

Credit Rating: Effect of Awareness and Perception on Investment Decisions among Equity Investors in Kerala

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

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CERTIFICATE

This is to certify that the thesis entitled “**Credit Rating: Effect of Awareness and Perception on Investment Decisions among Equity Investors in Kerala**” submitted to the University of Calicut in partial fulfillment of the requirements for the award of the Degree of Philosophy in Commerce, is a bonafide record of research work carried out by **Ms. Shafna. T** under my supervision and guidance and no part of this thesis has formed the basis for the award of any degree, diploma, associateship, fellowship or other similar title to any candidate in any university. She is permitted to submit the thesis to the University for Evaluation.

Both the examiners have not recommended any modifications or suggestions and therefor the original thesis is resubmitted as such. The soft copy attached is the same as that of the resubmitted copy.

Calicut University
Date: 16-12-2024




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DECLARATION

I hereby declare that the work presented in the thesis entitled “**Credit Rating: Effect of Awareness and Perception on Investment Decisions among Equity Investors in Kerala**” is based on the original work done by me under the guidance of Prof. (Dr.) SATHEESH EK, Registrar, University of Calicut and has not been included in any other thesis submitted previously for the award of any degree. The contents of the thesis are undergone plagiarism check using iThenticate software at C.H.M.K. Library, University of Calicut, and the similarity index found within the permissible limit. I also declare that the thesis is free from AI generated contents.

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ABSTRACT

Increasing varieties of instruments and the growth of financial market created not only the opportunities for the investors but also complexities in the market. To reduce the complexity of financial instruments, to facilitate the investors to take informed investment decisions and to enable the companies to mobilize the required funds, various credit rating agencies emerged across the globe. Credit rating denotes an independent opinion of an agency on the issuer's capability to repay its financial commitments. Rating agencies evaluate the firm's business position, industry and competitive factors, strategic programs and thereby provide reliable assessments of firm's financial creditworthiness over the foreseeable future. The availability of clear and accepted indicators of the risk of default helps investors to make investment decision. Even though the credit rating helps the investors to take investment decision, there are number of occasions of failure to make timely prediction and inbuilt problem with credit rating system. The failure of the rating system was noticeable during the 2008 financial crisis, the Enron scandal in 2001, the collapse of Kingfisher Airlines, DHFL, Eros, Suzlon Energy, Amtek Auto, Zee Group, RCom, and most recently IL&FS. The expanding business of CRAs and the close relationship between issuers' managing directors and CRAs' management may also be contributing factors. In India, there is a growing perception that CRAs have become overly generous in awarding ratings, raising concerns about their authenticity, honesty, and utility. By doing so, CRAs have not only lost the trust of investors but also their credibility. The present study examines the awareness and perception of investors towards credit rating and its influence on their investment decision. The present study is descriptive and analytical in nature. The study is based on both primary and secondary data. Primary data is collected from equity investors in Kerala using questionnaire. Secondary data required for the study were compiled from official website of CRISIL, ICRA, CARE and SEBI, research dissertation and thesis, periodicals, study report, books related to study area, journals and other websites. 400 equity investors from six selected districts in Kerala were selected for the study. The pilot study and pre-test were conducted to check the validity,

reliability, and normality requirements. The primary data have been analyzed using statistical tools such as percentage analysis, mean, standard deviation, Levene's test of Homogeneity of Variance, Independent Sample 't' test, One-way ANOVA, Tukey HSD Post-hoc test for Multiple Comparison, Chi square test. Furthermore, Confirmatory Factor Analysis and Structural Equation Modelling are used as the statistical techniques to identify the relationships and measurement models of the variables respectively. The report of the research work is presented in nine chapters. Research indicates a potential need for increased transparency efforts and better communication between Credit rating agencies and investors to strengthen trust and understanding in the industry. Educating investors about CRA methodologies and their working can contribute to a more informed and confident investor base when engaging with credit rating agencies. The investors are also to be educated on how to make the decisions by using rating. The investors point out that there is a need for periodic rating revisions. The respondents are concerned about the negative impact of downgrading and frequent rating changes on a company's image and investor confidence. Results suggest that while some believe in the usefulness of ratings in investment decisions, there's a more mixed opinion regarding their impact on market efficiency and market-moving potential. The findings underscore the importance of clear and well-explained rating practices in maintaining investor confidence also highlighting the varied perspectives on the immediate market impact of rating announcements. The SEM model proposed for testing the impact of Awareness on different dimensions of Perception demonstrates that there is significant positive causal relationship between the Awareness of investors and their Perception related to credit rating. The findings denote that there is no significant but positive influence of investors' awareness on credit rating and their Investment Decision based on credit rating. Further, it shows that there is significant positive causal relationship between the Perception of investors and their Investment Decision related to credit rating. The study provides implications for Regulators, Credit Rating Agencies and investors.

