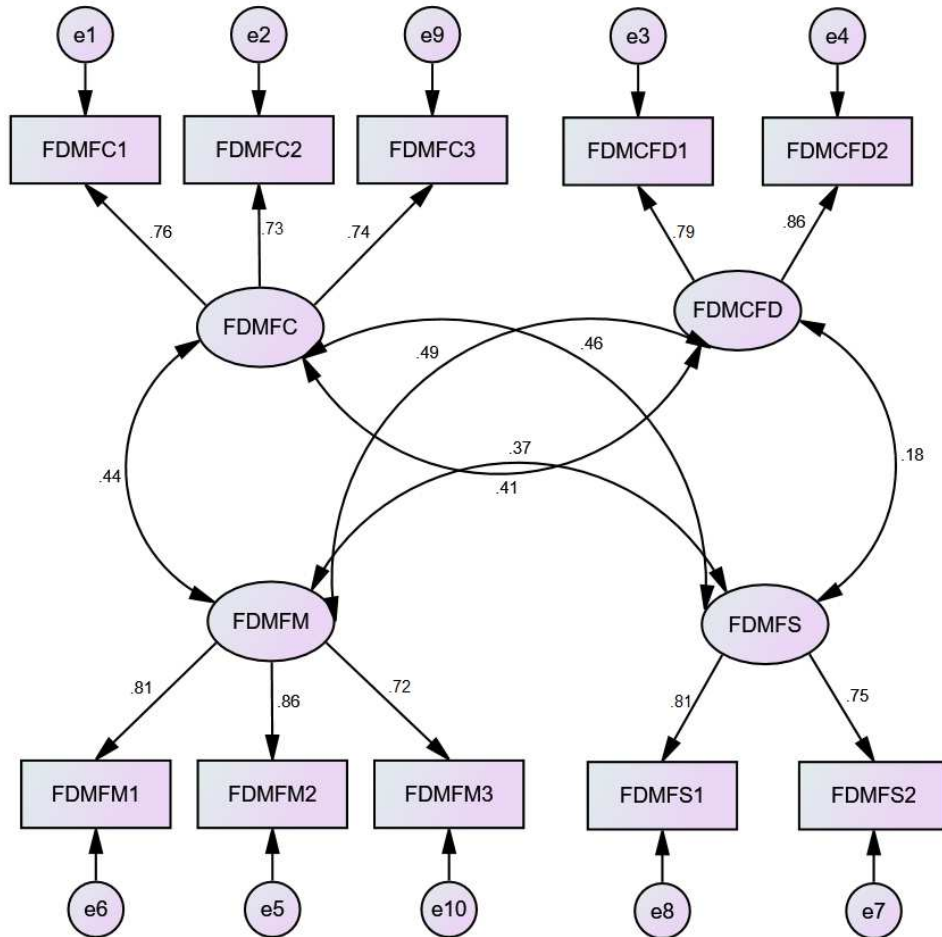


Source: Primary Data

The proposed model of Financial Decision Making was tested using various model fit indices, including Normed chi-square (CMIN/df), Root Mean Square Residuals (RMR), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Incremental Fit Index (IFI), Tucker Fit Index (TLI), Normed Fit Index (NFI), Relative Fit Index (RFI), and Root Mean Square Error of Approximation (RMSEA). The results for the Model Fit Indices, Measurement Model, and Reliability & Validity requirements are presented below.

**Figure 4.15**

*Measurement Model of First Order CFA – Financial Decision Making (FDM)*



Source: Primary Data

Figure 4.15 illustrates the measurement model used to explain the direct relationship between the constructs and items measuring 'Financial Decision Making (FDM)'. Four constructs, identified through Exploratory Factor Analysis, are examined using observed variables. The model includes four sub-dimensions of Financial Decision Making: Confidence in making financial decisions, Financial consultation, Financial Monitoring, and Financial Stability. All factor loadings exceed 0.70, indicating a good fit, as confirmed by the indices listed below. Additionally, the results for model fit indices, validity, and reliability are provided below.

**Table 4.22**

*Model Fit Indices of First Order CFA – Financial Decision Making (FDM)*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	4.249	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.058	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.958	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.972	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.948	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.958	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.935	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.946	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.917	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.062	$< 0.08$	$= 0.08$

Source: Primary Data

The fitness of the First order CFA (Table 4.22) is assessed using the specified modification indices. All key fit measures (CFI, AGFI, IFI, NFI, RFI, and TLI) exceed the 0.90 threshold for good fit. Additionally, the CMIN/df ratio is 4.249, which is within the acceptable limit of less than 5. Moreover, RMR at 0.058 and RMSEA at 0.062 are both below the acceptable thresholds of 0.08. Therefore, the model for measuring ‘Financial Decision Making (FDM)’ demonstrates acceptable validity with good fit indices.

**Table 4.23***Validity and Reliability Statistics – Financial Decision Making (FDM)*

Constructs	Statements	Factor Loadings	CR	AVE	MSV																								
			$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum Var(\varepsilon_i)}$	$AVE = \frac{\sum_{i=1}^n \lambda_i^2}{n}$	= square of highest correlation b/w latent constructs																								
Confidence of taking financial decision	FDMCFD1	.794	0.814	0.687	0.225																								
	FDMCFD2	.863				Financial consultation	FDMFC1	.764	0.790	0.557	0.193	FDMFC2	.732	FDMFC3	.744	Financial Monitoring	FDMFM1	.814	0.843	0.643	0.240	FDMFM2	.863	FDMFM3	.724	Financial Stability	FDMFS1	.813	0.761
Financial consultation	FDMFC1	.764	0.790	0.557	0.193																								
	FDMFC2	.732																											
	FDMFC3	.744																											
Financial Monitoring	FDMFM1	.814	0.843	0.643	0.240																								
	FDMFM2	.863																											
	FDMFM3	.724																											
Financial Stability	FDMFS1	.813	0.761	0.614	0.168																								
	FDMFS2	.754																											

*Source: Primary Data*

Table 4.23 presents the Standardized Factor Loadings, Composite Reliability (CR), Average Variance Extracted (AVE), and Maximum Shared Variance (MSV) for each construct assessing 'Financial Decision Making' (FDM). All Standardized Factor Loadings exceed 0.70, signifying that all factors adequately contribute to their respective constructs.

To establish Convergent Validity, three conditions must be met: the Composite Reliability (CR) should exceed 0.70, the Average Variance Extracted (AVE) should be above 0.50, and CR must be greater than AVE. In this case, the CR and AVE values are as follows: Confidence in financial decision-making = 0.814 & 0.687, Financial consultation = 0.790 & 0.557, Financial Monitoring = 0.843 & 0.643, and Financial Stability = 0.761 & 0.614. All these values satisfy the specified criteria, confirming that Convergent Validity is established.

The Discriminant Validity of the scale is confirmed by the criterion that the Average Variance Extracted (AVE) should exceed the Maximum Shared Variance (MSV). In this case, all constructs meet this condition, with their AVE values higher than the MSV. Specifically,  $0.687 > 0.225$  (Confidence in financial decision-making),  $0.557 > 0.193$  (Financial consultation),  $0.643 > 0.240$  (Financial Monitoring), and  $0.614 > 0.168$  (Financial Stability). Consequently, the Discriminant Validity criteria are satisfied. The model is deemed appropriate for measuring the 'Financial Decision Making' (FDM) of small entrepreneurs in Kerala.

#### **4.14 Validation of Measurement Scale of Financial Discipline (FD)**

The scale is used to recognize the variable 'Financial Discipline' (FD) of small entrepreneurs in Kerala is validated in two steps. Firstly, an Exploratory Factor Analysis (EFA) and then a Confirmatory Factor Analysis (CFA) are performed. It is used to assess the quality of the factor structure by statistically testing the significance of the overall model, as well as relationships among items and scales based on sample data.

##### **4.14.1 Exploratory Factor Analysis (EFA) – Financial Discipline (FD)**

Exploratory Factor Analysis (EFA) using Principal Component Method (PCM) is employed for analyzing the factor structure and association between 8 statements included in the scale for measuring the '**Financial Discipline**' (FD). The results are presented below.

**Table 4.24**

*Result of KMO and Bartlett's Test – Financial Discipline (FD)*

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.787
	Approx. Chi-Square	2405.755
Bartlett's Test of Sphericity	Df	28
	Sig.	.000

*Source: Primary Data*

A Principal Component Analysis is conducted on the 8 statements with Varimax Rotation. The Kaiser-Meyer-Olkin (KMO) measure verifies the sample adequacy for the analysis, The KMO value is 0.787, which is above the recommended limit of 0.70. Bartlett's test is another indication of the power of the relationship among variables. The Chi-Square of Bartlett's Test of Sphericity = 2405.755,  $p < 0.01$ , indicates that the association between the items is sufficiently large for Principal Component Analysis (PCA).

An initial analysis is run to obtain Eigen Values for each component in the data. Three constructs have Eigen values over and above Kaiser's criterion of 1 and in combination, explained **76.039 per cent** of the variance. The result of EFA is presented below.

**Table 4.25**

*Result of Exploratory Factor Analysis – Financial Discipline (FD)*

Construct	Statements	Code	Factor Loadings	Eigen Value	Variance Explained	Cronbach's Alpha
Discipline during spending	I spend a lot of money when I am with my friends	FDDDS1	.828	2.477	30.96%	0.788
	I like people watching me spending a lot of money	FDDDS2	.813			
	I shall try to live within my budget	FDDDS3	.802			
Discipline regarding lending and borrowing	If I borrow money, I will repay it on time	FDDL B1	.849	2.111	26.39%	0.870
	If there is a credit card for me, I don't like to have an overdue in it.	FDDL B2	.850			
	I don't have an overdue loan in my name	FDDL B3	.854			

Construct	Statements	Code	Factor Loadings	Eigen Value	Variance Explained	Cronbach's Alpha
Personal Financial Discipline	I always compare the income and expenditure ratio in my daily spending	FDPFD1	.833	1.495	18.68%	0.725
	I always calculate the income and expenditure ratio in my day-to-day business transactions	FDPFD2	.810			
<b>Total Variance Explained – 76.039%</b>						

*Source: Primary Data*

The result of Exploratory Factor Analysis (EFA) explains that the solution is based on **3 constructs**, and all items are loading on their own factors. The **three-factor solution** explains **76.039%** of variance of the total variance. A total of three items/statements are included in first factor ‘Discipline during spending’ which explaining over **30.96%** of variance, three indicators are included in the second factor ‘Discipline regarding lending and borrowing’ which explaining over **26.39%** of variance and two items/statements are included in the third factor ‘Personal Financial Discipline’ which explaining over **18.68%** of the total variance. In total, the three-factor solution explains over **76.039%** of the variance of the total variance explained.

**Figure 4.16**

*Scree-Plot of Exploratory Factor Analysis – Financial Discipline (FD)*



*Source: Primary Data*

The scree plot exhibits the Eigen values in a downward curve, ordering the Eigen values from largest to smallest. According to the scree-test, the ‘elbow’ of the graph, where the eigen values seem to level off, is found, and factors or constructs to the left to this point should be retained is significant. Here, **three constructs have Eigen value greater than 1**, and it can be shown in the scree plot.

#### ***Construct Validity: -***

The above table (Table 4.22) shows all the factor loadings are above 0.40, and criteria of ***Construct Validity*** including both the ***Discriminant Validity*** (loading of at least 0.40, no cross-loadings of items above 0.40) and ***Convergent Validity*** (Eigen values of 1, loadings of at least 0.40, items that load on posited constructs) (Straub et al., 2004). The result of Exploratory Factor Analysis shows that the selected factors under the dimension ‘**Financial Discipline**’ (FD) have a good level of validity.

***Reliability: -***

Reliability of the factors is measured using ***Cronbach's Alpha Co-efficient***. An alpha value of 0.70 or above is considered to be a criterion for demonstrating strong internal consistency. In this context, the constructs and variables used for the study have been measured. Accordingly, the ***Cronbach's Alpha Reliability Co-efficient*** values of all the variables coming under the constructs of the study, namely, Discipline during spending (**0.788**), Discipline regarding lending and borrowing (**0.870**), and Personal Financial Discipline (**0.725**) are above 0.70, hence strong internal consistency is assured and the variable is considered as highly reliable.

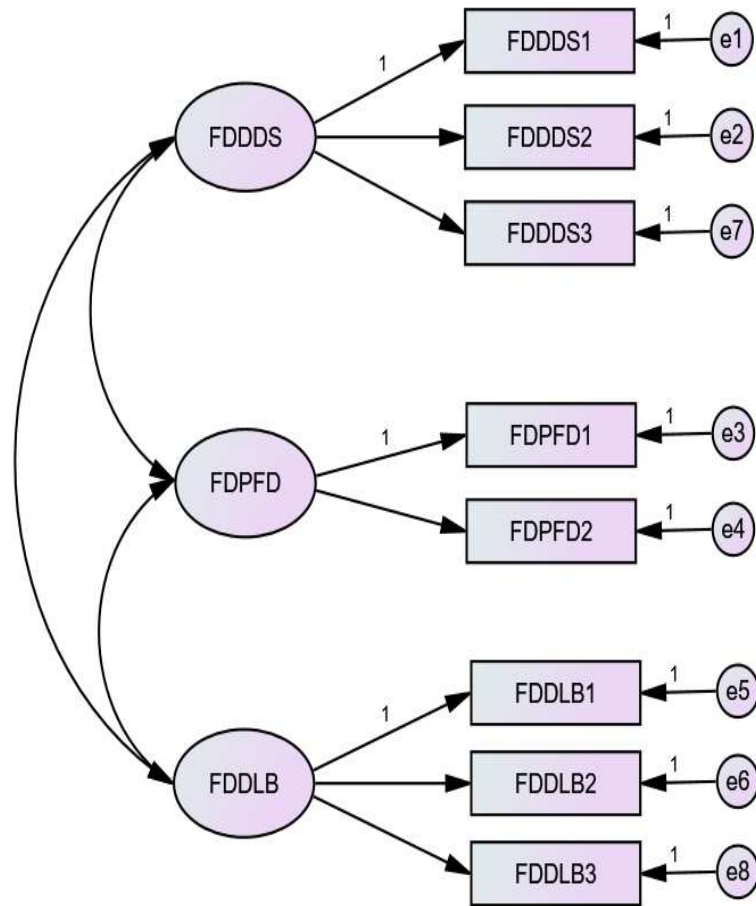
*The next step is to conduct a Confirmatory Factor Analysis (CFA) for the 'Financial Discipline' (FD) variable and its factors identified from Exploratory Factor Analysis (EFA) to assess whether the factors generated from results have the same fundamental structure as the intended measurement structure (The fundamental factors of each construct in the same dimensions).*

**4.14.2 Confirmatory Factor Analysis – Financial Discipline (FD)**

A Confirmatory Factor Analysis (First Order CFA) is applied to validate the measurement scales of 'Financial Discipline' (FD). CFA is a multifaceted statistical method used to check the association between measured variables and their constructs. It explains the quality of the factor structure for measuring the variables. The result of CFA is explained with the help of the proposed & measurement model, model fit indices and validity & reliability results.

**Figure 4.17**

*Proposed Model of First Order CFA – Financial Discipline (FD)*

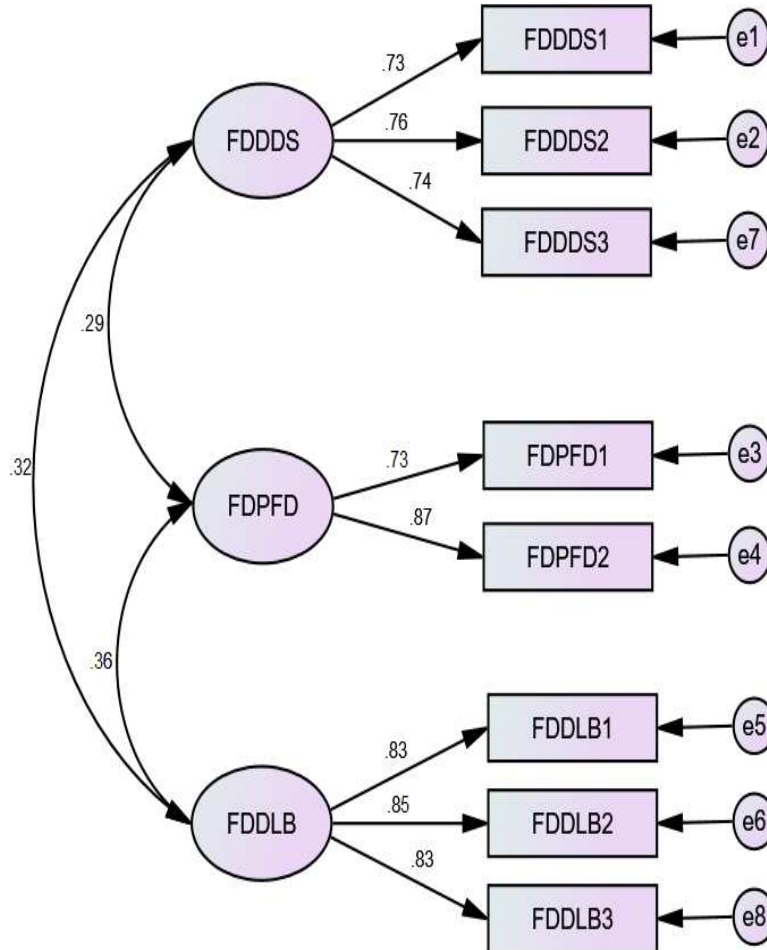


Source: Primary Data

The above indicated proposed model of Financial Discipline is tested with the with the help of model fit indices including Normed chi-square (CMIN/df), Root Mean Square Residuals (RMR), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Incremental Fit Index (IFI), Tucker Fit Index (TLI), Normed Fit Index (NFI), Relative Fit Index (RFI) and Root Mean Square Error of Approximation (RMSEA). Accordingly, the result of Model Fit Indices, Measurement Model and Reliability & Validity Requirements of the model are presented below.

**Figure 4.18**

*Measurement Model of First Order CFA – Financial Discipline (FD)*



Source: Primary Data

Figure 4.18 is the measurement model used to explain the direct association between the constructs and items used to measure the ‘Financial Discipline’ (FD). Here, three constructs derived from Exploratory Factor Analysis are analyzed with the help of observed variables. The above measurement model comprised three sub-dimensions of Financial Discipline, namely, Discipline during spending, Discipline regarding lending and borrowing and Personal Financial Discipline. All the factor loadings are above 0.70, and the model is said to be fit with the indices specified below. Besides, the results of model fit indices, validity and reliability requirements are presented below.

**Table 4.26***Model Fit Indices of First Order CFA – Financial Discipline (FD)*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	2.692	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.050	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.988	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.987	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.973	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.988	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.980	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.981	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.969	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.045	$< 0.08$	$= 0.08$

Source: Primary Data

The fitness of First order CFA (Figure 4.18) is measured with the help of the above-specified modification indices. Here, all the important measures (CFI, AGFI, IFI, NFI, RFI and TLI) are above the recommended limit of good fit with values of greater than 0.90. Likewise, the value of CMIN/df is 2.692, which lies within the limit of the recommended value of a good fit of less than 3. Additionally, the value of RMR (0.050) is within the limit of the recommended value of good fit of less than or equal to 0.05, and the value of RMSEA (0.045) is also within the limit of less than 0.08. Consequently, the model used to measure the 'Financial Discipline' (FD) is acceptable to measure the validity of the scale with good fit indices.

**Table 4.27**

*Validity and Reliability Statistics – Financial Discipline (FD)*

Constructs	Statements	Factor Loadings	CR	AVE	MSV
			$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum Var(\varepsilon_i)}$	$AVE = \frac{\sum_{i=1}^n \lambda_i^2}{n}$	= square of highest correlation b/w latent constructs
Discipline during spending	FDDDS1	.734	0.790	0.557	0.102
	FDDDS2	.762			
	FDDDS3	.744			
Discipline regarding lending and borrowing	FDDL B1	.831	0.876	0.703	0.129
	FDDL B2	.852			
	FDDL B3	.833			
Personal Financial Discipline	FDPFD1	.735	0.786	0.650	0.129
	FDPFD2	.872			

Source: Primary Data

Table 4.27 demonstrates the Standardized Factor Loadings, Composite Reliability (CR), Average Variance Extracted (AVE) and Maximum Shared Variance (MSV) of each construct used to measure the variable ‘Financial Discipline’ (FD). All the values of Standardized Factor Loadings are above 0.70, which indicates all the factors satisfactorily contribute to the constructs.

In order to substantiate the Convergent Validity, three conditions need to be fulfilled, namely, the value of Composite Reliability (CR) should be greater than 0.70, the value of Average Variance Extracted (AVE) should be greater than 0.50, and the value of Composite Reliability (CR) should be greater than Average Variance Extracted (AVE). Here, the values of CR and AVE of Discipline during spending = 0.790 & 0.557, Discipline regarding lending and borrowing = 0.876 & 0.703, and Personal Financial Discipline = 0.786 & 0.650 fulfil the above-mentioned criteria. Hence, the Convergent Validity is established.

Moreover, the Discriminant Validity of the scale is proved with the criteria that of Average Variance Extracted (AVE) should be greater than the Maximum Shared Variance (MSV). Here, this condition is fulfilled with the Average Variance Extracted (AVE) of all the constructs being greater than the value of Maximum Shared Variance (MSV). In detail,  $0.557 > 0.102$  Discipline during spending,  $0.703 > 0.129$  of Discipline regarding lending and borrowing and  $0.650 > 0.129$  of Personal Financial Discipline fulfil the above-specified conditions. Therefore, the criteria for Discriminant Validity were also established. The model is said to be a good fit for measuring the variable 'Financial Discipline' (FD) of Small Entrepreneurs in Kerala.

#### 4.15 Validation of the Measurement Scale of Financial Locus of Control (FLC)

The scale used to identify the variable 'Financial Locus of Control' (FLC) of small entrepreneurs in Kerala is validated in two steps. Firstly, an Exploratory Factor Analysis (EFA) and then a Confirmatory Factor Analysis (CFA) are performed. It is employed to assess the quality of the factor structure by statistically testing the significance of the overall model, as well as relationships among items and scales based on sample data.

##### 4.15.1 Exploratory Factor Analysis (EFA) – Financial Locus of Control (FLC)

Exploratory Factor Analysis (EFA) using Principal Component Method (PCM) is employed for analyzing the factor structure and association between 6 statements included in the scale for measuring the 'Financial Locus of Control' (FLC). The results are presented below.

**Table 4.28**

*Result of KMO and Bartlett's Test – Financial Locus of Control (FLC)*

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.750
	Approx. Chi-Square	2055.681
Bartlett's Test of Sphericity	Df	15
	Sig.	.000

*Source: Primary Data*

A Principal Component Analysis is conducted on the 6 statements with Varimax Rotation. The Kaiser-Meyer-Olkin (KMO) measure verifies the sample adequacy for the analysis. KMO value is 0.750, which is above the recommended limit of 0.70. Bartlett’s test is another indication of the power of the relationship among variables. The Chi-Square of Bartlett’s Test of Sphericity = 2055.681,  $p < 0.01$ , indicates that the association between the items is sufficiently large for Principal Component Analysis (PCA).

An initial analysis is run to obtain Eigen Values for each component in the data. Two constructs have Eigen values over and above Kaiser’s criterion of **1** and, in combination, explained **74.997 per cent** of the variance. The result of EFA is presented below.

**Table 4.29**

*Result of Exploratory Factor Analysis – Financial Locus of Control (FLC)*

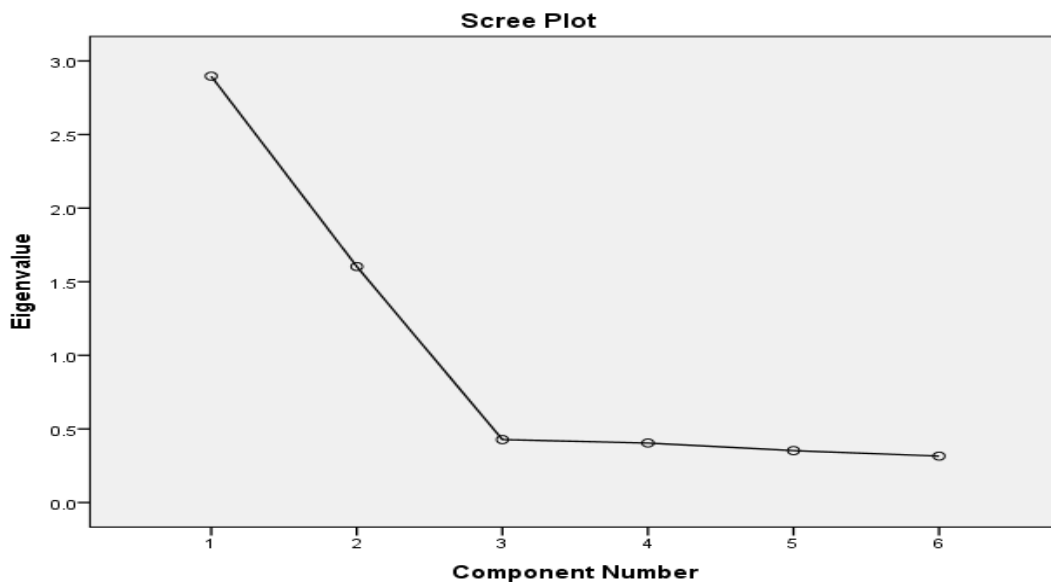
Construct	Statements	Code	Factor Loadings	Eigen Value	Variance Explained	Cronbach’s Alpha
Internal Locus of Control	I am responsible for the profit and loss of my business	FLCILC1	.824	2.897	48.27%	0.861
	If there is profit in my business, I believe it is due to the efforts of my team's work	FLCILC2	.857			
	If there is a financial problem in my organization, I am confident that I can handle it effectively	FLCILC3	.842			
	I am confident that none of my financial decisions will go wrong	FLCILC4	.834			
External Locus of Control	My success in business is a blessing of God	FLCELC1	.913	1.603	26.72%	0.796
	It is my luck that I am running a smooth business	FLCELC2	.903			
<b>Total Variance Explained – 74.997%</b>						

*Source: Primary Data*

The Exploratory Factor Analysis (EFA) results reveal a two-construct solution where all items load onto their respective factors. This two-factor model explains 74.997% of the total variance. The first factor, 'Internal Locus of Control', comprises four indicators and accounts for over 48.27% of the variance. The second factor, 'External Locus of Control', includes two items and explains more than 26.72% of the variance. Overall, this model captures approximately 74.997% of the total variance.

**Figure 4.19**

*Scree-Plot of Exploratory Factor Analysis – Financial Locus of Control (FLC)*



*Source: Primary Data*

The scree plot shows Eigen Values decreasing in a curve, ordered from largest to smallest. The scree test identifies the 'elbow' point where the eigen values start to level off; factors to the left of this point should be retained. In this case, two constructs have Eigen Values greater than 1, as shown in the scree plot.

***Construct Validity: -***

The table above (Table 4.26) indicates that all factor loadings exceed 0.40. The criteria for Construct Validity—including both Discriminant Validity (factor loadings of at least 0.40, with no cross-loadings above this threshold) and Convergent Validity (Eigenvalues of 1, loadings of at least 0.40, and items loading on the expected

constructs) (Straub et al., 2004)—are satisfied. The Exploratory Factor Analysis results demonstrate that the factors under the ‘Financial Locus of Control’ (FLC) dimension possess good validity.

***Reliability: -***

The reliability of the factors is assessed using Cronbach’s Alpha Coefficient. An alpha value of 0.70 or higher indicates strong internal consistency. In this study, the constructs and variables were measured accordingly. The Cronbach’s Alpha values for all variables within the study's constructs—Internal Locus of Control (0.861) and External Locus of Control (0.796)—are above 0.70. Therefore, strong internal consistency is confirmed, and these variables are deemed highly reliable.

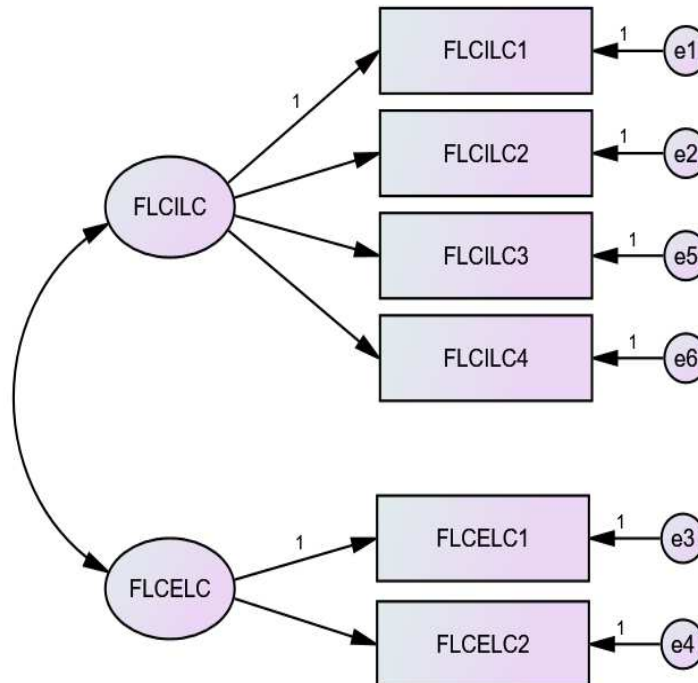
*The next step involves conducting a Confirmatory Factor Analysis (CFA) for the ‘Financial Locus of Control’ (FLC) variable and its factors identified through Exploratory Factor Analysis (EFA). This will evaluate whether the factors derived from the results maintain the same core structure as the intended measurement model, meaning the fundamental factors of each construct should align within the same dimensions.*

**4.15.2 Confirmatory Factor Analysis – Financial Locus of Control (FLC)**

A Confirmatory Factor Analysis (First Order CFA) is conducted to validate the measurement scales of ‘Financial Locus of Control’ (FLC). CFA is a comprehensive statistical technique used to assess the relationship between observed variables and their underlying constructs. It evaluates how well the factor structure measures the variables. The CFA results are explained through the proposed measurement model, including model fit indices and validity and reliability outcomes.

**Figure 4.20**

*Proposed Model of First Order CFA – Financial Locus of Control (FLC)*

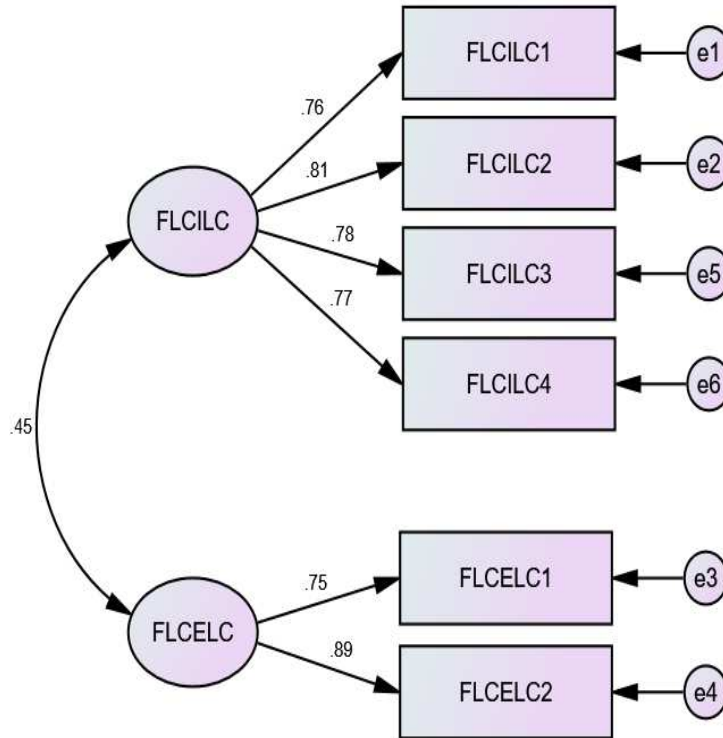


Source: Primary Data

The proposed model of the Financial Locus of Control was tested using various model fit indices, including Normed chi-square (CMIN/df), Root Mean Square Residuals (RMR), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Incremental Fit Index (IFI), Tucker-Lewis Index (TLI), Normed Fit Index (NFI), Relative Fit Index (RFI), and Root Mean Square Error of Approximation (RMSEA). The results for the Model Fit Indices, Measurement Model, and the Reliability & Validity Criteria are summarised below.

**Figure 4.21**

*Measurement Model of First Order CFA – Financial Locus of Control (FLC)*



Source: Primary Data

Figure 4.21 illustrates the measurement model that links the constructs and items used to assess the 'Financial Locus of Control' (FLC). This model examines two constructs identified through Exploratory Factor Analysis, utilising observed variables. It includes two sub-dimensions of Financial Locus of Control: 'Internal Locus of Control' and 'External Locus of Control'. All factor loadings exceed 0.70, indicating a good fit, supported by the model fit indices provided below. Additionally, the results for the model fit, validity, and reliability are shown beneath.

**Table 4.30***Model Fit Indices of First Order CFA – Financial Locus of Control (FLC)*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	2.129	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.028	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.996	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.993	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.982	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.996	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.992	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.992	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.985	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.036	$< 0.08$	$= 0.08$

Source: Primary Data

The suitability of the first-order CFA (Table 4.30) is assessed using the specified modification indices. All key fit measures (CFI, GFI, AGFI, IFI, NFI, RFI, and TLI) exceed the good fit threshold of 0.90. The Cmin/df value is 2.129, which is below the recommended limit of 3, indicating a good fit. Furthermore, the RMR (0.028) and RMSEA (0.036) are within acceptable ranges, being less than 0.05 and 0.08, respectively. Therefore, the model for assessing the 'Financial Locus of Control' (FLC) demonstrates good fit indices and is suitable for validity measurement.

**Table 4.31**

*Validity and Reliability Statistics – Financial Locus of Control (FLC)*

Constructs	Statements	Factor Loadings	CR	AVE	MSV
			$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum Var(\epsilon_i)}$	$AVE = \frac{\sum_{i=1}^n \lambda_i^2}{n}$	= square of highest correlation b/w latent constructs
Internal Locus of Control	FLCILC1	.759	0.878	0.644	0.202
	FLCILC2	.808			
	FLCILC3	.751			
	FLCILC4	.887			
External Locus of Control	FLCELC1	.783	0.754	0.605	0.202
	FLCELC2	.773			

Source: Primary Data

Table 4.31 presents the Standardized Factor Loadings, Composite Reliability (CR), Average Variance Extracted (AVE), and Maximum Shared Variance (MSV) for each construct measuring the 'Financial Locus of Control' (FLC). All Standardized Factor Loadings exceed 0.70, demonstrating that each factor significantly contributes to the constructs.

To confirm Convergent Validity, three conditions must be met: the Composite Reliability (CR) should be above 0.70, the Average Variance Extracted (AVE) should exceed 0.50, and CR should be greater than AVE. In this case, the CR and AVE values for Internal Locus of Control are 0.878 and 0.644, respectively, and for External Locus of Control, they are 0.754 and 0.605. These values meet the specified criteria, confirming that Convergent Validity is established.

The Discriminant Validity of the scale is confirmed by the criterion that the Average Variance Extracted (AVE) should exceed the Maximum Shared Variance (MSV). In this case, the criterion is satisfied, as all constructs have an AVE higher than the MSV. Specifically, the AVE values are 0.644 for the constructs, which is greater than the MSV of 0.202 for Internal Locus of Control, and 0.605, also above 0.202, for External Locus of Control. Therefore, the criteria for Discriminant Validity are met. The model

is considered a good fit for assessing the 'Financial Locus of Control' (FLC) of small entrepreneurs in Kerala.

#### **4.16 Second-order CFA of Financial Intelligence**

It is conducted to check the hierarchical relationship of the latent variable of Financial Intelligence. It examines whether first-order constructs can be explained by one or more higher-order latent variables. Here, it is estimating the effect of the main construct on its sub-constructs. It is interesting to know the relationship between the main construct and the dependent variables. The main construct becomes the second-order construct, and the sub-constructs become the first-order constructs. Here, Financial Intelligence is considered the main construct and Financial Attitude, Literacy, Behaviour, Management, Discipline, Decision Making and Locus of Control are considered as the sub constructs.

The following hypotheses are formulated to test the relationship between main and sub-constructs.

*H1<sub>1</sub>: Financial Intelligence significantly impacts Financial Attitude*

*H1<sub>2</sub>: Financial Intelligence significantly impacts Financial Literacy*

*H1<sub>3</sub>: Financial Intelligence significantly impacts Financial Behaviour*

*H1<sub>4</sub>: Financial Intelligence significantly impacts Financial Discipline*

*H1<sub>5</sub>: Financial Intelligence significantly impacts Financial Management*

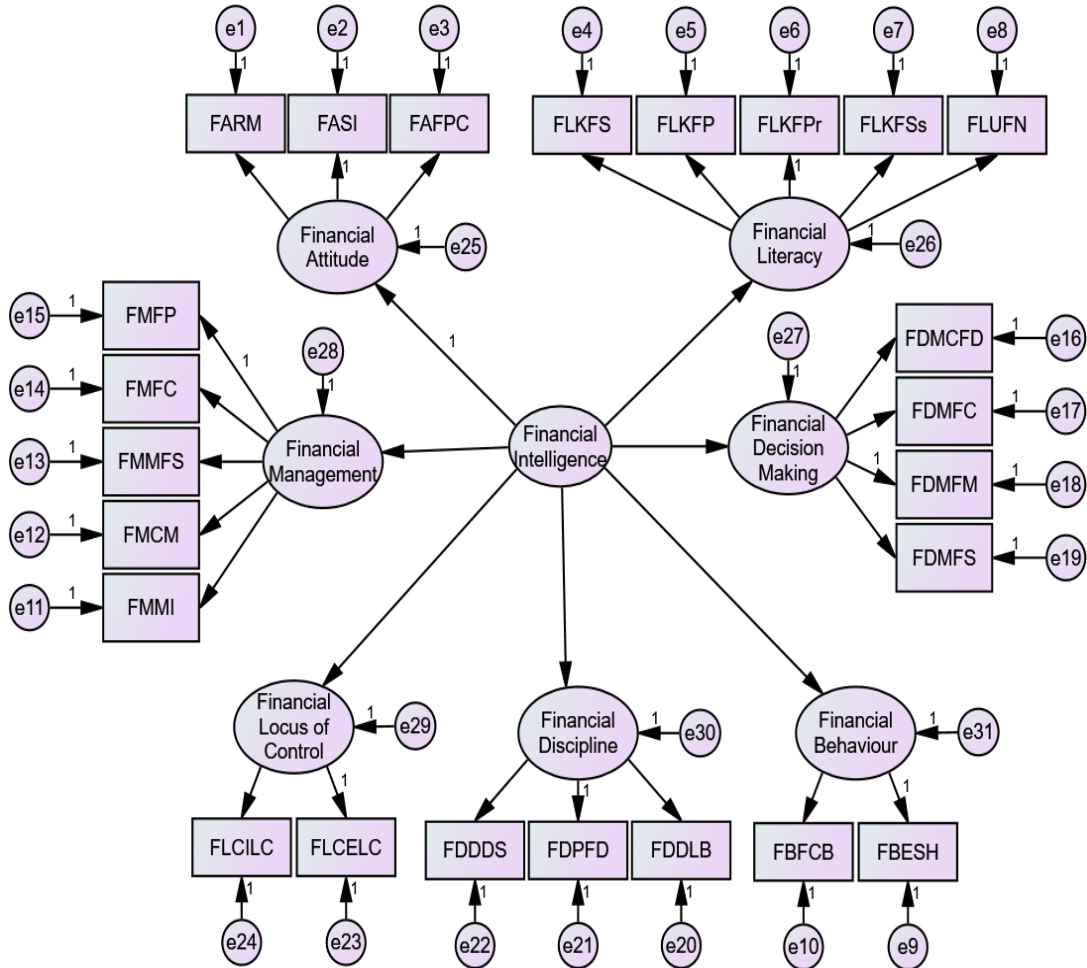
*H1<sub>6</sub>: Financial Intelligence significantly impacts Financial Decision Making*

*H1<sub>7</sub>: Financial Intelligence significantly impacts Financial Locus of Control*

Following proposed model, measurement model, model fit indices and hypotheses testing results are presented for checking the relationship among them.