സംഗ്രഹം

അമൂർത്തമായ സാമ്പത്തിക ഉപകരണങ്ങളുടെ വർദ്ധനയും സാമ്പത്തികവിപണിയുടെ വളർച്ചയും നിക്ഷേപകർക്ക് അവസരങ്ങൾ മാത്രമല്ല, വിപണിയിൽ സങ്കീർണതകളും സൃഷ്ടിച്ചു. സാമ്പത്തിക ഉപകരണങ്ങളുടെ സങ്കീർണ്ണതകൊള്ളുന്നതിനും നിക്ഷേപകർക്ക് അറിവോടെയുള്ള തീരുമാനങ്ങൾ എടുക്കുന്നതിനും ആവശ്യമായ ഫണ്ടുകൾ സമാഹരിക്കാൻ കമ്പനികളെ പ്രാപ്തരാക്കുന്നതിനും വിവിധ ക്രെഡിറ്റ് റേറ്റിംഗ് ഏജൻസികൾ ലോകമെമ്പാടും ഉയർന്നുവന്നു. ഒരു ഏജൻസിയുടെ സാമ്പത്തികബാധ്യതകൾ തിരിച്ചടയ്ക്കാനുള്ള ഇഷ്യൂവറുടെ കഴിവിനെക്കുറിച്ചുള്ള സ്വതന്ത്രാഭിപ്രായത്തെയാണ് ക്രെഡിറ്റ് റേറ്റിംഗ് എന്നു സൂചിപ്പിക്കുന്നത്. റേറ്റിംഗ് ഏജൻസികൾ സ്ഥാപനത്തിന്റെ ബിസിനസ്സ് നില, വ്യവസായം, പ്രതിയോഗിത ഘടകങ്ങൾ, മത്സരതന്ത്രങ്ങൾ എന്നിവ വിലയിരുത്തുകയും അതുവഴി സ്ഥാപനത്തിന് കാലക്രമേണ ഉണ്ടായേക്കാവുന്ന വായ്പായോഗ്യതയെക്കുറിച്ച് വിശ്വസനീയമായ വിലയിരുത്തലുകൾ നൽകുകയും ചെയ്യുന്നു. വ്യക്തവും സീകാര്യവുമായ അപകടസാധ്യതകളുടെ സൂചകങ്ങൾ, നിക്ഷേപകരെ നിക്ഷേപതീരുമാനങ്ങൾ എടുക്കാൻ സഹായിക്കുന്നു. നിക്ഷേപതീരുമാനം എടുക്കാൻ ക്രെഡിറ്റ് റേറ്റിംഗ് നിക്ഷേപകരെ സഹായിക്കുന്നുണ്ടെങ്കിലും, നിരവധി അവസരങ്ങളിൽ പ്രവചനങ്ങൾ കൃത്യസമയത്തു നടത്തുന്നതിൽ ഈ സമ്പ്രദായം പരാജയപ്പെടുകയും ക്രെഡിറ്റ് റേറ്റിംഗിന് പ്രകൃത്യാലുള്ള പ്രശ്നങ്ങൾ ഉണ്ടാകുകയും ചെയ്യാറുണ്ട്. 2008ലെ സാമ്പത്തിക പ്രതിസന്ധി, 2001ലെ എൻറോൺ അഴിമതി, കിംഗ്ഫിഷർ എയർലൈൻസ്, ഡിഎച്ച്എഫ്എൽ, ഇറോസ്, സുസ്റ്റോൺ എനർജി, ആംടെക് ഓട്ടോ, സീ ഗ്രൂപ്പ്, ആർകോം, തുടങ്ങി ഏറ്റവും ഒടുവിൽ, ഐഎൽ ആൻഡ് എഫ്എസ് വരെയുള്ളവയുടെ തകർച്ചയിൽ റേറ്റിംഗ് സംവിധാനത്തിന്റെ പരാജയം ശ്രദ്ധിക്കേണ്ടതാണ്. CRA-കളുടെ വിപുലീകരിക്കുന്ന ബിസിനസ്സും ഇഷ്യൂവേഴ്സിന്റെ മാനേജിംഗ് ഡയറക്ടർമാരും CRA-കളുടെ മാനേജ്മെന്റും തമ്മിലുള്ള അടുത്ത ബന്ധവും ഇതിനു കാരണമായേക്കാം. ഇന്ത്യയിൽ CRA-കൾ റേറ്റിംഗുകൾ നൽകുന്നതിൽ അമിതമായ ഉദാരത കാണിക്കുന്നത് അവയുടെ ആധികാരികത, സത്യസന്ധത, ഉപയോഗക്ഷമത എന്നിവയെക്കുറിച്ച് നിക്ഷേപകർക്കിടയിൽ ആശങ്ക ഉയർത്തുന്നു. ഇതിലൂടെ CRA-കൾക്ക് നിക്ഷേപകരുടെ മാത്രമല്ല, സ്വവിശ്വാസ്യതയും നഷ്ടപ്പെട്ടു. ക്രെഡിറ്റ് റേറ്റിംഗിനെക്കുറിച്ചുള്ള നിക്ഷേപകരുടെ അവബോധവും ധാരണയും അത് അവരുടെ നിക്ഷേപതീരുമാനത്തിലുണ്ടാക്കുന്ന സ്വാധീനവും ഈ പഠനം പരിശോധിക്കുന്നു. ഈ പഠനം വിവരണാത്മകവും വിശകലനാത്മകവും പ്രാഥമികവും ദ്വിതീയവുമായ ഡാറ്റയെ അടിസ്ഥാനമാക്കിയുള്ളതുമാണ്. കേരളത്തിലെ ഇക്വിറ്റിനിക്ഷേപകരിൽ നിന്ന്, ചോദ്യാവലിയിലൂടെയാണ് പ്രാഥമിക വിവരങ്ങൾ ശേഖരിക്കുന്നത്. പഠനത്തിന് ആവശ്യമായ ദ്വിതീയ ഡാറ്റാ CRISIL, ICRA, CARE, SEBI എന്നിവയുടെ ഔദ്യോഗിക വെബ്സൈറ്റ്, ഗവേഷണ പ്രബന്ധങ്ങളും തീസിസും, ആനുകാലികങ്ങൾ, പഠന റിപ്പോർട്ട്, പഠന മേഖലയുമായി ബന്ധപ്പെട്ട പുസ്തകങ്ങൾ, ജേണലുകൾ, മറ്റ് വെബ്സൈറ്റുകൾ എന്നിവയിൽ നിന്ന് സമാഹരിച്ചിരിക്കുന്നു. കേരളത്തിലെ തിരഞ്ഞെടുത്ത ആറ് ജില്ലകളിൽ നിന്നുള്ള 400 ഇക്വിറ്റിനിക്ഷേപകരാണ് പഠനത്തിനായി തിരഞ്ഞെടുത്തത്. സാധ്യത, വിശ്വാസ്യത, സാധാരണത്വം

എന്നിവ പരിശോധിക്കുന്നതിനായി പൈലറ്റ് പഠനവും പ്രീ-ടെസ്റ്റും നടത്തി. പ്രാഥമിക ഡാറ്റാവിശകലനം നടത്തിയിരിക്കുന്നത് ശതമാന വിശകലനം, ശരാശരി, സ്റ്റാൻഡേർഡ് ഡീവിയേഷൻ, വേരിയൻസിന്റെ ഹോമോജെനിറ്റിയുടെ ലെവെൻസ് ടെസ്റ്റ്, ഇൻഡിപെൻഡന്റ് സാമ്പിൾ 'ടി' ടെസ്റ്റ്, വൺ-വേ ANOVA, മൾട്ടിപ്പിൾ