**Figure 4.22**

*Proposed Model of Second Order CFA of Financial Intelligence*

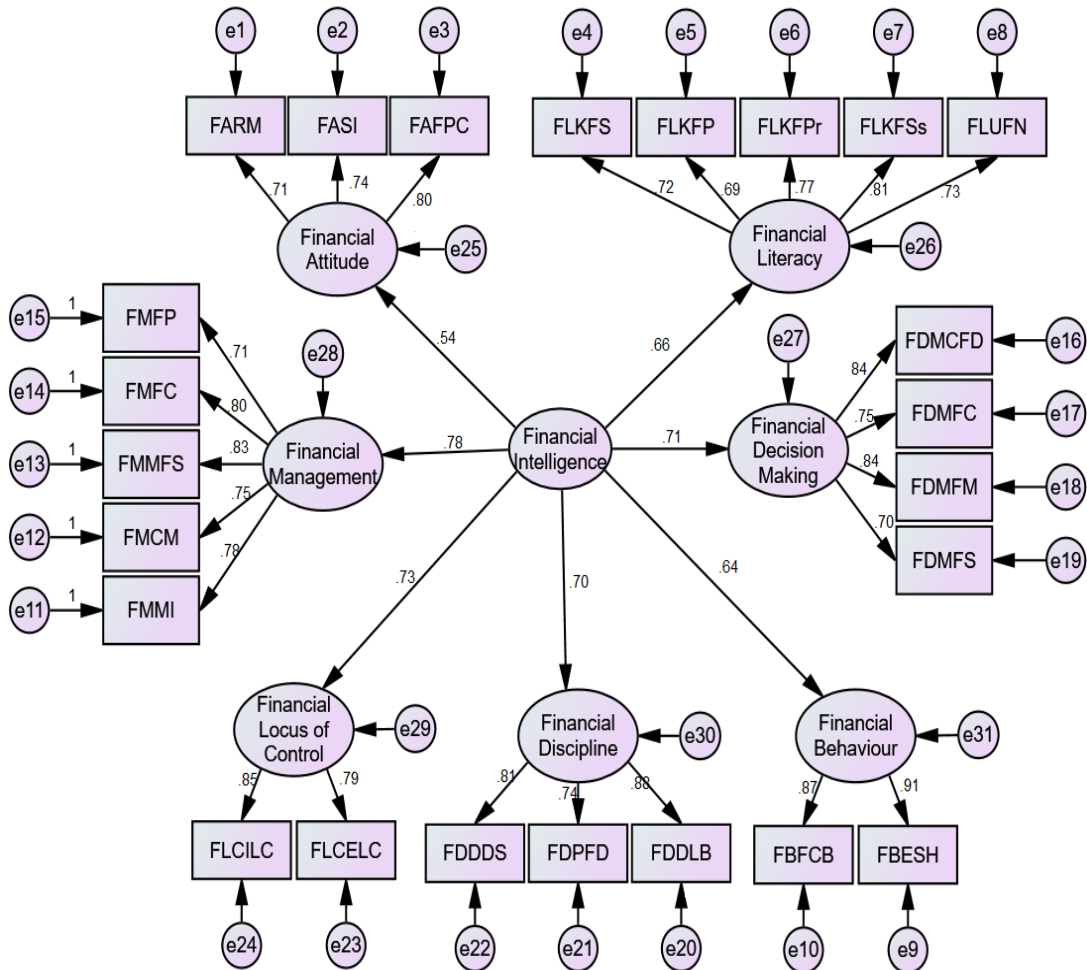


Source: Primary Data

The above-mentioned model is the proposed representation of Financial Intelligence used to examine its relationship with other sub-constructs. It has been validated using various model fit indices, including Normed chi-square (CMIN/df), Root Mean Square Residuals (RMR), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Incremental Fit Index (IFI), Tucker-Lewis Index (TLI), Normed Fit Index (NFI), Relative Fit Index (RFI), and Root Mean Square Error of Approximation (RMSEA).

**Figure 4.23**

*Measurement Model of Second Order CFA of Financial Intelligence*



Source: Primary Data

Figure 4.23 shows the measurement model illustrating the relationship between Financial Intelligence and its sub-constructs. Seven constructs were identified to explain the main concept: Financial Attitude, Literacy, Behaviour, Discipline, Management, Decision Making, and Locus of Control. All factor loadings exceed 0.70, indicating a good fit, which is supported by the model fit indices provided below. Additionally, the following sections present the model fit indices and the results of hypothesis testing.

**Table 4.32**

*Model Fit Indices of Second Order CFA – Financial Intelligence*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	2.331	≤3	≤5
Root Mean Square Residuals (RMR)	0.037	≤0.05	≤0.08
Comparative Fit Index (CFI)	0.952	≥0.90	≥0.80
Goodness of Fit Index (GFI)	0.943	≥0.90	≥0.80
Adjusted Goodness of Fit Index (AGFI)	0.921	≥0.90	≥0.80
Incremental Fit Index (IFI)	0.951	≥0.90	≥0.80
Tucker Fit Index (TLI)	0.982	≥0.90	≥0.80
Normed Fit Index (NFI)	0.974	≥0.90	≥0.80
Relative Fit Index (RFI)	0.957	≥0.90	≥0.80
Root Mean Square Error of Approximation (RMSEA)	0.045	<0.08	=0.08

Source: Primary Data

The suitability of the First order CFA (Figure 4.23) is evaluated using the specified modification indices. All key fit measures—CFI, GFI, AGFI, IFI, NFI, RFI, and TLI—exceed the recommended threshold of 0.90, indicating good fit. The CMIN/df value is 2.331, which is below the acceptable limit of 3. Additionally, the RMR (0.037) and RMSEA (0.045) fall within the recommended bounds of less than 0.05 and 0.08, respectively. Therefore, the model examining the relationship between ‘Financial Intelligence’ and its sub-constructs is deemed acceptable for assessing the scale’s validity, supported by good fit indices.

**Table 4.33**

*Hypothesis testing result of the relationship between Financial Intelligence and its constructs*

<b>Hypotheses</b>	<b>Path</b>	<b>Beta Co-efficient</b>	<b>p (Sig.) Value</b>	<b>Result</b>
H1 <sub>1</sub>	Financial Intelligence → Financial Attitude	0.541**	<0.01	Supported
H1 <sub>2</sub>	Financial Intelligence → Financial Literacy	0.662**	<0.01	Supported
H1 <sub>3</sub>	Financial Intelligence → Financial Behaviour	0.644**	<0.01	Supported
H1 <sub>4</sub>	Financial Intelligence → Financial Discipline	0.702**	<0.01	Supported
H1 <sub>5</sub>	Financial Intelligence → Financial Management	0.783**	<0.01	Supported
H1 <sub>6</sub>	Financial Intelligence → Financial Decision Making	0.714**	<0.01	Supported
H1 <sub>7</sub>	Financial Intelligence → Financial Locus of Control	0.730**	<0.01	Supported

Source: Primary Data

\*\* Significant at 1% level of significance

The above table shows the hypothesis testing result of the relationship between Financial Intelligence and its sub-constructs. Here, the values of the beta coefficient are significant at 1% level of significance and hence the proposed hypotheses are accepted. Accordingly, Financial Intelligence impacts Financial Attitude, Literacy, Behaviour, Discipline, Management, Decision Making and Locus of Control with positive coefficients of determination of 0.541, 0.662, 0.644, 0.702, 0.783, 0.714 and 0.730, respectively. Hence, the main construct is positively related to the sub-constructs. Moreover, Financial Intelligence is highly influenced by Financial Management, Financial Locus of Control and Financial Decision Making.

#### **4.17 Scoring Process of Final Instrument**

Out of 85 items in the scale, 9 items were reversely coded. The total mean score of the instruments after considering reverse coding can be calculated to calculate the total score.

#### **3.18 Discussion and Implications**

The scale developed by the researcher would contribute to the existing literature of intelligence and financial intelligence. The relationship between different dimensions of financial intelligence is identified through the research, which can also contribute to the existing literature. The present scale can be used for the training and development of entrepreneurs.

**Reference:**

- Berman, K., Knight, J., & Case, J. (2006). *Financial intelligence: A manager's guide to knowing what the numbers really mean*. Harvard Business School Press.
- Bruhn, M., & Zia, B. (2011). The impact of business and financial literacy training for young entrepreneurs in Bosnia-Herzegovina.
- Citigroup Inc. (2015). Australians optimistic about 2015 finances but budgeting should be a top New Year priority: Citi Fin-Q survey. Retrieved from <https://www.citigroup.com/australia/news/2015/150116a.pdf>
- Comrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Çoşkun, A., & Dalziel, N. (2020). Mediation effect of financial attitude on financial knowledge and financial behavior: The case of university students. *International Journal of Research in Business and Social Science* (2147- 4478), 9(2), 01–08. <https://doi.org/10.20525/ijrbs.v9i2.647>
- Dohmen et al., 2011 T. Dohmen, A. Falk, D. Huffman, U. Sunde, J. Schupp. Individual risk attitudes: measurement, determinants and behavioral consequences *J. Eur. Econ. Assoc.*, 9 (3) (2011), pp. 522-550
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Hafer, R. W. (2016). Cross-country evidence on the link between IQ and financial development. *Intelligence*, 55, 7–13. <https://doi.org/10.1016/j.intell.2015.12.008>
- Kesavayuth, D., Ko, K. M., & Zikos, V. (2018). Locus of control and financial risk attitudes. *Economic Modelling*, 72, 122-131. <https://doi.org/10.1016/j.econmod.2018.01.010>

- Kodila-Tedika, O., & Asongu, S. A. (2015). The effect of intelligence on financial development: A cross-country comparison. *Intelligence*, 51, 1–9. <https://doi.org/10.1016/j.intell.2015.04.010>.
- Al Kholilah, N., & Iramani, R. (2013). Studi financial management behavior pada masyarakat surabaya. *Journal of Business & Banking*, 3(1), 69-80.
- MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods*, 4(1), 84–99. <https://doi.org/10.1037/1082-989X.4.1.84>
- Miečinskienė, A., Stankevičienė, J., Jurevičienė, D., Taujanskaitė, K., Danilevičienė, I., & Gudelytė-Žilinskienė, L. (2023). The role of financial intelligence quotient and financial literacy for paving a path towards financial well-being. *Journal of Business Economics and Management*, 2023 Volume 24 Issue 5: 901–922, <https://doi.org/10.3846/jbem.2023.20648>
- Mien, NT, & Thao, T P. 2015, ‘Factors affecting personal financial management behaviors: evidence from Vietnam’, Proceedings of the Second Asia-Pacific Conference on Global Business, Economics, Finance and Social Sciences AP15, Danang-Vietnam, pp. 1-16..
- Mohd, R., Mohamad, S., Nor, N., & Kamaruddin, B. H. (2016). Measuring financial intelligence of Malaysian Gen Y: A preliminary study. *World Review of Business Research*, 6(2), 157–169.
- Njoroge, R. M. (2013). Relationship between financial literacy and entrepreneurial success in Nairobi County, Kenya (Doctoral dissertation, University of Nairobi).
- Nik Sari Syerina Nik Kamil a , Rosidah Musa b, Siti Zaleha Sahak c “Examining the Role of Financial Intelligence Quotient (FiQ) in Explaining Credit Card Usage Behavior: A Conceptual Framework”. *Procedia - Social and Behavioral Sciences* 130 ( 2014 ) 568 – 576.

- Omoriege, O. K. (2019). Corporate financial intelligence as a driver of organisational performance: A conceptual and exploratory review. *Arabian Journal of Business and Management Review*, 8(5), 1–9.
- Remund, D. L. (2010). Financial literacy explicated: The case for a clearer definition in an increasingly complex economy. *Journal of Consumer Affairs*, 44 (2), 276–295. <https://doi.org/10.1111/j.1745-6606.2010.01169.x>
- Setiawan, E., Wahyudi, S., & Mawardi, W. (2016). Pengaruh sosial demografi, pengetahuan keuangan, dan sikap keuangan terhadap perilaku investasi keuangan individu (studi kasus pada karyawan swasta di Kabupaten Kudus) (Doctoral dissertation, Diponegoro University).
- Salahodjaev, R. (2015). Intelligence and finance. *Personality and Individual Differences*, 86, 282–286. <https://doi.org/10.1016/j.paid.2015.06.017>
- Saxena, N., & Kadam, M. (2020). Managing of personal finance: Impact of spiritual intelligence and financial literacy. *Our Heritage*, 68(51), 94–103.
- Scott, B., & McGoldrick, M. (2018). Financial intelligence and financial investigation: Opportunities and challenges. *Journal of Policing, Intelligence and Counter Terrorism*, 13(3), 301–315. <https://doi.org/10.1080/18335330.2018.1482563>
- Shih, TY, Ke, SC, 2014, ‘Determinates of financial behavior: insights into consumer money attitudes and financial literacy’, *Service Business*, vol. 8, no 2, pp. 217-238.
- Sondra G. Beverly & Marianne A. Hilgert & Jeanne M. Hogarth, 2003. "Household financial management: the connection between knowledge and behavior" *Federal Reserve Bulletin*, Board of Governors of the Federal Reserve System (U.S.), issue Jul, pages 309-322.
- Zhaoyi, X., & Xinyu, Ch. (2017). The impact of financial intelligence on commercial banking from the perspective of transaction cost. *Advances in Social Science, Education and Humanities Research*, 119, 725–729.

- Kiyosaki, R. T. (2008). *Increase your financial IQ: get smarter with your money*. Newyork: Business Plus.
- Lusardi, A. (2008, June). Financial literacy: an essential tool for informed consumer choice? NBER Working Paper, 1-29. doi:10.3386/w14084
- Yu, C., & Zhang, H. (2016). *Financial intelligence for parents and children (FIFPAC): Financial intelligence quotient (FQ) test*. Institute of Financial Intelligence. ISBN 1530851416.
- Chujan, W., Ngoc, N. L. B., & Faizi, A. S. (2022). Locus of control on financial behavior and financial risk attitude. *Annals of Economics and Finance*, 23(2), 289-313. <https://doi.org/10.1016/j.econmod.2018.01.010>
- World Bank, 2018. Self-employed, Total (% of Total Employment) (modeled ILO Estimate), Databank. <https://data.worldbank.org/indicator/SL.EMP.SELF.ZS>.

## *Chapter 5*

# **RELATIONSHIP BETWEEN FINANCIAL INTELLIGENCE AND ITS DIMENSIONS**

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## **5.1 Introduction**

This chapter deals with the interrelationship among sub-constructs of Financial Intelligence, namely, Financial Attitude, Financial Literacy, Financial Behaviour, Financial Discipline, Financial Management, Financial Decision Making and Financial Locus of Control. These constructs are explored and confirmed by applying Exploratory and Confirmatory Factor Analysis. Here, Financial Attitude, Literacy, Behaviour and Discipline are taken as independent or factor variables; and Financial Management, Decision Making and Locus of Control are considered as dependent variables. To identify the relationship among them, Structural Equation Modelling is applied.

## **5.2 Objectives**

The following objectives are set forth for the analysis of the respective variables of the study.

- To measure the influence of Financial Attitude, Financial Literacy, Financial Behaviour and Financial Discipline on Financial Management, Financial Decision Making and Financial Locus of Control of Small Entrepreneurs of Kerala.
- To investigate how Financial Literacy mediates the relationship between Financial Management and Financial Decision-Making among small entrepreneurs in Kerala.
- To assess how Financial Attitude mediates the relationship between Financial Decision Making and Financial Locus of Control.

- To examine how Financial Behaviour mediates the relationship between Financial Management and the Financial Locus of Control among small entrepreneurs in Kerala.

### **5.3 Hypotheses Formulated and Tested**

The following hypotheses are formulated and tested according to the objectives of the study.

#### **Hypotheses based on Objective No.2**

*H1<sub>1</sub>: Financial Attitude has a significant influence on Financial Management*

*H1<sub>2</sub>: Financial Literacy has significant influence on Financial Management*

*H1<sub>3</sub>: Financial Behaviour has significant influence on Financial Management*

*H1<sub>4</sub>: Financial Discipline has significant influence on Financial Management*

*H1<sub>5</sub>: Financial Attitude has significant effect on Financial Decision Making*

*H1<sub>6</sub>: Financial Literacy has significant effect on Financial Decision Making*

*H1<sub>7</sub>: Financial Behaviour has significant effect on Financial Decision Making*

*H1<sub>8</sub>: Financial Discipline has significant effect on Financial Decision Making*

*H1<sub>9</sub>: Financial Attitude has significant impact on Financial Locus of Control*

*H1<sub>10</sub>: Financial Literacy has significant impact on Financial Locus of Control*

*H1<sub>11</sub>: Financial Behaviour has significant impact on Financial Locus of Control*

*H1<sub>12</sub>: Financial Discipline has significant impact on Financial Locus of Control*

#### **Hypotheses based on Objective No.3**

*H1<sub>13</sub>: Financial Literacy has a mediating role in the relationship between Financial Management and Financial Decision Making*

#### **Hypotheses based on Objective No.4**

*H1<sub>14</sub>: Financial Attitude has a mediating role in the relationship between Financial Decision Making and Financial Locus of Control*

#### **Hypotheses based on Objective No.5**

*H1<sub>15</sub>: Financial Behaviour has a mediating role in the relationship between Financial Management and Financial Locus of Control*

### **5.4 Methodology**

In order to fulfil the objectives of the present chapter, primary data is collected from Small Entrepreneurs of Kerala by using a pretested structured questionnaire. A total of 855 sample entrepreneurs are selected. To explore the relationship among the constructs of Financial Intelligence, the study employs Structural Equation Modelling. The relationship model is verified by using the proposed model, the measurement model, model fit indices and hypothesis testing results.

### **5.5 Variables of the study**

*Independent Variables:* - Financial Attitude, Literacy, Behaviour and Discipline

*Dependent Variables:* - Financial Management, Decision Making and Locus of Control

*Mediating Variables:* - Financial Literacy, Financial Attitude and Financial Behaviour

### **5.6 Financial Management: The role of Financial Attitude, Literacy, Behaviour and Discipline**

In this section of analysis, the relationship among Financial Attitude, Literacy, Behaviour and Discipline on Financial Management is measured. Former variables are considered as the independent variables, and the latter variable is identified as the dependent variable. The analysis exhibits in the order of the relationship between Financial Attitude and the sub-constructs of Financial Management and so on. The

result is presented in the order of the proposed and measurement model, model fit indices and hypotheses testing results.

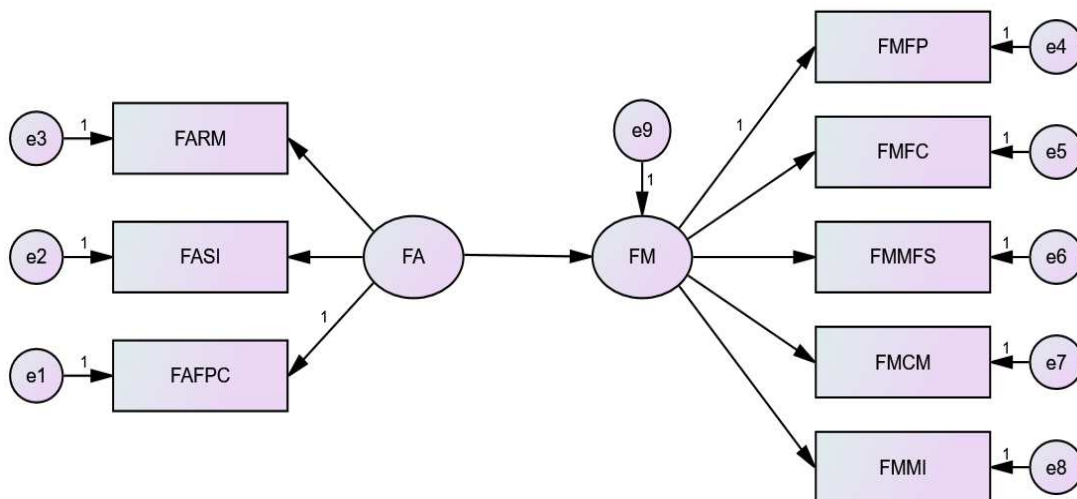
### 5.6.1 The role of Financial Attitude on Financial Management

Here, Financial Attitude is identified and confirmed with the help of 3 dimensions, namely, Attitude towards risk management, Attitude towards savings and investment and Attitude towards Financial planning and controlling. Similarly, Financial Management is recognised by using 5 dimensions, namely, Financial Planning, Financial control, Cash Management, Managing insurance and Managing financial stress. Hence, the relationship between Financial Attitude and the sub-constructs of Financial Management is studied with the help of Structural Equation Modelling. The results are presented according to the hypotheses formulated below.

#### *H1<sub>1</sub>: Financial Attitude has a significant influence on Financial Management*

**Figure 5.1**

*Proposed Model of Relationship between Financial Attitude and Financial Management*



Source: Primary Data

It is the proposed model of checking the relationship between Financial Attitude and Financial Management. On the left side of the model, the sub-constructs of Financial Attitude is specified as independent variables, namely, Financial Attitude towards risk

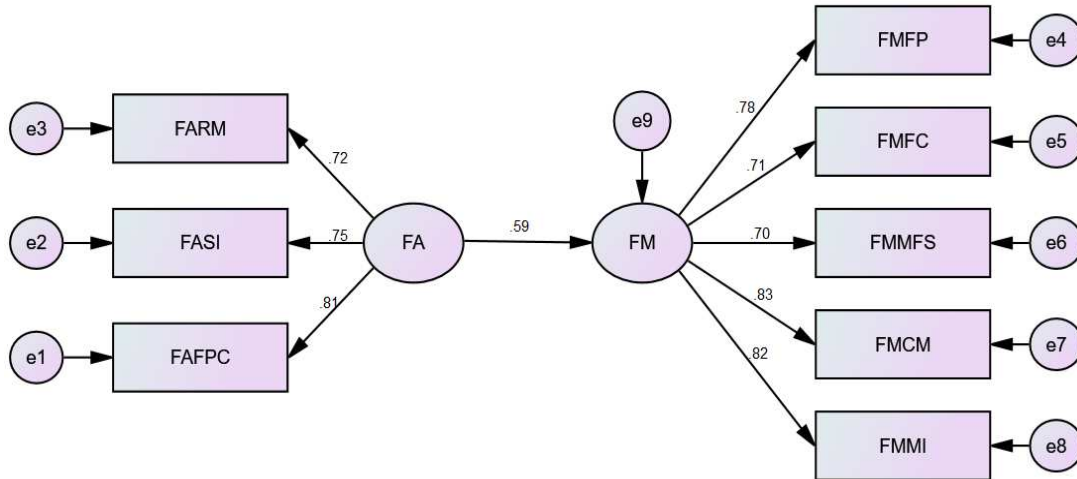
management, Financial Attitude towards savings and investment and Financial Attitude towards Financial planning and controlling.

Further, in the right side of the model, the sub-constructs of Financial Management is taken as dependent variables, namely, Financial Planning, Financial Control, Cash Management, Managing Insurance and Managing Financial Stress.

The path directed from Financial Attitude to Financial Management is used to estimate the value of the dependent variable. Afterwards, the measurement model of the relationship is presented with path estimates. Further, the model fit indices are used to check the suitability of the measurement model. Then, the hypothesis testing result is presented to exhibit the status of the relationship.

**Figure 5.2**

*Measurement Model of the Relationship between Financial Attitude and Financial Management*



Source: Primary Data

The figure illustrates the measurement model for examining the relationship between Financial Attitude and Financial Management among Small Entrepreneurs in Kerala. The model depicts the various dimensions of Financial Attitude and their interconnections. Financial Management is assessed through key components

including Financial Planning, Control, Cash Management, Managing Insurance and Managing Financial Stress.

The path diagram reveals the directional relationships and regression estimates between these constructs. Financial Attitude is positively related to Financial Management with a regression coefficient of 0.59. It means 59% of the variance in Financial Management can be explained with the help of changes in Financial Attitude. It means that, favourable financial attitude plays a crucial role in effective cash flow management of Small Entrepreneurs in Kerala.

The model fitness indices and hypotheses testing results are presented below.

**Table 5.1**

*Model Fit Indices of the Relationship between Financial Attitude and Financial Management*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	2.415	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.042	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.942	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.920	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.901	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.931	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.927	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.934	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.919	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.054	$< 0.08$	$= 0.08$

Source: Primary Data

The model fit indices for the relationship between Financial Attitude and Financial Management indicate a good fit. The value of CMIN/df (2.415) is within the recommended threshold limit of less than 3, indicating a good level of fitness. Additionally, the RMR value of 0.042 is below the threshold limit of 0.05, it is also supports the model. The value of RMSEA also encourages the fitness of the model with a value of 0.054 (less than the recommended limit of good fit of 0.08). Overall, the goodness/ incremental fit indices like CFI, GFI, AGFI, IFI, NFI and RFI are greater than 0.90, which confirms that the measurement model adequately fits the data and validates the relationship between the variables.

**Table 5.2**

*Hypothesis testing result of the relationship between Financial Attitude and Financial Management*

Hypothesis	Path	Path Co-efficient	p (Sig.) Value	Result
<i>H1<sub>1</sub></i>	Financial Attitude → Financial Management	0.591**	<0.01	Supported

Source: Primary Data

\*\* Significant at 1% level of significance

It is the hypothesis testing result of the relationship between Financial Attitude and Financial Management. The columns are presented in the order of hypotheses formulated and tested, path between the variables, path estimates, significance value and result of hypothesis. In this manner, Financial Attitude has a significant positive influence on Financial Management with path estimates of 0.591. It means, whenever the Financial Attitude of the Small Entrepreneurs increases, there will be a 59% of positive increase in the Financial Management also. More specifically, Financial Attitude is considered a significant positive predictor variable of Financial Management. Hence, the entrepreneurs can manage their financial matters with a good level of Attitude towards risk management, Attitude towards savings and investment and Attitude towards Financial planning and controlling.

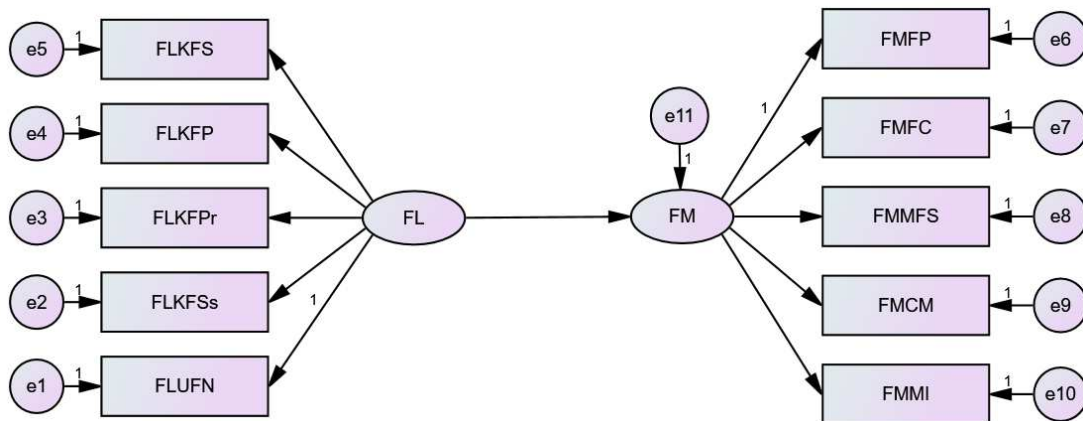
### 5.6.2 The role of Financial Literacy in Financial Management

Here, the role of financial literacy on the financial management of Small Entrepreneurs of Kerala is measured by considering the former variable as the independent and the later variable as the dependent variable. Accordingly, the influence of financial literacy on each dimension of financial management is measured with the help of Structural Equation Modelling (SEM). The variable financial literacy of small entrepreneurs is identified by considering Knowledge of the financial system, Knowledge of financial planning, Knowledge of financial products, Knowledge of financial statements, and updating financial knowledge as the sub-dimensions. The results are presented according to the following hypotheses formulated and tested.

***H1<sub>2</sub>: Financial Literacy has significant influence on Financial Management***

**Figure 5.3**

*Proposed Model of Relationship between Financial Literacy and Financial Management*



Source: Primary Data

The model is represented as the proposed model for measuring the causal relationship between Financial Literacy and Financial Management of Small Entrepreneurs of Kerala. On the left side the financial literacy is presented as the unobserved variable from five observed variables, like Knowledge of financial system, Knowledge of

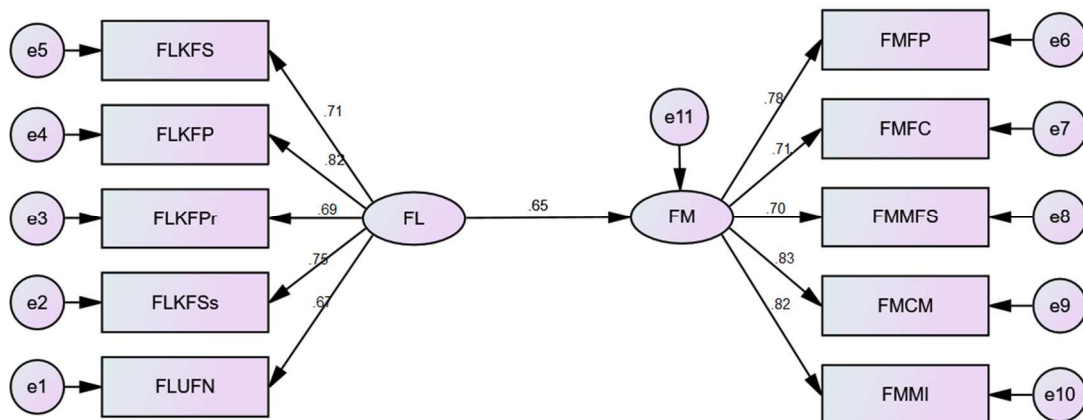
financial planning, Knowledge of financial products, Knowledge of financial statements and Updating financial knowledge.

On the right side, the financial management is also depicted as an unobserved variable of five different observed variables, namely, Financial Planning, Financial control, Cash Management, Managing insurance, and Managing financial stress.

The path from the independent variable to the dependent variable shows the directional linkage between them. It is explained in the following measurement model.

**Figure 5.4**

*Measurement Model of the Relationship between Financial Literacy and Financial Management*



Source: Primary Data

Here, the relationship between the variable and its sub-dimensions is explained with the directional linkage from unobserved variables to observed variables. It shows the factor loadings of greater than 0.60, and hence all the sub-dimensions are positively contributing to financial literacy and financial management. Furthermore, the causal relationship between Financial Literacy and Financial Management shows that the beta coefficient of 0.65 implies a direct positive relationship between them. It means, 65% of positive changes in the financial management can be explained by financial literacy. In order to prove the model, the following indices are explained.

**Table 5.3**

*Model Fit Indices of the Relationship between Financial Literacy and Financial Management*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	1.998	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.031	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.903	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.899	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.887	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.901	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.874	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.858	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.902	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.047	$< 0.08$	$= 0.08$

*Source: Primary Data*

The model fit indices verify the measurement model of the relationship between Financial Literacy and Financial Management. Here, the CMIN/df of 1.998 is within the threshold limit of less than 3 of good fit. The value of RMR (0.031) is also within the recommended limit of less than 0.05. All other indices like CFI, GFI, AGFI, RFI, NFI and TLI are within the limit of good or acceptable fit of the model. Since all the values are within the range, the measurement model is said to be fit for measuring the relationship between financial literacy and financial management.

**Table 5.4**

*Hypothesis testing result of the relationship between Financial Literacy and Financial Management*

<b>Hypothesis</b>	<b>Path</b>	<b>Path Co-efficient</b>	<b>p (Sig.) Value</b>	<b>Result</b>
<i>H1<sub>2</sub></i>	Financial Literacy → Financial Management	0.654**	<0.01	Supported

Source: Primary Data

\*\* Significant at 1% level of significance

The H1<sub>2</sub> is the hypothesis formulated for checking the influence of financial literacy on the financial management of small entrepreneurs in Kerala. The path and path-coefficient also verify the same relationship. Since the value of 0.654 is significant at 1% level of significance, the proposed hypothesis is accepted. Precisely, financial literacy is considered a significant predictive variable of financial management. It can be said that if the entrepreneurs have a good level of literacy regarding the financial system, financial planning, financial products, financial statements, and financial knowledge, their management of funds will also be good.

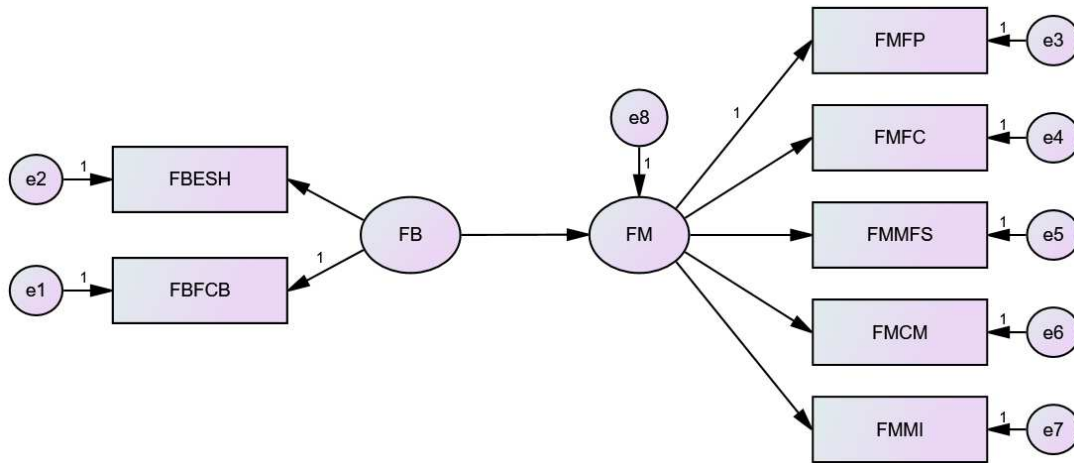
### **5.6.3 The role of Financial Behaviour on Financial Management**

In this section of analysis, the role of the financial behaviour of Small Entrepreneurs on their financial management is discussed. First of all, financial behaviour is explored and confirmed by two dimensions, namely, earning & spending habits and financial consultation behaviour. In order to check the influence of the independent variable on the dependent variable (financial behaviour and financial management), Structural Equation Modelling is applied. The results are presented in the order of proposed model, the measurement model, model fitness indices and hypothesis testing result. The following hypothesis is formulated and tested as a part of the analysis.

***H1<sub>3</sub>: Financial Behaviour has a significant influence on Financial Management***

**Figure 5.5**

*Proposed Model of Relationship between Financial Behaviour and Financial Management*

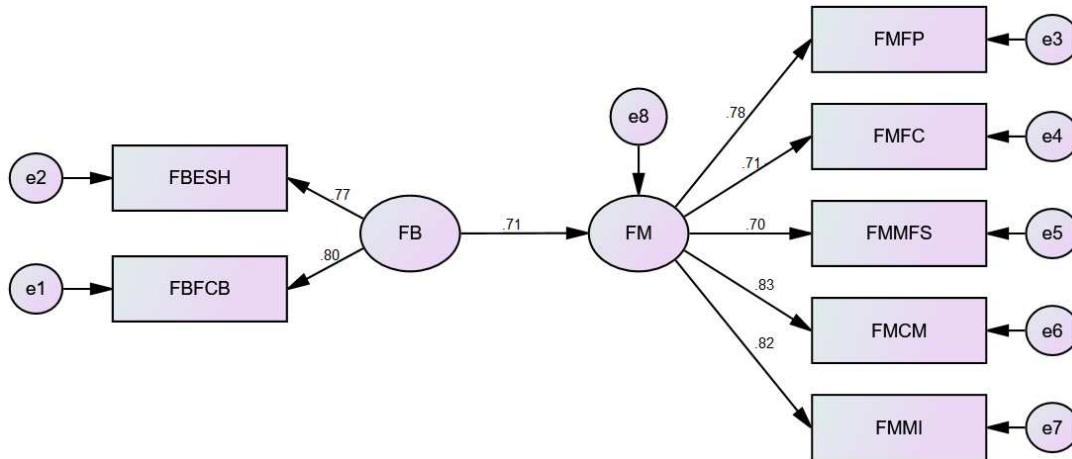


Source: Primary Data

The model denotes the influence of financial behaviour on the financial management of Small Entrepreneurs in Kerala. On the left side, financial behaviour is identified with the help of two observed variables, namely, earning & spending habits and financial consultation behaviour. On the right side, financial management is recognised by using five observed variables, namely, financial planning, financial control, cash management, managing insurance, and managing financial stress. The path connecting financial behaviour to financial management represents the directional linkage between them. The measurement model is presented below.

**Figure 5.6**

*Measurement Model of the Relationship between Financial Behaviour and Financial Management*



Source: Primary Data

The measurement model checks the causal relationship between financial behaviour and financial management. All the observed variables of either financial behaviour or financial management are significantly contributing with factor loadings of greater than 0.70. The path estimate of 0.71 explains the direct positive influence of the financial behaviour of Small Entrepreneurs on their financial management. Hence, it is considered an important predictor variable of the management of capital and funds. The following model fitness indices are presented to verify the measurement model and its appropriateness.