താരതമ്യത്തിനായുള്ള ടൂക്കി എച്ച്എസ്ഡി പോസ്റ്റ്-ഹോക്ക് ടെസ്റ്റ്, ഛി സ്കെയർ ടെസ്റ്റ് തുടങ്ങിയ സ്റ്റാറ്റിസ്റ്റിക്കൽ ടൂളുകൾ ഉപയോഗിച്ചാണ്. കൂടാതെ, കൺഫോമേറ്ററി ഫാക്ടർ അനാലിസിസും സൂക്ച്റൽ ഇക്വേഷൻ മോഡലിംഗും യഥാക്രമം വേരിയബിളുകളുടെയും മോഡലുകളും അവയുടെ ബന്ധവും അളക്കുന്നതിനും തിരിച്ചറിയുന്നതിനുമുള്ള സ്റ്റാറ്റിസ്റ്റിക്കൽ ടെക്നിക്കുകളായി ഉപയോഗിക്കുന്നു. ഗവേഷണപ്രവർത്തനത്തിന്റെ റിപ്പോർട്ട്, ഒമ്പത് അധ്യായങ്ങളിലായി അവതരിപ്പിച്ചിരിക്കുന്നു. വ്യവസായത്തിൽ വിശ്വാസവും ധാരണയും ശക്തിപ്പെടുത്തുന്നതിന് ക്രെഡിറ്റ് റേറ്റിംഗ് ഏജൻസികളും നിക്ഷേപകരും തമ്മിലുള്ള മെച്ചപ്പെട്ട ആശയവിനിമയവും സുതാര്യതയും വർദ്ധിപ്പിക്കേണ്ടതിന്റെ ആവശ്യകത ഗവേഷണം ചൂണ്ടിക്കാണിക്കുന്നു. ക്രെഡിറ്റ് റേറ്റിംഗ് ഏജൻസികളുമായി ചേർന്ന് പ്രവർത്തിക്കുന്നത് CRA രീതികളെക്കുറിച്ചും അവരുടെ പ്രവർത്തനത്തെക്കുറിച്ചും നിക്ഷേപകരെ ബോധവൽക്കരിക്കുന്നതിനും കൂടുതൽ അറിവും ആത്മവിശ്വാസവുമുള്ള നിക്ഷേപകരുടേതായ ഉണ്ടാകുന്നതിനും കാരണമാകും. റേറ്റിംഗ് ഉപയോഗിച്ച് എങ്ങനെ തീരുമാനങ്ങൾ എടുക്കാമെന്നതിനെ കുറിച്ചും നിക്ഷേപകരെ ബോധവൽക്കരിക്കണം. കാലാനുസൃതമായ റേറ്റിംഗ് പരിഷ്കരണങ്ങൾ ആവശ്യമാണെന്ന് നിക്ഷേപകരും ചൂണ്ടിക്കാട്ടുന്നു. ഒരു കമ്പനിയുടെ പ്രതിച്ഛായയിലും നിക്ഷേപകരുടെ ആത്മവിശ്വാസത്തിലുമുള്ള അധഃപതനവും പതിവായുള്ള റേറ്റിംഗ് മാറ്റങ്ങളുമുണ്ടാക്കുന്ന പ്രതികൂല സ്വാധീനത്തെക്കുറിച്ച് ചോദ്യവലിയിൽ പ്രതികരിച്ചവർ ആശങ്ക ഉന്നയിച്ചിട്ടുണ്ട്. നിക്ഷേപ തീരുമാനങ്ങളിലെ റേറ്റിംഗുകളുടെ പ്രയോജനത്തിൽ ചിലർ വിശ്വസിക്കുന്നുണ്ടെങ്കിലും, വിപണിയുടെ കാര്യക്ഷമതയിലും ചലന സാധ്യതയിലും അവയുടെ സ്വാധീനത്തെക്കുറിച്ച് സമ്മിശ്ര അഭിപ്രായങ്ങളുണ്ടെന്ന് ഫലങ്ങൾ സൂചിപ്പിക്കുന്നു. നിക്ഷേപകരുടെ ആത്മവിശ്വാസം നിലനിർത്തുന്നതിൽ വ്യക്തവും വിശദവുമായ റേറ്റിംഗ് സമ്പ്രദായങ്ങളുടെ പ്രാധാന്യത്തെ പഠനം അടിവരയിടുന്നു. ഇതോടൊപ്പം റേറ്റിംഗ് പ്രഖ്യാപനങ്ങൾ ഉടൻ വിപണിയിലുണ്ടാക്കുന്ന ആഘാതത്തെക്കുറിച്ചുള്ള വ്യത്യസ്ത കാഴ്ചപ്പാടുകൾ എടുത്തുകാണിക്കുകയും ചെയ്യുന്നു. നിക്ഷേപകരുടെ അവബോധവും അവരുടെ ക്രെഡിറ്റ് റേറ്റിംഗുമായി ബന്ധപ്പെട്ട മനോഭാവവും തമ്മിലുള്ള ഗണ്യമായ കാരണബന്ധമുണ്ടെന്ന് നിക്ഷേപകരുടെ അവബോധത്തിന്റെ വിവിധ മാനങ്ങളിൽ അതിന്റെ സ്വാധീനം പരിശോധിക്കുന്നതിനായി നിർദ്ദേശിക്കപ്പെട്ട SEM മോഡൽ തെളിയിക്കുന്നു. നിക്ഷേപകരുടെ അവബോധത്തിന് ക്രെഡിറ്റ് റേറ്റിംഗിലേയും അവരുടെ ക്രെഡിറ്റ് റേറ്റിംഗിനെ അടിസ്ഥാനമാക്കിയുള്ള നിക്ഷേപ തീരുമാനത്തിനും കാര്യമായ പോസിറ്റീവ് സ്വാധീനമില്ലെന്ന് കണ്ടെത്തലുകൾ സൂചിപ്പിക്കുന്നു. കൂടാതെ, നിക്ഷേപകരുടെ മനോഭാവവും അവരുടെ ക്രെഡിറ്റ് റേറ്റിംഗുമായി ബന്ധപ്പെട്ട നിക്ഷേപ തീരുമാനങ്ങളും തമ്മിലുള്ള ഗണ്യമായ പോസിറ്റീവ് ബന്ധമുണ്ടെന്ന് ഇത് തെളിയിക്കുന്നു. ഈ പഠനം റെഗുലേറ്റർമാർക്കും ക്രെഡിറ്റ് റേറ്റിംഗ് ഏജൻസികൾക്കും നിക്ഷേപകർക്കും നിർദ്ദേശങ്ങൾ നൽകുന്നു.

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LIST OF ABBREVIATIONS

ACRAA	: Association of Credit Rating Agencies in Asia
ADB	: Asian Development Bank
AGFI	: Adjusted GFI
A.I.G	: American International Group
AMBI	: Association of Merchant Bankers of India
AMFI	: Association of Mutual Funds of India
AMOS	: Analysis of Moment Structures
ANOVA	: Analysis of Variance
AVE	: Average Variance Extracted
BSE	: Bombay Stock Exchange
BTS	: Bartlett's Test of Sphericity
CAMEL	: Capital Adequacy, Asset Quality, Management, Earnings, Liquidity, and Sensitivity
CARE	: Credit Analysis and Research Limited
CFA	: Confirmatory Factor Analysis
CFI	: Comparative Fit Index
CIDC	: Construction Industry Development Council
CR	: Credit Rating
CRAs	: Credit Rating Agencies
CRAB	: Credit Rating Agency of Bangladesh
CRIS	: CRISIL Research and Information Services
CRISIL	: Credit Rating Information Services of India Limited
EFA	: Exploratory Factor Analysis
GDSIL	: Global Data Services of India Limited
GFI	: Goodness of Fit Index
GIC	: General Insurance Corporation of India
HDFC	: Housing Development Finance Corporation Limited
ICICI	: Industrial Credit and Investment Corporation of India Limited
ICTEAS	: ICRA Techno Analytics Ltd

IDBI	:	Industrial Development Bank of India
IFCI	:	Industrial Finance Corporation of India
IFI	:	Incremental Fit Index
IISL	:	India Index Services and Products Limited
IMaCS	:	ICRA Management Consulting Services Ltd
INFOMERICS	:	Integrated Financial Omnibus Metrics Research of International Corporate Systems
IPO	:	Initial Public Offer
KMO	:	Kaiser-Meyer-Olkin
LIC	:	Life Insurance Corporation of India
LPG	:	Liquid Petroleum Gas
MoPNG	:	Ministry of Petroleum and Natural Gas
MoU	:	Memorandum of Understanding
MSV	:	Maximum Shared Variance
NBFC	:	Non-Banking Financial Company
NERA	:	National Economic Research Associates
NFI	:	Normed Fit Index
NHB	:	National Housing Bank
NRSROs	:	Nationally Recognized Statistical Rating Organizations
NSE	:	National Stock Exchange
NSIC	:	National Small Industries Corporation Limited
PCA	:	Principal Component Analysis
RBI	:	Reserve Bank of India
RMR	:	Root Mean Square Residuals
RMSEA	:	Root Mean Square Error of Approximation
S&P BSE	:	Standard & Poor's BSE Sensitive Index
S&P CNX	:	Standard & Poor's CRISIL and NSE Index Fifty
SBI	:	State Bank of India
SD	:	Standard Deviation
SEBI	:	Securities and Exchange Board of India
SEC	:	Securities and Exchange Commission

SEM	:	Structural Equation Modelling
SME	:	Small and Medium Enterprises
SMERA	:	Small and Medium Enterprises Rating Agency of India
SPSS	:	Statistical Package for Social Sciences
SRO	:	Self-Regulatory Organization
TLI	:	Tucker-Lewis Index
Tukey HSD	:	Tukey Honestly Significant Difference
US	:	United State
UTI	:	Unit Trust of India

CHAPTER 1

INTRODUCTION

“There are two super powers in the world today in my opinion. There’s the United States and there’s Moody’s Bond Rating Services. The United States can destroy you by dropping bombs, and Moody’s can destroy you by downgrading your bonds. And believe me; it’s not clear sometimes who’s more powerful.”

Thomas Friedman, 1996

1.1 Background

A financial system plays an important role in economic growth. A financial system provides and facilitates efficient and effective deployment of funds; hence it encourages investments and economic development (Kumari, 2021). The modern financial system comprises of financial markets, financial institutions, financial instruments and financial services (Chandra, 2011). It as defines ‘a set of complex and closely interconnected financial institutions, markets, instruments, services, practices, and transactions’ (Gurusamy, 2008). The level of economic growth largely depends upon the state of financial system prevailing in the economy. The financial system facilitates the intermediation between savers and investors and promotes economic development. According to (Pathak, 2003), it is a complex, well-integrated set of subsystems of financial institutions, markets, instruments, and services which allows efficient and effective transfer and allocation of funds.

A financial market is a platform which enables participants to deal with financial instruments. The financial markets facilitate buying and selling of financial claims, assets, services and securities (Godha, 2014). Financial institutions act as intermediaries that facilitate the effective mobilisation and distribution of funds. Financial instruments are claims made against a person or institution for lump sum payment at future or periodic payment. Financial services are at heart of every economy. There are two aspects of financial services. Firstly, it involves the

creation, dissemination and use of information. This industry relies heavily on information, and the "information revolution" has changed it. Secondly, financial services require huge amounts of quality labour to handle information. Financial services involve at least two people or firms, namely the service provider and the user. The value of financial services is on the distinctions between these parties (Bhalla, 2005).

The economic growth of a country depends, to a greater extent, on a vibrant capital market since it allows the conversion of savings into investment. Such efficient capital allocation necessitates the use of reliable market information. It may be noted that the growth of capital market depends upon a number of elements, including the availability of comprehensive information and the presence of informed investors. The credit rating agencies was rooted in the fact that information about a company's risk profile can assist investors in making sound investment decisions. An investor in search of profitable investment avenues can get information from variety of sources such as offer documents of the issuers, research report of the market intermediaries, media reports and so on. In addition, investors can also base the investment decisions on the ratings provided by credit rating agencies (Gurusamy, 2007). The objective of rating agencies is to assess the probability whether an issuer will meet its obligations in time by resolving asymmetric information between the two market sides and by evaluating financial claims according to standardized quality categories (Christoph, 2001).

The genesis of credit ratings can be traced to the financial crisis in 1837 in the United States of America. The severe impact of this crisis lasted six years and it was attributed to information asymmetry and lack of confidence in the financial system. In the aftermath of the crisis, Lewis Tappan established a mercantile credit rating agency in 1841. The credit rating agencies today have ample opportunities to play a unique role in enhancing the capital market and instilling the investors' confidence. Since inadequately high exposure to credit risk has been one of the important problems in financial institutions across world for many years, an accurate assessment of the creditworthiness of obligators is an essential prerequisite for the stability of a financial system (Hornik et al., 2007).

1.2 Credit rating: Overview

A credit rating is an agency's assessment on future ability of the issuer or borrower to make timely principle and interest payments (Niyas, 2019). It is a qualified assessment and formal evaluation of company's credit history and capability of repaying obligations. This rating is based on an objective analysis of the information and clarifications gathered from several sources including the issuer (Viney, 2014). It is concerned with an act of assigning values by estimating worth or solvency and honesty. Credit rating uses ordinal symbols to reveal the credit quality to uninformed investors.

Standard and Poor's, a reputed credit rating agency based in the USA, describes credit ratings as judgements of borrowers' creditworthiness based on relevant risk factors, expressed by a letter grade symbol which markets have come to depend on as reliable, user friendly tool for differentiating credit quality. Credit ratings provide a relationship between risk and return. The investor utilises the rating to determine the risk level and compares the offered rate of return and takes his investment decision accordingly. Thus, the credit rating agencies evaluate the intrinsic worth of a company and assign ranks to the companies accordingly. The primary goal of these organisations is to restore the confidence in the capital market and to provide unbiased assessment of credit worthiness of the companies.

A rating expressed of both a letter rating (credit category) and commentary (if provided). The commentary can include, credit watch, credit outlook modifier, assumptions, criteria and methods used in determining the rating opinion, circumstances for changing the rating, details of the rated firm and its lines of operation (Frost, 2007). In order to promote better comprehension, rating agencies also publish explanations for their symbols used as well as the rationale. It can also be defined as an expression of opinion through symbols about credit quality of the issuer of security or instrument (Ragunathan & Lahiri, 2013).

Rating agencies base their ratings on a variety of aspects associated with the companies like financial risk, business risk, industry risk, market risk, political risk, etc. (González et al., 2004). After analysing all risks, ratings assign to the

instruments in grades form which indicate the probability of defaults (Kumari, 2021). Rating is a complex activity that require examination and appraisal of complex factors involving a diverse mix of variables ranging from accounting to financial analysis and risk ascertainment and many more (Jain and Sharma, 2008). The rating process involves analysis of financial information, visits to issuers' offices and works, intensive discussion with executives of issuers, discussions with auditors, bankers, creditors, etc. It also involves an in-depth study of the industry itself and the extent of environment scanning. Therefore, in human terms, it is practically impossible for an investor to rate a security for two reasons: (i) They do not have effective access to the information required to make an effective rating, (ii) They do not have the sophisticated tools to convert the available data into the effective information required for decision-making (Jain and Sharma, 2008).

Better credit ratings lead to better capital market access by lowering borrowing costs and increasing debt issuance (Tang, 2009). Assigned ratings have a substantial impact on cost of the firm and even the marketability of its issues. The bond rating is seen by the investing community as an indicator of the firm's overall investment quality; thus bond ratings may influence both the cost of debt and cost of equity to the firm (Pinches & Mingo, 1975). These ratings provide valuable information about the creditworthiness and financial health of an issuing firm, which influences the perceived risk and potential return associated with investing in the company's equity (Mazumder, 2015).

In order to maintain market stability and boost investor confidence, financial regulators must protect investors' interests against any misconduct. Having a specialised agency involved in the rating increases the creditability of rating process, so ratings act as objective standards for market participants to base their self-purchase decision (Jain & Sharma, 2008).

The rating agencies play a key role in the infrastructure of modern financial system. Credit rating is an important tool for investors' protection and giving corporations self-evaluation for their financial demands and expansion. Credit rating agencies play an important role in determining the solvency of firms and countries with

independent objectives. Credit ratings are of great practical importance, since they affect firm's cost of debt, financial structure, and even its ability to continue trading. They serve investors, issuers and regulators and also serving as the principal sources of information for borrowers about the quality of credit issuers (Kumari, 2021). Overall, credit ratings are a measure of the likelihood of a firm's default. Credit ratings are important for developing market economies because they exhibit their creditworthiness to foreign investors.

1.3 Credit Rating: Indian Perspective

The growth story of the Indian capital market began in the mid-1980s. India was among the first developing countries to set up a credit rating agency in 1988. Since 1990s, the Indian economy has in the process of rapid transformation. As a result, financial services sector is also witnessing changes. The objective of the financial sector reforms is to develop an efficient, competitive and diversified financial system in the country that meets international standards. After the lowering of bank interest rates, capital markets have become a popular way for middle-class people to channel their savings. The globalization has paved the way for the introduction of innovative and sophisticated products into our country.

The government is eager to remove all barriers to inflow of foreign capital. The public sector undertakings are being privatized and private sector has been permitted to participate in banking and mutual funds. Several strict regulations have liberalized by SEBI in order to strengthen the capital and money markets. After opening of the economy to the global players, the concept of a free market gained significant importance. The liberalization of economy gave rise to several opportunities for investment. At the same time, the liberalization of the economy has leads to increased business risks. The success of industrial projects has become a gamble.