**Table 5.5**

*Model Fit Indices of the Relationship between Financial Behaviour and Financial Management*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	2.881	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.048	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.951	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.944	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.932	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.912	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.903	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.915	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.900	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.059	$< 0.08$	$= 0.08$

Source: Primary Data

The specified model fitness indices are used to check the appropriateness of the measurement model specified above. Since all the values of good indices like CFI, GFI, AGFI, NFI, RFI and TLI are within the limit of good fit of greater than 0.90. Likewise, CMIN/df, RMR and RMSEA are also within the threshold limit of goodness of fit. Hence, the model of checking the influential relationship between financial behaviour and financial management can be verified as good.

**Table 5.6**

*Hypothesis testing result of the relationship between Financial Behaviour and Financial Management*

<b>Hypothesis</b>	<b>Path</b>	<b>Path Co-efficient</b>	<b>p (Sig.) Value</b>	<b>Result</b>
<i>H1<sub>3</sub></i>	Financial Behaviour → Financial Management	0.711**	<0.01	Supported

Source: Primary Data

\*\* Significant at 1% level of significance

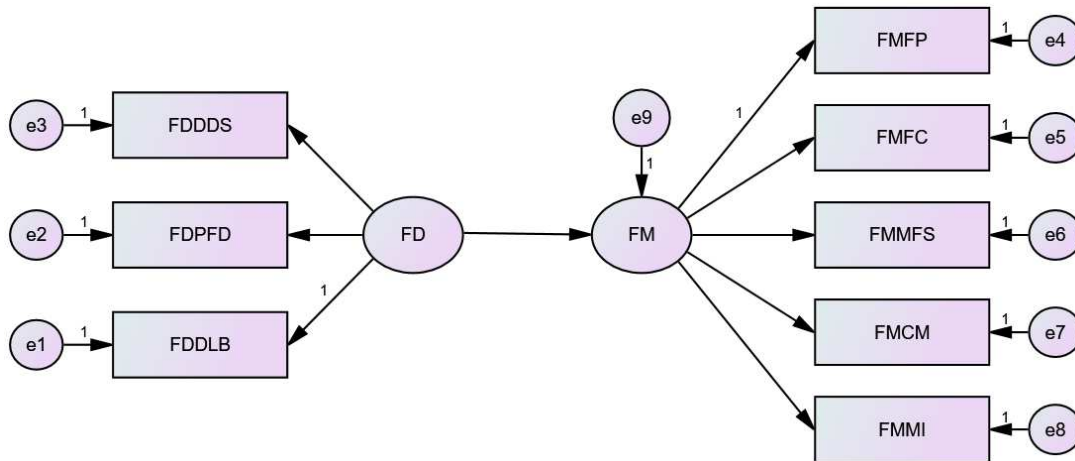
The H1<sub>3</sub> is the hypothesis formulated for checking the influence of financial behaviour on the financial management of Small Entrepreneurs in Kerala. The path and path-coefficient also explain the same relationship with a value of 0.711, which is significant at 1% level of significance and hence the proposed hypothesis is accepted. Specifically, financial behaviour is considered a significant predictive variable of financial management. It can be concluded that, if entrepreneurs' earning & spending habits, as well as their financial consultation behaviour, are good, their management of funds will also be good.

#### **5.6.4 The Role of Financial Discipline in Financial Management**

It is essential to understand the role of financial discipline among small entrepreneurs in their financial management, particularly after identifying the discipline in spending, personal financial discipline, and discipline regarding lending and borrowing as sub-dimensions. Accordingly, financial discipline and management are considered as the independent and dependent variables, respectively. The status of the relationship is exhibited by using a measurement model of Structural Equation Modelling. The following hypothesis is formulated accordingly.

**H1<sub>4</sub>: Financial Discipline has a significant influence on Financial Management****Figure 5.7**

*Proposed Model of Relationship between Financial Discipline and Financial Management*

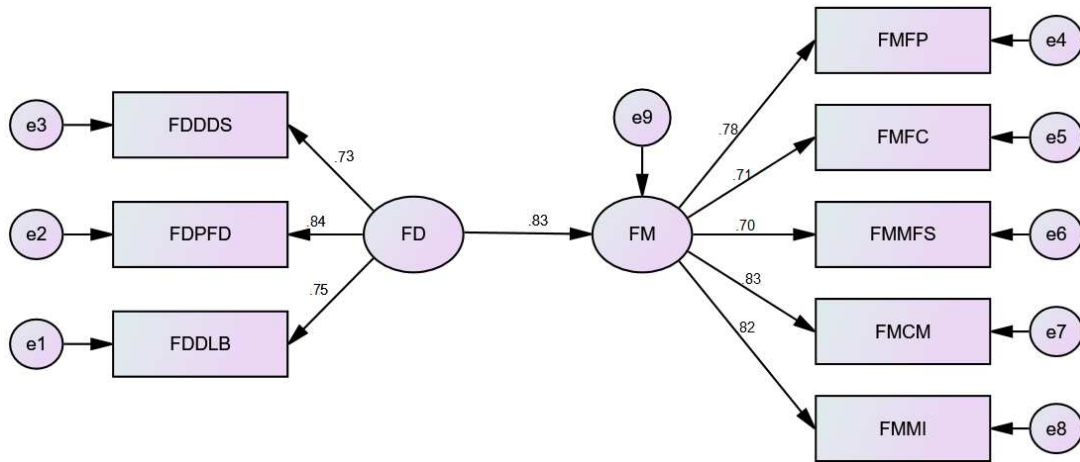


Source: Primary Data

The model exhibits the relationship path of financial discipline and financial management. On the left side, the financial discipline is explained with the help of three observed variables, namely, Discipline during spending, Personal financial discipline and Discipline regarding lending and borrowing. As already specified, financial management is specified by using five observed variables. The path ranging from the financial discipline to financial management explains the underlying relationship between them. Subsequently, the measurement model is presented below with the model fitness indices and hypothesis testing results.

**Figure 5.8**

*Measurement Model of the Relationship between Financial Discipline and Financial Management*



Source: Primary Data

Here, the measurement model of the relationship between financial discipline and financial management demonstrates a path coefficient of 0.83. It verifies that financial discipline has a significant positive influence on the financial management of the Small Entrepreneurs of Kerala. Besides, all the observed variables of financial discipline as well as financial management are significantly contributing to them with factor loadings of greater than 0.70. Since the value of the regression coefficient is significant, 83% of the variance in financial management can be predicted by the changes in financial discipline.

**Table 5.7**

*Model Fit Indices of the relationship between Financial Discipline and Financial Management*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	2.721	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.037	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.932	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.921	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.910	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.909	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.907	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.905	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.901	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.073	$< 0.08$	$= 0.08$

Source: Primary Data

The specified model fitness indices are used to check the suitability of the measurement model specified above. Since all the values of good indices like CFI, GFI, AGFI, NFI, RFI and TLI are within the limit of good fit of greater than 0.90. Similarly, CMIN/df, RMR and RMSEA are also within the threshold limit of goodness of fit. Hence, the model of checking the influential relationship between financial discipline and financial management can be confirmed as good.

**Table 5.8**

*Hypothesis testing result of the relationship between Financial Discipline and Financial Management*

<b>Hypothesis</b>	<b>Path</b>	<b>Path Co-efficient</b>	<b>p (Sig.) Value</b>	<b>Result</b>
<i>H1<sub>4</sub></i>	Financial Discipline → Financial Management	0.830**	<0.01	Supported

Source: Primary Data

\*\* Significant at 1% level of significance

The H4<sub>3</sub> is the hypothesis formulated for checking the influence of financial discipline on the financial management of Small Entrepreneurs in Kerala. The path and path-coefficient also clarify the same relationship with a value of 0.830, which is significant at 1% level of significance, and hence the proposed hypothesis is accepted. In detail, financial discipline is reflected as a significant forecasting variable of financial management. It can be concluded that if the entrepreneurs' discipline during spending, personal financial discipline, and discipline regarding lending and borrowing is good, their financial management will also be good.

From the above relationship of the role of financial attitude, financial literacy, financial behaviour and financial discipline on financial management of Small Entrepreneurs in Kerala, financial discipline is considered as the most influential and financial attitude is identified as the least influential factor of financial management with a coefficient of determination of 0.830 and 0.591, respectively.

### **5.7 Financial Decision Making: The role of Financial Attitude, Literacy, Behaviour & Discipline**

After analyzing the financial management of Small Entrepreneurs in Kerala, their financial decision making is studied by considering financial attitude, literacy, behaviour and discipline as the independent variables. In order to check the effect of these variables on financial decision-making, Structural Equation Modelling is

applied. The following hypotheses are formulated and tested to measure the causal relationship.

*H15: Financial Attitude has a significant effect on Financial Decision Making*

*H16: Financial Literacy has a significant effect on Financial Decision Making*

*H17: Financial Behaviour has a significant effect on Financial Decision Making*

*H18: Financial Discipline has a significant effect on Financial decision-making.*

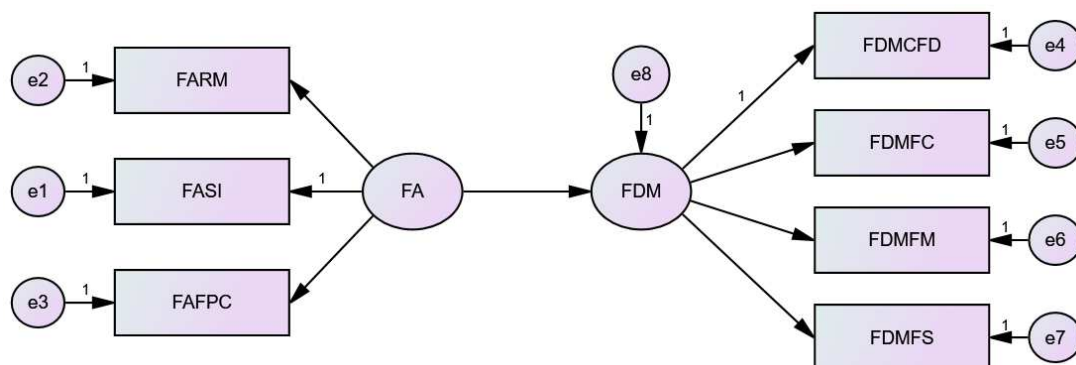
### 5.7.1 The role of Financial Attitude on Financial Decision Making

Financial decision-making is a critical aspect of entrepreneurship, particularly for small businesses where resources are limited and financial risks are high. Generally, the financial attitude of Small Entrepreneurs in Kerala plays a crucial role in shaping their financial decision-making. This section of analysis aims to explore the effect of financial attitude on financial decision-making among them. Here, Structural Equation Modelling is applied in the presence of a proposed model, measurement model, model fitness indices and hypothesis testing result. Thus, the following hypothesis is formulated and tested accordingly.

*H15: Financial Attitude has a significant effect on Financial Decision Making*

**Figure 5.9**

*Proposed model of relationship between financial attitude and financial decision making*

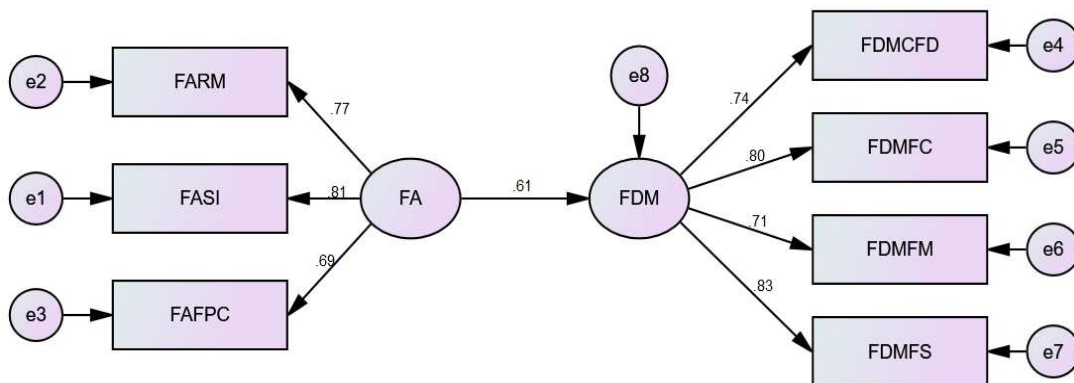


Source: Primary Data

The model represents the relationship between Financial Attitude and Financial Decision Making. On the left side, Attitude towards risk management, Attitude towards savings and investment and Attitude towards Financial planning and controlling are grouped as the observed variables of financial attitude. Similarly, on the right side, Confidence of taking financial decisions, Financial consultation, Financial Monitoring and Financial Stability are categorised as the observed variables of financial decision making. The path ranging from financial attitude to financial decision making represents the track of the relationship between them. The following measurement model shows the relationship status with the path coefficient.

**Figure 5.10**

*Measurement model of the relationship between financial attitude and financial decision making*



Source: Primary Data

The relationship status between financial attitude and financial decision-making is depicted in the measurement model. All the observed variables of financial attitude and financial decision making significantly contributed to the construct with factor loadings of 0.60. Hence, these factors have a good level of connection with the proposed variables. More than that, the path coefficient of 0.61 exhibits a significant positive effect of financial attitude on financial decision-making. As a result, financial attitude is considered an important predicting variable of the financial decision-making of the Small Entrepreneurs in Kerala.

**Table 5.9**

*Model Fit Indices of Relationship between Financial Attitude and Financial Decision Making*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	1.975	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.012	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.997	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.985	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.966	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.953	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.934	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.927	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.919	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.053	$< 0.08$	$= 0.08$

Source: Primary Data

All the model fitness indices concerned with the measurement model are said to good fit with the threshold limit of the respective range. Precisely, CMIN/df of 1.975 is less than 3 of recommended value of a good fit. RMR and RMSEA are 0.012 and 0.053, respectively, within the range of the recommended value of good fit of less than 0.05 and 0.08. Besides, the good fit indices like CFI, GFI, AGFI, IFI, TLI, NFI and RFI have the value of greater than 0.90, which also proves the measurement model as a good one to measure the relationship.

**Table 5.10**

*Hypothesis testing result of the relationship between Financial Attitude and Financial Decision Making*

<b>Hypothesis</b>	<b>Path</b>	<b>Path Co-efficient</b>	<b>p (Sig.) Value</b>	<b>Result</b>
<i>H1<sub>5</sub></i>	Financial Attitude → Financial Decision Making	0.614**	<0.01	Supported

Source: Primary Data

\*\* Significant at 1% level of significance

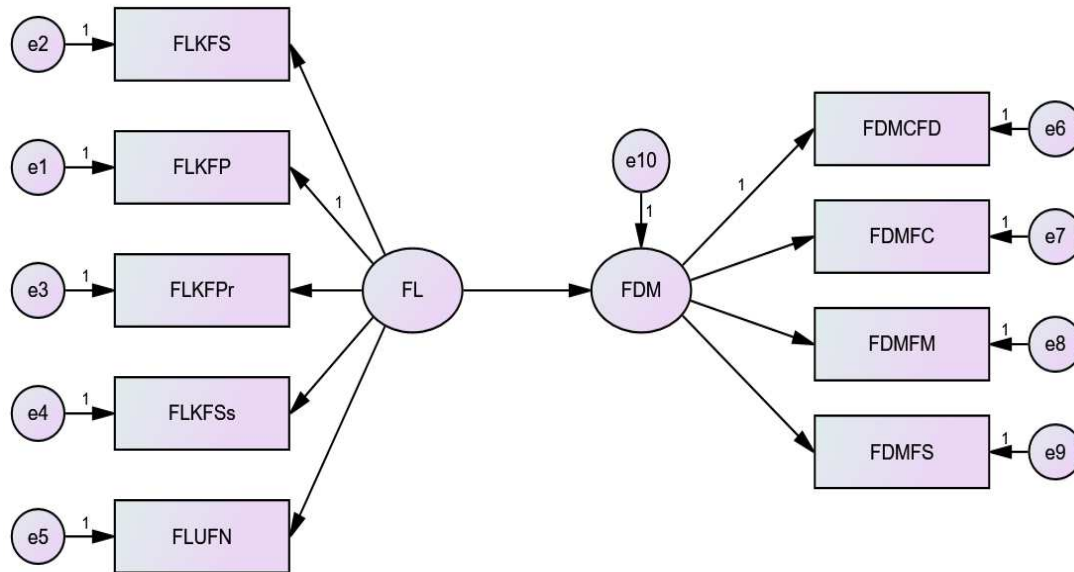
The regression analysis reveals a significant positive relationship between financial attitude and financial decision-making, with a regression coefficient of 0.614. This indicates that financial attitude has a substantial impact on financial decision-making, and 61% of changes in the later variable can be predicted with the former variable. The coefficient is statistically significant at 1% level of significance, supporting the proposed hypothesis and confirming a strong causal link between the two variables. Hence, entrepreneurs can make good decision if they good level of attitude towards risk management, savings & investment and financial planning & controlling.

### **5.7.2 The role of Financial Literacy in Financial Decision Making**

This section examines the causal relationship between financial literacy and financial decision-making. In general, financial literacy plays a crucial role in shaping financial decision-making. Researches also suggest that financial literacy is a strong predictor of financial well-being, with financially literate individuals more likely to achieve their financial goals and secure their financial future (Hastings et al., 2013). In order to prove the same, Structural Equation Modelling is applied with the help of the proposed and measurement model, model fitness indices, and hypothesis testing results. As a result, the following hypothesis is formulated and tested.

**H1<sub>6</sub>: Financial Literacy has a significant effect on Financial Decision Making****Figure 5.11**

*Proposed model of the relationship between financial literacy and financial decision making*

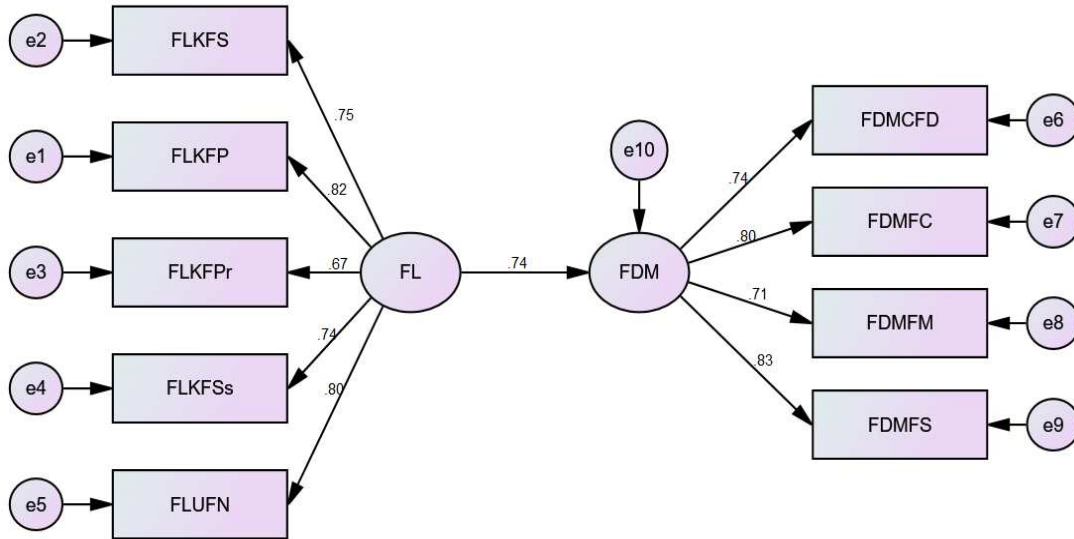


Source: Primary Data

The proposed model represents the relationship of sub-dimensions with the main variables as well as the directional linkage between independent and dependent variables. On the left side, five different observed variables are used to measure the financial literacy of the small entrepreneurs. These dimensions are combined as the factor variable of the analysis. Further, on the right side, four observed variables are categorised to identify the financial decision making, which is considered as the dependent variables of the analysis. The path ranging from left to right shows the directional linkage between financial literacy and financial decision-making. In this context, the following measurement model explains the factor-wise as well as variable-wise relationship.

**Figure 5.12**

*Measurement model of relationship between financial literacy and financial decision making*



Source: Primary Data

The measurement model reveals a strong positive relationship between financial decision-making, with a regression coefficient of 0.74. This indicates that financial literacy has a significant positive impact on financial decision-making. Additionally, the sub-dimensions of both financial literacy and financial decision making exhibit positive relationships with their respective variables, as evidenced by factor loadings exceeding 0.65. These sub-dimensions demonstrate a direct connection with their parent variable and an indirect connection with the dependent variable, financial decision making.

**Table 5.11**

*Model Fit Indices of the Relationship between Financial Literacy and Financial Decision Making*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	4.550	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.049	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.813	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.883	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.842	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.851	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.812	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.852	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.871	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.072	$< 0.08$	$= 0.08$

Source: Primary Data

The fitness indices prove the validity of the measurement model developed for checking the relationship between financial literacy and financial decision-making. All the good fit indices like CFI, GFI, AGFI, NFI, RFI and TLI have a value of greater than 0.80, which validates the acceptance of the model. Furthermore, CMN/df, RMR and RMSEA also exhibit the values recommended for the good fit of the model. Since all the values are within the limit, the model concerned with the relationship of the proposed variables is said to be fit for the data.

**Table 5.12**

*Hypothesis testing result of the relationship between Financial Literacy and Financial Decision Making*

<b>Hypothesis</b>	<b>Path</b>	<b>Path Co-efficient</b>	<b>p (Sig.) Value</b>	<b>Result</b>
<i>H1<sub>6</sub></i>	Financial Literacy → Financial Decision Making	0.741 **	<0.01	Supported

Source: Primary Data

\*\* Significant at 1% level of significance

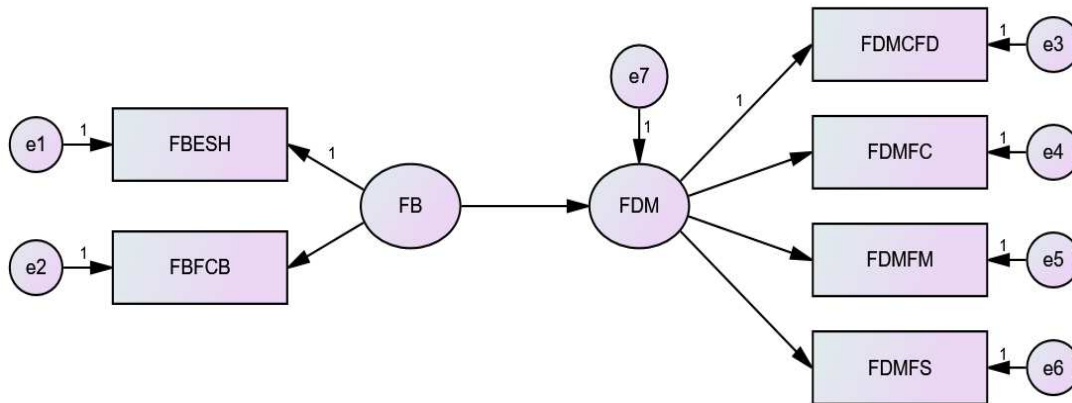
The effect of financial literacy on financial decision making is exhibited here with the path estimate of 0.741, which establishes the positive direct effect of the concerned variables. Here, 74% of changes in the financial decision-making of small entrepreneurs can be predicted with the changes in knowledge of the financial system, financial planning, financial products, financial statements, and also updating of financial knowledge.

### **5.7.3 The role of Financial Behaviour on Financial Decision Making**

In general, financial behaviour plays a significant role in shaping financial decision-making, encompassing attitudes, habits and knowledge. Earning & spending habits and financial consultation behaviour are considered as the sub-dimensions of financial behaviour for checking the interrelationship with financial decision making. To explore the relationship between the variables, Structural Equation Modelling was applied. The modelling is presented in the order of proposed, measurement model, model fitness indices and hypothesis testing result. The following hypothesis is formulated and tested accordingly.

***H17: Financial Behaviour has a significant effect on Financial Decision Making*****Figure 5.13**

*Proposed model of relationship between financial behaviour and financial decision making*

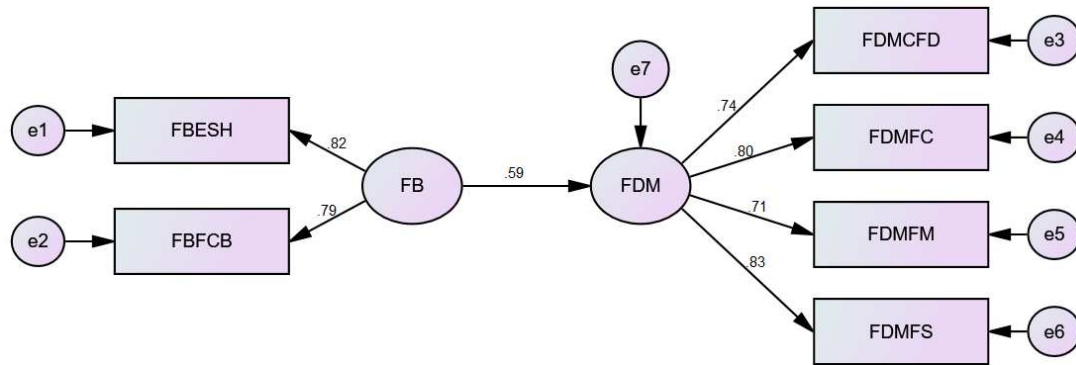


Source: Primary Data

The proposed model exhibits a connection between constructs and dimensions as well as independent and dependent variables. On the left side, financial behaviour is arranged as the observed variables of two. Similarly, on the right side, financial decision-making is organised as the observed variables of four. The direction line ranging from financial behaviour to financial decision making represents the coefficient of determination of the dependent variable. The measurement model, which depicts the value of estimation of the dependent variable with the help of the independent variable, is presented below.

**Figure 5.14**

*Measurement model of the relationship between financial behaviour and financial decision making*



Source: Primary Data

The measurement model reveals a causal relationship between financial behaviour and financial decision-making among small entrepreneurs in Kerala. All sub-dimensions of financial behaviour and decision making significantly contribute to the proposed variable, with factor loadings exceeding 0.70. The coefficient of determination (R-squared value of 0.59) indicates that approximately 59% of the variation in financial decision making can be explained by financial behaviour, suggesting that financial behaviour is a strong and significant predictor of financial decision making. The model fit indices are presented below.

**Table 5.13**

*Model Fit Indices of the Relationship between Financial Behaviour and Financial Decision Making*

Indices	Value Obtained	Recommended Values of Good Fit	Recommended Values of Acceptable Fit
Normed chi-square (CMIN/df)	2.910	≤3	≤5
Root Mean Square Residuals (RMR)	0.033	≤0.05	≤0.08
Comparative Fit Index (CFI)	0.912	≥0.90	≥0.80

Indices	Value Obtained	Recommended Values of Good Fit	Recommended Values of Acceptable Fit
Goodness of Fit Index (GFI)	0.911	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.908	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.907	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.902	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.913	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.911	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.066	$< 0.08$	$= 0.08$

Source: Primary Data

The measurement model's authenticity is verified using model fit indices, which demonstrated a good fit with values of exceeding 0.90 for CFI, GFI, AGFI, NFI, RFI and TLI. Additionally, CMIN/df (2.910), RMR (0.033) and RMSEA (0.066) confirmed the model's validity. These indices collectively indicate that the model is a good fit for establishing the relationship between the proposed variables. Hence, the measurement model's fitness is confirmed through the various indicators, which have a strong alignment with the relationship.

**Table 5.14**

*Hypothesis testing result of the relationship between Financial Behaviour and Financial Decision Making*

Hypothesis	Path	Path Co-efficient	p (Sig.) Value	Result
<i>H1<sub>7</sub></i>	Financial Behaviour → Financial Decision Making	0.595**	<0.01	Supported

Source: Primary Data

\*\* Significant at 1% level of significance

The hypothesis testing result reveals a significant relationship between financial behaviour and financial decision making, with a path coefficient of 0.595 that is significant at 1% level. The support for the proposed hypothesis (*H1<sub>7</sub>*) indicates that

changes in earning and spending habits, financial consultation behaviour, and other related factors will likely influence the financial decision-making of small entrepreneurs in Kerala.

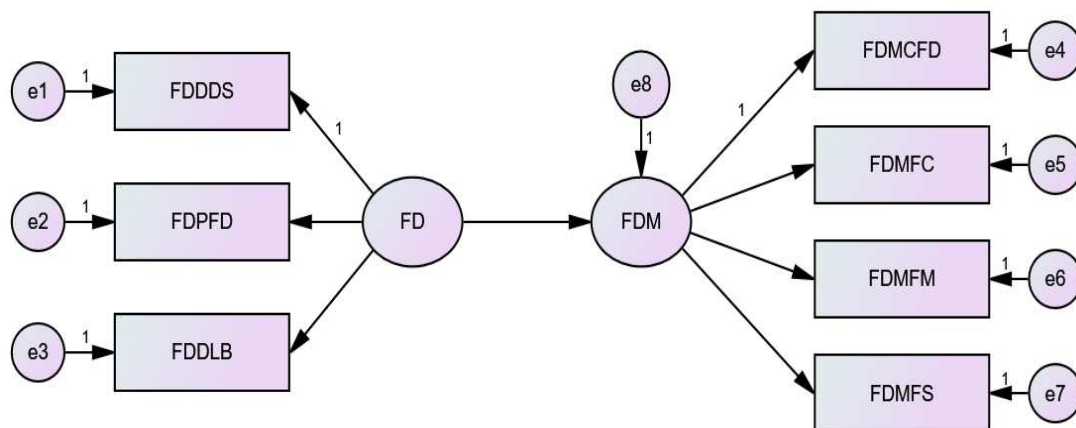
### 5.7.4 The role of Financial Discipline in Financial Decision Making

By practising financial discipline, individuals can make more informed, strategic and rational financial decisions that support their long-term goals and stability, ultimately leading to better financial outcomes. With this point of view, the role of financial discipline on financial decision-making is measured by applying Structural Equation Modelling. For this, the following hypothesis is formulated and tested. In order to test the relationship, proposed model, measurement model, model fitness indices and hypothesis testing results are conducted and presented.

***H1<sub>8</sub>: Financial Discipline has a significant effect on Financial decision-making***

**Figure 5.15**

*Proposed model of the relationship between financial discipline and financial decision making*



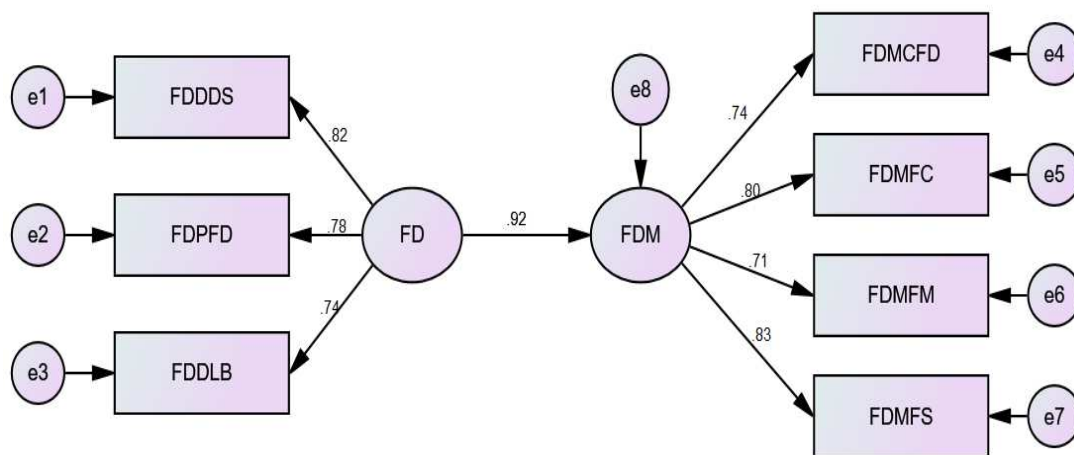
Source: Primary Data

Here, the proposed model verifies two different variables with their sub dimensions, on the left side, financial discipline is measured with three observed variables, namely, Discipline during spending, Personal financial discipline and Discipline regarding lending and borrowing. On the right side, financial decision making is analysed with

four observed variables, namely, Confidence of taking financial decisions, Financial consultation, Financial Monitoring and Financial Stability. The path from financial discipline to decision making explains the relationship between them. In this perspective, the measurement model is presented below.

**Figure 5.16**

*Proposed model of the relationship between financial discipline and financial decision making*



Source: Primary Data

The cause-and-effect relationship between financial discipline and financial decision making is exhibited with the regression coefficient of 0.92. Both the financial discipline and decision making are explained with the factor loadings of greater than 0.70 of each observed variable. Since the regression coefficient is positive, financial discipline is considered a significant positive predicting variable of financial decision-making. Hence, the major portion of changes in the decision-making can be predicted with proper financial discipline of small entrepreneurs.

**Table 5.15**

*Model Fit Indices of the Relationship between Financial Discipline and Financial Decision Making*

Indices	Value Obtained	Recommended Values of Good Fit	Recommended Values of Acceptable Fit
Normed chi-square (CMIN/df)	3.441	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.048	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.880	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.872	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.867	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.854	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.848	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.832	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.829	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.061	$< 0.08$	$= 0.08$

Source: Primary Data

The measurement model specifies the relationship between financial discipline and the financial decision-making of small entrepreneurs in Kerala. All the specified indicators are within the threshold limit of good fit or acceptable fit. Specifically, CFI, GFI, AGFI, NFI, RFI, IFI and TLI have the values of greater than 0.80, which establishes the acceptable criteria of goodness of fit of the model. Additionally, the value of CMIN/df, RMR and RMSEA also establishes the validity of the model with values of 3.441, 0.048 and 0.061, respectively. Since all the values are fulfilled by the criteria of good/acceptable fitness, the measurement model is considered good.

**Table 5.16**

*Hypothesis testing result of the relationship between Financial Discipline and Financial Decision Making*

<b>Hypothesis</b>	<b>Path</b>	<b>Path Co-efficient</b>	<b>p (Sig.) Value</b>	<b>Result</b>
<i>H1<sub>8</sub></i>	Financial Discipline → Financial Decision Making	0.921**	<0.01	Supported

Source: Primary Data

\*\* Significant at 1% level of significance

The relationship status between financial discipline and financial decision making presents a regression coefficient of 0.921. It means 92% of changes in financial decision-making can be predicted with the help of changes in financial discipline. Since the test statistic is significant at 1% level of significance, the proposed hypothesis is accepted, and financial discipline has a significant effect on financial decision-making. More precisely, the entrepreneurs have a good level of discipline regarding spending, personal finance and lending & borrowing; their financial decision-making will also be good to the same extent.

From the above relationship of the role of financial attitude, financial literacy, financial behaviour and financial discipline on financial decision making of Small Entrepreneurs in Kerala, financial discipline is considered as the most influential and financial behaviour is identified as the least influential factor of financial decision making with a coefficient of determination of 0.921 and 0.595, respectively.

### **5.8 Financial Locus of Control: The role of Financial Attitude, Literacy, Behaviour & Discipline**

Financial Locus of Control refers to an individual's perception of control over their financial situation, shaped by factors such as financial attitude, literacy, behaviour and discipline. A strong internal as well as external locus of control enables individuals to make informed decisions, take responsibility for their financial situations. In view of that, the role of financial attitude, behaviour and discipline is studied under the purview of Small Entrepreneurs in Kerala. To attain the respective objective,

Structural Equation Modelling is applied by considering different situations of financial locus of control. Hence, the following hypotheses are formulated and tested.

*H1<sub>9</sub>: Financial Attitude has a significant impact on Financial Locus of Control*

*H1<sub>10</sub>: Financial Literacy has a significant impact on Financial Locus of Control*

*H1<sub>11</sub>: Financial Behaviour has a significant impact on Financial Locus of Control*

*H1<sub>12</sub>: Financial Discipline has a significant impact on Financial Locus of Control*

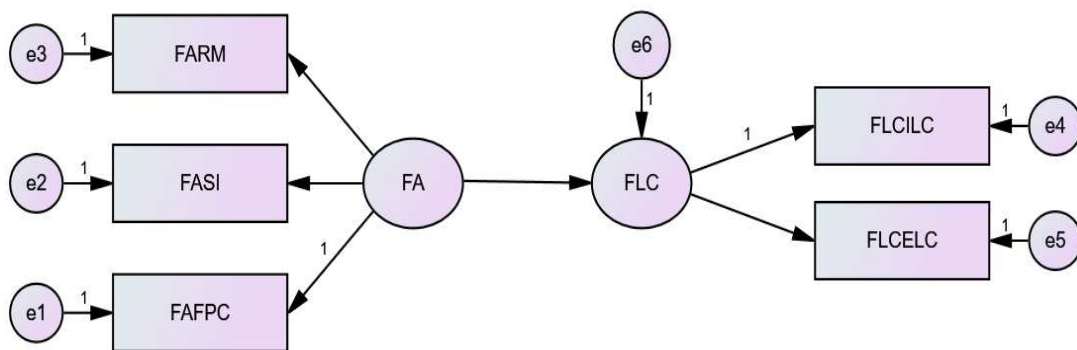
### 5.8.1 The role of Financial Attitude on Financial Locus of Control

A positive financial attitude reinforces the internal financial locus of control, empowering them to make informed financial decisions and take rational steps towards achieving their financial goals. In contrast, the effect on external locus of control is different in the view of circumstances and situations of financial attitude. At this point, it is pivotal to measure the impact of financial attitude on financial locus of control for both internal and external. To facilitate the result, Structural Equation Modelling is applied, and the following hypothesis is formulated for the same context of analysis.

*H1<sub>9</sub>: Financial Attitude has a significant impact on Financial Locus of Control*

**Figure 5.17**

*Proposed model of the relationship between financial attitude and financial locus of control*

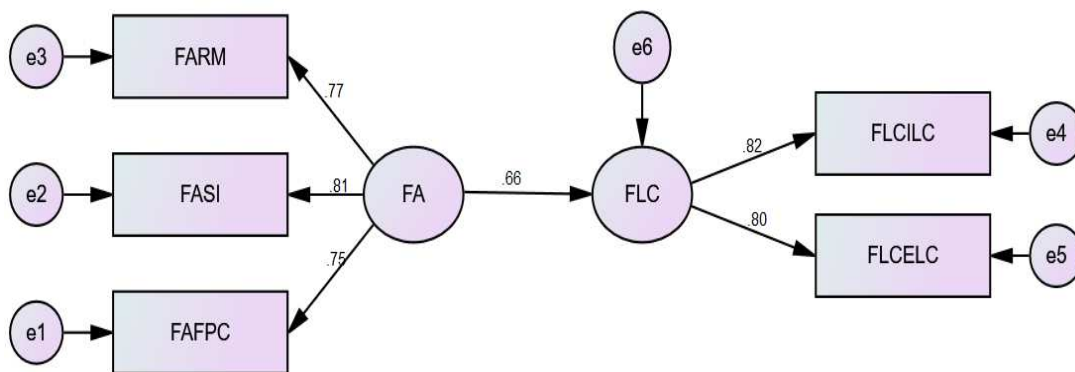


Source: Primary Data

The model is set up to connect financial attitude and financial locus of control. On the left side, financial attitude is presented as a result of three observed variables, namely, Attitude towards risk management, Attitude towards savings and investment and Attitude towards Financial planning and controlling. Similarly, on the right side, financial locus of control is exhibited as a result of two observed variables, namely, internal locus of control and external locus of control. The path connecting from independent to the dependent variable denotes the relationship status between them.

**Figure 5.18**

*Measurement model of the relationship between financial attitude and financial locus of control*



Source: Primary Data

The empirical relationship between financial attitude and financial locus of control exhibits a regression coefficient of 0.66, which explains that the former variable has a significant positive impact on later variable. More than that, all the sub-dimensions of both the variables significantly contributed to the development of the scale with factor loadings of greater than 0.70. Since the regression value is significant, the influence of financial attitude on financial locus of control is established.

**Table 5.17**

*Model Fit Indices of the Relationship between Financial Attitude and Financial Locus of Control*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	3.447	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.078	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.876	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.865	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.854	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.843	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.832	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.821	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.810	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.069	$< 0.08$	$= 0.08$

Source: Primary Data

In order to prove the consistency of the measurement model specified above, different model fitness indices are used. Here, the goodness of fit indicators of CFI, GFI, AGFI, IFI, TLI, NFI and RFI have the value of greater than 0.80, which implies the acceptability of the model. Furthermore, the CMIN/df (3.447), RMR (0.078) and RMSEA (0.069) have values within the threshold limit of acceptable fitness of the model. Since all the values are within the limit of acceptable fit, the measurement model is accepted to measure the empirical relationship between financial attitude and financial locus of control.

**Table 5.18**

*Hypothesis testing result of the relationship between Financial Attitude and Financial Locus of Control*

<b>Hypothesis</b>	<b>Path</b>	<b>Path Co-efficient</b>	<b>p (Sig.) Value</b>	<b>Result</b>
<i>H1<sub>9</sub></i>	Financial Attitude → Financial Locus of Control	0.661**	<0.01	Supported

Source: Primary Data

\*\* Significant at 1% level of significance

It is the hypothesis testing result of the relationship between Financial Attitude and Financial Locus of Control. Here, Financial Attitude has a significant positive influence on Financial Locus of Control with path estimates of 0.661. It means, whenever the Financial Attitude of the Small Entrepreneurs increases, there will be a 66% of positive increase in the Financial Locus of Control also. More specifically, the former variable is considered a significant positive predictor of the latter variable. Hence, the entrepreneurs can control their internal and external financial dealings with a good level of Attitude towards risk management, Attitude towards savings and investment and Attitude towards Financial planning and controlling.

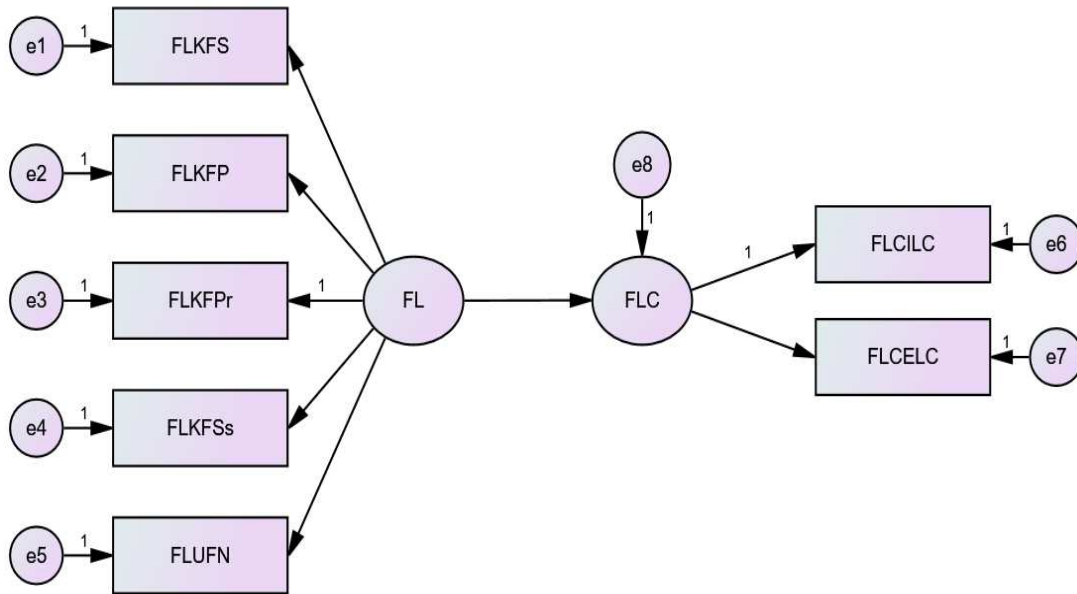
### **5.8.2 The role of Financial Literacy on Financial Locus of Control**

Financial literacy plays a significant role in shaping an individual's financial locus of control. When individuals possess high financial literacy, they are more likely to feel confident and in control of their financial decisions, leading to an internal locus of control. Further, financial literacy plays a crucial role in mitigating an external locus of control. When individuals possess strong financial knowledge and skills, they are more likely to feel empowered and confident in managing their finances. As a matter of concern, the relationship between financial literacy and locus of control is analysed with the help of Structural Equation Modelling. In order to do the same, the following hypothesis is formulated and tested with the proposed model, measurement model, fit indices and hypothesis testing results.

***H1<sub>10</sub>: Financial Literacy has a significant impact on Financial Locus of Control***

**Figure 5.19**

*Proposed model of relationship between financial literacy and financial locus of control*



Source: Primary Data

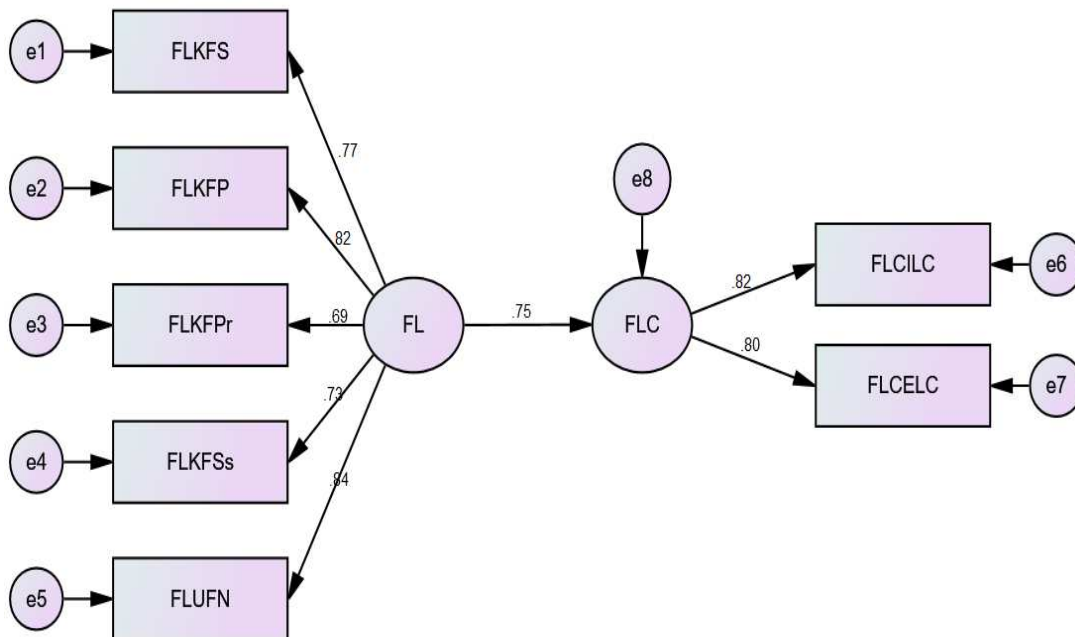
The model is represented as the proposed model for measuring the underlying relationship between Financial Literacy and Financial Locus of Control of Small Entrepreneurs of Kerala. On the left side the financial literacy is presented as the unobserved variable from five observed variables like Knowledge of financial system, Knowledge of financial planning, Knowledge of financial products, Knowledge of financial statements and Updating financial knowledge.

On the right side, the Financial Locus of Control is also depicted as an unobserved variable of two different observed variables, namely, Internal Locus of Control as well as External Locus of Control.

The path from the independent variable to the dependent variable shows the directional link between them. It is explained in the following measurement model.

**Figure 5.20**

*Measurement model of the relationship between financial literacy and financial locus of control*



Source: Primary Data

Here, the relationship between the variable and its sub-dimensions is explained with the directional linkage from unobserved variables to observed variables. It shows the values of greater than 0.60, and hence all the sub-dimensions are positively contributing to financial literacy and financial locus of control.

Furthermore, the underlying relationship between Financial Literacy and Financial Locus of Control shows that the regression coefficient of 0.75 implies a direct positive relationship between them. It means, 75% of positive changes in the internal as well as external financial locus of control can be explained by the changes in financial literacy. In order to prove the model, the following indicators are used and explained.

**Table 5.19**

*Model Fit Indices of the Relationship between Financial Literacy and Financial Locus of Control*

Indices	Value Obtained	Recommended Values of Good Fit	Recommended Values of Acceptable Fit
Normed chi-square (CMIN/df)	4.002	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.077	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.889	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.875	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.864	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.872	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.891	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.853	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.820	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.071	$< 0.08$	$= 0.08$

Source: Primary Data

The model fit indices for the relationship between Financial Attitude and Financial Locus of Control are designated as an acceptable fit. The value of CMIN/df (4.002) is within the recommended threshold limit of less than 5, indicating an acceptable level of fitness. Additionally, the RMR value of 0.077 is below the threshold limit of 0.08, it is also supports the model. The value of RMSEA also encourages the fitness of the model with a value of 0.071 (less than the recommended limit of good fit of 0.08). Overall, the goodness/ incremental fit indices like CFI, GFI, AGFI, IFI, NFI and RFI are greater than 0.80, which confirms that the measurement model adequately fits the data and validates the relationship between the variables.

**Table 5.20**

*Hypothesis testing result of the relationship between Financial Literacy and Financial Locus of Control*

Hypothesis	Path	Path Co-efficient	p (Sig.) Value	Result
<i>H1<sub>10</sub></i>	Financial Literacy → Financial Locus of Control	0.753**	<0.01	Supported

Source: Primary Data

\*\* Significant at 1% level of significance

The H1<sub>10</sub> is the hypothesis formulated for checking the influence of financial literacy on the financial locus of control of small entrepreneurs in Kerala. The path and path-coefficient also verify the same relationship. Since the value of 0.753 is significant at 1% level of significance, the proposed hypothesis is accepted. Precisely, financial literacy is considered a significant predictive variable of financial locus of control. It can be said that if the entrepreneurs have a good level of literacy regarding the financial system, financial planning, financial products, financial statements, and financial knowledge, their financial locus of control will also be good.

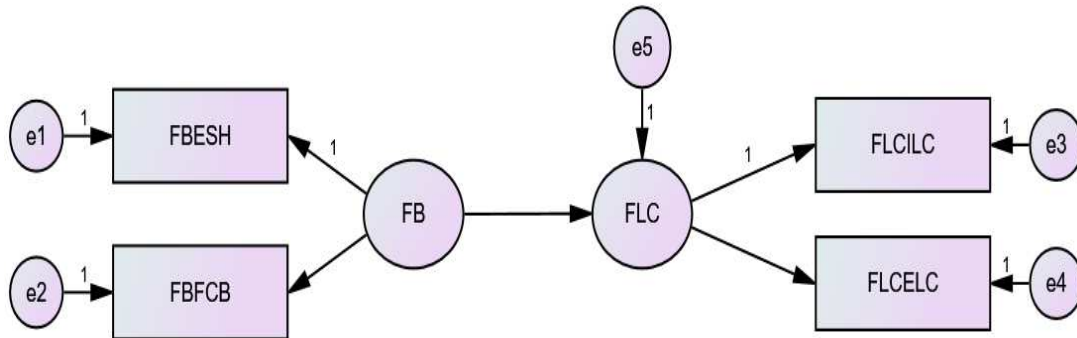
### **5.8.3 The role of Financial Behaviour on Financial Locus of Control**

Financial behaviour significantly influences the financial locus of control. Positive financial behaviour, such as budgeting, saving and investing, can enhance an individual's sense of control over their financial situation, fostering an internal locus of control. Conversely, poor financial behaviour, like overspending or lack of planning, can lead to feelings of financial stress and powerlessness, reinforcing an external locus of control (Perry & Morris, 2005). According to (Perry & Morris, 2005) individuals' financial behaviour is closely linked to their locus of control, with those exhibiting more responsible financial behaviour tending to have a stronger internal locus of control. To exhibit the connection, Structural Equation Modelling is applied by considering the following hypothesis.

***H1<sub>11</sub>: Financial Behaviour has a significant impact on Financial Locus of Control***

**Figure 5.21**

*Proposed model of the relationship between financial behaviour and financial locus of control*

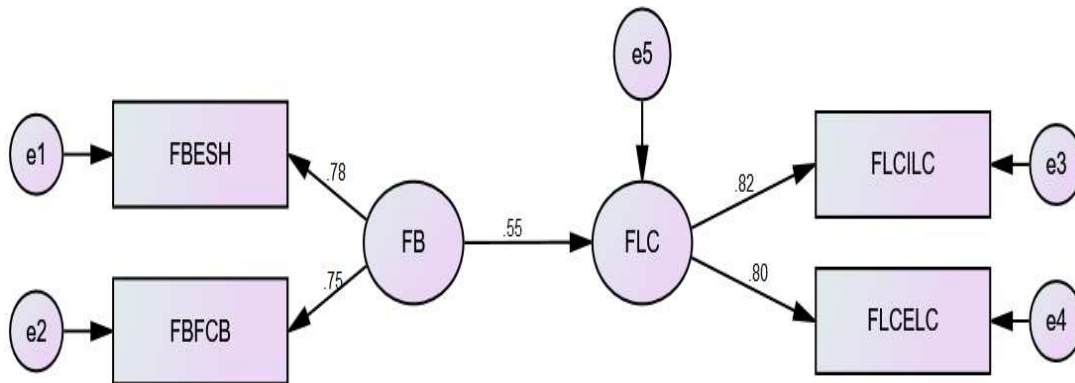


Source: Primary Data

The model represents the influence of financial behaviour on the financial locus of control of Small Entrepreneurs in Kerala. On the left side, financial behaviour is identified with the help of two observed variables, namely, earning & spending habits and financial consultation behaviour. On the right side, financial locus of control is recognised by using two observed variables, namely, internal and external locus of control. The path connecting financial behaviour to financial locus of control represents the connection link between them. The measurement model is presented below.

**Figure 5.22**

*Measurement model of the relationship between financial behaviour and financial locus of control*



Source: Primary Data

The measurement model identifies the contributory relationship between financial behaviour and financial locus of control. All the observed variables of either financial behaviour or financial locus of control are significantly contributing with factor loadings of greater than 0.70. The path estimate of 0.55 clarifies the direct positive influence of the financial behaviour of Small Entrepreneurs on their internal and external financial locus of control. Hence, it is considered an important forecaster variable of controlling of finance and funds. The following model fit indicators are used to verify the validity of the measurement model.

**Table 5.21**

*Model Fit Indices of relationship between Financial Behaviour and Financial Locus of Control*

Indices	Value Obtained	Recommended Values of Good Fit	Recommended Values of Acceptable Fit
Normed chi-square (CMIN/df)	1.880	≤3	≤5
Root Mean Square Residuals (RMR)	0.033	≤0.05	≤0.08

Indices	Value Obtained	Recommended Values of Good Fit	Recommended Values of Acceptable Fit
Comparative Fit Index (CFI)	0.980	≥0.90	≥0.80
Goodness of Fit Index (GFI)	0.972	≥0.90	≥0.80
Adjusted Goodness of Fit Index (AGFI)	0.964	≥0.90	≥0.80
Incremental Fit Index (IFI)	0.945	≥0.90	≥0.80
Tucker Fit Index (TLI)	0.922	≥0.90	≥0.80
Normed Fit Index (NFI)	0.910	≥0.90	≥0.80
Relative Fit Index (RFI)	0.900	≥0.90	≥0.80
Root Mean Square Error of Approximation (RMSEA)	0.072	<0.08	=0.08

Source: Primary Data

The model fit indices verify the measurement model of the relationship between Financial Literacy and Financial Locus of Control. Here, the CMIN/df of 1.880 is within the threshold limit of less than 3 of good fit. The value of RMR (0.033) is also within the recommended limit of less than 0.05. All other indices like CFI, GFI, AGFI, RFI, NFI and TLI are within the limit of good fit of the model. Since all the values are within the range, the measurement model is said to be fit for measuring the relationship between financial literacy and financial locus of control.

**Table 5.22**

*Hypothesis testing result of the relationship between Financial Behaviour and Financial Locus of Control*

Hypothesis	Path	Path Co-efficient	p (Sig.) Value	Result
<i>H1<sub>11</sub></i>	Financial Behaviour → Financial Locus of Control	0.554**	<0.01	Supported

Source: Primary Data

\*\* Significant at 1% level of significance

The regression analysis discloses a significant positive relationship between financial behaviour and financial locus of control, with a regression coefficient of 0.554. This specifies that financial behaviour has a substantial influence on financial locus of control, making 55% of changes in the latter variable can be predicted with the former variable. The coefficient is statistically significant at 1% level of significance, supporting the proposed hypothesis and confirming a strong causal link between the two variables. Hence, entrepreneurs can have a good level of control over their funds if they good level of behaviour towards earning & spending habits and financial consultation behaviour

#### **5.8.4 The role of Financial Discipline on Financial Locus of Control**

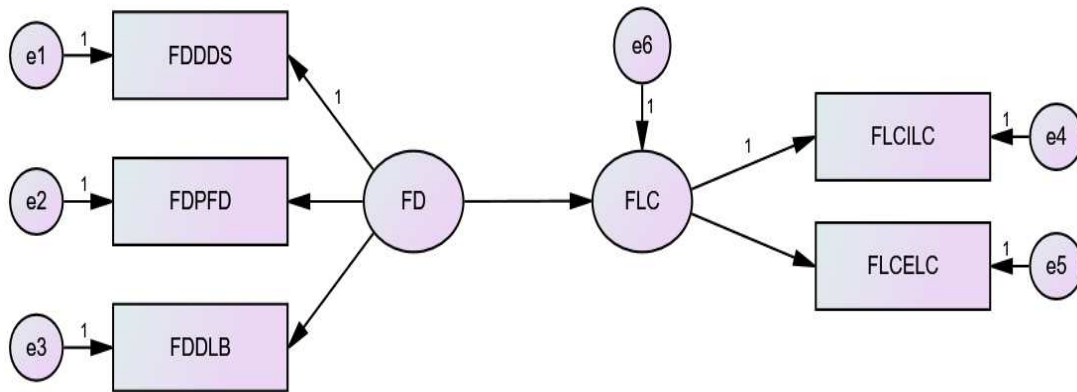
Financial discipline plays an important role in shaping the external and internal financial locus of control. By practising financial discipline, individuals can develop a stronger internal locus of control, feeling more confident and in control of their financial decisions and outcomes. According to (Xiao, 2008), financial discipline is positively related to internal locus of control, as it enables individuals to manage their finances effectively, achieve financial goals, and build financial resilience.

According to the theory, the present section analyses the interrelationship between financial discipline and financial locus of control by considering internal and external locus of control as the sub-dimensions. As regards Structural Equation Modelling is applied to find the exact result. The following hypothesis is formulated and tested accordingly.

***H1<sub>12</sub>: Financial Discipline has a significant impact on Financial Locus of Control***

**Figure 5.23**

*Proposed model of the relationship between financial discipline and financial locus of control of control*

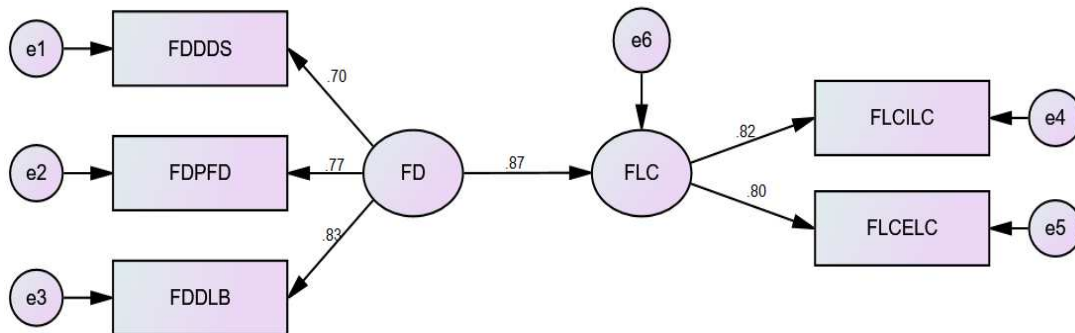


Source: Primary Data

Here, the proposed model confirms two different variables with their sub-dimensions, on the left side, financial discipline is measured with three observed variables, namely, Discipline during spending, Personal financial discipline and Discipline regarding lending & borrowing. On the right side, the financial locus of control is analysed with two observed variables, namely, internal and external locus of control. The path from financial discipline to locus of control elucidates the relationship status between them. In this perspective, the measurement model is presented below.

**Figure 5.24**

*Measurement model of the relationship between financial discipline and financial locus of control*



Source: Primary Data

The interconnection between financial discipline and financial locus of control is displayed with the regression coefficient of 0.87. Both the financial discipline and financial locus of control are explained with the factor loadings of greater than 0.70 of each observed variable. Since the regression coefficient is positive, financial discipline is considered a significant positive predicting variable of financial locus of control. Hence, the major portion of changes in the internal and external locus of control can be predicted with proper financial discipline among small entrepreneurs.

**Table 5.23**

*Model Fit Indices of the relationship between Financial Discipline and Financial Locus of Control*

Indices	Value Obtained	Recommended Values of Good Fit	Recommended Values of Acceptable Fit
Normed chi-square (CMIN/df)	2.001	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.044	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.989	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.978	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.967	$\geq 0.90$	$\geq 0.80$

Indices	Value Obtained	Recommended Values of Good Fit	Recommended Values of Acceptable Fit
Incremental Fit Index (IFI)	0.955	≥0.90	≥0.80
Tucker Fit Index (TLI)	0.954	≥0.90	≥0.80
Normed Fit Index (NFI)	0.937	≥0.90	≥0.80
Relative Fit Index (RFI)	0.922	≥0.90	≥0.80
Root Mean Square Error of Approximation (RMSEA)	0.059	<0.08	=0.08

Source: Primary Data

The measurement model specifies the relationship between financial discipline and the financial locus of control of small entrepreneurs in Kerala. All the specified indicators are within the threshold limit of a good level of fitness. Specifically, all incremental fit indices have values of greater than 0.90, which establishes the goodness criteria of the model. Additionally, the value of CMIN/df, RMR and RMSEA also establishes the validity of the model with values of 2.001, 0.044 and 0.059, respectively. Hence, the measurement model is said to be a good fit.

**Table 5.24**

*Hypothesis testing result of the relationship between Financial Discipline and Financial Locus of Control*

Hypothesis	Path	Path Co-efficient	p (Sig.) Value	Result
<i>H1<sub>12</sub></i>	Financial Discipline → Financial Locus of Control	0.870**	<0.01	Supported

Source: Primary Data

\*\* Significant at 1% level of significance

The H1<sub>12</sub> is the hypothesis formulated for checking the impact of financial discipline on the financial locus of control of Small Entrepreneurs in Kerala. The path and path-coefficient also describe the same relationship with a value of 0.870, which is significant at 1% level of significance, and hence the proposed hypothesis is accepted. Specifically, financial discipline is considered a significant predictive variable of

financial locus of control. It can be concluded that, if the entrepreneurs' financial discipline is good, their control of funds will also be good.

From the above relationship of the role of financial attitude, financial literacy, financial behaviour and financial discipline on financial locus of control of Small Entrepreneurs in Kerala, financial discipline is considered as the most influential and financial behaviour is identified as the least influential factor of financial locus of control with a coefficient of determination of 0.870 and 0.554, respectively.

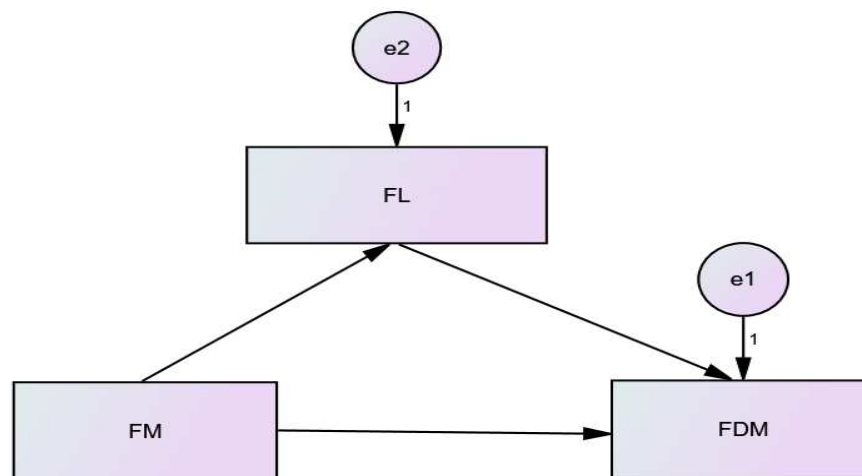
### 5.9 Mediating Role of Financial Literacy

In this section of analysis, the mediating role of financial literacy in the relationship between Financial Management and Financial Decision Making is examined by applying Structural Equation Modelling (SEM). Before exploring the mediating (indirect) relationship, there is a need to identify the direct relationship between financial management and financial decision-making. Thereafter, the mediating role is identified by considering financial literacy as the mediating variable of the relationship. Accordingly, the following hypothesis is formulated and tested.

***H1<sub>13</sub>: Financial Literacy has a mediating role in the relationship between Financial Management and Financial Decision Making***

**Figure 5.25**

*Proposed Model for the mediation effect of financial literacy*

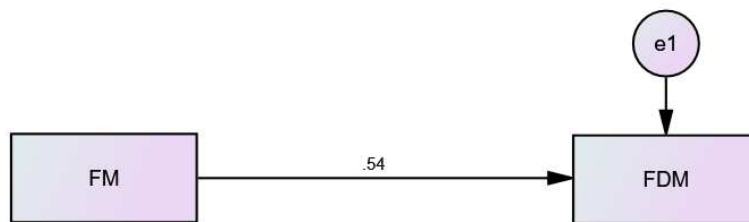


The imputed model is used for explaining the mediating role of financial literacy in the empirical relationship between financial management and financial decision

making of Small Entrepreneurs in Kerala. The relationship is measured by proposing a path diagram model. In this perspective, the data fitness of the overall model and the result is given below. Before measuring the mediation/indirect effect, the direct effect between financial management and financial decision-making is provided below.

**Figure 5.26**

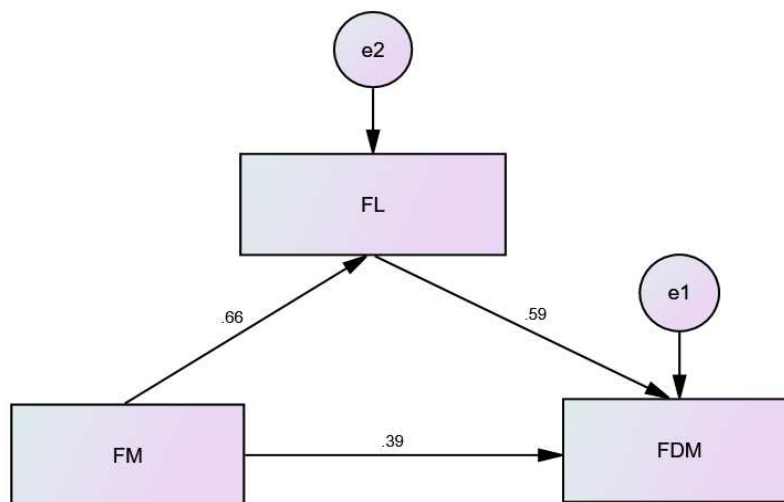
*Direct effect model of the relationship between financial management and financial decision making*



The model shows the direct relationship between financial management (independent variable) and financial decision-making (dependent variable). The beta coefficient is 0.54 and is significant ( $p < 0.01$ ). This shows a direct effect, which measures the extent to which the financial decision-making is changed when the financial management is increased by one unit. The mediation model is presented below.

**Figure 5.27**

*Indirect effect of financial literacy in the relationship between FM and FDM*



Source: Primary Data

The figure explains the direct and mediating relationship of financial management and financial literacy on the financial decision-making of small entrepreneurs. Here, financial literacy is an intermediate variable that explains how and why financial management influences financial decision-making. It is clear from the mediation analysis, there is a significant relationship between financial management (independent variable) and financial decision making (dependent variable) ( $\beta = 0.39$ ,  $p < 0.01$ ) and there is significant relationship between financial management and financial literacy (mediating variable) ( $\beta = 0.66$ ,  $p < .001$ ) and between financial literacy and financial decision making ( $\beta = 0.59$ ,  $p < 0.01$ ). When the mediator (financial literacy) is introduced in the model, the influence of the independent variable on the dependent variable is reduced. Here, the beta value is reduced from 0.54 to 0.39 when the mediator (financial literacy) is introduced. This is the case of partial mediation, which implies that there is not only a significant relationship between the mediator and the dependent variable, but also some direct relationship between the independent and dependent variables.

**Table 5.25**

*Model Fit Indices of the mediation model of financial literacy*

Indices	Value Obtained	Recommended Values of Good Fit	Recommended Values of Acceptable Fit
Normed chi-square (CMIN/df)	2.994	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.047	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.941	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.923	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.919	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.915	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.908	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.902	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.900	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.078	$< 0.08$	$= 0.08$

Source: Primary Data

The table presents model fit indices of the measurement model used for checking the mediating role of financial literacy in the cause-and-effect relationship between financial management and financial decision making. Here, all the values are coming under the range of good fit of the recommended values. Here, CMIN/df (2.994), RMR (0.047), CFI, GFI, IFI, TLI, NFI, and RFI are 0.90 and RMSEA (0.078) are within the limit of good fit of the recommended model fit indices. Hence, the model used to measure the mediating role of financial literacy in the cause-and-effect relationship between financial management and financial decision making of Small Entrepreneurs in Kerala is fit to the data.

The hypothesis testing result is presented below.

**Table 5.26**

*Mediation Testing of the Model (Total, Direct and Mediation Effect Paths) Using Bootstrapping Procedure*

Independent Variable	Mediating Variable	Dependent Variable	Total Effect (c' + axb)	Direct Effect (c' )	Indirect Effect (Mediation Effect) (axb)	VAF = Standardized Indirect Effect ÷ Standardized Total Effect	Sig. Value	Result of Mediation
Financial Management	Financial Literacy	Financial Decision Making	0.776	0.388	0.281	0.281 ÷ 0.776 = 0.361	0.000	Partial Mediation

Source: Primary Data (Output of AMOS)

The table above clearly shows that financial literacy partially mediates the link between financial management and financial decision making. The strength of this mediation is quantified by the Variance Accounted For (VAF) at 0.361. Since this value falls between 0.2 and 0.8, it indicates a 36.1% partial or moderate mediation by financial literacy. Partial mediation happens when the independent variable affects the dependent variable directly and via the mediating variable. Since the 'p' value is significant at the 1% level, the hypothesis (H113) is accepted, confirming that

financial literacy acts as a mediator between financial management and financial decision-making.

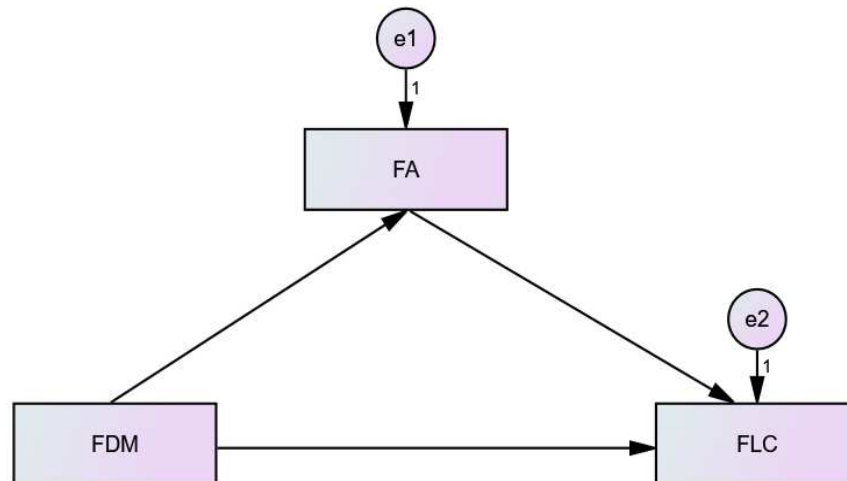
### 5.10 Mediating Role of Financial Attitude

In this section of analysis, the mediating role of financial attitude in the relationship between Financial Decision Making and Financial Locus of Control is identified by applying Structural Equation Modelling (SEM). Before discovering the mediating (indirect) relationship, there is a need to identify the direct relationship between financial decision-making and financial locus of control. Thereafter, the mediating role is identified by considering financial attitude as the mediating variable in the relationship. Accordingly, the following hypothesis is formulated and tested.

***H1<sub>14</sub>: Financial Attitude has a mediating role in the relationship between Financial Decision Making and Financial Locus of Control***

**Figure 5.28**

*Proposed Model for the mediation effect of financial attitude*

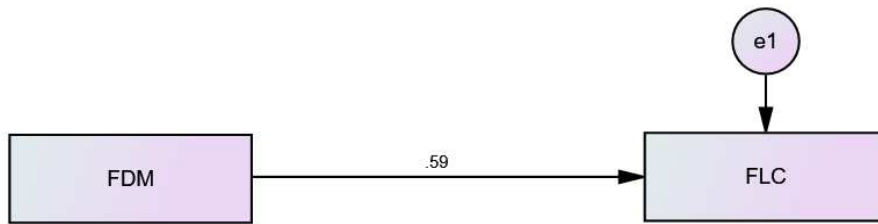


The imputed model is used for explaining the mediating role of the financial attitude in the empirical relationship between financial decision making and financial locus of control of Small Entrepreneurs in Kerala. The relationship is measured by proposing a path diagram model. In this perspective, the data fitness of the overall model and the result are provided below. Before measuring the mediation/indirect effect, the direct

effect between financial decision-making and financial locus of control is provided below.

**Figure 5.29**

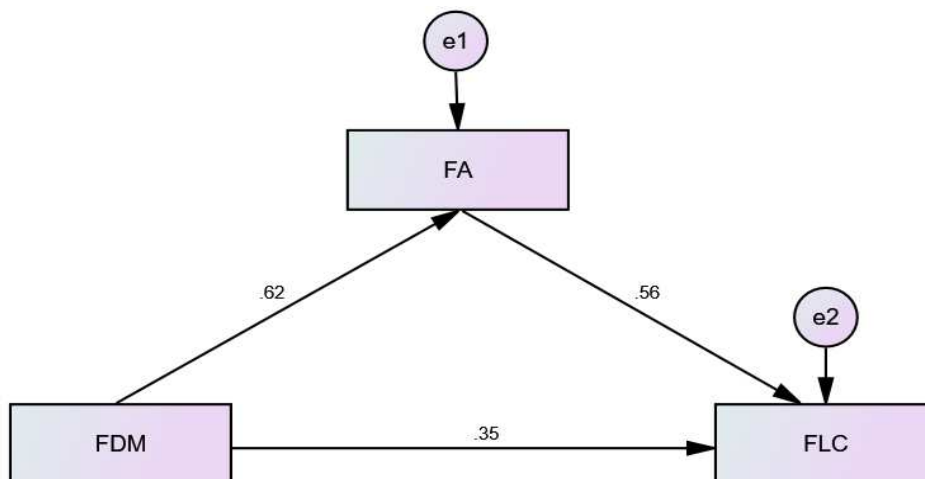
*Direct effect model of the relationship between financial decision-making and locus of control*



The model displays the direct relationship between financial decision-making (independent variable) and financial locus of control (dependent variable). The beta coefficient is 0.59 and is significant ( $p < 0.01$ ). This shows a direct effect, which measures the extent to which the financial locus of control is changed when the financial decision-making is increased by one unit. The mediation model is presented below.

**Figure 5.30**

*Indirect effect of financial attitude in the relationship between FDM and FLC*



Source: Primary Data

The figure explains the direct and mediating relationship of financial decision making and financial attitude on the financial locus of control of small entrepreneurs. Here, financial attitude is an intermediate variable that explains how and why financial decision-making influences the financial locus of control. It is clear from the mediation analysis, there is a significant relationship between financial decision making (independent variable) and financial locus of control (dependent variable) ( $\beta = 0.35, p < 0.01$ ) and there is significant relationship between financial decision making and financial attitude (mediating variable) ( $\beta = 0.62, p < .001$ ) and between financial attitude and financial locus of control ( $\beta = 0.56, p < 0.01$ ). Whenever the mediator (financial attitude) is introduced in the model, the influence of the independent variable on the dependent variable is reduced. Here, the beta value is reduced from 0.59 to 0.35 when the mediator (financial attitude) is introduced. This is the case of partial mediation, which implies that there is not only a significant relationship between the mediator and the dependent variable, but also some direct relationship between the independent and dependent variables.

**Table 5.27**

*Model Fit Indices of the mediation model of financial attitude*

Indices	Value Obtained	Recommended Values of Good Fit	Recommended Values of Acceptable Fit
Normed chi-square (CMIN/df)	2.881	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.038	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.972	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.966	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.954	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.949	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.935	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.929	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.910	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.061	$< 0.08$	$= 0.08$

Source: Primary Data

The table demonstrates model fit indices of the measurement model used for checking the mediating role of financial attitude in the cause-and-effect relationship between financial decision making and financial locus of control. Here, all the values are coming under the range of good fit of the recommended values. Here, CMIN/df (2.881), RMR (0.038), CFI, GFI, IFI, TLI, NFI, and RFI are 0.90 and RMSEA (0.061) are within the limit of good fit of the recommended model fit indices. Hence, the model used to measure the mediating role of financial attitude in the cause-and-effect relationship between financial decision making and financial locus of control of Small Entrepreneurs in Kerala is fit to the data.