The relevance of credit rating has expanded in India as a result of liberalization policy, deregulation of interest rates and increased corporate sector dependence on the capital market. As the financial system becomes more liberalized, number of public and private sector companies approaching to the capital market for finance by issuing bonds, debentures, and shares. These businesses' primary goal is to attract

potential investors. However, the potential investors lack analytical skill which is necessary to evaluate the company's part records, liquidity, safety, and future liability of the concerned. Therefore, a system should exist that may help potential investors make wise investment choices. The expansion of the capital market and varieties of instrument created both opportunities and complexities in the market. It is in the background that policymakers thought of introducing the credit rating system in India (Pandian, 2012).

Credit Rating Agencies (CRAs) play a significant role in boosting investor confidence in financial markets. The opinions of CRAs give investors and lenders a better understanding of the risks that may be encountered when dealing with a particular entity or product. As a result, CRAs can impact the issuer's access to capital, structure of financial transactions and determine the types of investors in a company (Graaf, 2015).

Support from regulations to the new rating activity has given necessary impetus to the expansion of credit rating industry in India. Commercial banks, insurance companies and pension funds are subject to regulatory restrictions based on credit ratings (C. C. Chang et al., 2016). Legislators, regulators, issuers and investors are considered ratings as important since they constitute a key channel of information dissemination in financial markets. The quality of ratings is therefore quite relevant for the proper functioning of the financial system.

Presently, the Indian credit rating industry is next to the US in terms of the number of ratings issued. Credit ratings have become more important due to the global integration of financial markets. It is also believed that the introduction of the credit ratings system reflects the capital market attaining a certain level of complexity (Siddaiah, 2011). The ratings are divided into three levels: investment-grade, non-investment grade and default grade. The investment-grade rating is considered to be safer grade than the rest.

1.4 Role of Credit Rating Agencies

Financial market participants need information to take appropriate decisions. Non-availability of quality and processed information is widespread issue in the financial market. Credit Rating Agencies are emerged to address the problem of non-availability of information. Ratings issued by the major rating agencies have proved to be a reliable source of information (Sharma & Chandan, 2006). The investment decisions of the investors are influenced by the factors such as name recognition of the company, operations of the company, market sentiments, promoters' reputation and so on. Credit rating from an independent agency would help the investors in investment management. Credit rating inspires and encourages the investors to put their money into capital market operations which results in productive use of the funds (Rao, 1999). He also opines that credit rating creates confidence in the mind of investors and public.

Rating is a useful tool not only for the investor, but also for the issuers to attract the investors. From the perspective of company, credit rating helps to access the capital markets and makes funds available at a cheaper cost. A company with favourably rated instrument improves its goodwill and enhance the corporate image among stakeholders. There is common practice to use ratings for marketing purposes, which is exhibited on all their company brochures and office stationery (NISM, 2009). The credit rating agencies regularly review the ratings as they need to balance between the accuracy of ratings and their stability. This implies that the rating agencies need to carefully consider whether to react to every adverse change or only respond to change in intrinsic creditworthiness.

Ratings are very useful for investors, issuers and regulators but they need to be used carefully (Reddy, 2000). Credit ratings are used by the regulators to supervise investment portfolios maintained by regulated institutions in order to promote stability and order in the financial market. In fact, ratings by NRSROs (Nationally Recognized Statistical Rating Organizations) have been incorporated in the investment guidelines by the regulators all over the world to set a benchmark with respect to credit risk for regulated entities. For example, in order to minimize risk

certain policy guidelines require only investment grade securities for the institutional portfolios. To issue commercial paper in India, Reserve Bank of India require a minimum credit rating by a registered credit rating agency. The regulatory changes in banks' capital requirements under Basel II and Basel III gave a new role to credit ratings. Risk weights are used to establish minimum capital charges for different categories of borrowers. These risk weights are computed using credit ratings. The credit rating is becoming more and more important globally due to many factors such as increasing role of capital and money markets, globalization, continuing growth of information technology, growth of confidence in the efficiency of the market mechanism, etc.

1.5 Role of Credit Rating in the Capital Market

With the expansion of the financial market and growing number of financial instruments, both the lenders and the borrowers are met with excessive number of funding and investing options. As a result, it becomes difficult for the borrowers to choose the right instruments for raising capital. In the same way, the investors are confused in the multitude of fund raisers, where all the borrowers have a credible name and reputation (Verma, 2000a).

The two fundamental factors that influence any investment decision are risk and return. The investor requires extensive information to ascertain risk-return relationships. The availability of accurate and timely information is vital for efficient financial markets. However, lack of symmetrical information between lenders and borrowers is generally observed. In a global environment, this asymmetry is even greater and the cost of collecting such Information is also higher (Verma, 2000b). As a result, the process of making investment decisions becomes highly information intensive and costly. In response to this situation and mitigate the problem of asymmetric information, credit rating was developed and credit rating agencies came into being.

In a market economy, the financial market acts as an effective middleman by mediating between savers and investors, mobilising capital and efficiently allocating it between competing users. This allocative role is severely dependent on the

availability of reliable information (Mohanrao, 1995). Ratings are meant to provide capital market participants with a standardised framework for comparing credit quality (Reddy Y.V, 2000). In this way, Credit ratings have a unique function in strengthening the capital market and building investors' confidence. Credit ratings are currently used in the financial markets of developed and emerging economies of the world (RBI, 1998).

In light of prevalent economic environment and the country's growing capital market with global postures, a strong need for rapid adoption of credit rating into corporate culture is felt in order to promote self-regulated and healthy corporate growth. To achieve such an objective, a thorough understanding of rating process, procedure and practices are required, especially to the investors, borrowers and regulators (Verma, 2000a).

Credit rating agencies provide un-biased and independent information to capital market participants in order to help them in decision making process involved in investing. Thus, Credit Rating Agencies serve an important role as information provider and thereby facilitate the flow of capital for businesses, whether they are small private firms or larger companies (Sunitha, 2021). The firms' issuance of securities with good credit rating guarantees its subscription. Furthermore, developed countries consider credit ratings as critical inputs in determining investment portfolio. The CRAs play an important role in the of modern capital markets by occupy the role as information gatekeeper.

1.6 Statement of the problem

The credit rating agencies play an important role in development of financial market by informing market participants about company's creditworthiness and enhanced transparency. The availability of clear and accepted indicators of the risk of default helps investors to make investment decision. A change in the issuer's credit rating reflects a substantial change in the long-term creditworthiness of the firm, and therefore is an important event (Hung et al., 2017). Hence, the change in credit rating will effect the investment decision of investor's. CRAs are considered critical gatekeepers in maintaining investor trust. Investors rely on credit rating grades for

information, and it is regarded as an essential parameter for investment by investors (Jaleel, 2018). The informational value of rating agencies is a controversial and inconclusive issue.

Credit rating agencies have criticized for their inaccurate or incomplete information as well as the lack of transparency of their methodology. The failure of the rating system was noticeable during the 2008 financial crisis, the Enron scandal in 2001, the collapse of Kingfisher Airlines, DHFL, Eros, Suzlon Energy, Amtek Auto, Zee Group, RCom, and most recently IL&FS. Credit rating agencies are now under scrutiny for their inability to predict default ratings and to warn investors of impending firm-related financial difficulties (Kumari, 2021). In these cases, CRAs were either bought out by the issuers or the issuers' credibility could not be assessed promptly. These high-profile cases are only a few illustrations of the unethical behavior CRAs.