The hypothesis testing result is presented below.

**Table 5.28**

*Mediation Testing of the Model (Total, Direct and Mediation Effect Paths) Using Bootstrapping Procedure*

Independent Variable	Mediating Variable	Dependent Variable	Total Effect (c' + axb)	Direct Effect (c' )	Indirect Effect (Mediation Effect) (axb)	VAF = Standardized Indirect Effect ÷ Standardized Total Effect	Sig. Value	Result of Mediation
Financial Decision Making	Financial Attitude	Financial Locus of Control	0.690	0.345	0.312	0.312 ÷ 0.690 = 0.452	0.000	Partial Mediation

Source: Primary Data (Output of AMOS)

The table above indicates that financial attitude partially mediates the relationship between financial decision-making and financial locus of control. The mediation strength, measured as Variance Accounted For (VAF), is 0.452. Since this value is between 0.2 and 0.8, it suggests a moderate or partial mediation, meaning 45.2% of the effect is mediated by financial attitude. Partial mediation occurs when the independent variable influences the dependent variable both directly and through the mediating variable. With a p-value significant at the 1% level, the hypothesis (H114)

is supported, confirming that financial attitude mediates the link between financial decision making and financial locus of control.

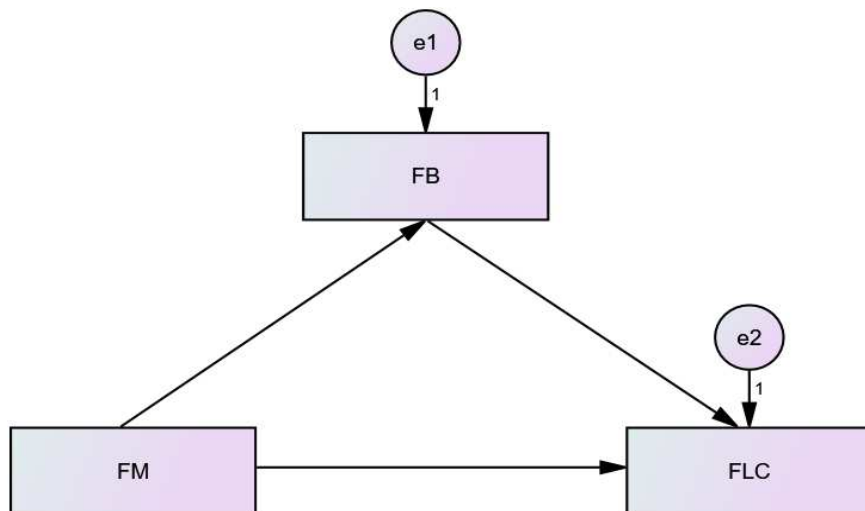
### 5.11 Mediating Role of Financial Behaviour

In this section of analysis, the mediating role of financial behaviour in the relationship between Financial Management and Financial Locus of Control is examined by applying Structural Equation Modelling (SEM). Before exhibiting the mediating (indirect) relationship, there is a need to recognise the direct relationship between financial management and financial locus of control. After that, the mediating role is identified by selecting financial behaviour as the mediating variable of the relationship. Accordingly, the following hypothesis is formulated and tested.

***H1<sub>15</sub>: Financial Behaviour has a mediating role in the relationship between Financial Management and Financial Locus of Control***

**Figure 5.31**

*Proposed Model for the mediation effect of financial behaviour*

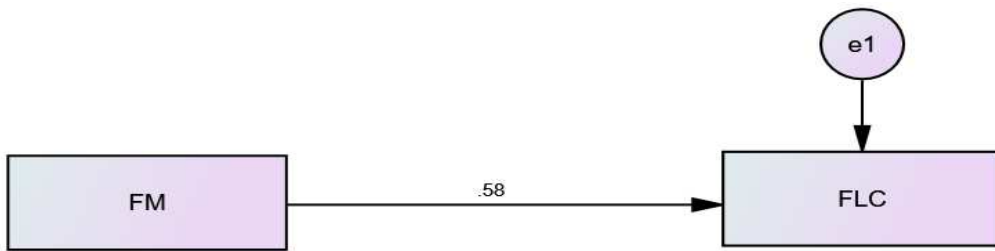


The imputed model is used for explaining the mediating role of the financial behaviour in the empirical relationship between financial management and financial locus of control of Small Entrepreneurs in Kerala. The relationship is measured by proposing a path diagram model. In this perspective, the data fitness of the overall model and the

result are given below. Before measuring the mediation/indirect effect, the direct effect between financial management and financial locus of control is provided below.

**Figure 5.32**

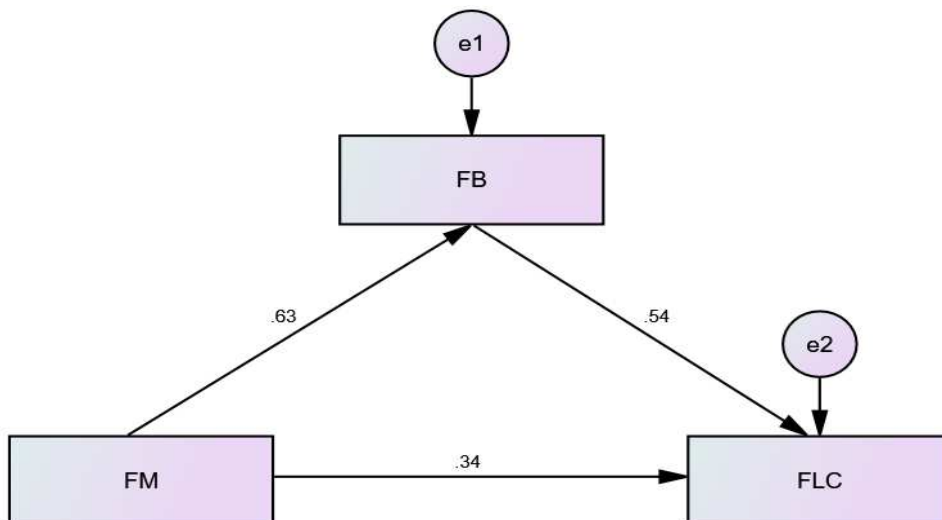
*Direct effect model of the relationship between financial management and financial decision making*



The model presents the direct relationship between financial management (independent variable) and financial locus of control (dependent variable). The beta coefficient is 0.58 and is significant ( $p < 0.01$ ). This shows a direct effect, which measures the extent to which the financial locus of control is changed when the financial management is increased by one unit. The mediation model is presented below.

**Figure 5.33**

*Indirect effect of financial literacy in the relationship between FM and FLC*



Source: Primary Data

The figure clarifies the direct and mediating relationship of financial management and financial behaviour on the financial locus of control of small entrepreneurs. Here, financial behaviour is an intermediate variable that explains how and why financial management influences the financial locus of control. It is clear from the mediation analysis, there is a significant relationship between financial management (independent variable) and financial locus of control (dependent variable) ( $\beta = 0.34$ ,  $p < 0.01$ ) and there is significant relationship between financial management and financial behaviour (mediating variable) ( $\beta = 0.63$ ,  $p < .001$ ) and between financial behaviour and financial locus of control ( $\beta = 0.54$ ,  $p < 0.01$ ). When the mediator (financial behaviour) is introduced in the model, the influence of the independent variable on the dependent variable is reduced. Here the beta value is reduced from 0.58 to 0.34 when the mediator (financial behaviour) is introduced. This is the case of partial mediation, which implies that there is not only a significant relationship between the mediator and the dependent variable, but also some direct relationship between the independent and dependent variables.

**Table 5.29**

*Model Fit Indices of the mediation model of financial behaviour*

Indices	Value Obtained	Recommended Values of Good Fit	Recommended Values of Acceptable Fit
Normed chi-square (CMIN/df)	1.790	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.025	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.951	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.949	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.937	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.931	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.922	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.917	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.908	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.055	$< 0.08$	$= 0.08$

Source: Primary Data

The table reveals model fit indices of the measurement model used for checking the mediating role of financial behaviour in the cause-and-effect relationship between financial management and financial locus of control. Here, all the values are coming under the range of good fit of the recommended values. Here, CMIN/df (1.790), RMR (0.025), CFI, GFI, IFI, TLI, NFI, RFI (0.90) and RMSEA (0.055) are within the limit of good fit of the recommended model fit indices. Hence, the model used to measure the mediating role of financial behaviour in the cause-and-effect relationship between financial management and financial locus of control of Small Entrepreneurs in Kerala is fit to the data.

The hypothesis testing result is presented below.

**Table 5.30**

*Mediation Testing of the Model (Total, Direct and Mediation Effect Paths) Using Bootstrapping Procedure*

Independent Variable	Mediating Variable	Dependent Variable	Total Effect (c' + axb)	Direct Effect (c' )	Indirect Effect (Mediation Effect) (axb)	VAF = Standardized Indirect Effect ÷ Standardized Total Effect	Sig. Value	Result of Mediation
Financial Management	Financial Behaviour	Financial Locus of Control	0.680	0.340	0.310	0.310 ÷ 0.680 = 0.455	0.000	Partial Mediation

Source: Primary Data (Output of AMOS)

The table above indicates that financial behaviour partially mediates the relationship between financial management and financial locus of control, with a Variance Accounted For (VAF) of 0.455. This value, falling within the 0.2 to 0.8 range, shows that 45.5% of the mediation is moderate or partial. Partial mediation occurs when the independent variable influences the dependent variable both directly and through the mediating variable. Since the 'p' value is significant at the 1% level, the hypothesis

(H115) is supported, confirming that financial behaviour plays a mediating role between financial management and financial locus of control.

### **5.12 Conclusion**

From the above relationship of the role of financial attitude, financial literacy, financial behaviour and financial discipline on financial management of Small Entrepreneurs in Kerala, financial discipline is considered as the most influential and financial attitude is identified as the least influential factor of financial management with a coefficient of determination of 0.830 and 0.591, respectively.

The inference on the relationship of the role of financial attitude, financial literacy, financial behaviour and financial discipline on financial decision making of Small Entrepreneurs in Kerala, financial discipline is considered as the most influential and financial behaviour is identified as the least influential factor of financial decision making with a coefficient of determination of 0.921 and 0.595, respectively.

From the study of the role of financial attitude, financial literacy, financial behaviour and financial discipline on financial locus of control of Small Entrepreneurs in Kerala, financial discipline is considered as the most influential and financial behaviour is identified as the least influencing factor of financial locus of control with a coefficient of determination of 0.870 and 0.554, respectively.

## **References**

- Hastings, J.S., Madrain, B.C., & Skimmy Horn, W.L. (2013). Financial literacy, financial education and economic outcomes. *Annual Review of Economics*, 5, 347-373.
- Perry, V., & Morris, M. (2005). Who's in Control? The role of Locus of Control in Financial Behaviour. *The Journal of Consumer Research*, 32(3), 446-453.
- Xiao, J. (2008). Applying behaviour change theories to financial behaviours. In *Handbook of Consumer Finance Research*. Springer.

## *Chapter 6*

# **ROLE OF DEMOGRAPHIC FACTORS IN SHAPING FINANCIAL INTELLIGENCE**

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## **6.1 Introduction**

This chapter demonstrates the role of demographic factors in shaping the financial intelligence of small entrepreneurs in Kerala. In order to do the same, age, gender, education, subject discipline, marital status, years of experience, location, starting mode, type of business, etc., are selected as the demographic factors. Financial Intelligence comprises Financial Attitude, Financial Literacy, Financial Behaviour, Financial Discipline, Financial Management, Financial Decision Making and Financial Locus of Control. Furthermore, the mediating role of Financial Intelligence in the relationship between investment and return of entrepreneurs is investigated. Hence, the proposed chapter is designed in three sections,

Section I deals with the assessment of financial intelligence,

Section II covers the role of demographic factors in shaping financial intelligence and

Section III explains the mediating role of financial intelligence in the relationship between investment and return of small entrepreneurs.

## **6.2 Objectives**

The following objectives are set forth for the analysis of the respective variables of the study.

- To identify the role of demographic factors in shaping the financial intelligence of Small Entrepreneurs in Kerala.

- To ascertain the mediating role of financial intelligence in the relationship between investment and return of entrepreneurs.

### **6.3 Hypotheses Formulated and Tested**

The following hypotheses are formulated and tested according to the objectives of the study.

#### **Hypotheses based on Objective No.6**

*H1<sub>16</sub>: There is no average level of Financial Attitude, Literacy, Behaviour, Discipline, Management, Decision Making and Locus of Control among Small Entrepreneurs.*

*H1<sub>17</sub>: There is a significant difference in the Financial Intelligence among entrepreneurs according to their demographic factors.*

#### **Hypotheses based on Objective No.7**

*H1<sub>18</sub>: Financial Intelligence has a mediating role in the relationship between Investment and Return of Small Entrepreneurs.*

### **6.4 Methodology**

To fulfil the objectives of the present chapter, primary data is collected from Small Entrepreneurs of Kerala by using a pretested structured questionnaire. A total of 855 sample entrepreneurs are selected. To assess the financial intelligence, descriptive statistics and a one-sample t-test are applied. Further, to check the role of demographic factors in shaping financial intelligence, Independent Sample t-test, Levene's test of Equality of Variance, One-way ANOVA, Welch test, Tukey HSD Post-hoc test, and Tamhane's post-hoc test for multiple comparisons are employed. Additionally, the mediating role of financial intelligence was investigated with the help of Structural Equation Modelling. The relationship model is verified by using the proposed model, the measurement model, model fit indices and hypothesis testing results.

### 6.5 Variables of the study

*Demographic Factors:* - Age, gender, education, subject discipline, marital status, years of experience, location, starting mode, type of business

*Financial Intelligence:* - Financial Attitude, Literacy, Behaviour, Discipline, Financial Management, Decision Making and Locus of Control

### 6.6 Demographic Profile of Small Entrepreneurs

The demographic profile of small entrepreneurs is identified with the help of frequency and percentage analysis. Hence, age, gender, education, subject discipline, marital status, years of experience, location, starting mode, and type of business are taken as the demographic factors of the entrepreneurs. The following table discloses the details.

**Table 6.1**

*General Details of Small Entrepreneurs*

	Frequency	Percent
<b>Age</b>		
Below 25	41	4.8
25-35	220	25.7
36-45	314	36.7
46-55	215	25.1
Above 55	65	7.6
<b>Gender</b>		
Male	557	65.1
Female	298	34.9
<b>Marital Status</b>		
Married	771	90.2
Unmarried	84	9.8
<b>Religion</b>		
Hindu	430	50.3
Muslim	213	24.9
Christian	212	24.8

	Frequency	Percent
<b>District</b>		
TVM	61	7.0
Kollam	61	7.0
Pathanamthitta	61	7.0
Alappuzha	61	7.0
Kottayam	61	7.0
Idukki	61	7.0
Ernakulam	62	7.0
Thrissur	61	7.0
Palakkad	61	7.0
Malappuram	61	7.0
Kozhikode	61	7.0
Wayanad	61	7.0
Kannur	61	7.0
Kasargod	61	7.0
<b>Location</b>		
Panchayat	225	26.3
Municipality	327	38.2
Corporation	303	35.4
<b>Years of Experience</b>		
Less than 5	161	18.8
5-7	109	12.7
8-10	192	22.5
More than 10	393	46.0
<b>Education</b>		
Plus two	77	9.0
Degree	454	53.1
PG and above	324	37.9
<b>Discipline</b>		
Commerce	384	44.9
Science and Technology	344	40.2
Humanities and Social Science	127	14.9

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	<b>Frequency</b>	<b>Percent</b>
<b>Starting Mode</b>		
Family business	223	26.1
Started by me	632	73.9
<b>Type Business</b>		
Service Sector	718	84.0
Manufacturing	137	16.0

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Source: Primary Data

The demographic profile table summarises the characteristics of a specific sample of small entrepreneurs, such as age, gender, education, subject discipline, marital status, years of experience, location, starting mode, and type of business. From the table, 36.7% of entrepreneurs fall in the age group of 36 – 45, and 25.7% of entrepreneurs belong to the 25-35 age group. The remaining 25.1% are from the age group of 46-55 years.

As regards of gender, the majority of the (65.1%) entrepreneurs are male, and the remaining 34.9% are female. Further, most of the entrepreneurs are married (90.2%), and only 9.8% are unmarried. In the case of religion, 50.3% are categorised as Hindu, 24.9% as Muslim, and 24.8% as Christian.

The sample entrepreneurs are selected equally from all the districts of Kerala (7%). Among them, 38.2% of entrepreneurs are from the Municipality, 35.4% are from the Corporation, and 26.3% are from the Pachayat. Regarding years of experience, 46.0% of respondents have more than 10 years of experience, 22.5% have 8-10 years, 18.8% have less than 5 years, and 12.7% have 5-7 years of experience.

In the case of education, most entrepreneurs are graduates (53.1%), while the remaining 37.9% hold a PG or higher qualification. Only 9% of entrepreneurs have a secondary level of qualification. Among them, 44.9% of entrepreneurs belong to a Commerce background, 40.2% are from a Science and Technology background, and the remaining 14.9% of respondents are from a Humanities and Social Science background. As regards starting mode, 73.9% of entrepreneurs started the business by themselves, and the remaining (26.1%) hold their family business. About the type of

business, 84% of respondents are running service sector and only 16.0% are running manufacturing units.

### 6.7 Section I: Assessment of Financial Intelligence

In this section of analysis, the financial intelligence of small entrepreneurs is assessed using the following key factors: Financial Attitude, Financial Literacy, Financial Behaviour, Financial Management, Financial Decision Making, Financial Discipline, and Financial Locus of Control. To do the same, descriptive statistics (Mean and Standard Deviation) are applied. Further, to understand the level of financial intelligence regarding all the sub-constructs, a One-sample t-test is employed. The respective results are given below.

**Table 6.2**

#### *Assessment of Financial Attitude*

	N	Mean	Std. Deviation
<b>Attitude towards Risk Management</b>			
I don't like to invest in risky ventures	855	2.823	1.207
It is worth taking risks to get a higher return	855	2.957	1.203
I always take insurance policies to reduce risks	855	2.928	1.166
<b>Attitude towards Savings and Investment</b>			
Saving is equally important as spending	855	3.001	1.302
Investment is an essential tool for wealth creation	855	3.018	1.434
Whenever there is a financial requirement, entrepreneurs should approach Financial institutions (banks, NBFCs)	855	3.012	1.263
<b>Attitude towards Financial Planning and Controlling</b>			
An entrepreneur should have proper financial planning in their life	855	2.873	1.535
An entrepreneur should have proper financial control in their life	855	2.839	1.393
I am optimistic about my financial future	855	2.805	1.134

Source: Primary Data

Regarding the financial attitude among entrepreneurs, the descriptive statistics show the mean values of around 3.0 for all the factors considered. It means that entrepreneurs have an average level of financial attitude towards risk management, savings & investment and financial planning & controlling.

**Table 6.3**

*Assessment of Financial Literacy*

	N	Mean	Std. Deviation
<b>Knowledge of the Financial System</b>			
Inflation will adversely affect my business, investment and return	855	3.035	1.187
Interest in saving accounts and fixed deposits is equal	855	3.334	1.207
If you act as a guarantor for a loan, you are accountable for repaying it if your friend fails to do so.	855	3.092	1.201
Dollar value appreciation against the Indian Rupee is a risk for Indian businessmen who export goods to foreign countries	855	3.252	1.217
Input credit applies to income tax	855	2.969	1.137
<b>Knowledge of Financial Planning</b>			
A budget deficit occurs when actual expenses are lower than the planned expenses.	855	2.653	1.306
Budgets are prepared to know the existing assets, liabilities, income and expenditure.	855	2.643	1.226
I am confident in submitting all my GST documents without the help of an expert	855	2.767	1.211
<b>Knowledge of Financial Statements</b>			
Net worth means the difference between assets and liabilities	855	3.166	1.199
The assets of a firm should be equal to the liabilities	855	2.981	1.190
Liquidity is the ability to convert financial resources into cash quickly and easily.	855	3.152	1.210
The liquidity ratio is the long-term financial position of a company	855	2.913	1.169

	N	Mean	Std. Deviation
If somebody invites me to invest in their business, I will ask for their balance sheet and profit and loss account and will analyze their financial strengths and weaknesses before investing	855	3.169	1.338
<b>Knowledge of Financial Products</b>			
Demat account is used for depositing shares	855	3.083	1.301
Mutual funds are a pooling of funds from investors and invest in stocks and other investment avenues	855	3.086	1.269
I believe that SIP is a better method to create wealth.	855	3.053	1.185
Insurance is an investment, not a risk transfer method	855	2.954	1.145
I read the newspaper every day and update my business and financial knowledge	855	3.177	1.255
<b>Updating Financial Knowledge</b>			
I keep a track record of stock market indexes and stock prices	855	3.015	1.202
I am aware that my country is going through an economic boom or depression once I get updated on the newspaper, TV, or social media	855	3.084	1.265
I keep watching the union and state budgets to check for any opportunities or problems for my business	855	3.085	1.231
I used to critically analyze the development in the financial and economic fields to understand its effect on my business and the economy	855	3.092	1.174

Source: Primary Data

Concerning the financial literacy among entrepreneurs, the descriptive statistics show the mean values of around 3.0 for all the factors considered. Hence, entrepreneurs have an average level of knowledge of the financial system, financial planning, financial statements, financial products and updating financial knowledge.

**Table 6.4**

*Assessment of Financial Behaviour*

	N	Mean	Std. Deviation
<b>Earning and Spending Habits</b>			
I keep a written or electronic record of my monthly expenses	855	3.197	1.166
I prefer branded items	855	3.044	1.060
If I get a chance to choose between online and cash payment, I prefer online payment.	855	3.131	1.164
I always use a credit card for my day-to-day transactions	855	3.039	1.106
I have multiple sources of income	855	3.118	1.066
I like to change my household items frequently	855	3.106	1.042
<b>Financial Consultation Behaviour</b>			
I consult with a financial analyst for the betterment of my business	855	2.970	1.250
When there are financial problems, I seek advice from experts	855	3.004	1.071
I am always Concerned about my CIBIL Score	855	2.926	1.275

Source: Primary Data

Regarding the financial behaviour among entrepreneurs, the descriptive statistics show the mean values of around 3.0 for all the factors considered. Therefore, entrepreneurs exhibit an average level of financial behaviour in terms of earning and spending habits, as well as financial consultation behaviour.

**Table 6.5**

*Assessment of Financial Management*

	N	Mean	Std. Deviation
<b>Financial Planning</b>			
I plan all my organisational financial requirements in advance	855	3.100	1.212
I plan all my personal financial requirements in advance	855	3.079	1.176
I prepare a personal budget every year	855	2.952	1.088
I prepare an organisational budget every year	855	2.977	1.111

	N	Mean	Std. Deviation
I have a clear-cut idea about the time of my retirement. So I have started investing for that	855	3.255	1.155
I do tax planning to reduce the tax burden	855	3.211	1.148
<b>Managing Financial Stress</b>			
I have appointed a tax consultant for me and for my organization	855	3.312	1.123
I am ready to invest to get a passive income	855	3.539	1.125
<b>Financial Control</b>			
I use my organisational budgets to control the expenses.	855	3.099	1.040
I save some amount separately for meeting emergency expenses	855	3.063	1.092
Last year, my actual personal expenses were almost equal to my budgeted expenses	855	3.366	1.080
Last year, my actual organisational expenses were almost equal to the budgeted expenses	855	3.479	1.183
I used to reconcile my cash book and bank passbook	855	3.493	1.084
<b>Cash Management</b>			
I am good at managing cash	855	3.284	1.149
I borrow money to meet my personal expenses	855	2.801	1.134
I borrowed money for doing business	855	3.131	1.201
I am confident that whatever money I borrow, it can be returned without much difficulty	855	3.653	1.155
<b>Managing Insurance</b>			
I should purchase an adequate health insurance policy	855	3.824	1.162
I should purchase an insurance policy for my business	855	3.567	1.218
I should purchase adequate life insurance policies	855	3.562	1.161

Source: Primary Data

Regarding financial management among entrepreneurs, the descriptive statistics reveal mean values of approximately 3.0 for all factors examined. Consequently, entrepreneurs have an average level of management towards Financial Planning, Managing Financial Stress, Financial Control and Cash Management. But, there is a good level of management of insurance among entrepreneurs, with a mean score of above 3.5.

**Table 6.6**

*Assessment of Financial Decision Making*

	N	Mean	Std. Deviation
<b>Confidence of Taking Financial Decision</b>			
I can make all my financial decisions alone	855	3.350	1.112
It was my own decision to enter the business field	855	3.828	1.242
<b>Financial Consultation</b>			
I will consult experts for making financial decisions	855	3.480	1.197
The majority of my financial decisions in my personal life were successful	855	3.450	1.129
I will consult with my friends and relatives for making financial decisions	855	3.325	1.218
<b>Financial Monitoring</b>			
When I make a financial decision, I will thoroughly study the situation in advance	855	3.726	1.168
Whenever I make a financial decision, I will try to check the results by taking feedback	855	3.580	1.154
I am ready to correct my financial decision whenever there is a mistake	855	3.291	1.362
<b>Financial Stability</b>			
I don't feel stressed when there is a financial problem	855	2.864	1.212
I am very comfortable making financial decisions	855	3.003	1.238

Source: Primary Data

Regarding financial decision-making among entrepreneurs, the descriptive statistics reveal mean values of approximately 3.0 for all considered factors. Accordingly, entrepreneurs have an average level of confidence in making financial decisions, Seeking Financial consultation, and Achieving Financial Stability. However, there is a good level of financial monitoring, with a mean score above 3.5.

**Table 6.7***Assessment of Financial Discipline*

	N	Mean	Std. Deviation
<b>Discipline During Spending</b>			
I spend a lot of money when I am with my friends	855	2.945	1.214
I like people watching me spending a lot of money	855	3.231	1.335
I shall try to live within my budget	855	3.181	1.327
<b>Discipline Regarding Lending and Borrowing</b>			
If I borrow money, I will repay it on time	855	3.224	1.186
If there is a credit card for me, I don't like to have an overdue balance on it.	855	3.042	1.031
I don't have an overdue loan in my name	855	2.862	1.442
<b>Personal Financial Discipline</b>			
I always compare the income and expenditure ratios in my daily spending	855	2.849	1.375
I always calculate the income and expenditure ratio in my day-to-day business transactions.	855	2.894	1.472

Source: Primary Data

In connection with the financial discipline among entrepreneurs, the descriptive statistics show the mean values of around 3.0 for all the factors considered. As a result, entrepreneurs exhibit an average level of financial discipline in their spending, lending, borrowing, and Personal Financial Management.

**Table 6.8***Assessment of Financial Locus of Control*

	N	Mean	Std. Deviation
<b>Internal Locus of Control</b>			
I am responsible for the profit and loss of my business	855	3.148	1.375
If there is profit in my business, I believe it is due to the efforts of my team's work	855	3.128	1.329
If there is a financial problem in my organisation, I am confident that I can handle it effectively	855	3.098	1.212

	N	Mean	Std. Deviation
I am confident that none of my financial decisions will go wrong	855	3.036	1.191
<b>External Locus of Control</b>			
My success in business is a blessing of God	855	2.858	1.250
It is my luck that I am running a smooth business	855	3.037	1.109

Source: Primary Data

With regard to the financial locus of control among entrepreneurs, the descriptive statistics show the mean values of around 3.0 for all the factors considered. Accordingly, entrepreneurs have an average level of financial external as well as internal locus of control.

### Level of Financial Intelligence

In this section, the level of financial intelligence among entrepreneurs is identified by employing a One-Sample t-test for mean comparison. Since the financial intelligence is measured under seven dimensions in a five-point Likert Scale, the test value (average) is taken as three. Accordingly, the following hypothesis is formulated and tested.

*H0: There is an average level of financial intelligence among Small Entrepreneurs ( $\bar{X} = 3$ ).*

*H1: There is no average level of financial intelligence among Small Entrepreneurs ( $\bar{X} \neq 3$ ).*

**Table 6.9**

*Level of Financial Intelligence*

Dimensions	One-Sample Statistics			One-Sample Test (Test Value = 3)	
	N	Mean	Std. Deviation	T	Sig. (2-tailed)
FA	855	2.9980	.52855	.815	.459
FL	855	3.0076	.43707	.506	.613
FB	855	3.0367	.58068	1.850	.065

One-Sample Statistics				One-Sample Test (Test Value = 3)	
Dimensions	N	Mean	Std. Deviation	T	Sig. (2-tailed)
FM	855	4.1819	.63996	24.003	.000
FDM	855	3.4687	.67625	15.941	.000
FD	855	3.0404	.68895	1.715	.087
FLC	855	3.0554	.70923	1.049	.295
FI	855	3.4012	.32427	20.337	.000

Source: Primary Data

\*\*Significant at 1% level of significance

The result represents the result of One-Sample t-test applied for testing the Financial Intelligence of Small Entrepreneurs. Here, the test value is denoted as 3 for Financial Attitude ( $t=.815$ ,  $p=.459$ ), Financial Literacy ( $t=.506$ ,  $p=.613$ ), Financial Behaviour ( $t=1.850$ ,  $p=.065$ ), Financial Discipline ( $t=1.715$ ,  $p=.087$ ), and Financial Locus of Control ( $t=1.049$ ,  $p=.295$ ), which describes that Financial Intelligence among these constructs is average. Since the p-values are significant at 1% level of significance, the null hypothesis is rejected, and hence there is no average level of attitude, behaviour, discipline and locus of control among entrepreneurs.

Further, the test result clearly mentions that the mean scores of Financial Management ( $t=24.003$ ,  $p=.000$ ), Financial Decision Making ( $t=15.941$ ,  $p=.000$ ) and overall Financial Intelligence ( $t=20.337$ ,  $p=.000$ ) have mean values higher than the test value 3. So, the factors greatly influence the Financial Intelligence of Small Entrepreneurs. Therefore, the alternate hypothesis is statistically supported at 1% level of significance since the 'p' value is less than 0.01. Hence, there exists a good level of financial management, decision-making and intelligence among entrepreneurs.

## 6.8 Section II: Role of Demographic Factors in shaping Financial Intelligence

Here, the Financial Intelligence among entrepreneurs are compared according to their demographic factors such as age, gender, education, subject discipline, marital status, years of experience, location, starting mode, and type of business. To compare mean differences, the Independent Sample t-test and One-way ANOVA/Welch test are applied. Earlier to this, Levene's test of Equality of variance is used to prove the

homogeneity assumption of population variance. Additionally, post-hoc analysis (Tukey/ Tamhane’s T2 post-hoc test for multiple comparisons) is conducted for the significant result of mean differences. The results are presented in the following pages.

### **6.8.1 Role of Gender in shaping Financial Intelligence**

Gender differences in financial intelligence are well-documented, with research indicating that gender plays a significant role in shaping financial intelligence. Studies have found that women tend to prioritise financial security and stability, focusing on saving and budgeting, whereas men are more likely to engage in investment and wealth accumulation strategies (Atkinson & Messy, 2012). Additionally, women often exhibit lower financial literacy rates compared to men, which can impact their financial decision-making capabilities (Lusardi & Mitchell, 2011). Since all these studies are concentrating on gender differences in financial intelligence matters, this section of the present study is also making an effort to identify the same. Accordingly, an Independent Sample t-test is applied to check whether a significant difference exists or not. Before that, Levene’s test of Equality of Variance is conducted to establish the homogeneity assumption of population variance. The results are presented below as per the following hypothesis formulated.

*H0: There is no significant difference between male and female entrepreneurs regarding financial intelligence.*

*H1: There is a significant difference between male and female entrepreneurs regarding financial intelligence.*

**Table 6.10**

*Gender wise comparison of FI*

Dimen- sions	Gender	Mean	SD	Levene's Test for Equality of Variances		t-test result	
				F	Sig.	T	Sig.
FA	Male	2.909	.651	Equal variances assumed		<b>.544</b>	<b>.586</b>
	Female	2.934	.583	1.962	.162	.563	.574
FL	Male	3.025	.437	Equal variances assumed		<b>1.648</b>	<b>.100</b>
	Female	2.973	.435	.054	.816	1.649	.100

Dimen- sions	Gender	Mean	SD	Levene's Test for Equality of Variances		t-test result			
				F	Sig.	T	Sig.		
FB	Male	3.048	.561	Equal variances assumed		3.99*	.046	.776	.438
	Female	3.015	.615	Equal variances not assumed				<b>.755</b>	<b>.450</b>
FM	Male	4.226	.612	Equal variances assumed		4.544*	.033	2.820**	.005
	Female	4.597	.681	Equal variances not assumed				<b>2.731**</b>	<b>.007</b>
FDM	Male	3.506	.653	Equal variances assumed		4.257*	.039	2.264*	.024
	Female	3.297	.712	Equal variances not assumed				<b>2.206*</b>	<b>.028</b>
FD	Male	3.057	.676	Equal variances assumed		1.148	.284	.977	.329
	Female	3.008	.711	Equal variances not assumed				.962	.336
FLC	Male	2.989	.699	Equal variances assumed		.995	.319	<b>2.058</b>	<b>.050</b>
	Female	3.093	.723	Equal variances not assumed				2.037	.052
FI	Male	3.237	.310	Equal variances assumed		6.77**	.009	1.485	.138
	Female	3.203	.347	Equal variances not assumed				<b>1.437</b>	<b>.151</b>

Source: Primary Data

\*\*Significant at 1% level of significance

\*Significant at 5% level of significance

The result discusses the result of the Independent Sample t-test for checking the mean difference in the Financial Intelligence between male and female entrepreneurs. From the above table, it can be observed that there is no significant difference between males and females in terms of Financial Attitude, Literacy, Behaviour, Discipline, Locus of Control, and overall Financial Intelligence, as the 'p' value is greater than 0.05. Therefore, the null hypothesis is not rejected at 5% level of significance. Whereas, with respect to Financial Management and Decision Making, it is found that both males and females exhibit significant differences, as the 'p' value is less than 0.05 and the alternate hypothesis is accepted at the 5% level. Here, female entrepreneurs demonstrate a better level of financial management than males, whereas males exhibit a higher level of financial decision-making capacity than females. Hence, they may show differences only for these two dimensions of financial intelligence.

### 6.8.2 Role of Religion in Shaping Financial Intelligence

Religion plays a significant role in shaping an individual’s financial behaviour and decision-making as well as financial intelligence. Studies have shown that religiosity is positively correlated with financial discipline and responsible financial behaviour (Hill & Pargament, 2003). For instance, another research has found that religious values can influence an individual’s locus of control, with some individuals attributing their financial situation to a higher power, while others believe in taking personal responsibility for their financial decisions (Kasser & Ryan, 1993). Since the influence of religion is imparted in determining financial intelligence, the present analysis also focused on the same with the help of One-way ANOVA. The result is presented according to the following hypothesis.

*H0: There is no significant difference in the financial intelligence among entrepreneurs according to their religion.*

*H1: There is a significant difference in the financial intelligence among entrepreneurs according to their religion.*

**Table 6.11**

*Comparison of FI based on the Religion*

Dimensions	Descriptive Statistics of Religion-wise Comparison			Levene’s test of Equality of Variance		One-way ANOVA/ Welch test	
	Hindu	Muslim	Christian	Test statistics	Sig. value	Test Statistics	Sig. value
FA	2.952 (.630)	2.920 (.626)	2.845 (.624)	0.083	.921	2.054	.129
FL	3.036 (.435)	2.982 (.394)	2.974 (.476)	3.810*	.023	1.885	.153
FB	3.042 (.575)	3.047 (.585)	3.015 (.588)	0.109	.897	0.196	.822
FM	4.222 (.628)	4.105 (.630)	4.172 (.666)	0.568	.567	2.378	.093
FDM	3.367 (.663)	3.423 (.649)	3.311 (.726)	4.011*	.018	1.349	.260

Dimensions	Descriptive Statistics of Religion-wise Comparison			Levene's test of Equality of Variance		One-way ANOVA/Welch test	
	Hindu	Muslim	Christian	Test statistics	Sig. value	Test Statistics	Sig. value
FD	3.026 (.640)	3.022 (.807)	3.080 (.650)	9.655**	.000	0.563	.570
FLC	3.047 (.687)	2.995 (.727)	3.013 (.737)	1.574	.208	0.413	.662
FI	3.242 (.314)	3.214 (.331)	3.202 (.335)	1.591	.204	1.230	.293

Source: Primary Data

\*\*Significant at 1% level of significance

\*Significant at 5% level of significance

Parentheses represent standard deviation

From the above table, the Levene's test exhibits that the homogeneity assumption is proved in case of all dimensions except Financial Literacy and Financial Discipline since 'p' values are greater than 0.05 at 5% level of significance. Thus, One-way ANOVA is considered a suitable statistical test. In the case of the dimension Financial Literacy and Discipline, the homogeneity assumption is not proved as the p-value is less than 0.05. Therefore, the Welch test is employed for the comparison of means.

The result describes the result of One-way ANOVA/Welch test, which is employed to check the significant difference in the financial intelligence according to their religion. There is no significant mean difference in the financial intelligence of entrepreneurs according to their religious status, as 'p' values are greater than 0.05 for either One-way ANOVA or the Welch test. Hence, the null hypothesis is failed to rejected at 5% level of significance.

Accordingly, the financial attitude, literacy, behaviour, management, decision making, discipline, locus of control and overall financial intelligence are not differentiated according to the religious status of the entrepreneurs.

Hence, religious status is not considered as the influencing factor of financial intelligence, and the entrepreneurs who are from any religion have the same level of financial intelligence with a mean score of around 3 (average) for financial attitude, literacy, behaviour, decision making, discipline, locus of control and overall

intelligence. But their financial management is good, with a mean score of above 4.00 for all groups.

### **6.8.3 Role of Location in Shaping Financial Intelligence**

The role of location in shaping financial outcomes is significant, with previous research suggesting that individuals’ financial attitude, literacy and behaviours are influenced by the geographical context (Lusardi & Mitchell, *Financial Literacy and Planning: Implications for retirement wellbeing*, 2011). Other studies have shown that rural areas, such as those governed by panchayats, often face unique challenges, including limited access to financial services and lower financial rates (Klapper & Panos, 2011). In contrast, urban areas, such as municipalities and corporations, tend to have developed financial systems and a higher level of financial literacy (Beck & Brown, 2011). Hence, understanding the impact of location in shaping the financial intelligence of entrepreneurs is necessary. Accordingly, a humble attempt is made with the help of the One-way ANOVA/ Welch test. The results are presented below as per the following hypothesis formulated.