Apart from global leaders in the rating industry such as, Moody's Group, S&P, and Fitch, numerous other CRAs exist in various countries. Still, the rating processes are time-consuming and expensive since it requires extensive analysis by experts (Hajek & Michalak, 2013). Sudden changes in rating grades from 'investment-grade' to 'default' without any extreme incident raise questions about how CRAs work and why they exist. The practice of rating shopping and the issuer pay model are often cited as the reasons for this phenomenon (Z. Chang et al., 2020),(Bolton et al., 2012),(White, 2010). The expanding business of CRAs and the close relationship between issuers' managing directors and CRAs' management may also be contributing factors (Bungum, 2017). In comparison to other countries, the number of companies with AAA status in India is extremely high. The Hindu's Business Line published an article in July 2020 stating that, according to Bloomberg data, 53% of the ratings assigned by CRAs were based on inadequate information, and ratings were therefore unreliable (Kalyanasundaram, 2020). In India, there is a growing perception that CRAs have become overly generous in awarding ratings, raising concerns about their authenticity, honesty, and utility (Dhanorkar, 2019).

The above examples show that CRAs have sacrificed their long-term reputation by issuing inflated ratings for short-term gains (Bolton et al., 2012). By doing so, CRAs have not only lost the trust of investors but also their credibility. As a result, investors' reliance on CR has decreased. This inspired the researcher to conduct research focussing on the investor-related aspects of the credit rating. So, the present study examines the awareness and perception of investors towards credit rating and its influence on their investment decision.

1.7 Research Question

The present study is proposed with following research question.

- What is the level of awareness and perception among investors with respect to credit rating?
- Do demographic factors have any influence on the awareness and perception of investors in related to credit rating?
- Do credit ratings influence the investment decision of investors?
- Does the level of awareness of credit rating influence the perception and investment decision of investors?
- How does the perception of investors about credit rating influence their investment decision?
- Does there is any relationship among level of awareness, perception and investment decision of investors regarding credit rating?

1.8 Objectives of the Study

1. To examine the extend of awareness and perception about credit rating among investors in Kerala.
2. To examine the association between clusters of awareness and demographic profile of investors.

3. To study the extent to which investors rely on credit ratings for making investment decisions.
4. To analyse the empirical relationship among awareness, perception and investment decision of investors regarding credit rating.
5. To measure the effect of awareness and perception about credit rating on the investment decision of investors.

1.9 Hypotheses

1. There is no significant difference in the level awareness of investors towards credit rating according to their Demographic factors.
2. There is no significant difference in the perception of investors towards credit rating according to their Demographic factors.
3. There is no significant association between clusters of awareness and demographic profile of investors.
4. There is no significant difference in investment decision of investors based on credit rating according to their demographic profiles.
5. There is no significant relationship between awareness level and perception of investors on credit rating.
6. There is no significant relationship between awareness on credit rating and investment decision of investors.
7. There is no significant relationship between perception on credit rating and investment decision of investors.
8. Awareness of investors towards credit rating has no significant impact on their perception towards credit rating.
9. Awareness of investors towards credit rating has no significant impact on their investment decision.

10. Perception of investors towards credit rating has no significant impact on their investment decision.

1.10 Significance of the Study

The investors cannot easily compute and compare the associated risk with a firm or financial instrument available in market. Credit rating establishes a link between risk and return. Such type of analysis enables the investors to take investment decision and help issuers to reach out of new investors. Credit rating provides comparable information on credit risk based on standard rating scale. Rating agencies world over are under scrutiny for various reasons particularly after the global financial crisis. CRAs fail to predict the corporate collapse and highly rated companies failed within a year of ratings during the global financial crisis.

Even though the credit rating helps the investors to take investment decision, there are number of occasions of failure to make timely prediction and inbuilt problem with credit rating system. On the other hand, investors are in need of reliable information about the borrowing companies. Worldwide, investors are rigorously watching withdrawals of rating or downward rating, as it cautions the investors. Hence, it is worthwhile to find out the extent to which credit ratings affect their investment decisions. The present study analyse the investors' awareness, perception towards credit rating and how it affect the investment decision of investors.

1.11 Scope of the Study

The study analyse the awareness and perception of equity investors in Kerala towards credit rating and change in their investment decision according to credit rating. The samples are selected from investors those have idea about credit rating such as investors working in stock broking firms, trading institution, banks, mutual funds etc. The study helps to understand the importance of credit rating and how credit rating effects the investment decision of investors.

1.12 Study Variables

Table 1.1
Variables used for the Study

Variables	Sub variables
Demographic factors	Gender
	Age
	District
	Educational Qualification
	Occupation
	Marital Status
	Experience in stock market
	Annual income
Awareness	Rating concept
	Rating Methodology
Perception	Relevance
	Reliability
	Timelines
	Understandability
	Usefulness
	Comparability
Investment Decision	Rating Announcement
	Investment Expectation

1.13 Operational Definition

Investors

Investors are individuals who are having demat account, buy and sell shares directly for themselves from the stock market to maximise their wealth.

Awareness

Investor awareness refers to the level of knowledge, understanding, and information that individuals have about various investment options, financial markets, and related factors that can impact their investment decisions. It involves being informed

about market trends, economic conditions, and different investment opportunities. Awareness provides the foundation for making informed investment decision.

Perception

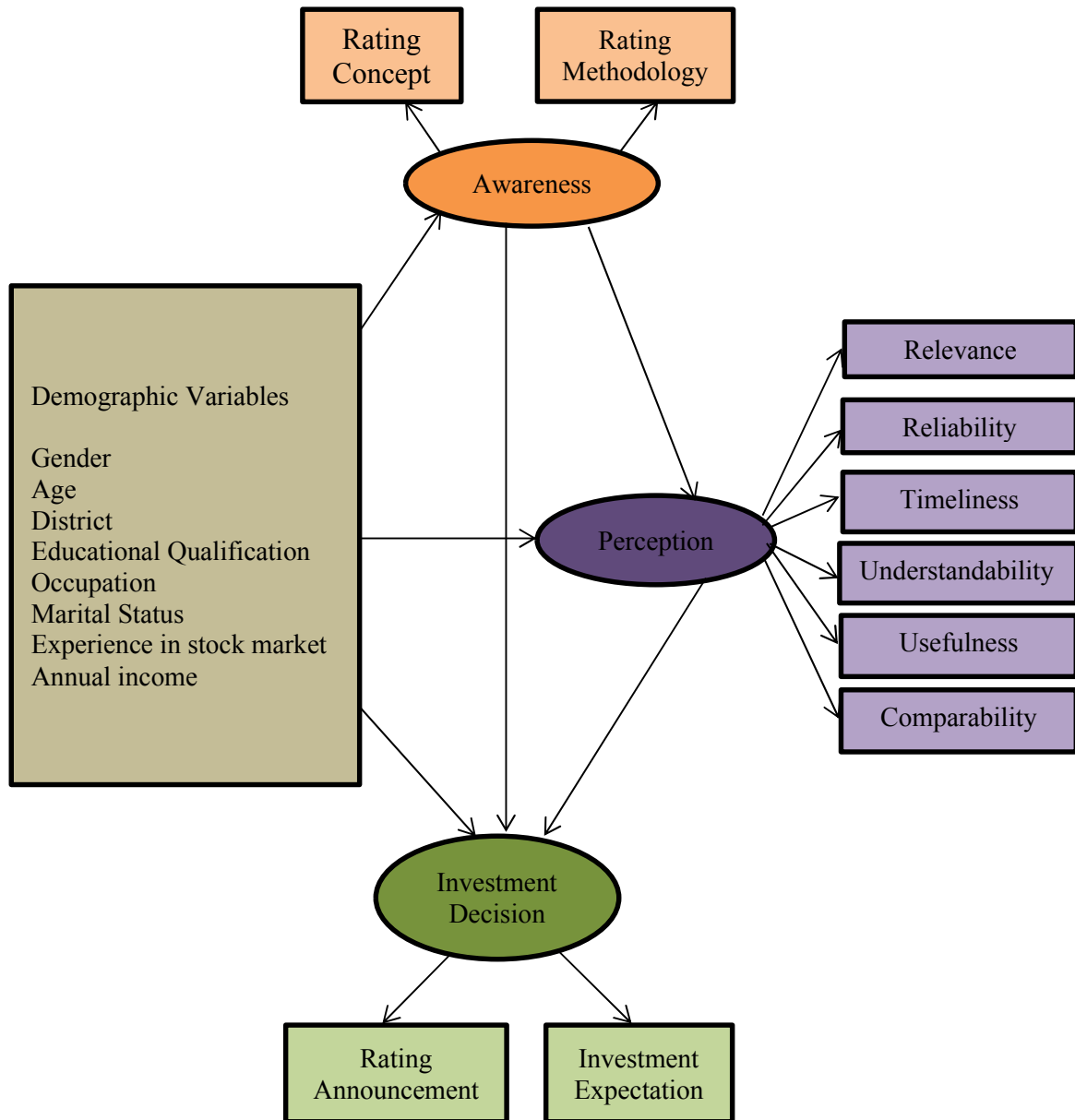
The perception of investors refers to the way in which individuals interpret, evaluate information related to investments, financial markets, and economic conditions. It encompasses their subjective understanding, beliefs, and judgments about various aspects of investing. Investors' perceptions are shaped by their personal experiences, attitudes, knowledge. Different investors may perceive the same investment differently based on their individual risk tolerance, financial goals, and previous experiences.

Investment Decision

An investment decision refers to the process of allocating funds to various assets with the expectation of generating a return or achieving a specific financial goal in the future.

1.14 Conceptual Model

Figure 1.1
Conceptual Model



1.15 Structure of the Thesis

The whole research report is mainly divided into nine chapters.

1. Introduction

This chapter covers a brief introduction to the topic under study, introduction to credit rating, role of credit rating, statement of the problem, objectives, scope and conceptual model.

2. Literature Review

This chapter is devoted for brief reviews of previous studies related to topic.

3. Conceptual Framework of Credit Rating

This chapter summarizes the theoretical overview of credit rating, history of credit rating, rating process, methodology used by rating agencies, functions of credit rating and criticism faced by credit rating agencies.

4. Research Methodology

This chapter explains the whole research process adopted in this research work. The chapter lays out the methodologies, sample design, instrument for data collection, tools for data analysis and software used for data analysis in the study. The limitations of the study have also been discussed.

5. Investors Awareness and Perception on Credit Rating - An Analysis from Demographic Aspects

This chapter captures the introduction to analysis, descriptive statistics, inferential statistics and interpretation of results. Descriptive statistics deals with classification, tabulation and establishing relationship between demographic variables. Inferential statistics deals with the testing of relationship between the variables framed in the hypotheses with a view to drawing conclusion about the influence of Demographic factors on Awareness and Perception of investors related to credit rating.

6. Exploring the Association between Credit Rating Awareness and Demographic Variables through Cluster Analysis

This chapter aims to categorize individuals into different clusters based on their level of Awareness regarding credit ratings and explore the relationships between these clusters and individuals' Demographic variables.

7. Analysis of Investment Decision based On Credit Rating: A Focus on Awareness and Perception of Investors

This Chapter analyse the relationship between: Awareness and Perception, Awareness and Investment Decision, Perception and Investment Decision and relation between Awareness, Perception on Investment Decision of investors in related to credit rating.

8. Summary, Findings and Conclusion

This chapter contains a brief outline of the entire research, findings based on the objectives and conclusions based on the findings are described.

9. Recommendations and Scope for Further Research

The chapter discuss about recommendations, implications and scope for further research. Recommendations based on the findings are presented in the first part of this chapter, and the implications of this research to various stakeholders are described in the second part. The scope of further research discussed at the end of this chapter.

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CHAPTER 1

INTRODUCTION

“There are two super powers in the world today in my opinion. There’s the United States and there’s Moody’s Bond Rating Services. The United States can destroy you by dropping bombs, and Moody’s can destroy you by downgrading your bonds. And believe me; it’s not clear sometimes who’s more powerful.”

Thomas Friedman, 1996

1.1 Background

A financial system plays an important role in economic growth. A financial system provides and facilitates efficient and effective deployment of funds; hence it encourages investments and economic development (Kumari, 2021). The modern financial system comprises of financial markets, financial institutions, financial instruments and financial services (Chandra, 2011). It as defines ‘a set of complex and closely interconnected financial institutions, markets, instruments, services, practices, and transactions’ (Gurusamy, 2008). The level of economic growth largely depends upon the state of financial system prevailing in the economy. The financial system facilitates the intermediation between savers and investors and promotes economic development. According to (Pathak, 2003), it is a complex, well-integrated set of subsystems of financial institutions, markets, instruments, and services which allows efficient and effective transfer and allocation of funds.

A financial market is a platform which enables participants to deal with financial instruments. The financial markets facilitate buying and selling of financial claims, assets, services and securities (Godha, 2014). Financial institutions act as intermediaries that facilitate the effective mobilisation and distribution of funds. Financial instruments are claims made against a person or institution for lump sum payment at future or periodic payment. Financial services are at heart of every economy. There are two aspects of financial services. Firstly, it involves the

creation, dissemination and use of information. This industry relies heavily on information, and the "information revolution" has changed it. Secondly, financial services require huge amounts of quality labour to handle information. Financial services involve at least two people or firms, namely the service provider and the user. The value of financial services is on the distinctions between these parties (Bhalla, 2005).

The economic growth of a country depends, to a greater extent, on a vibrant capital market since it allows the conversion of savings into investment. Such efficient capital allocation necessitates the use of reliable market information. It may be noted that the growth of capital market depends upon a number of elements, including the availability of comprehensive information and the presence of informed investors. The credit rating agencies was rooted in the fact that information about a company's risk profile can assist investors in making sound investment decisions. An investor in search of profitable investment avenues can get information from variety of sources such as offer documents of the issuers, research report of the market intermediaries, media reports and so on. In addition, investors can also base the investment decisions on the ratings provided by credit rating agencies (Gurusamy, 2007). The objective of rating agencies is to assess the probability whether an issuer will meet its obligations in time by resolving asymmetric information between the two market sides and by evaluating financial claims according to standardized quality categories (Christoph, 2001).

The genesis of credit ratings can be traced to the financial crisis in 1837 in the United States of America. The severe impact of this crisis lasted six years and it was attributed to information asymmetry and lack of confidence in the financial system. In the aftermath of the crisis, Lewis Tappan established a mercantile credit rating agency in 1841. The credit rating agencies today have ample opportunities to play a unique role in enhancing the capital market and instilling the investors' confidence. Since inadequately high exposure to credit risk has been one of the important problems in financial institutions across world for many years, an accurate assessment of the creditworthiness of obligators is an essential prerequisite for the stability of a financial system (Hornik et al., 2007).