*H0: There is no significant difference in the financial intelligence among entrepreneurs according to their location of business.*

*H1: There is a significant difference in the financial intelligence among entrepreneurs according to their location of business.*

**Table 6.12**

*Comparison of FI based on the Location*

Dimensions	Descriptive Statistics of Location-wise Comparison			Levene’s Test of Equality of Variance		One-way ANOVA/ Welch test	
	Panchayat	Municipality	Corporation	Test statistics	Sig. value	Test Statistics	Sig. value
FA	2.892 (.660)	2.952 (.591)	2.900 (.643)	1.759	.173	0.789	.455
FL	2.969 (.431)	3.010 (.468)	3.033 (.403)	4.146*	.016	1.503	.223
FB	3.003 (.515)	3.059 (.579)	3.037 (.626)	5.860**	.003	0.731	.482

Dimensions	Descriptive Statistics of Location-wise Comparison			Levene's Test of Equality of Variance		One-way ANOVA/ Welch test	
	Panchayat	Municipality	Corporation	Test statistics	Sig. value	Test Statistics	Sig. value
FM	4.170 (.711)	4.195 (.616)	4.176 (.609)	2.914	.055	0.118	.888
FDM	3.390 (.632)	3.316 (.666)	3.409 (.715)	2.161	.116	1.656	.192
FD	3.039 (.747)	3.085 (.686)	2.992 (.643)	3.557*	.029	1.531	.217
FLC	3.025 (.750)	2.945 (.672)	3.112 (.708)	1.446	.236	1.388	.213
FI	3.212 (.330)	3.223 (.328)	3.237 (.315)	0.463	.629	0.376	.687

Source: Primary Data

\*\*Significant at 1% level of significance

\*Significant at 5% level of significance

Parentheses represent standard deviation

The result of the One-way ANOVA/ Welch test is used to check the significant difference in the financial intelligence among small entrepreneurs according to their locality of business. Before conducting the test, the homogeneity assumption of the population variance is measured with the help of Levene's test. As per the result, the One-way ANOVA/ Welch test is used according to the assumption of either homogeneity or heterogeneity of population variance.

In the case of financial attitude, management, decision making, locus of control and overall intelligence, Levene's test reveals that the population variance is homogeneous or equal with insignificant (p value is greater than 0.05) test statistics. Therefore, One-way ANOVA is applied for the mean comparison of these variables among entrepreneurs from different localities. The test statistics and significance values of the One-way ANOVA test reveal that the null hypothesis is not rejected at 5% level of significance. Thus, there exists no significant difference in the above-listed variables among entrepreneurs from different localities.

Regarding financial literacy, financial behaviour, and financial discipline, Levene's test reveals that the population variance is heterogeneous or unequal, with significant

(p-value is less than 0.05) test statistics. Therefore, the Welch test is applied for the mean comparison of these variables among entrepreneurs from different localities. The test statistics and significance values of Welch test reveal that the null hypothesis is not reject at 5% level of significance. Thus, there exists no significant difference in the financial literacy, behaviour and discipline among entrepreneurs from different localities. Hence, the locality of business is not considered as an influencing factor of the financial intelligence of entrepreneurs.

#### **6.8.4 Role of Type of Business in Shaping Financial Intelligence**

The type of business (service or manufacturing) plays an important role in shaping financial attitude, literacy, behaviour, management and decision making among entrepreneurs. Former researches suggest that entrepreneurs in manufacturing industries tend to have more complex financial management needs, requiring higher levels of financial literacy and financial planning (McGrath & MacMillan, 2000). In contrast, service-based businesses often require more flexible financial management systems, with a focus on managing cash flows and accounts receivable (Atrill, 2006). Studies have also shown that entrepreneurs in different industries exhibit different financial behaviors, such as risk-taking and investment decisions, which can impact their business performance (Busenitz & Barney, 1997). Additionally, the locus of control or the extent to which entrepreneurs believe they have control over their financial outcomes, can vary depending on the type of business, with manufacturing entrepreneurs potentially having more control over production costs and service-based entrepreneurs having more control over customer relationships (Rotter, 1966). Since these studies are taken as evidence, the proposed analysis is carried out to identify the role of the type of business in shaping financial intelligence among small entrepreneurs. The following hypothesis is formulated and tested with the help of an Independent sample t-test.

*H0: There is no significant difference in the financial intelligence among entrepreneurs according to their types of business.*

*H1: There is a significant difference in the financial intelligence among entrepreneurs according to their types of business.*

**Table 6.13***Comparison of FI based on Type of Business*

Dimen- sions	Business type	Mean	SD	Levene's Test for Equality of Variances		t-test result	
				F	Sig.	T	Sig.
FA	Service Sector	2.906	.638	2.441	.119	<b>1.205</b>	<b>.228</b>
	Manufacturing	2.977	.575				
FL	Service Sector	3.015	.429	1.147	.285	<b>1.234</b>	<b>.218</b>
	Manufacturing	2.965	.475				
FB	Service Sector	3.054	.587	1.229	.268	<b>1.989</b>	<b>.057</b>
	Manufacturing	2.946	.537				
FM	Service Sector	4.178	.648	0.701	.403	<b>0.330</b>	<b>.741</b>
	Manufacturing	4.198	.592				
FDM	Service Sector	3.369	.665	0.858	.355	<b>0.104</b>	<b>.917</b>
	Manufacturing	3.363	.734				
FD	Service Sector	3.054	.680	2.229	.136	<b>1.344</b>	<b>.179</b>
	Manufacturing	2.968	.728				
FLC	Service Sector	3.011	.697	3.487	.062	<b>1.366</b>	<b>.172</b>
	Manufacturing	3.101	.766				
FI	Service Sector	3.227	.325	1.135	.287	<b>0.331</b>	<b>.741</b>
	Manufacturing	3.217	.321				

Source: Primary Data

The result exhibits the test statistics and significance value of mean comparison between service sector and manufacturing units regarding the financial intelligence of entrepreneurs, according to the assumption of either equal variance or not. Since all the test statistics of Levene's test of quality of variance are insignificant at 5% level of significance, the t-test corresponding to equal variance assumed is considered for mean comparisons between samples. Subsequently, the test statistics and significance value corresponding to equal variance are selected, and it is checked whether entrepreneurs from service/ manufacturing industries are statistically different in their financial intelligence. According to the insignificant t-test statistics, the entrepreneurs of service/ manufacturing industries do not differ significantly regarding their financial attitude ( $t=1.205$ ,  $p=.228$ ), literacy ( $t=1.23$ ,  $p=.218$ ), behaviour ( $t=1.989$ ,  $p=.057$ ), management ( $t=0.104$ ,  $p=.917$ ), decision making ( $t=1.344$ ,  $p=.179$ ), discipline ( $t=1.344$ ,  $p=.172$ ), locus of control ( $t=1.366$ ,  $p=.172$ ), and overall financial intelligence ( $t=.331$ ,  $p=.741$ ). Hence, it can be understood that the type of business is not an influencing factor of financial intelligence among the sample entrepreneurs.

#### **6.8.5 Role of Age in Shaping Financial Intelligence**

Age plays a substantial role in determining financial attitude, literacy, behaviour, management, decision-making and locus of control among entrepreneurs. Former research suggests that older entrepreneurs tend to have more experience and financial knowledge, leading to better financial management and decision making (Lusardi & Mitchell, 2011). Another study explained that the younger entrepreneurs may be more open to taking risks and experimenting with new financial strategies (Kautonen & Palmroos, 2010). Studies have also shown that financial literacy tends to increase with age, as individuals accumulate more experience and knowledge (Atkinson & Messy, 2012). Additionally, older entrepreneurs may be more cautious in their financial decision-making, while younger entrepreneurs may be willing to take risks (Kahneman & Tversky, 1979). In this context, age is taken as a factor variable for measuring the influence of the financial intelligence of small entrepreneurs. Hence, the following hypothesis is formulated and tested by employing the One-way

ANOVA/ Welch test. The test is selected according to the homogeneity assumption of population variance, tested by applying Levene's test of Equality of Variance.

*H0: There is no significant difference in the financial intelligence among entrepreneurs according to their age groups.*

*H1: There is a significant difference in the financial intelligence among entrepreneurs according to their age groups.*

**Table 6.14**

*Comparison of FI based on Age*

Dimensions	Descriptive Statistics of Age-wise Comparison					Levene's test of Equality of Variance		One-way ANOVA/ Welch test	
	Below 25	25-35	36-45	46-55	Above 55	Test statistics	Sig. value	Test Statistics	Sig. value
FA	2.945 (.629)	3.022 (.626)	2.868 (.636)	2.879 (.607)	2.914 (.642)	0.548	.700	2.256	.061
FL	3.094 (.449)	2.998 (.432)	2.980 (.430)	3.049 (.463)	2.977 (.380)	1.042	.384	1.319	.261
FB	3.185 (.595)	3.597 (.583)	3.069 (.560)	2.927 (.579)	2.938 (.610)	0.403	.807	3.932**	.004
FM	4.306 (.530)	4.514 (.644)	4.138 (.607)	4.113 (.664)	4.093 (.697)	0.673	.610	4.083**	.003
FDM	3.429 (.682)	3.433 (.676)	3.330 (.688)	3.296 (.671)	3.532 (.593)	0.836	.503	2.220	.057
FD	3.155 (.640)	3.074 (.708)	3.071 (.629)	2.967 (.762)	2.945 (.662)	1.991	.094	1.488	.204
FLC	3.027 (.753)	3.076 (.732)	3.073 (.654)	2.927 (.761)	2.944 (.655)	3.088*	.015	1.805	.130
FI	3.306 (.277)	3.688 (.325)	3.218 (.315)	3.166 (.341)	3.192 (.286)	1.048	.381	4.787**	.001

Source: Primary Data

\*\*Significant at 1% level of significance

\*Significant at 5% level of significance

Parentheses represent standard deviation

The table explains the result of One-way ANOVA/ Welch test is employed to check the significant difference in the Financial Intelligence of small entrepreneurs according to their age groups. Before doing the test, the homogeneity assumption of the population variance is measured with the help of Levene's test of Equality of variance. As per the result, One-way ANOVA or Welch test is applied according to the assumption of either homogeneity or heterogeneity of population variance, respectively.

In the case of all dimensions of financial intelligence except financial locus of control, the test statistics of Levene's test are insignificant at 5% level of significance. Hence, equal variance is assumed, and the researcher conducts One-way ANOVA for mean comparison among variables. The One-way ANOVA result depicts that there exists no significant difference among different age group entrepreneurs regarding Financial Attitude ( $f = 2.256$ ,  $p = .061$ ), Financial Literacy ( $f = 1.319$ ,  $p = .261$ ), Financial Decision Making ( $f = 2.220$ ,  $p = .057$ ), Financial Discipline ( $f = 1.488$ ,  $p = .204$ ) and Financial Locus of Control ( $f = 1.805$ ,  $p = .130$ ) with insignificant test statistics. Hence, for these variables, the null hypothesis is not rejected at 5% level of significance.

On the other hand, regarding financial behaviour ( $f = 3.932^{**}$ ,  $p = .004$ ), financial management ( $f = 4.083^{**}$ ,  $p = .003$ ) and overall financial intelligence ( $f = 4.787^{**}$ ,  $p = .001$ ), there is a significant mean difference according to different age groups. All these cases, the 25-35 age group shows a mean difference from other groups; hence, they have a good level of financial behaviour, management and intelligence than others. Since the p-values are significant, the null hypothesis is rejected at 1% level of significance. Here, the age group is considered as one of the influencing factors of the financial intelligence of small entrepreneurs in Kerala.

In order to check the pair-wise comparison of education for the significant result of either the One-way ANOVA/ Welch test, post-hoc analysis is conducted. Accordingly, the Tukey HSD post hoc test is applied after the One-way ANOVA and Tamhane's T2 test is employed after the Welch test. The respective multiple comparisons are presented below.

**Table 6.15***Multiple Comparisons of age on Financial Intelligence – Tukey HSD post hoc test*

Multiple Comparisons				
Tukey HSD				
Dependent Variable	(I) Age	(J) Age	Mean Difference (I-J)	Sig.
FB	25-35	Below 25	-.18723*	.031
		36-45	.12819*	.021
		46-55	.16982*	.019
		Above 55	.15927*	.042
FM	25-35	Below 25	.15753*	.020
		36-45	.17563*	.015
		46-55	.20062**	.009
		Above 55	.20102*	.010
FI	25-35	Below 25	-.11826*	.007
		36-45	.16927*	.010
		46-55	.12211**	.001
		Above 55	.19600*	.014

\*\* . The mean difference is significant at the 0.01 level.

\* . The mean difference is significant at the 0.05 level.

Source: Primary Data

The pair-wise difference of age for the significant result of financial behaviour, financial management and financial intelligence is identified with the help of Tukey HSD post-hoc test for multiple comparisons. Here, 25-35 age group entrepreneurs are significantly different from other categories in respect of behaviour, management and overall intelligence. Hence, it can be concluded that 25-35 age group entrepreneurs have a good level of financial behaviour, management of funds and overall financial intelligence. The other age group entrepreneurs have low level of intelligence compared to them.

### 6.8.6 Role of Marital Status in Shaping Financial Intelligence

Marital status plays a crucial role in shaping financial attitude, literacy, behaviour, management, decision making, locus of control and overall financial intelligence of small entrepreneurs. Earlier research suggests that married entrepreneurs tend to have

more conservative financial attitudes and behaviours, prioritising stability and security for their families (Kotlikoff & Spivak, 1981). Married couples can also benefit from shared financial responsibilities and decision-making, potentially leading to better financial literacy and management (Zagorsky, 2003). On the other hand, single entrepreneurs may be more open to taking financial risks and have a more internal locus of control, relying on themselves for financial management (Lea & Webley, 2005). In this context, the role of marital status in shaping financial intelligence is investigated with the help of an Independent sample t-test. Hence, the following hypothesis is formulated and tested in this respect.

*H0: There is no significant difference between married and unmarried entrepreneurs regarding financial intelligence.*

*H1: There is a significant difference between married and unmarried entrepreneurs regarding financial intelligence.*

**Table 6.16**

*Comparison of FI based on Marital Status*

Dimen sions	Marital Status	Mean	SD	Levene's Test for Equality of Variances		t-test result	
				F	Sig.	t	Sig.
FA	Married	2.9092	.62443	0.124	.724	<b>1.239</b>	<b>.216</b>
	Unmarried	2.9987	.66365			Equal variances not assumed	1.180
FL	Married	3.0033	.44265	1.757	.185	<b>0.872</b>	<b>.383</b>
	Unmarried	3.0471	.38209			Equal variances not assumed	0.981
FB	Married	3.0282	.58521	0.526	.468	<b>1.303</b>	<b>.193</b>
	Unmarried	3.1151	.53428			Equal variances not assumed	1.401
FM	Married	4.1670	.64180	0.370	.543	<b>2.067*</b>	<b>.039</b>
	Unmarried	4.5187	.60959			Equal variances not assumed	2.154*

Dimen sions	Marital Status	Mean	SD	Levene's Test for Equality of Variances		t-test result	
				F	Sig.	t	Sig.
FDM	Married	3.3548	.68741	6.039*	.014	1.820	.069
	Unmarried	3.5960	.55079			2.173*	.032
FD	Married	3.0170	.68850	0.276	.599	3.025**	.003
	Unmarried	3.5753	.65904			3.133**	.002
FLC	Married	3.0186	.70296	0.176	.675	0.848	.396
	Unmarried	3.0878	.76609			0.792	.430
FI	Married	3.2140	.32843	6.345*	.012	3.163**	.002
	Unmarried	3.5312	.26206			3.788**	.000

Source: Primary Data

\*\*Significant at 1% level of significance

\*Significant at 5% level of significance

The result demonstrates the result of an Independent Sample t-test for checking the mean difference in the Financial Intelligence between married and unmarried entrepreneurs, according to the assumption of either equal variance assumed or not. Since all (except FDM and FI) the test statistics of Levene's test of quality of variance are insignificant at 5% level of significance, the t-test corresponding to equal variance assumed is considered for mean comparisons between samples. Subsequently, the test statistics and significance value corresponding to equal variance is selected and checked whether married and unmarried entrepreneurs are statistically different in their financial intelligence. In the case of FDM and FI, the test statistics of Levene's test of Equality of variance are significant at 5% level of significance. Therefore, the t-test is considered corresponding to equal variance, not assumed.

From the above table, it can be observed that both married and unmarried entrepreneurs do not possess any significant difference in the case of Financial Attitude, Literacy, Behaviour, and Locus of Control, as the 'p' value is greater than

0.05. Therefore, the null hypothesis is not rejected at 5% level of significance. Whereas, with respect to Financial Management, Financial Discipline, Decision Making and Overall Financial Intelligence, it is found that both married and unmarried individuals possess significant differences respectively, as the 'p' value is less than 0.05 and the alternate hypothesis is accepted at 5% level. Here, unmarried entrepreneurs have a better level of financial management, decision making and financial intelligence than married, whereas married entrepreneurs have a better level of financial discipline than unmarried. It can be found that marital status is a significant influencing factor of financial intelligence while considering financial management, decision making, discipline and overall intelligence as the sub-dimensions.

#### **6.8.7 Role of Experience in Shaping Financial Intelligence**

Entrepreneurial experience plays a crucial role in shaping financial attitude, literacy, behaviour, management, decision making, locus of control and intelligence among entrepreneurs. Experienced entrepreneurs tend to possess better financial literacy, enabling them to effectively manage finances and make informed decisions (Ucbasaran, Westhead, & Wright, 2008). The experienced entrepreneurs are also more likely to engage in formal financial planning, budgeting, and risk management, leading to improved financial management (Brinckmann, Grichnik, & Kapsa, 2010). Furthermore, experienced entrepreneurs tend to have a more internal locus of control, believing they have control over their financial outcomes, and make calculated decisions based on their experience and knowledge (Rotter, 1966). In this scenario, the role of experience is selected as the factor variable to measure the financial intelligence of the entrepreneurs. Accordingly, following hypothesis is formulated and tested by applying One-way ANOVA/Welch test according to the homogeneity assumption of population variance.

*H0: There is no significant difference in the financial intelligence among entrepreneurs according to their experience in business.*

*H1: There is a significant difference in the financial intelligence among entrepreneurs according to their experience in business.*

**Table 6.17***Comparison of FI based on Experience*

Dimensions	Descriptive Statistics of Experience-wise Comparison				Levene's test of Equality of Variance		One-way ANOVA/ Welch test	
	Less than 5	5-7	8-10	More than 10	Test statistics	Sig. value	Test Statistics	Sig. value
FA	2.990 (.662)	2.947 (.603)	2.969 (.615)	2.855 (.623)	0.263	.852	2.556	.054
FL	3.073 (.410)	2.959 (.424)	2.976 (.486)	3.008 (.423)	1.188	.313	1.977	.116
FB	3.139 (.572)	3.003 (.597)	3.119 (.582)	3.963 (.568)	0.610	.609	5.274**	.001
FM	4.244 (.595)	4.217 (.666)	4.231 (.643)	4.122 (.645)	1.952	.120	2.151	.092
FDM	3.444 (.600)	3.379 (.675)	3.291 (.763)	3.372 (.658)	3.907**	.009	1.487	.218
FD	3.132 (.652)	3.038 (.740)	2.985 (.749)	3.030 (.655)	4.077**	.007	1.425	.235
FLC	2.972 (.682)	3.037 (.673)	3.127 (.749)	2.994 (.706)	1.099	.349	1.882	.131
FI	3.285 (.297)	3.226 (.347)	3.243 (.343)	4.192 (.315)	1.811	.144	3.410*	.017

Source: Primary Data

\*\*Significant at 1% level of significance

\*Significant at 5% level of significance

Parentheses represent standard deviation

From the above table, the Levene's test exhibits that the homogeneity assumption is proved in case of financial attitude, literacy, behaviour, management, locus of control and overall financial intelligence since 'p' values of Levene's test are greater than 0.05 at 5% level of significance. Thus, One-way ANOVA is considered as the suitable statistical test.

But, in the case of Financial Decision Making and Financial Discipline, the homogeneity assumption is not proved as the 'p' values of Levene's test are significant

at 1% level of significance. Therefore, the Welch test is selected as a suitable statistical test.

The result of One-way ANOVA depicts that experienced and inexperienced entrepreneurs do not differ statistically in the case of financial attitude ( $f = 2.556$ ,  $p = .054$ ), literacy ( $f = 1.977$ ,  $p = .116$ ), management ( $f = 2.151$ ,  $p = .092$ ), and locus of control ( $f = 1.882$ ,  $p = .131$ ). Therefore, the null hypothesis is failed to reject at 5% level of significance as 'p' values are greater than 0.05. It means, experienced and inexperienced entrepreneurs have the same level of financial attitude, literacy, management and locus of control.

On the other hand, regarding Financial Behaviour ( $f = 5.274^{**}$ ,  $p = .001$ ) and Overall Financial Intelligence ( $f = 3.410^*$ ,  $p = .017$ ); there exists a significant difference between experienced and inexperienced entrepreneurs. Since the 'p' values are significant, null hypothesis is rejected, and both categories of entrepreneurs have different behaviour and intelligence level.

The result of Welch test exhibits that experienced and inexperienced entrepreneurs do not differ significantly in the case of financial decision making ( $f = 1.487$ ,  $p = .218$ ) and financial discipline ( $f = 1.425$ ,  $p = .235$ ). They have almost same level of decision making and discipline power.

In order to check the pair-wise comparison of education for the significant result of either One-way ANOVA/ Welch test, post-hoc analysis is conducted. Accordingly, Tukey HSD post hoc test is applied after One-way ANOVA and Tamhane's T2 test is employed after Welch test. The respective multiple comparisons are presented below.

**Table 6.18**

*Multiple Comparisons of years of experience on Financial Intelligence – Tukey HSD post hoc test for One-way ANOVA*

<b>Multiple Comparisons</b>					
<b>Tukey HSD</b>					
<b>Dependent Variable</b>	<b>(I) Year</b>	<b>(J) Year</b>	<b>Mean Difference (I-J)</b>	<b>Sig.</b>	
FB	Less than 5	5-7	.13593	.228	
		8-10	.02039	.987	
		More than 10	.17644**	.006	
	5-7	Less than 5	8-10	-.13593	.228
		8-10	More than 10	-.11554	.339
		More than 10	Less than 5	.14051**	.005
	8-10	Less than 5	5-7	-.02039	.987
		5-7	More than 10	.11554	.339
		More than 10	Less than 5	.15604*	.012
	More than 10	Less than 5	5-7	-.17644**	.006
		5-7	8-10	-.14051**	.005
		8-10	More than 10	-.15604*	.012
FI	Less than 5	5-7	.05904	.454	
		8-10	.04224	.612	
		More than 10	.09295**	.002	
	5-7	Less than 5	8-10	-.05904	.454
		8-10	More than 10	-.01680	.973
		More than 10	Less than 5	.11390**	.004
	8-10	Less than 5	5-7	-.04224	.612
		5-7	More than 10	.01680	.973
		More than 10	Less than 5	.15071**	.003
	More than 10	Less than 5	5-7	-.09295**	.002
		5-7	8-10	-.11390**	.004
		8-10	More than 10	-.15071**	.003

\*\* . The mean difference is significant at the 0.01 level.

\* . The mean difference is significant at the 0.05 level.

Source: Primary Data

The Tukey HSD post-hoc test for multiple comparisons shows financial behaviour and financial intelligence of experienced entrepreneurs (more than 10 years of business experience) are significantly different from other inexperienced entrepreneurs. Other groups of entrepreneurs have almost the same level of behaviour and intelligence level.

#### **6.8.8 Role of Education in Shaping Financial Intelligence**

Entrepreneurial education plays a substantial role in shaping financial attitude, literacy, behaviour, management, decision making, locus of control and overall intelligence of small entrepreneurs. Some of the research suggests that entrepreneurs with formal education or training in business or finance tend to have better financial literacy (Graham & Harris, 2015). Education can also influence financial attitude, with educated entrepreneurs being more likely to have a positive attitude towards financial planning and management (Bongomin, Ntayi, & Munene, 2016). Furthermore, education can impact financial behaviour, with educated entrepreneurs being more likely to engage in formal financial planning and budgeting (Brinckmann, Grichnik, & Kapsa, 2010). Additionally, education can influence locus of control, with educated entrepreneurs being more likely to have an internal locus of control, believing they have control over their financial outcomes (Rotter, 1966). In this matter, this section of analysis deals with the influence of education in shaping the financial intelligence of small entrepreneurs by applying the One-way ANOVA/Welch test. The following hypothesis is formulated and tested accordingly.

*H0: There is no significant difference in the financial intelligence among entrepreneurs according to their education.*

*H1: There is a significant difference in the financial intelligence among entrepreneurs according to their education.*

**Table 6.19***Comparison of FI based on Education*

Dimensions	Descriptive Statistics of Education-wise Comparison			Levene's test of Equality of Variance		One-way ANOVA/ Welch test	
	Plus two	Degree	PG and above	Test statistics	Sig. value	Test Statistics	Sig. value
FA	2.782 (.596)	2.861 (.624)	3.526 (.620)	0.260	.855	5.479**	.001
FL	2.913 (.430)	3.012 (.424)	3.029 (.448)	0.384	.765	2.265	.080
FB	2.896 (.522)	3.047 (.587)	3.570 (.579)	1.005	.390	4.340**	.005
FM	3.933 (.784)	4.162 (.610)	4.562 (.655)	5.531	.001	4.852**	.004
FDM	3.186 (.858)	3.372 (.674)	3.718 (.645)	5.920	.001	4.705**	.004
FD	2.919 (.698)	3.034 (.699)	3.074 (.676)	0.471	.702	0.968	.407
FLC	3.042 (.664)	3.008 (.702)	3.048 (.735)	1.153	.327	0.216	.885
FI	3.096 (.364)	3.214 (.316)	3.975 (.322)	2.144	.093	8.050**	.000

Source: Primary Data

\*\*Significant at 1% level of significance

\*Significant at 5% level of significance

Parentheses represent standard deviation

The table elucidates the result of One-way ANOVA/ Welch test is used to check the significant difference in the Financial Intelligence of small entrepreneurs according to their education. Before the test, the homogeneity assumption of the population variance is measured with the help of Levene's test. As per the result, it is decided to conduct One-way ANOVA/ Welch test according to the assumption of either homogeneity or heterogeneity of population variance.

Here, except for FM and FDM, the homogeneity assumption is proved with the insignificant test statistics of Levene's test. Hence, One-way is considered a suitable

test for mean comparison among the selected variables. On the contrary, the homogeneity assumption is not proved for FM and FDM, hence Welch test is used in place of One-way ANOVA.

The result of One-way ANOVA explains that there exists a significant difference in the financial attitude ( $f = 5.479^{**}$ ,  $p = .001$ ), behaviour ( $f = 4.340^{**}$ ,  $p = .005$ ) and intelligence ( $f = 8.050^{**}$ ,  $p = .000$ ) among entrepreneurs according to their education. Since the p-values are significant, the null hypothesis is rejected at 5% level of significance and education is considered an important factor for influencing financial attitude, behaviour and intelligence. On the other side, there exists no significant difference in the financial literacy ( $f = 2.265$ ,  $p = .080$ ), discipline ( $f = 0.968$ ,  $p = .407$ ) and locus of control ( $f = 0.216$ ,  $p = .885$ ) among entrepreneurs along with their education. Since the 'p' value is insignificant, the null hypothesis is not rejected at 5% level of significance, and education is not a factor in determining the literacy, discipline and locus of control of entrepreneurs.

The result of the Welch test shows that there exists a significant difference in the financial management ( $f = 4.852^{**}$ ,  $p = .004$ ) and financial decision making ( $f = 4.705^{**}$ ,  $p = .004$ ) of entrepreneurs of different educational backgrounds. Since the p-value is significant, the null hypothesis is rejected at 1% level of significance, and hence education influences the management and control of funds.

In order to check the pair-wise comparison of education for the significant result of either the One-way ANOVA/ Welch test, post-hoc analysis is conducted. Accordingly, Tukey HSD post hoc test is applied after One-way ANOVA and Tamhane's T2 test is employed after Welch test. The respective multiple comparisons are presented below.

**Table 6.20**

*Multiple Comparisons of education on Financial Intelligence – Tukey HSD post hoc test for One-way ANOVA*

Multiple Comparisons				
Tukey HSD				
Dependent Variable	(I) Education	(J) Education	Mean Difference (I-J)	Sig.
FA	Plus two	Degree	-.07902	.819
		PG and above	-.14409**	.012
	Degree	Plus two	.07902	.819
		PG and above	-.16507**	.002
	PG and above	Plus two	.14409**	.012
		Degree	.16507**	.002
FB	Plus two	Degree	-.15095	.273
		PG and above	-.17450**	.004
	Degree	Plus two	.15095	.273
		PG and above	-.12356**	.005
	PG and above	Plus two	.17450**	.004
		Degree	.12356**	.005
FI	Plus two	Degree	-.11791	.055
		PG and above	-.17953**	.001
	Degree	Plus two	.11791	.055
		PG and above	-.06162*	.041
	PG and above	Plus two	.17953**	.001
		Degree	.06162*	.041

\*\* . The mean difference is significant at the 0.01 level.

\* . The mean difference is significant at the 0.05 level.

Source: Primary Data

After examining the significant differences in financial intelligence among entrepreneurs, a pair-wise comparison is conducted to identify the most significant results in financial attitude, financial behaviour, and overall financial intelligence. In order to do the same, Tukey HSD post-hoc test for multiple comparisons is used after

the significant result of One-way ANOVA. From the table, it is clear that PG and above-educated entrepreneurs are significantly different from other categories of Plus Two and degree-qualified entrepreneurs.

**Table 6.21**

*Multiple Comparisons of education on Financial Intelligence – Tamhane’s T2 post hoc test for Welch test*

<b>Multiple Comparisons</b>				
<b>Tamhane</b>				
<b>Dependent Variable</b>	<b>(I) Education</b>	<b>(J) Education</b>	<b>Mean Difference (I-J)</b>	<b>Sig.</b>
FM	Plus two	Degree	-.22963	.236
		PG and above	-.32922*	.031
	Degree	Plus two	.22963	.236
		PG and above	-.29960*	.047
	PG and above	Plus two	.32922*	.031
		Degree	.29960*	.047
FDM	Plus two	Degree	-.18593	.576
		PG and above	-.23202*	.030
	Degree	Plus two	.18593	.576
		PG and above	-.24609*	.014
	PG and above	Plus two	.23202*	.030
		Degree	.24609*	.014

\*\*. The mean difference is significant at the 0.01 level.

\*. The mean difference is significant at the 0.05 level.

Source: Primary Data

After checking the education-wise significant difference in the financial intelligence of entrepreneurs, the pair-wise comparison is conducted for the significant result of financial management and financial decision making. In order to do the same, Tamhane’s T2 post-hoc test for multiple comparisons is used after the significant result of Welch test. From the table, it is clear that PG and above-educated entrepreneurs are significantly different from other categories of Plus Two and degree-qualified entrepreneurs.

### 6.8.9 Role of Discipline in Shaping Financial Intelligence

The discipline or field of study of entrepreneurs, such as commerce, science, or humanities, significantly influences their financial attitude, literacy, behaviour, management, decision-making and locus of control. Entrepreneurs with a commerce or business background tend to possess better financial literacy, enabling them to make more informed decisions and manage finances effectively (Graham & Harris, 2015). Those from science or technical backgrounds may be more analytical, while those from humanities backgrounds may be more intuitive in financial decision-making (Bongomin, Ntayi, & Munene, 2016). In this purview, the field of study is considered as the factor variable to measure the financial intelligence of the entrepreneurs. Hence, the proposed analysis section is conducted with the help of One-way ANOVA by testing the following hypothesis.

*H0: There is no significant difference in the financial intelligence among entrepreneurs according to their field of study (discipline).*

*H1: There is a significant difference in the financial intelligence among entrepreneurs according to their field of study (discipline).*

**Table 6.22**

*Comparison of FI based on discipline*

Dimensions	Descriptive Statistics of Discipline-wise Comparison			Levene's Test of Equality of Variance		One-way ANOVA/ Welch test	
	Commerce	Science and Technology	Humanities and Social Science	Test statistics	Sig. value	Test Statistics	Sig. value
FA	2.921 (.664)	2.931 (.593)	2.873 (.611)	1.587	.205	0.403	.668
FL	3.025 (.429)	2.977 (.439)	3.036 (.450)	0.682	.506	1.434	.239
FB	3.080 (.597)	3.005 (.565)	2.991 (.564)	0.704	.495	1.971	.140
FM	4.712 (.613)	4.104 (.643)	4.200 (.685)	1.051	.350	5.190**	.006

Dimensions	Descriptive Statistics of Discipline-wise Comparison			Levene's Test of Equality of Variance		One-way ANOVA/ Welch test	
	Commerce	Science and Technology	Humanities and Social Science	Test statistics	Sig. value	Test Statistics	Sig. value
FDM	4.421 (.644)	3.276 (.684)	3.459 (.722)	1.142	.320	5.576**	.004
FD	3.098 (.681)	2.989 (.667)	3.004 (.757)	2.883	.057	2.488	.084
FLC	3.031 (.707)	3.001 (.700)	3.070 (.739)	0.301	.740	0.465	.628
FI	3.855 (.291)	3.183 (.333)	3.248 (.380)	8.013**	.000	4.970**	.007

Source: Primary Data

\*\*Significant at 1% level of significance

\*Significant at 5% level of significance

Parentheses represent standard deviation

The analysis is to test the significant difference in the financial intelligence of small entrepreneurs from different disciplines of study. One-way ANOVA/ welch test is used according to the assumption of population variance. Since all the values of Levene's test of Equality of variance of Financial Attitude, Behaviour, Literacy, Management, Decision Making, Discipline and Locus of Control are insignificant at 5% level of significance, the homogeneity assumption is fulfilled and One-way ANOVA is considered as the suitable test for mean comparison. Here, attitude ( $f = 0.403$ ,  $p = .668$ ), literacy ( $f = 1.434$ ,  $p = .239$ ), behaviour ( $f = 1.971$ ,  $p = .140$ ), discipline ( $f = 2.488$ ,  $p = .084$ ) and locus of control ( $f = 0.465$ ,  $p = .628$ ) of the entrepreneurs are do not differ significantly according to their discipline of study.

On the other hand, the entrepreneurs from commerce background are significantly different from science and humanities background entrepreneurs regarding financial management ( $f = 5.190^{**}$ ,  $p = .006$ ) and financial decision making ( $f = 5.576^{**}$ ,  $p = .004$ ). It means the respondents have basic knowledge regarding the management and control of funds, and they can make good and rational financial decisions.

Further, the Welch test is applied for checking the significant difference in the overall financial intelligence ( $f = 4.970^{**}$ ,  $p = .007$ ) of the entrepreneurs. Here also, there

exists a significant difference among them regarding their field of study. The financial intelligence level is higher among entrepreneurs with a commerce background than that of others. In order to prove the pair-wise comparison, post-hoc analysis is conducted.

**Table 6.23**

*Multiple Comparisons of subject discipline on Financial Intelligence – Tukey HSD post hoc test for One-way ANOVA*

Multiple Comparisons				
Tukey HSD				
Dependent Variable	(I) Discipline	(J) Discipline	Mean Difference (I-J)	Sig.
FM	Commerce	Science and Technology	-.10796**	.009
		Humanities and Social Science	-.18817**	.007
	Science and Technology	Commerce	.10796**	.009
		Humanities and Social Science	-.10796	.059
	Humanities and Social Science	Commerce	.18817**	.007
		Science and Technology	-.10796	.059
FDM	Commerce	Science and Technology	.14527*	.010
		Humanities and Social Science	-.13744*	.020
	Science and Technology	Commerce	-.14527*	.010
		Humanities and Social Science	-.18271	.055
	Humanities and Social Science	Commerce	-.13744*	.020
		Science and Technology	.18271	.055

\*\* . The mean difference is significant at the 0.01 level.

\* . The mean difference is significant at the 0.05 level.

Source: Primary Data

Tukey HSD post hoc test is conducted to check the pair-wise comparison of disciplines for the significant result of One-way ANOVA regarding Financial Management and Financial Decision Making. Here, commerce background

entrepreneurs are significantly different from science and humanities background respondents. It means commerce respondents have a better level of financial management and decision-making power than others. The subject background helps them to identify proper strategies for the management and control of the finances of the business.

**Table 6.24**

*Multiple Comparisons of subject discipline on Financial Intelligence – Tamhane’s T2 post hoc test for Welch test*

<b>Multiple Comparisons</b>				
<b>Tamhane</b>				
<b>Dependent Variable</b>	<b>(I) Discipline</b>	<b>(J) Discipline</b>	<b>Mean Difference (I-J)</b>	<b>Sig.</b>
FI	Commerce	Science and Technology	.07219**	.006
		Humanities and Social Science	.11773**	.005
	Science and Technology	Commerce	-.07219**	.006
		Humanities and Social Science	-.06446	.255
	Humanities and Social Science	Commerce	-.11773**	.005
		Science and Technology	.06446	.255

\*\* . The mean difference is significant at the 0.01 level.

\* . The mean difference is significant at the 0.05 level.

Source: Primary Data

Regarding the overall financial intelligence of the entrepreneurs, commerce background respondents show a significant difference from the other two categories. Here, the significant difference from the Welch test is verified with the help of Tamhane’s T2 test of multiple comparisons.

### **6.8.10 Role of Starting Mode in Shaping Financial Intelligence**

The starting mode of entrepreneurs, whether through a family business or starting from scratch, significantly affects their financial attitude, literacy, behaviour, discipline, management and overall intelligence level. Entrepreneurs who inherit or take over a family business may have an advantage in terms of financial literacy and

management, as they can learn from their family experiences and existing business practices (Fairlie & Robb, 2007). In contrast, entrepreneurs who start their own business from scratch may need to develop these skills through trial and error of formal education; research suggests that entrepreneurs who start their own business tend to have a stronger internal locus of control, believing they have control over their financial outcomes (Rotter, 1966). In this purview, the role of starting mode in shaping financial intelligence is investigated with the help of an Independent Sample t-test. The following hypothesis is formulated and tested accordingly.

*H0: There is no significant difference in the financial intelligence among entrepreneurs according to the starting mode (family business/ self-owned).*

*H1: There is a significant difference in the financial intelligence among entrepreneurs according to the starting mode (family business/ self-owned).*

**Table 6.25**

*Comparison of FI based on starting mode*

Dimensions	Starting Mode	Mean	SD	Levene's Test for Equality of Variances		t-test result	
				F	Sig.	t	Sig.
FA	Family business	2.892	.627	0.153	.695	<b>0.694</b>	<b>.488</b>
	Started by me	2.926	.629				
FL	Family business	3.000	.429	0.029	.864	<b>0.265</b>	<b>.791</b>
	Started by me	3.009	.440				
FB	Family business	3.077	.580	0.028	.867	<b>1.204</b>	<b>.229</b>
	Started by me	3.022	.580				
FM	Family business	4.212	.639	0.038	.845	<b>0.818</b>	<b>.414</b>
	Started by me	4.171	.640				

Dimensions	Starting Mode	Mean	SD	Levene's Test for Equality of Variances		t-test result	
				F	Sig.	t	Sig.
FDM	Family business	3.403	.731	2.259	.133	0.892	.373
	Started by me	3.356	.655				
FD	Family business	3.080	.778	10.2**	.001	1.010	.313
	Started by me	3.026	.654				
FLC	Family business	2.927	.733	0.106	.745	2.414*	.016
	Started by me	3.560	.697				
FI	Family business	3.227	.350	1.362	.244	0.115	.908
	Started by me	3.224	.314				

Source: Primary Data

\*\*Significant at 1% level of significance

\*Significant at 5% level of significance

The mean comparison of financial intelligence between family business and own business is conducted by an Independent Sample t-test. Before that, Levene's test of Equality of Variance is conducted to prove the homogeneity assumption of population variance. In the case of financial attitude, literacy, behaviour, management, decision making, locus of control and overall financial intelligence, Levene's statistic is not significant at 5% level of significance, and hence the homogeneity assumption is proved. But, in the case of Financial Discipline, Levene's statistic is significant with a 'p' value of less than 0.01 and hence equal variance is not assumed. Both cases, the Independent Sample t-test is applied, corresponding to either equal variance assumed or not.

With respect to the result of Independent Sample t-test, the test statistic and significance value verifies that there exists no significance difference in the financial attitude (t = 0.694, p = .488), literacy (t = 0.265, p = .791), behaviour (t = 1.204, p = .229), management (t = 0.818, p = .414), decision making (t = 0.892, p = .373),

discipline ( $t = 0.930$ ,  $p = .353$ ), and overall financial intelligence ( $f = 0.115$ ,  $p = .908$ ) among entrepreneurs either those who started the family business or start by their own scratches. But, in the case of financial locus of control ( $t = 2.414^*$ ,  $p = .016$ ), there exists a significant difference between family-owned and self-owned entrepreneurs. It means that self-owned entrepreneurs are taking more internal locus of control for their business to ensure their outcome. Therefore, they can decide the same easily and wisely.

### Levels of Financial Intelligence

Financial Intelligence of Small Entrepreneurs in Kerala is identified with the help of their financial attitude, financial literacy, financial behaviour, financial management, financial decision making, financial discipline and financial locus of control in a five-point Likert scale ranging from 5 for strongly agree to 1 for strongly disagree. The overall mean score of the sub-dimensions is taken to identify the level of financial intelligence. Accordingly, a mean score of less than 2.5 is considered a low intelligence level, a mean score from 2.5 to 3.5 is considered a moderate intelligence level, and a mean score above 3.5 is considered a high intelligence level. In this order, the financial intelligence of the small entrepreneurs in Kerala is defined, and the result is presented below.

**Table 6.26**

*Levels of Financial Intelligence of Small Entrepreneurs*

Levels of Financial Intelligence	Frequency	Percent
Low FI (Mean score below 2.5)	16	1.9
Moderate FI (Mean score in between 2.5 to 3.5)	675	78.9
High FI (Mean score above 3.5)	164	19.2
Total	855	100.0

Source: Primary Data

The table verifies the level of financial intelligence among small entrepreneurs in Kerala. According to the overall mean score calculated from the response scale of 5 to 1, the levels are classified into three, namely, low, moderate and high. Low level of financial intelligence identified from the mean score of below 2.5, moderate level is

recognized from the mean score of 2.5 to 3.5 and high level is known from the mean score of above 3.5. As a result, the majority (79%) of entrepreneurs have a moderate level of financial intelligence, 19% of entrepreneurs have a high/ good level of financial intelligence, and only 2% of entrepreneurs have a low level of financial intelligence. To be precise, most entrepreneurs exhibit a moderate level of attitude, literacy, behaviour, management, decision-making, discipline, and locus of control in their financial matters.

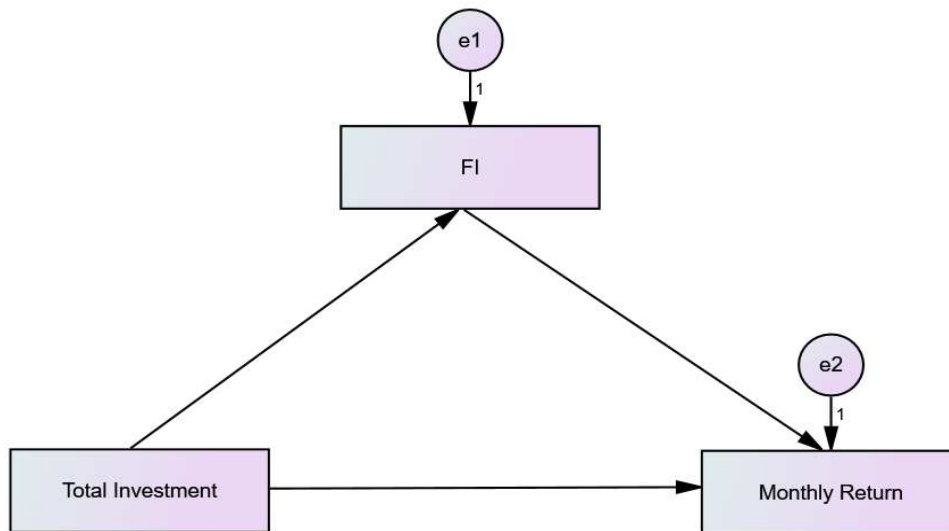
### **6.9 Section III: Mediating Role of Financial Intelligence**

In this section of analysis, the mediating role of financial intelligence of entrepreneurs in the relationship between investment and return of their business is examined by applying Structural Equation Modelling (SEM). According to (Graham, Harvey, & Puri, 2015), financial literacy is a key predictor of entrepreneurial success, including investment decisions and returns. Entrepreneurs with high financial intelligence can better assess and manage risks, optimise resource allocation, and create comprehensive financial plans, leading to more informed investment decisions and potentially higher returns. As (Klapper, Lusardi, & Panos, Financial Literacy and Entrepreneurship, 2015) note, financially literate entrepreneurs are more likely to engage in formal financial planning and have higher business growth rates. By developing financial intelligence, entrepreneurs can bridge the gap between investment and returns, ultimately driving business success. Before exploring the mediating (indirect) relationship, it is necessary to identify the direct relationship between investment and return of the business. Thereafter, the mediating role of financial intelligence is identified. Accordingly, the following hypothesis is formulated and tested.

**HI<sub>18</sub>: Financial Intelligence has a mediating role in the relationship between Investment and Return of Small Entrepreneurs.**

**Figure 6.1**

*Proposed Model for the mediation effect of financial intelligence*

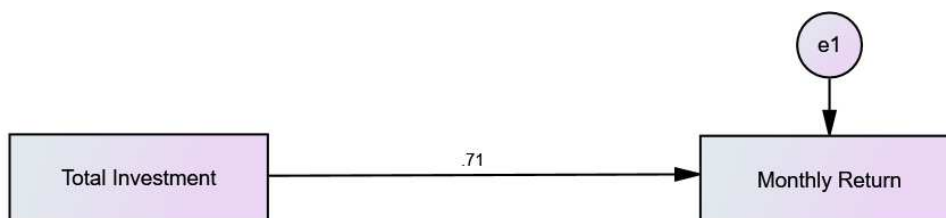


Source: Primary Data

The imputed model is used for explaining the mediating role of the financial intelligence in the empirical relationship between total investment and return of Small Entrepreneurs in Kerala. The relationship is measured by proposing a path diagram model. In this perspective, fitness of model and hypothesis result is presented. Before measuring the mediation/ indirect effect, the direct effect between investment and return is conducted.

**Figure 6.2**

*Direct effect model of relationship between investment and return of business*

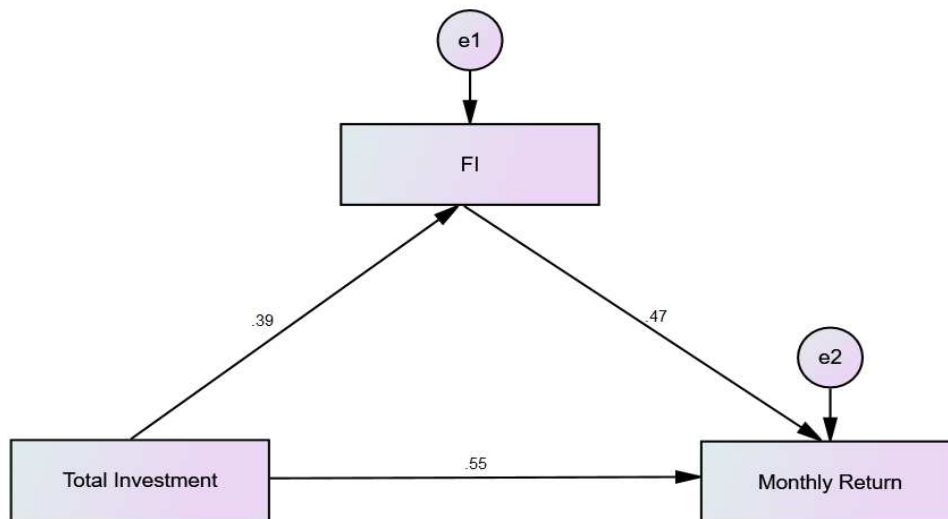


Source: Primary Data

The model shows the direct relationship between total investment (IV) and monthly return (DV) of business. The beta coefficient of 0.71 is significant at 1% level of significance, which explains the direct positive relationship between total investment and monthly return. This shows a direct effect, which measures the extent to which the total investment is changed by 71% when the monthly return is increased by one unit. The mediation model is presented below.

**Figure 6.3**

*Indirect effect of financial intelligence in the relationship between investment and return*



Source: Primary Data

The figure explains the direct and mediating relationship of investment and financial intelligence on return of business of small entrepreneurs. Here, financial intelligence is an intermediate variable that explains how and why investment influences the return of business. It is clear from the mediation analysis, there is a significant relationship between investment (independent variable) and return (dependent variable) ( $\beta = 0.55$ ,  $p < 0.01$ ) and there is significant relationship between investment and financial intelligence (mediating variable) ( $\beta = 0.39$ ,  $p < .001$ ) and between financial intelligence and return ( $\beta = 0.47$ ,  $p < 0.01$ ). When the mediator (financial intelligence) is introduced in the model, the influence of independent variable on the dependent variable is

reduced. Here, the beta value is reduced from 0.71 to 0.55 as and when the mediator (financial intelligence) is introduced. This is the case of partial mediation, which implies that there is not only a significant relationship between the mediator and the dependent variable, but also some direct relationship between the independent and dependent variables. The fitness of the model is checked with the help of following indices.

**Table 6.27**

*Model Fit Indices of the mediation model of financial intelligence*

<b>Indices</b>	<b>Value Obtained</b>	<b>Recommended Values of Good Fit</b>	<b>Recommended Values of Acceptable Fit</b>
Normed chi-square (CMIN/df)	2.775	$\leq 3$	$\leq 5$
Root Mean Square Residuals (RMR)	0.038	$\leq 0.05$	$\leq 0.08$
Comparative Fit Index (CFI)	0.973	$\geq 0.90$	$\geq 0.80$
Goodness of Fit Index (GFI)	0.958	$\geq 0.90$	$\geq 0.80$
Adjusted Goodness of Fit Index (AGFI)	0.932	$\geq 0.90$	$\geq 0.80$
Incremental Fit Index (IFI)	0.929	$\geq 0.90$	$\geq 0.80$
Tucker Fit Index (TLI)	0.913	$\geq 0.90$	$\geq 0.80$
Normed Fit Index (NFI)	0.910	$\geq 0.90$	$\geq 0.80$
Relative Fit Index (RFI)	0.904	$\geq 0.90$	$\geq 0.80$
Root Mean Square Error of Approximation (RMSEA)	0.059	$< 0.08$	$= 0.08$

Source: Primary Data

The table presents model fit indices of the measurement model used for checking the mediating role of financial intelligence in the cause-and-effect relationship between investment and return of business. Here, all the values are coming under the range of good fit of the recommended values. Here, CMIN/df (2.775), RMR (0.038), CFI, GFI, IFI, TLI, NFI, and RFI are 0.90 and RMSEA (0.059) are within the limit of good fit of the recommended model fit indices. Hence, the model used to measure the

mediating role of financial intelligence in the cause-and-effect relationship between investment and return of business of Small Entrepreneurs in Kerala is fit to the data.

The hypothesis testing result is presented below.

**Table 6.28**

*Mediation Testing of the Model (Total, Direct and Mediation Effect Paths) Using Bootstrapping Procedure*

Independent Variable	Mediating Variable	Dependent Variable	Total Effect (c' + axb)	Direct Effect (c' )	Indirect Effect (Mediation Effect) (axb)	$\text{VAF} = \frac{\text{Standardized Indirect Effect}}{\text{Standardized Total Effect}}$	Sig. Value	Result of Mediation
Investment	Financial Intelligence	Return	0.551	0.366	0.183	$\frac{0.183}{0.551} = 0.332$	0.000	Partial Mediation

Source: Primary Data (Output of AMOS)

From the above table, it is clear that there is partial mediation of financial intelligence in the relationship between investment and return of business, according to the strength of mediation is calculated as Variance Accounted For (VAF) of 0.332. This value comes under the range of 0.2 to 0.8, hence there exists 33.2% of partial or moderate mediation of financial intelligence in the proposed relationship. Partial mediation is given if the independent variable exerts some of its influence on the dependent variable through the mediating variable, and it also exerts some of its influence directly on the dependent variable and not through the mediating variable. Since the p-value is significant at the 1% level of significance, the proposed hypothesis (H118) is accepted, indicating that financial intelligence mediates the relationship between investment and the return of business of Small Entrepreneurs in Kerala.

## **6.10 Conclusion**

Financial intelligence is one of the most important qualities every entrepreneur should acquire. The ability of a person to make financial decisions in appropriate situations is influenced by demographic factors related to that person. The present study sheds light on this area of discussion. Factors such as age, gender, marital status, and location of residence are correlated with financial intelligence, even though some of these factors are not directly associated with it.

## **References**

- Atkinson, A., & Messy, F. (2012). *Measuring Financial Literacy: Results of the OECD/ International Network on Financial Education (INFE) pilot study*. OECD Working Paper on Finance, Insurance and Private Pensions.
- Atrill, P. (2006). *Financial Management for Decision Makers*. Pearson Education.
- Beck, T., & Brown, M. (2011). Which households use banks? Evidence from the transition economies. *Journal of Banking & Finance*, 1936-1946.
- Bongomin, G., Ntayi, J., & Munene, J. (2016). Financial literacy and financial access of micro enterprise in Uganda. *Journal of Accounting and Finance*, 11-24.
- Brinckmann, J., Grichnik, D., & Kapsa, D. (2010). Should entrepreneurs plan or just storm the castle? A meta - analysis on contextual factors impacting the business planning-performance analysis in small firms. *Journal of Business Venturing*, 24-40.
- Busenitz, L., & Barney, J. (1997). Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision-making. *Journal of Business Venturing*, 9-30.
- Fairlie, R. W., & Robb, A. (2007). Families, human capital, and small business: Evidence from the Characteristics of Business Owners survey. *Industrial Relations*, 569-597.
- Graham , J., & Harris, P. (2015). The impact of financial literacy on entrepreneurial success. *Journal of Small Business Management*, 661-675.
- Graham, J., Harvey, C., & Puri, M. (2015). Capital Allocation and Delegation of Decision-Making authority within the firms. *Journal of Financial Economics*, 237-254.
- Hill, P., & Pargament, K. (2003). Advances in the conceptualization and measurement of religion and spirituality. *American Psychologist*, 64-74.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 263-292.

- Kasser, T., & Ryan, R. (1993). A dark side of the American dream: correlates financial success as a central life aspiration. *Journal of Personality and Social Psychology*, 410-422.
- Kautonen, T., & Palmroos, J. (2010). The impact of age on entrepreneurial motivation and behaviour. *Journal of Entrepreneurship Culture*, 271-294.
- Klapper, L., & Panos, G. (2011). Financial Literacy and retirement planning in view of a growing youth demographic: The Russian Case. *Journal of Pension Economics & Finance*, 437-457.
- Klapper, L., Lusardi, A., & Panos, G. (2015). *Financial Literacy and Entrepreneurship*. World Bank Policy Research Working Paper No.7327.
- Kotlikoff, L., & Spivak, A. (1981). The family as an incomplete annuities market. *Journal of Political Economy*, 372-391.
- Lea, S., & Webley, P. (2005). Money as a tool, money as a drug: The biological psychology of a strong incentive. *Behavioural and Brain Sciences*, 161 - 209.
- Lusardi, A., & Mitchell, O. (2011). *Financial literacy and planning: Implications for retirement wellbeing*. NBER working paper No.17078.
- McGrath, R., & MacMillan, I. (2000). *The entrepreneurial mindset: strategies for continuously creating opportunity in an age of uncertainty*. US: Harvard Business School Press.
- Rotter, J. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 1-28.
- Ucbasaran, D., Westhead, P., & Wright, M. (2008). Opportunity Identification and Pursuit: Does an entrepreneur's human capital matter? *Small Business Economics*, 153-173.
- Zagorsky, J. (2003). Husband's and wives' view of the family finances. *Journal of Socio-Economics*, 147-162.

*Chapter 7*

**FINDINGS AND SUMMARY  
OF THE STUDY**

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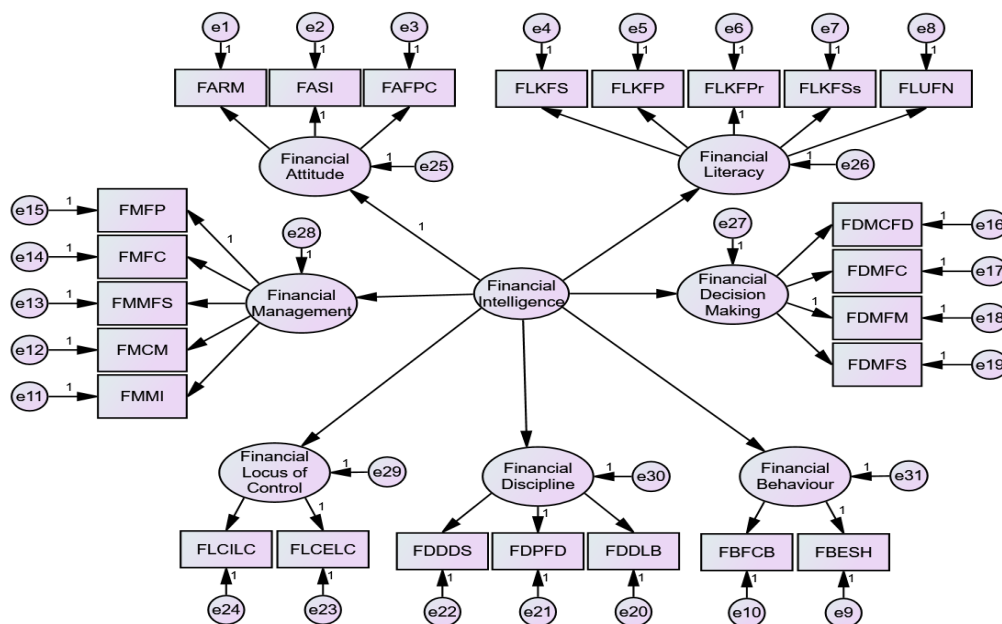
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## 7.1 Introduction

The researcher in the present study tries to explore various tools to measure the financial intelligence of entrepreneurs. The existing literature was reviewed to identify scales for measuring financial intelligence, and a new scale was developed that is more inclusive than the existing scales. Based on **Exploratory Factor Analysis, Confirmatory Factor Analysis and Structural Equation Modelling**, the researcher concluded and formulated the final validated model (Fig. 7.1), which was further checked for reliability and validity. All the values of the scale are within an acceptable limit, hence the reliability and validity of the scale used were confirmed. The assessment model then assessed for its fitness and found to be fit for assessment. All the model fit indices were found to be in an acceptable range, indicating a good fit for measuring the financial intelligence of entrepreneurs.

**Figure 7.1**

*Validated Research Model.*



Source: Primary Data

## 7.2 Findings of the Study

### 7.2.1 Profile of entrepreneurship in India

As per the report of Department for Promotion for Trade and Industry and Internal Trade 2024 total number of start ups in India during the last five years from 2023 are 104882. Out of these, the top contributors are Maharashtra with 18,634 start-ups, Delhi with 10,840, and Karnataka with 10,874 start-ups. Even though Kerala is a small state, the total number of start-ups during the last five years is 4533. It shows that a good startup ecosystem exists in Kerala. According to the same report, a total of 112,5805 jobs were created within the country by start-ups over the last five years, starting from 2023. Out of which the central contributing states are Maharashtra with 205353 employments, Karnataka with 124445 employments, and Delhi with 121966 employments. Kerala's contribution to employment creation through start-ups has been 39,464 over the last five years.

### 7.2.2 Start-up Ecosystems in Kerala

The total value of Kerala's startup ecosystem is 1.7 billion, with 1 Unicorn produced by the state. Kerala startups could secure 77 million dollars in early-stage funding, marking a growth of 9 out of 10 points on the scale. Total Ecosystem growth value is 254% compared to the global average of 46%. A Kerala startup could collect total venture funding of \$289 million.

### 7.2.3 Unemployment Rate in Kerala

As per the Periodic Labour Force Survey 2023-24, unemployment among youth in the age group of 15 to 29 is 29.9 %. The joblessness among females is 47.1% and among males is 19.3% while the national average is only 10%.

### 7.2.4 Role of Financial Attitude on Financial Management

The research hypothesis was ***H1<sub>1</sub>: Financial Attitude has a significant influence on Financial Management.*** In the proposed model, financial attitude was taken as the independent variable and financial management was taken as the dependent variable. The measurement model path diagram reveals the directional relationships and

regression estimates between these constructs. Financial Attitude is positively related to Financial Management with a regression coefficient of 0.59. It means that whenever the Financial Attitude of small entrepreneurs increases, there will be a 59% positive increase in their financial management as well. More specifically, Financial Attitude is considered a significant positive predictor variable of Financial Management.

### **7.2.5 Financial Literacy and Financial Management**

The research hypothesis was *H1<sub>2</sub>: Financial Literacy has a significant influence on Financial Management*. Financial literacy is independent variable, and financial management is dependent variable. It shows the factor loadings of greater than 0.60, and hence all the sub-dimensions are positively contributing to financial literacy and financial management. The causal relationship between Financial Literacy and Financial Management shows that the beta coefficient of 0.65 implies a direct positive relationship between them. It means that 65% of positive changes in financial management can be explained by financial literacy.

### **7.2.6 Financial Behaviour and Financial Management**

The research hypothesis was *H1<sub>3</sub>: Financial Behaviour has a significant influence on Financial Management*. Financial behaviour is set as the independent variable, and financial management is taken as the dependent variable. All the observed variables of financial behaviour and financial management are significantly contributing with factor loadings of greater than 0.70. The path estimate of 0.71 explains the direct positive influence of the financial behaviour of Small Entrepreneurs on their financial management.

### **7.2.7 Financial Discipline and Financial Management**

The research hypothesis was *H1<sub>4</sub>: Financial Discipline has a significant influence on Financial Management*. Here, the financial discipline was taken as independent variable, and financial management was taken as dependent variable. The measurement model of the relationship between financial discipline and financial management demonstrates a path coefficient of 0.83. It means that financial discipline has a significant positive influence on the financial management of the Small

Entrepreneurs of Kerala. Since the value of the regression coefficient is significant, 83% of the variance in financial management can be predicted with the changes in financial discipline.

### **7.2.8 Financial Attitude and Financial Decision Making**

The research hypothesis was *H1<sub>5</sub>: Financial Attitude has a significant effect on Financial Decision Making*. Here, financial attitude is kept as independent variable, and financial decision-making is kept as dependent variable. The regression analysis reveals a significant positive relationship between financial attitude and financial decision making, with a regression co-efficient of 0.614. This indicates that financial attitude has a substantial impact on financial decision-making, and 61% of changes in the latter variable can be predicted with the former variable.

### **7.2.9 Financial Literacy and Financial Decision Making**

The research hypothesis set was *H1<sub>6</sub>: Financial Literacy has a significant effect on Financial Decision Making*. Here, financial literacy was kept as independent variable and financial decision-making was kept as dependent variable. The measurement model reveals a strong positive relationship between financial decision-making, with a regression coefficient of 0.74. Here, 74% of changes in the financial decision-making of small entrepreneurs can be predicted with the changes in knowledge of the financial system, financial planning, financial products, financial statements, and the updating of financial knowledge.

### **7.2.10 Financial Behaviour and Financial Decision Making**

The proposed hypothesis was *H1<sub>7</sub>: Financial Behaviour has a significant effect on Financial Decision Making*. Financial behaviour is kept as independent variable, and financial decision-making is kept as dependent variable. The hypothesis testing result reveals a significant relationship between financial behaviour and financial decision making, with a path coefficient of 0.595, which is significant at 1% level. The results support the proposed hypothesis (H17), indicating that changes in earning and spending habits, financial consultation behaviour, and other related factors will likely influence the financial decision-making of small entrepreneurs in Kerala.

### **7.2.11 Financial Discipline and Financial Decision Making**

The research hypothesis was *that Financial Discipline has a significant effect on Financial Decision Making*. Here, the variable financial discipline is kept an independent variable, and financial decision-making is kept as dependent variable. The relationship between financial discipline and financial decision making presents a regression coefficient of 0.921. It means 92% of changes in financial decision-making can be predicted with the help of changes in financial discipline.

### **7.2.12 Financial Attitude and Financial Locus of Control**

The proposed hypothesis was *H1<sub>9</sub>: Financial Attitude has a significant impact on Financial Locus of Control*. Here, financial attitude is the independent variable, and financial locus of control is the dependent variable. Financial Attitude has a significant positive influence on Financial Locus of Control with path estimates of 0.661. It means that whenever the Financial Attitude of small entrepreneurs increases, there will be a 66% positive increase in their financial locus of control as well.

### **7.2.13 Financial Literacy and Financial Locus of Control**

The proposed hypothesis was *H1<sub>10</sub>: Financial Literacy has a significant impact on Financial Locus of Control*. Where financial literacy is the independent variable and financial locus of control is the dependent variable. With a path-coefficient of 0.753 at a 1% significance level, the proposed hypothesis is accepted. Precisely, financial literacy is considered a significant predictor of financial locus of control. It can be said that entrepreneurs with a good level of literacy in the financial system, financial planning, financial products, financial statements, and financial knowledge will also have a good financial locus of control.

### **7.2.14 Financial Behaviour on Financial Locus of Control**

The proposed hypothesis was *that Financial Behaviour has a significant impact on Financial Locus of Control*. Where variable financial behaviour is kept as an independent variable and financial locus of control is kept as a dependent variable. The regression analysis discloses a significant positive relationship between financial

behaviour and financial locus of control, with a regression coefficient of 0.554. This indicates that financial behaviour has a substantial influence on financial locus of control, with 55% of changes in the latter variable being predictable from the former variable.

### **7.2.15 Financial Discipline and Financial Locus of Control**

The research hypothesis set was *H1<sub>12</sub>: Financial Discipline has a significant impact on Financial Locus of Control*. The independent variable was financial discipline, and the dependent variable was financial locus of control. The path-coefficient describes the relationship with a value of 0.870, which is significant at 1% level of significance, hence the proposed hypothesis is accepted. So, financial discipline is considered a significant predictor of financial locus of control

### **7.2.16 Mediating Role of Financial Literacy**

The mediating role of financial literacy in the relationship between Financial Management and Financial Decision Making is examined through the application of Structural Equation Modelling (SEM). The research hypothesis set was that *Financial Literacy has a mediating role in the relationship between Financial Management and Financial Decision Making*. There is partial mediation of financial literacy in the relationship between financial management and financial decision making, according to the strength of mediation, which is calculated as the Variance Accounted For (VAF) of 0.361. This value falls within the range of 0.2 to 0.8, indicating that there is 36.1% partial or moderate mediation of financial literacy in the proposed relationship. Since the p-value is significant at 1% level of significance, the proposed hypothesis (H113) is accepted, and hence, financial literacy mediates the relationship between financial management and financial decision making.

### **7.2.17 Mediating Role of Financial Attitude**

The mediating role of financial attitude in the relationship between Financial Decision Making and Financial Locus of Control is identified by applying Structural Equation Modelling (SEM). The research hypothesis is that *Financial Attitude has a mediating role in the relationship between Financial Decision Making and Financial Locus*

*of Control.* There is partial mediation of financial attitude in the relationship between financial decision making and financial decision making, according to the strength of mediation, which is calculated as Variance Accounted For (VAF) of 0.452. This value falls within the range of 0.2 to 0.8, indicating that 45.2% of the relationship is partially or moderately mediated by financial attitude. Since the p-value is significant at 1% level of significance, the proposed hypothesis (H114) is accepted. Hence, financial attitude mediates the relationship between financial decision making and financial locus of control.

### **7.2.18 Mediating Role of Financial Behaviour**

The mediating role of financial behaviour in the relationship between Financial Management and Financial Locus of Control is examined through the application of Structural Equation Modelling (SEM). The hypothesis set for the analysis was ***H115: Financial Behaviour has a mediating role in the relationship between Financial Management and Financial Locus of Control.*** There is partial mediation of financial behaviour in the relationship between financial management and financial locus of control, according to the strength of mediation, which is calculated as Variance Accounted For (VAF) of 0.455. This value falls within the range of 0.2 to 0.8, indicating that there is 45.5% partial or moderate mediation of financial behaviour in the proposed relationship. Since the 'p' value is significant at 1% level of significance, the proposed hypothesis (*H115*) is accepted, and hence, financial behaviour mediates in the relationship between financial management and financial locus of control

### **7.2.19 Demographic Profile of Small Entrepreneurs**

From the analysis of the demographic profile, 36.7% of entrepreneurs fall in the age group of 36 – 45, 25.7% belong to the 25-35 age group, and 25.1% are from the age group of 46-55 years.

As regards gender, 65.1% entrepreneurs are male and the remaining 34.9% are female. Most of the entrepreneurs are married (90.2%), and only 9.8% are unmarried. In the case of religion, 50.3% are categorised as Hindu, 24.9% as Muslim, and 24.8% as Christian.

38.2% of entrepreneurs are from the Municipality, 35.4% are from the Corporation, and 26.3% are from the Pachayat. Regarding years of experience, 46.0% of respondents have more than 10 years of experience, 22.5% have 8-10 years, 18.8% have less than 5 years, and 12.7% have 5-7 years of experience.

In the case of education, most entrepreneurs are graduates (53.1%), while the remaining 37.9% hold a PG or higher qualification. Only 9% of entrepreneurs have a secondary level of qualification. Among them, 44.9% of entrepreneurs belong to a Commerce background, 40.2% are from a Science and Technology background, and the remaining 14.9% of respondents are from a Humanities and Social Science background. As regards starting mode, 73.9% of entrepreneurs started the business by themselves, and the remaining (26.1%) hold their family business. Concerning the type of business, 84% of respondents are running service sector and only 16.0% are running manufacturing units.

### **7.2.19 Assessment of Financial Intelligence**

Regarding the financial attitude among entrepreneurs, the mean values of around 3.0 for all the factors undertaken. It means that entrepreneurs have an average level of financial attitude towards risk management, savings & investment and financial planning & controlling. Concerning the financial literacy among entrepreneurs, the mean values of around 3.0 for all the factors undertaken. Hence, entrepreneurs have average level of knowledge of the financial system, financial planning, financial statements, financial products and updating financial knowledge.

Concerning the financial behaviour among entrepreneurs, the descriptive statistics show the mean values of around 3.0 for all the factors considered. Therefore, entrepreneurs exhibit an average level of financial behaviour in terms of earning and spending habits, as well as financial consultation behaviour.

Regarding financial management among entrepreneurs, the descriptive statistics reveal mean values of approximately 3.0 for all factors examined. Consequently, entrepreneurs have an average level of management towards Financial Planning, Managing Financial Stress, Financial Control and Cash Management. But, there is a

good level of management of insurance among entrepreneurs, with a mean score of above 3.5. Regarding financial decision-making among entrepreneurs, the descriptive statistics reveal mean values of approximately 3.0 for all considered factors. Accordingly, entrepreneurs have an average level of confidence in making financial decisions, Seeking Financial consultation, and Achieving Financial Stability. However, there is a good level of financial monitoring, with a mean score above 3.5.

In connection with the financial discipline among entrepreneurs, the descriptive statistics show the mean values of around 3.0 for all the factors considered. As a result, entrepreneurs exhibit an average level of financial discipline in their spending, lending, borrowing, and Personal Financial Management.

With regard to the financial locus of control among entrepreneurs, the descriptive statistics show the mean values of around 3.0 for all the factors undertaken. Accordingly, entrepreneurs have an average level of financial external as well as internal locus of control.

#### **7.2.20 Level of Financial Intelligence**

In this section, the level of financial intelligence among entrepreneurs is identified by employing the One-Sample t-test for mean comparison. Since the financial intelligence is measured under seven dimensions in a five-point Likert Scale, the test value (average) is taken as three. The research hypothesis formulated and tested is *H1: There is no average level of financial intelligence among Small Entrepreneurs ( $\bar{X} \neq 3$ ).*

Here, the test value is denoted as 3 for Financial Attitude (t=.815, p=.459), Financial Literacy (t=.506, p=.613), Financial Behaviour (t=1.850, p=.065), Financial Discipline (t=1.715, p=.087), and Financial Locus of Control (t=1.049, p=.295), which describes that Financial Intelligence among these constructs, is average. Since the p-values are significant at 1% level of significance, the null hypothesis is rejected, and hence there is no average level of attitude, behaviour, discipline and locus of control among entrepreneurs.

Further, the test result clearly indicates that the mean scores of Financial Management ( $t=24.003$ ,  $p=.000$ ), Financial Decision Making ( $t=15.941$ ,  $p=.000$ ), and overall Financial Intelligence ( $t=20.337$ ,  $p=.000$ ) exceed the test value of 3. So, the factors greatly influence the Financial Intelligence of Small Entrepreneurs. Therefore, the alternate hypothesis is statistically supported at 1% level of significance since the 'p' value is less than 0.01. Hence, there exists a good level of financial management, decision-making and intelligence among entrepreneurs.

### **7.2.21 Role of Gender in Shaping Financial Intelligence**

An Independent Sample t-test is applied to check whether a significant difference exists or not with the research hypothesis of H1: *There is a significant difference between male and female entrepreneurs regarding financial intelligence.* Both males and females do not possess any significant difference in the case of Financial Attitude, Literacy, Behaviour, Discipline, Locus of Control and overall Financial Intelligence, as the p-value is greater than 0.05. Therefore, the null hypothesis is not rejected at 5% level of significance. Whereas, with respect to Financial Management and Decision Making, it is found that both males and females possess significant differences respectively, as the 'p' value is less than 0.05 and the alternate hypothesis is accepted at 5% level. Here, female entrepreneurs have a better level of financial management than males, whereas males have a better level of financial decision-making capacity than females.

### **7.2.22 Role of Religion in Shaping Financial Intelligence**

The hypothesis kept for this analysis is H1: *There is a significant difference in the financial intelligence among entrepreneurs according to their religion.* A one-way ANOVA test is done to determine the difference. Religious status is not considered as the influencing factor of financial intelligence, and the entrepreneurs who have come from any religion have the same level of financial intelligence, with a mean score of around 3 (average) for financial attitude, literacy, behaviour, decision making, discipline, locus of control and overall intelligence. But their financial management is good, with a mean score of above 4.00 for all groups

### **7.2.23 Role of Location in Shaping Financial Intelligence**

A one-way ANOVA/Welch test is conducted to determine the difference in the research hypothesis, H1: There is a significant difference in financial intelligence among entrepreneurs according to their business location. There is no significant difference in financial literacy, behaviour, and discipline among entrepreneurs from different localities. Hence, the locality of business is not considered as an influencing factor of the financial intelligence of entrepreneurs.

### **7.2.24 Type of Business in Shaping Financial Intelligence**

The type of business is not an influencing factor of financial intelligence among the sample entrepreneurs.

### **7.2.25 Age in Shaping Financial Intelligence**

The pair-wise difference of age for the significant result of financial behaviour, financial management and financial intelligence is identified with the help of Tukey HSD post-hoc test for multiple comparisons. Here, entrepreneurs in the 25-35 age group are significantly different from other categories in terms of behaviour, management, and overall intelligence. Hence, it can be concluded that entrepreneurs in the 25-35 age group exhibit a good level of financial behaviour, effective fund management, and overall financial intelligence. The other age group entrepreneurs have a lower level of intelligence.

### **7.2.26 Marital Status in Shaping Financial Intelligence**

Married and unmarried entrepreneurs do not possess any significant difference in the case of Financial Attitude, Literacy, Behaviour, and Locus of Control, as the p-value is greater than 0.05. Therefore, the null hypothesis is not rejected at 5% level of significance. Whereas, with respect to Financial Management, Financial Discipline, Decision Making and Overall Financial Intelligence, it is found that both married and unmarried individuals possess significant differences respectively, as the 'p' value is less than 0.05 and the alternate hypothesis is accepted at 5% level. Here, unmarried entrepreneurs have a better level of financial management, decision-making and

financial intelligence than married entrepreneurs. In contrast, married entrepreneurs have a better level of financial discipline than unmarried entrepreneurs.

#### **7.2.27. Experience in Shaping Financial Intelligence**

Financial behaviour and financial intelligence of experienced entrepreneurs (more than 10 years of business experience) are significantly different from those of other inexperienced entrepreneurs. Other groups of entrepreneurs have almost the same level of behaviour and intelligence level.

#### **7.2.28 Education in Shaping Financial Intelligence**

PG and above-educated entrepreneurs are significantly different from other categories of Plus Two and degree-qualified entrepreneurs.

#### **7.2.29 Discipline in Shaping Financial Intelligence**

Entrepreneurs with a commerce background are significantly different from those with a science and humanities background. It means commerce respondents have a better level of financial management and decision-making power than others.

#### **7.2.30 Starting Mode in Shaping Financial Intelligence**

Self-owned entrepreneurs are taking more internal locus of control for their business

#### **7.2.31 Levels of Financial Intelligence Among Entrepreneurs**

The majority (79%) of entrepreneurs have a moderate level of financial intelligence, 19% have a high/ good level, and only 2% have a low level. To be precise, most entrepreneurs exhibit a moderate level of attitude, literacy, behaviour, management, decision-making, discipline, and locus of control in their financial matters.

#### **7.2.32 Mediating Role of Financial Intelligence**

There is partial mediation of financial intelligence in the relationship between investment and return of business, according to the strength of mediation, which is calculated as Variance Accounted For (VAF) of 0.332. Hence, financial intelligence

mediates the relationship between fixed investment and return of the business of Small Entrepreneurs in Kerala.

### **7.3 Summary of the Study.**

Entrepreneurship is the only solution for providing employment opportunities to millions of unemployed youth in our country. As Kerala is a state with a large number of unemployed people, the government should promote start-ups within the state. Entrepreneurs are those who invest their money and effort to start new ventures. Improper management of funds is one of the reasons for business failure. As they invest their money into businesses, they must be financially intelligent. Financial intelligence is the ability of a person to make informed financial decisions in various situations.

As financial intelligence is an innate quality every entrepreneur should possess, it must be measured, and appropriate action must be taken to improve it. As per the literature survey, there is no comprehensive scale to measure the financial intelligence of entrepreneurs. So the present study aims at developing an extensive scale to measure the financial intelligence of small entrepreneurs of Kerala. The study also aims to investigate the interconnection between different dimensions and subdimensions of financial intelligence.

The initial part of the study is the process of scale development and the methodologies used for that. For scale development, dimensions and subdimensions are identified through an extensive literature review process. After the literature review, focus group discussion, and consultation of expert opinion is done. Once the dimensions and subdimensions are identified, the screening process begins. After the item analysis, demographic variables are added to the questionnaire to collect data from the respondent. Before collecting the data, the content validity of the instrument is ensured with the consultation of an industry expert. The study covers data collection from all districts of the state of Kerala. For data collection, BNI (Business Network International) are used. The cluster sampling method was adopted for data collection. More than 900 data points were collected in the initial stage, and after the cleaning process, 854 data points were used for the study.

Using the collected data, Exploratory Factor Analysis and Confirmatory Factor Analysis are performed to assess the validity and reliability of the seven scales measuring financial intelligence. The validated scales are the Scale of financial attitude, Scale of financial literacy, Scale of financial behaviour, Scale of financial management, Scale of financial decision making, Scale of financial discipline and Scale of financial locus of control. First-order CFA is done to validate the individual scale. Following the first order CFA, a second order CFA is conducted to confirm and validate the full scope of financial intelligence.

The second objective of the study was to measure the influence of Financial Attitude, Literacy, Behaviour and Discipline on Financial Management, Financial Decision Making and Financial Locus of Control of Small Entrepreneurs. For that purpose, hypotheses are formulated to check the interconnection between the dimensions. Financial attitude, financial literacy, financial behaviour, and financial discipline are taken as independent variables, and financial management, financial decision making, and financial locus of control are taken as dependent variables. Financial attitude, financial literacy, and financial behaviour are taken as mediating variables.

From the study, it is found that Financial Attitude is positively related to Financial Management with a regression coefficient of 0.59. It means 59% of the variance in Financial Management can be explained with the help of changes in Financial Attitude. The causal relationship between Financial Literacy and Financial Management shows that the beta coefficient of 0.65 implies a direct positive relationship between them. It means that 65% of positive changes in the financial management can be explained by financial literacy. Specifically, financial behaviour is considered a significant predictive variable of financial management. The changes in financial discipline can predict 83% of the variance in financial management. The path coefficient of 0.61 exhibits a significant positive effect of financial attitude on financial decision-making. 74% of changes in the financial decision-making of small entrepreneurs can be predicted with changes in financial literacy. 59% of the variation in financial decision-making can be explained by financial behaviour. Financial decision-making with the regression coefficient of 0.92 shows that financial discipline

is considered a significant positive predictor of financial decision-making. Whenever the Financial Attitude of the Small Entrepreneurs increases, there will be a 66% increase in the Financial Locus of Control. 75% of positive changes in the internal as well as external financial locus of control can be explained by the changes in financial literacy. There is a positive relationship between financial behaviour and financial locus of control, with a regression coefficient of 0.554. The interconnection between financial discipline and financial locus of control is displayed with the regression coefficient of 0.87. Financial discipline is considered a significant predictive variable of financial locus of control.

The third objective was to measure the role of financial literacy with the mediating role of financial management and financial decision-making. The study shows that there is only partial mediation between these variables. The fourth objective was to measure the role of financial attitude with the mediating role of financial decision making and financial locus of control. The study shows that there is only a partial mediating role between these variables. The fifth objective was to measure the role of financial behaviour in mediating financial management and financial locus of control. The study shows that there is only partial mediation between these variables.

The sixth objective was to identify the role of demographic factors in shaping the financial intelligence of Small Entrepreneurs in Kerala. Demographic variables, including age, gender, education, subject discipline, marital status, years of experience, location, starting mode, and type of business, were considered for the study. It is estimated from the study that majority of the respondents of the study fall under the age group of 25 to 45, 61 percentage of the respondents are male, 90 % are married, majority of the respondents are residing in urban area of corporation or municipality, more than 90 % of the respondents are completed either graduation or post graduation and majority of the respondents are doing business in service sectors.

The study reveals that the mean score of the financial attitude of entrepreneurs is moderate, the mean score of financial literacy is moderate, the mean score of financial management is average, the mean score of financial decision making is average, the mean score of financial discipline is average, and the mean score of financial locus of

control is average. The overall financial intelligence of entrepreneurs in Kerala is moderate or average.

Regarding the role of demographic factors in shaping financial intelligence, female entrepreneurs have a better level of financial management than males. In contrast, males have a better level of financial decision-making capacity than females. Regarding the role of financial intelligence according to religion, as per the study, religion is not a predictive variable of financial intelligence. Although people from urban areas show comparatively higher financial intelligence levels, the area of residence cannot be considered as a predictive variable of financial intelligence. The types of business, whether it is the manufacturing sector or the service sector, cannot be considered as an influencing factor of financial intelligence. People in the 25 to 35 age group are more financially intelligent than entrepreneurs in other age groups. Unmarried entrepreneurs exhibit better financial management, decision-making, and financial intelligence compared to their married counterparts, while married entrepreneurs demonstrate superior financial discipline. Entrepreneurs with more than 10 years of experience are showing high financial intelligence compared to other groups. Entrepreneurs from a Commerce background are showing better financial intelligence compared to other groups of entrepreneurs. Respondents who are post-graduated in their education are showing higher financial intelligence than other groups. Entrepreneurs who started their business by themselves have more internal locus of control than those who have a family business. The analysis of the mediating role of financial intelligence in the relationship between investment and return of entrepreneurs' businesses reveals only partial mediation between these variables.

After developing a comprehensive scale to measure financial intelligence through exploratory and confirmatory factor analysis, the researcher recommended that the scale be used for training and development purposes. The scale can be included in an academic curriculum to teach students about financial intelligence. The awareness about financial intelligence and literacy must start from primary schools. More training should be given to less experienced entrepreneurs and entrepreneurs from non-commerce backgrounds.

The present study contributes to the theoretical segment by validating a scale for measuring the financial intelligence of entrepreneurs. The study also contributes to the social sphere by using the scale to assess the overall score of financial intelligence, by which government and other concerned agencies can take appropriate measures to improve it. The present study is beneficial to society by utilising the scale for training and academic purposes, thereby contributing to entrepreneurship development and economic growth. The instrument developed by the researcher can be used as a yardstick for preparing a financial intelligence scale in other populations and other countries.

*Chapter 8*

**RECOMMENDATION,  
IMPLICATION AND SCOPE FOR  
FURTHER RESEARCH**

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## **8.1 Recommendation**

- As the instrument developed by the researcher is tested for reliability and validity, the same instruments can be used for conducting entrepreneurial training and development.
- The instrument developed by the researcher can be used for corporate training of employees and management.
- The instrument developed by the researcher can be included in the academic curriculum for entrepreneurial training for students.
- Given the moderate or below-average value of financial literacy, financial education should be introduced at the school level and made available across all disciplines of study.
- According to the study's results, individuals aged 25 to 35 exhibit a good level of financial intelligence. So entrepreneurs from the other group can be given more training in financial intelligence.
- As the study shows that more experienced entrepreneurs possess more financial intelligence, a greater number of training sessions can be given to less experienced entrepreneurs
- As the financial intelligence score is higher for entrepreneurs with a PG and above education, a larger number of training sessions can be conducted for entrepreneurs with a degree or below educational qualification

- As the Financial Intelligence score is lower among non-commerce background entrepreneurs, special training can be conducted for such entrepreneurs
- As 79 % of the entrepreneurs have a moderate level of financial intelligence, special training programs can be conducted by ED training institutes to inculcate financial intelligence

## **8.2 Implications of the current Research**

### **8.2.1 Theoretical Implications of the Research**

The Academic contributions of the present study are threefold. Firstly, a model for measuring financial intelligence is developed by exploratory and confirmatory factor analysis. The developed model is tested for reliability and validity. The present model was developed with very comprehensive constructs like financial attitude, financial literacy, financial management, financial discipline, financial control and financial locus of control. Till now, no such model has been built to measure the financial intelligence of entrepreneurs. Thus, an existing research gap is filled by developing such comprehensive models.

Secondly the result of the current study show that the financial attitude is positively related to financial management, financial literacy is positively affecting financial management, Financial behaviour is positively affecting financial management, financial discipline is positively affecting financial management, Financial attitude has positive effect on financial decision making, financial literacy has positive impact on financial decision making, financial behaviour has positive effect on financial decision making, financial discipline has positive implications for financial decision making, Financial attitude has positive effect on financial locus of control, financial literacy has positive effect on financial locus of control, financial behaviour has positive effect on financial locus of control. Financial discipline has a positive impact on the financial locus of control. These findings align with existing literature, contributing to the field.

Finally, the demographic characteristics of small entrepreneurs of Kerala are identified, and it is checked whether there is any significant difference between them

in terms of financial intelligence. The study found that there is significant difference among them in terms of financial intelligence. The current study is a motivation for future researchers to assess the financial intelligence of entrepreneurs using the developed model by the researcher.

### **8.2.2 Implication for Business and Corporations.**

Financial intelligence is a driving force of growth and development of an organisation. The majority of the enterprises fail due to poor management of finances. Every entrepreneur who starts a business should have a good level of financial quotient to manage funds properly. But the majority of entrepreneurs lack financial intelligence and other constructs like financial literacy, positive attitude on finance, financial management, financial control, financial planning, financial discipline, financial locus of control, etc. So the entrepreneur who wishes to start a business can use the instrument developed by the researcher to test their financial intelligence level, and if they find their score below the moderate level, they can go for training and development activities to improve their financial intelligence.

Entrepreneurial training is a key aspect of the academic curriculum of the majority of schools and colleges. Moreover, the government also inculcates ED training through different agencies. Colleges and agencies can use the present scales developed by the researcher for such training and developmental purposes.

Corporations can also use the findings of the present study for training and development of employees and management, which will lead to long-term positive impact on organisational success. So the module of financial intelligence, including the scale developed by the researcher, can be used for such purposes. Moreover, the employees of the organisation can personally assess their financial intelligence using the scale developed by the researcher, which contributes to their personal financial well-being.

### **8.2.3 Social Implications of the Study**

Entrepreneurial growth leading to the development of commerce and industry is inevitable for national development. There are so many factors affecting

entrepreneurial success. Financial intelligence, or the ability to make financial decisions as and when required, is one among them. However, the present study reveals that the majority of entrepreneurs have financial intelligence that is moderate or below this level. It will affect the business ecosystem of our country. The solution is to inculcate financial intelligence among entrepreneurs by measuring their financial intelligence using a tool developed by the researcher, which is every extensive. The tool developed by the researcher is more inclusive, covering almost all areas of managing finance and financial intelligence.

The present scale can also be used by people who are planning their personal finances. As the tool is more inclusive and covers a broader perspective of financial intelligence, individuals seeking to assess their financial intelligence can use this tool. This will lead to a more professional approach in developing financial intelligence.

### **8.3 Scope for future Research**

- The instrument developed by the researcher is confined to only small entrepreneurs of Kerala. The future research can be extended to other parts of the country.
- The tool can also be used internationally after checking the reliability and validity of the instrument in their country.
- As the present study is confined to only entrepreneurs, a new scale can be developed to study of financial intelligence of other populations, such as employees, students, members of self-help groups, etc. The present study can be used as a pathfinder to that.
- It is also suggested that future research can be done on the instrument developed by the researcher by adding more constructs which are not included in the present study.
- In the future, researchers can utilise scales developed by the researcher, such as the financial literacy scale, the financial planning and controlling scale, the

financial locus of control scale, and the financial management scale, for training and development purposes related to entrepreneurial training and development.

### **Conclusion**

The present study focuses on the development of an instrument for measuring the financial intelligence of small entrepreneurs of Kerala. The instrument is tested with reliability and validity and found useful for measuring financial intelligence. The instrument developed by the researcher can be used for academic, training, and developmental purposes. The developed instruments can be used for future research in other geographical areas or other areas of discipline. The same instrument can also be used for generating a module for entrepreneurial training and development.

# **APPENDIX**

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## QUESTIONNAIRE

Dear respondent,

I am perusing research for Ph.D. in commerce regarding the personal financial management of small entrepreneurs of Kerala. This study is an important part of my research for which your cooperation and participation in filling the questionnaire is inevitable. I would be most grateful if you could spare 15minuts from your valuable time in this regard. All responses will be used for research only and will be kept confidential. Anonymity of the respondents is also guaranteed. If you have any queries please do not hesitate to contact me at [abdu.569@gmail.com](mailto:abdu.569@gmail.com) or with mobile number 9895350123

Thank you for your assistant.

**Abdurahiman Karuthedath** (Assistant Professor of Commerce, MCAS Vengara and Part time research scholar, Department of Commerce PSMO College Thirurangadi)

### Part 1: Demographic Profile

- 1) Name (not mandatory).....
- 2) Age .....
- 3) Gender :  Male  Female  Third gender
- 4) Marital status :  Married  Unmarried  Others
- 5) Religion :  Hindu  Muslim  Cristian  
 Others
- 6) District of residence : .....
- 7) Residing location :  Punjayath  Municipality  
Corporation
- 8) Year of starting business : .....
- 9) Type of business :  Service Sector  Manufacturing
- 10) Monthly average revenue from both business and other sources : .....
- 11) Total amount of fund invested in business : .....
- 12) Educational qualification :  SSLC and below  +2  
 Degree  PG and above

13) If you are a Degree or PG holder specify the discipline

- :  Commerce  
 Science and technology  
 Humanities and Social Science

14) Started by you or family business?

- :  Family Business  
 Started by me

**Part 2**

State your opinion regarding following statements from strongly agree to strongly disagree (Please tick mark)

SLNo	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I don't like to invest in risky ventures (റിസ്ക് കൂടുതലുള്ള സംരംഭങ്ങളിൽ നിക്ഷേപിക്കാൻ ഞാൻ ഇഷ്ടപ്പെടുന്നില്ല)					
2	It is worthy to take risk to get more return (കൂടുതൽ റിട്ടേൺ ലഭിക്കാൻ കൂടുതൽ റിസ്ക് എടുക്കാൻ ഞാൻ തയ്യാറാണ്)					
3	I always take insurance policies to reduce risks (റിസ്ക് കുറയ്ക്കാൻ ഞാൻ എപ്പോഴും ഇൻഷുറൻസ് പോളിസികൾ എടുക്കാറുണ്ട്)					
4	saving is equally important like spending (ചെലവഴിക്കുന്നത് പോലെ പ്രധാനമാണ് സമ്പാദ്യവും)					
5	Investment is essential tool for wealth creation (നിക്ഷേപം സമ്പത്ത് ഉണ്ടാകുന്നതിനുള്ള പ്രധാന മാർഗമാണ്)					
6	An entrepreneur should have proper financial planning in his life (ഒരു സംരംഭകന് തന്റെ ജീവിതത്തിൽ കൃത്യമായ സാമ്പത്തിക ആസൂത്രണം ഉണ്ടായിരിക്കണം)					

SLNo	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
7	An entrepreneur should have proper financial control in his life (ഒരു സംരംഭകന് തന്റെ ജീവിതത്തിൽ കൃത്യമായ സാമ്പത്തിക നിയന്ത്രണം ഉണ്ടായിരിക്കണം)					
8	Whenever there is financial requirement entrepreneurs should approach Financial institutions (Bank, Cooperative banks, BNFC) (സാമ്പത്തിക ആവശ്യങ്ങൾ ഉണ്ടാകുമ്പോൾ, സംരംഭകർ ധനകാര്യ സ്ഥാപനങ്ങളെ സമീപിക്കണം)					
9	I am optimistic about my financial future (എന്റെ സാമ്പത്തിക ഭാവിയെക്കുറിച്ച് എനിക്ക് ശുഭാപ്തി വിശ്വാസമുണ്ട്)					
10	Inflation will adversely affect my business, investment and return (പണപ്പെരുപ്പം എന്റെ ബിസിനസ്സ്, നിക്ഷേപം, വരുമാനം എന്നിവയെ പ്രതികൂലമായി ബാധിക്കും)					
11R	Interest for saving account and fixed deposits are equal (സേവിംഗ് അക്കൗണ്ടിനും ഫിക്സ്ഡ് ഡിപ്പോസിറ്റ് അക്കൗണ്ടുകൾക്കുമുള്ള പലിശ തുല്യമാണ്)					
12	There will be budget deficit if a person's actual expenses are less than planned expenses (ഒരു വ്യക്തിയുടെ യഥാർത്ഥ ചെലവുകൾ അയാൾ പ്ലാൻചെയ്ത ചെലവുകളേക്കാൾ കുറവാണെങ്കിൽ ബജറ്റ് കമ്മി ഉണ്ടാകും)					
13R	Budgets are prepared to know the existing asset, liability, income and expenditure. - (നിലവിലുള്ള ആസ്തി, ബാധ്യത, വരവ്, ചെലവ് എന്നിവ അറിയാനാണ് ബജറ്റുകൾ തയ്യാറാക്കുന്നത്)					
14	Net worth means difference between assets and liabilities (ആസ്തികളും ബാധ്യതകളും തമ്മിലുള്ള വ്യത്യാസമാണ് net worth)					

SLNo	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
15	If you stand as surety for a loan, then you become responsible for the loan repayment if your friend defaults (നിങ്ങൾ ഒരു ലോണിന് ജാമ്യം നിൽക്കുന്നുണ്ടെങ്കിൽ, നിങ്ങളുടെ സുഹൃത്ത് വീഴ്ച വരുത്തിയാൽ വായ്പ തിരിച്ചടവിന് നിങ്ങൾ ഉത്തരവാദിയാകും)					
16	Demat account is used for depositing shares (ഓഹരികൾ നിക്ഷേപിക്കാൻ ഡിമാറ്റ് അക്കൗണ്ട് ഉപയോഗിക്കുന്നു)					
17	Mutual funds are pooling of funds from investors and invest in stock and other investment avenues (മ്യൂച്ചുൽ ഫണ്ട് നിക്ഷേപകരിൽ നിന്നുള്ള ഫണ്ടുകൾ ശേഖരിക്കുകയും ഓഹരിയിലും മറ്റ് നിക്ഷേപ മാർഗങ്ങളിലും നിക്ഷേപിക്കുകയും ചെയ്യുന്നു)					
18	Dollar value appreciation against Indian Rupee is a risk for Indian business man who export goods to foreign countries (ഇന്ത്യൻ രൂപയ്ക്കെതിരെ ഡോളറിന്റെ മൂല്യം ഉയരുന്നത് വിദേശ രാജ്യങ്ങളിലേക്ക് ചരക്ക് കയറ്റുമതി ചെയ്യുന്ന ഇന്ത്യൻ വ്യവസായിക്ക് റിസ്കാണ്)					
19R	When my friend transfer money through Google Pay, it is a Virtual Banking system- (എന്റെ സുഹൃത്ത് Google Pay വഴി പണം കൈമാറുമ്പോൾ അത് വെർച്വൽ ബാങ്കിംഗ് സംവിധാനമാണ്)					
20	Asset of a firm should be equals to liability (ഒരു സ്ഥാപനത്തിന്റെ ആസ്തി ബാധ്യതയ്ക്ക് തുല്യമായിരിക്കണം)					
21	Input credit is applicable to income tax- (ഇൻപുട്ട് ക്രെഡിറ്റ് ആദായ നികുതിയുടെ ഭാഗമാണ്)					
22	The ability to convert financial resources into usable cash with ease is referred to as Liquidity (സാമ്പത്തിക സ്രോതസ്സുകളെ എളുപ്പത്തിൽ					

SLNo	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	ഉപയോഗിക്കാവുന്ന പണമാക്കി മാറ്റാനുള്ള കഴിവിനെ ലിക്വിഡിറ്റി എന്ന് പറയുന്നു)					
23R	Liquidity ratio is the long term financial position of a company- ലിക്വിഡിറ്റി അനുപാതം ഒരു കമ്പനിയുടെ ദീർഘകാല സാമ്പത്തിക സ്ഥിതി കാണിക്കുന്നു)					
24	If somebody invites me to invest in their business, I will ask for their balance sheet and profit and loss account and will analyse their financial strengths and weakness before investing (ആരെങ്കിലും എന്നെ അവരുടെ ബിസിനസ്സിൽ നിക്ഷേപിക്കാൻ ക്ഷണിച്ചാൽ ഞാൻ അവരുടെ ബാലൻസ് ഷീറ്റ് ലാഭനഷ്ട അക്കൗണ്ടും പരിശോധിക്കും. നിക്ഷേപിക്കുന്നതിന് മുമ്പ് അവരുടെ സാമ്പത്തിക ശക്തിയും ബലഹീനതയും വിശകലനം ചെയ്യും)					
25	I read newspaper every day and update my business and financial knowledge (ഞാൻ എല്ലാ ദിവസവും പത്രം വായിക്കുകയും എന്റെ ബിസിനസ്സ്, സാമ്പത്തിക വിവരങ്ങൾ എന്നിവ അപ്ഡേറ്റ് ചെയ്യുകയും ചെയ്യുന്നു)					
26	I keep track record of stock market indexes and stocks prices ഓഹരി വിപണി സൂചികകളുടെയും ഓഹരി വിലകളുടെയും ട്രാക്ക് റെക്കോർഡ് ഞാൻ നോക്കാറുണ്ട്)					
27	I am aware that my country is going for an economic boom or depression because I get update it in newspaper, TV, or social media (എന്റെ രാജ്യം ഒരു സാമ്പത്തിക കരിച്ചുപാട്ടത്തിലേക്കോ മാനന്ദ്രത്തിലേക്കോ പോകുകയാണെന്ന് എനിക്കറിയാം, കാരണം ഞാൻ അത് പത്രങ്ങളിലോ ടിവിയിലോ സോഷ്യൽ മീഡിയയിലോ വാഴിച്ച അപ്ഡേറ്റ് ചെയ്യാറുണ്ട്)					

SLNo	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
28	I keep watching the union and state budget to check for any opportunities or problems to my business (എന്റെ ബിസിനസിന് എന്തെങ്കിലും അവസരങ്ങളോ പ്രശ്നങ്ങളോ ഉണ്ടോ എന്നറിയാൻ ഞാൻ യൂണിയൻ, സംസ്ഥാന ബജറ്റ് നിരീക്ഷിക്കാറുണ്ട്)					
29	I am confident to submit all my GST documents without the help of an expert (പരസഹായം ഇല്ലാതെ GST ഡോക്യുമെന്റുകൾ ചെയ്യാൻ എനിക്ക് ആത്മവിശ്വാസം ഉണ്ട്)					
30	I used to critically analyse the development in financial and economic field to understand it's effect on my business and economy.( ബിസിനസിലും സമ്പദ്വ്യവസ്ഥയിലും ഉള്ള സ്വാധീനം മനസ്സിലാക്കാൻ ഞാൻ സാമ്പത്തിക മേഖലകളിലെ വികസനം വിമർശനാത്മകമായി വിശകലനം ചെയ്യാറുണ്ട്)					
31	I believe that SIP is a better method to create wealth. (സമ്പത്ത് സൃഷ്ടിക്കുന്നതിനുള്ള മികച്ച മാർഗ്ഗമാണ് SIP എന്ന് ഞാൻ വിശ്വസിക്കുന്നു.)					
32R	Insurance is an invest, not risk transfer method (ഇൻഷുറൻസ് ഒരു നിക്ഷേപമാണ്, അപകടസാധ്യത കൈമാറുന്ന രീതിയല്ല എന്നു ഞാൻ വിശ്വസിക്കുന്നു)					
33	I keep written or electronic record of my monthly expenses (എന്റെ പ്രതിമാസ ചെലവുകൾ എഴുതിയോ ഇലക്ട്രോണിക് രേഖകളോ ആയി ഞാൻ സൂക്ഷിക്കാറുണ്ട്)					
34	I consult with financial analyst for betterment of my business (എന്റെ ബിസിനസ്സ് മെച്ചപ്പെടുത്തുന്നതിന് ഞാൻ സാമ്പത്തിക വിദഗ്ദ്ധരുമായി കൂടിയായാലോചിക്കാറുണ്ട്)					
35	When there is financial problems I seek advice from experts (സാമ്പത്തിക പ്രശ്നങ്ങൾ					

SLNo	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	ഉണ്ടാകുമ്പോൾ ഞാൻ വിദഗ്ധരുടെ ഉപദേശം തേടാറുണ്ട്)					
36	I prefer branded items (ഞാൻ സാദനങ്ങൾ വാങ്ങുമ്പോൾ ബ്രാൻഡഡ് ഐറ്റംസ് വാങ്ങാനാണ് ഇഷ്ടം)					
37	If I get a chance to choose between online or cash payment I prefer online payment.( ഓൺലൈൻ പേയ്മെന്റോ ക്യാഷ് പേയ്മെന്റോ തിരഞ്ഞെടുക്കാൻ എനിക്ക് അവസരം ലഭിക്കുകയാണെങ്കിൽ, ഞാൻ ഓൺലൈൻ പേയ്മെന്റാണ് തിരഞ്ഞെടുക്കുന്നത്)					
38	I always use credit card for my day to day transaction (എന്റെ ദൈനംദിന ഇടപാടുകൾക്കായി ഞാൻ എപ്പോഴും ക്രെഡിറ്റ് കാർഡ് ഉപയോഗിക്കുന്നു)					
39	I have multiple source of income (എനിക്ക് ഒന്നിലധികം വരുമാന മാർഗങ്ങളുണ്ട്)					
40	I like to change my house hold items frequently (എന്റെ വീട്ടിലെ സാധനങ്ങൾ ഇടയ്ക്കിടെ മാറ്റാൻ ഞാൻ ആഗ്രഹിക്കുന്നു)					
41	I am always Concerned about my CIBIL Score (ഞാൻ എപ്പോഴും SIBIL സ്കോറിനെക്കുറിച്ച് ശ്രദ്ധാലുവാണ്)					
42	I plan all my organisational financial requirements in advance (എന്റെ സ്ഥാപനത്തിന്റെ എല്ലാ സാമ്പത്തിക ആവശ്യങ്ങളും ഞാൻ മുൻകൂട്ടി ആസൂത്രണം ചെയ്യാറുണ്ട്)					
43	I plan all my personal financial requirements in advance (എന്റെ എല്ലാ വ്യക്തിഗത സാമ്പത്തിക ആവശ്യങ്ങളും ഞാൻ മുൻകൂട്ടി ആസൂത്രണം ചെയ്യാറുണ്ട്)					

SLNo	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
44	I prepare a personal budget every year (എല്ലാ വർഷവും ഞാൻ ഒരു വ്യക്തിഗത ബജറ്റ് തയ്യാറാക്കാറുണ്ട്)					
45	I prepare an organisational budget every year (ഞാൻ എല്ലാ വർഷവും എൻറെ സ്ഥാപനത്തിന്റെ ബജറ്റ് തയ്യാറാക്കാറുണ്ട്)					
46	I use my organisational budgets for controlling the expenses. (സ്ഥാപനത്തിന്റെ ബജറ്റ് ഉപയോഗിച്ചു ഞാൻ ചിലവ് കുറക്കാൻ ശ്രമിക്കാറുണ്ട്.)					
47	I save some amount separately for meeting emergency expenses (അടിയന്തിര സാഹചര്യങ്ങൾക്കായി ഞാൻ കുറച്ച് തുക നീക്കിവെക്കാറുണ്ട്)					
48	I have clear cut idea about the time of my retirement. So I have started investing for that (എൻറെ വിരമിക്കൽ സമയത്തെക്കുറിച്ച് എനിക്ക് വ്യക്തമായ ധാരണയുണ്ട്, അതിനായി ഞാൻ അതിനുവേണ്ടി നിക്ഷേപം ആരംഭിച്ചു).					
49	I do tax planning to reduce tax burden (നികുതി ഭാരം കുറയ്ക്കാൻ ഞാൻ നികുതി ആസൂത്രണം ചെയ്യാറുണ്ട്)					
50	I have appointed a tax consultant for me and for my organisation (എനിക്കും എൻറെ സ്ഥാപനത്തിനും വേണ്ടി ഞാൻ ഒരു ടാക്സ് കൺസൾട്ടന്റിനെ നിയമിച്ചിട്ടുണ്ട്)					
51	I am ready to invest to get a passive income (പാസ്സീവ് ഇൻകം നേടുന്നതിനായി ഞാൻ നിക്ഷേപിക്കാൻ തയ്യാറാണ്)					
52	Last year my actual personal expenses were almost equal to my budgeted expenses (കഴിഞ്ഞ വർഷം എൻറെ യഥാർത്ഥ വ്യക്തിഗത ചെലവുകൾ					

SLNo	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	എന്റെ ബജറ്റ് ചെലവുകൾക്ക് ഏതാണ് തുല്യമായിരുന്നു)					
53	Last year my actual organisational expenses were almost equal to budgeted expenses (കഴിഞ്ഞ വർഷം എന്റെ യഥാർത്ഥ സംഘടനാ ചെലവുകൾ ബജറ്റ് ചെലവുകൾക്ക് ഏതാണ് തുല്യമായിരുന്നു)					
54	I used to reconcile my cash book and bank pass book(ഞാൻ എന്റെ ക്യാഷ് ബുക്കും ബാങ്ക് പാസ് ബുക്കും തമ്മിൽ ഒതുങ്ങുനോക്കാറുണ്ട്)					
55	I am good at managing cash (എനിക്ക് നന്നായി പണം കൈകാര്യം ചെയ്യാൻ കഴിയും)					
56	I borrow money for meeting my personal expenses (എന്റെ സ്വകാര്യ ചെലവുകൾക്കായി ഞാൻ പണം കടം വാങ്ങാറുണ്ട്)					
57	I borrowed money for doing business (ഞാൻ ബിസിനസ് ആവശ്യങ്ങൾക്ക് പണം കടം വാങ്ങാറുണ്ട്)					
58	I am confident that whatever I borrow money, it can be returned without much difficulty (ഞാൻ കടം വാങ്ങിയ പണം വലിയ ബുദ്ധിമുട്ടില്ലാതെ തിരികെ നൽകാൻ എനിക്ക് സാധിക്കുമെന്ന് ഉറപ്പുണ്ട്)					
59	I should purchase adequate health insurance policy (ഞാൻ മതിയായ ആരോഗ്യ ഇൻഷുറൻസ് പോളിസി വാങ്ങണം എന്ന് ഞാൻ വിശ്വസിക്കുന്നു)					
60	I should purchase an insurance policy for my business. എന്റെ ബിസിനസിന് ആവശ്യമായ ഇൻഷുറൻസ് പോളിസി വാങ്ങേണ്ടതുണ്ട്					
61	I should purchase adequate life insurance policies (മതിയായ ലൈഫ് ഇൻഷുറൻസ് പോളിസികൾ ഞാൻ വാങ്ങേണ്ടതുണ്ട്)					

SLNo	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
62	I am able to take all my financial decision alone (എന്റെ എല്ലാ സാമ്പത്തിക തീരുമാനങ്ങളും എനിക്ക് ഒറ്റയ്ക്ക് എടുക്കാൻ കഴിയും)					
63	I will consult experts for taking financial decision (സാമ്പത്തിക തീരുമാനങ്ങൾ എടുക്കുന്നതിന് ഞാൻ വിദഗ്ധരുമായി കൂടിയാലോചിക്കും)					
64	Majority of my financial decision in my personal life was successful (എന്റെ വെക്കി ജീവിതത്തിൽ എടുത്ത സാമ്പത്തിക തീരുമാനങ്ങൾ കൂടുതലും വിജയകരമായിരുന്നു എന്ന് ഞാൻ വിശ്വസിക്കുന്നു)					
65	I will consult with my friends and relatives for taking financial decision (സാമ്പത്തിക തീരുമാനങ്ങൾ എടുക്കുന്നതിന് ഞാൻ സുഹൃത്തുക്കളോടും ബന്ധുക്കളോടും കൂടിയാലോചിക്കാറുണ്ട്)					
66	It was my own decision to enter in to business field (ബിസിനസ് രംഗത്തേക്ക് കടക്കണമെന്നത് എന്റെ സ്വന്തം തീരുമാനമായിരുന്നു)					
67	When I take a financial decision I will thoroughly study the situations in advance (ഞാൻ ഒരു സാമ്പത്തിക തീരുമാനം എടുക്കുമ്പോൾ, ഞാൻ മുൻകൂട്ടി സ്ഥിതിഗതികൾ നന്നായി പഠിക്കാറുണ്ട്)					
68	Whenever I take a financial decision I will try to check the results by taking a feedback (ഞാൻ ഒരു സാമ്പത്തിക തീരുമാനം എടുത്താൽ, അതിന്റെ ഫീഡ് ബാക്ക് എടുത്ത് ഫലം പരിശോധിക്കാൻ ഞാൻ ശ്രമിക്കും.)					
69	I am ready to correct my financial decision whenever there is mistake (എന്റെ സാമ്പത്തിക തീരുമാനങ്ങളിൽ എന്തെങ്കിലും തെറ്റുണ്ടെങ്കിൽ ഞാൻ തിരുത്താൻ തയ്യാറാണ്)					

SLNo	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
70	I don't feel stressed when there is a financial problem (സാമ്പത്തിക പ്രശ്നങ്ങൾ ഉണ്ടാകുമ്പോൾ എനിക്ക് സമ്മർദ്ദം അനുഭവപ്പെടാറില്ല)					
71	I am very comfortable in taking financial decision (സാമ്പത്തിക തീരുമാനങ്ങൾ എടുക്കുന്നത് എനിക്ക് വളരെ എളുപ്പമുള്ള കാര്യമാണ്)					
72	I spend a lot of money while I am with my friends (ഞാൻ എന്റെ സുഹൃത്തുക്കളോടൊപ്പം ആയിരിക്കുമ്പോൾ ധാരാളം പണം ചിലവഴിക്കും)					
73	I always compare income and expenditure ratio in my daily spending (ഞാൻ എപ്പോഴും എന്റെ ദൈനംദിന ചെലവുകളിൽ വരവും ചെലവും അനുപാതം താരതമ്യം ചെയ്യാറുണ്ട്)					
74	I always calculate income and expenditure ratio in my day today business transactions (ഇന്നത്തെ ബിസിനസ് ഇടപാടുകളിൽ ഞാൻ എപ്പോഴും വരുമാനവും ചെലവും തമ്മിലുള്ള അനുപാതം നോക്കാറുണ്ട്)					
75R	I like people watching me spending a lot of money (ഞാൻ ദാരുളം പണം ചെലവഴിക്കുമ്പോൾ ആളുകൾ എന്നെ നിരീക്ഷിക്കുന്നത് എനിക്ക് ഇഷ്ടമാണ്)					
76	If I borrow money, will repay on time (പണം കടം വാങ്ങിയാൽ ഞാൻ കൃത്യസമയത്ത് തിരിച്ചടക്കും)					
77	If there is credit card for me I don't like to have overdue in it. (എനിക്ക് ക്രെഡിറ്റ് കാർഡ് ഉണ്ടെങ്കിൽ അതിനെ തിരിച്ചടവ് മുടങ്ങാൻ ഞാൻ ഇഷ്ടപ്പെടുന്നില്ല)					
78	I don't have overdue loan in my name (എന്റെ പേരിൽ തിരിച്ചടവ് മുടങ്ങിയ വായ്പയില്ല)					

SLNo	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
79	I shall try to live within my budget (ഞാൻ എന്റെ ബജറ്റിൽ ഒതുങ്ങി ജീവിക്കാൻ ആഗ്രഹിക്കുന്നു)					
80	I am responsible for profit and loss of my business (എന്റെ ബിസിനസിന്റെ ലാഭത്തിനും നഷ്ടത്തിനും ഞാനാണ് ഉത്തരവാദി)					
81R	My success in business is a blessing of God (എന്റെ ബിസിനസ്സിന്റെ വിജയം ദൈവാനുഗ്രഹമാത്രമാണ്)					
82R	It is my luck that I am running a smooth business (ഞാൻ സുഗമായി ബിസിനസ് നടത്തുന്നത് എന്റെ ഭാഗ്യം കൊണ്ടാണ്)					
83	If there is profit in my business, I believe it is by the efforts of my team work (എന്റെ ബിസിനസ്സിൽ ലാഭമുണ്ടെങ്കിൽ അത് എന്റെ ടീമിന്റെ പരിശ്രമം കൊണ്ടാണെന്ന് ഞാൻ വിശ്വസിക്കുന്നു)					
84	If there is a financial problem in my organisation I am confident that I can handle it effectively (എന്റെ സ്ഥാപനത്തിൽ സാമ്പത്തിക പ്രശ്നമുണ്ടെങ്കിൽ അത് ഫലപ്രദമായി കൈകാര്യം ചെയ്യാൻ കഴിയുമെന്ന് എനിക്ക് ഉറപ്പുണ്ട്)					
85	I am confident that none of my financial decision would go wrong (എന്റെ സാമ്പത്തിക തീരുമാനങ്ങളൊന്നും തെറ്റായി പോകില്ലെന്ന് എനിക്ക് ഉറപ്പുണ്ട്)					