1.2 Credit rating: Overview

A credit rating is an agency's assessment on future ability of the issuer or borrower to make timely principle and interest payments (Niyas, 2019). It is a qualified assessment and formal evaluation of company's credit history and capability of repaying obligations. This rating is based on an objective analysis of the information and clarifications gathered from several sources including the issuer (Viney, 2014). It is concerned with an act of assigning values by estimating worth or solvency and honesty. Credit rating uses ordinal symbols to reveal the credit quality to uninformed investors.

Standard and Poor's, a reputed credit rating agency based in the USA, describes credit ratings as judgements of borrowers' creditworthiness based on relevant risk factors, expressed by a letter grade symbol which markets have come to depend on as reliable, user friendly tool for differentiating credit quality. Credit ratings provide a relationship between risk and return. The investor utilises the rating to determine the risk level and compares the offered rate of return and takes his investment decision accordingly. Thus, the credit rating agencies evaluate the intrinsic worth of a company and assign ranks to the companies accordingly. The primary goal of these organisations is to restore the confidence in the capital market and to provide unbiased assessment of credit worthiness of the companies.

A rating expressed of both a letter rating (credit category) and commentary (if provided). The commentary can include, credit watch, credit outlook modifier, assumptions, criteria and methods used in determining the rating opinion, circumstances for changing the rating, details of the rated firm and its lines of operation (Frost, 2007). In order to promote better comprehension, rating agencies also publish explanations for their symbols used as well as the rationale. It can also be defined as an expression of opinion through symbols about credit quality of the issuer of security or instrument (Ragunathan & Lahiri, 2013).

Rating agencies base their ratings on a variety of aspects associated with the companies like financial risk, business risk, industry risk, market risk, political risk, etc. (González et al., 2004). After analysing all risks, ratings assign to the

instruments in grades form which indicate the probability of defaults (Kumari, 2021). Rating is a complex activity that require examination and appraisal of complex factors involving a diverse mix of variables ranging from accounting to financial analysis and risk ascertainment and many more (Jain and Sharma, 2008). The rating process involves analysis of financial information, visits to issuers' offices and works, intensive discussion with executives of issuers, discussions with auditors, bankers, creditors, etc. It also involves an in-depth study of the industry itself and the extent of environment scanning. Therefore, in human terms, it is practically impossible for an investor to rate a security for two reasons: (i) They do not have effective access to the information required to make an effective rating, (ii) They do not have the sophisticated tools to convert the available data into the effective information required for decision-making (Jain and Sharma, 2008).

Better credit ratings lead to better capital market access by lowering borrowing costs and increasing debt issuance (Tang, 2009). Assigned ratings have a substantial impact on cost of the firm and even the marketability of its issues. The bond rating is seen by the investing community as an indicator of the firm's overall investment quality; thus bond ratings may influence both the cost of debt and cost of equity to the firm (Pinches & Mingo, 1975). These ratings provide valuable information about the creditworthiness and financial health of an issuing firm, which influences the perceived risk and potential return associated with investing in the company's equity (Mazumder, 2015).

In order to maintain market stability and boost investor confidence, financial regulators must protect investors' interests against any misconduct. Having a specialised agency involved in the rating increases the creditability of rating process, so ratings act as objective standards for market participants to base their self-purchase decision (Jain & Sharma, 2008).

The rating agencies play a key role in the infrastructure of modern financial system. Credit rating is an important tool for investors' protection and giving corporations self-evaluation for their financial demands and expansion. Credit rating agencies play an important role in determining the solvency of firms and countries with

independent objectives. Credit ratings are of great practical importance, since they affect firm's cost of debt, financial structure, and even its ability to continue trading. They serve investors, issuers and regulators and also serving as the principal sources of information for borrowers about the quality of credit issuers (Kumari, 2021). Overall, credit ratings are a measure of the likelihood of a firm's default. Credit ratings are important for developing market economies because they exhibit their creditworthiness to foreign investors.

1.3 Credit Rating: Indian Perspective

The growth story of the Indian capital market began in the mid-1980s. India was among the first developing countries to set up a credit rating agency in 1988. Since 1990s, the Indian economy has in the process of rapid transformation. As a result, financial services sector is also witnessing changes. The objective of the financial sector reforms is to develop an efficient, competitive and diversified financial system in the country that meets international standards. After the lowering of bank interest rates, capital markets have become a popular way for middle-class people to channel their savings. The globalization has paved the way for the introduction of innovative and sophisticated products into our country.

The government is eager to remove all barriers to inflow of foreign capital. The public sector undertakings are being privatized and private sector has been permitted to participate in banking and mutual funds. Several strict regulations have liberalized by SEBI in order to strengthen the capital and money markets. After opening of the economy to the global players, the concept of a free market gained significant importance. The liberalization of economy gave rise to several opportunities for investment. At the same time, the liberalization of the economy has leads to increased business risks. The success of industrial projects has become a gamble.

The relevance of credit rating has expanded in India as a result of liberalization policy, deregulation of interest rates and increased corporate sector dependence on the capital market. As the financial system becomes more liberalized, number of public and private sector companies approaching to the capital market for finance by issuing bonds, debentures, and shares. These businesses' primary goal is to attract

potential investors. However, the potential investors lack analytical skill which is necessary to evaluate the company's part records, liquidity, safety, and future liability of the concerned. Therefore, a system should exist that may help potential investors make wise investment choices. The expansion of the capital market and varieties of instrument created both opportunities and complexities in the market. It is in the background that policymakers thought of introducing the credit rating system in India (Pandian, 2012).

Credit Rating Agencies (CRAs) play a significant role in boosting investor confidence in financial markets. The opinions of CRAs give investors and lenders a better understanding of the risks that may be encountered when dealing with a particular entity or product. As a result, CRAs can impact the issuer's access to capital, structure of financial transactions and determine the types of investors in a company (Graaf, 2015).

Support from regulations to the new rating activity has given necessary impetus to the expansion of credit rating industry in India. Commercial banks, insurance companies and pension funds are subject to regulatory restrictions based on credit ratings (C. C. Chang et al., 2016). Legislators, regulators, issuers and investors are considered ratings as important since they constitute a key channel of information dissemination in financial markets. The quality of ratings is therefore quite relevant for the proper functioning of the financial system.

Presently, the Indian credit rating industry is next to the US in terms of the number of ratings issued. Credit ratings have become more important due to the global integration of financial markets. It is also believed that the introduction of the credit ratings system reflects the capital market attaining a certain level of complexity (Siddaiah, 2011). The ratings are divided into three levels: investment-grade, non-investment grade and default grade. The investment-grade rating is considered to be safer grade than the rest.

1.4 Role of Credit Rating Agencies

Financial market participants need information to take appropriate decisions. Non-availability of quality and processed information is widespread issue in the financial market. Credit Rating Agencies are emerged to address the problem of non-availability of information. Ratings issued by the major rating agencies have proved to be a reliable source of information (Sharma & Chandan, 2006). The investment decisions of the investors are influenced by the factors such as name recognition of the company, operations of the company, market sentiments, promoters' reputation and so on. Credit rating from an independent agency would help the investors in investment management. Credit rating inspires and encourages the investors to put their money into capital market operations which results in productive use of the funds (Rao, 1999). He also opines that credit rating creates confidence in the mind of investors and public.

Rating is a useful tool not only for the investor, but also for the issuers to attract the investors. From the perspective of company, credit rating helps to access the capital markets and makes funds available at a cheaper cost. A company with favourably rated instrument improves its goodwill and enhance the corporate image among stakeholders. There is common practice to use ratings for marketing purposes, which is exhibited on all their company brochures and office stationery (NISM, 2009). The credit rating agencies regularly review the ratings as they need to balance between the accuracy of ratings and their stability. This implies that the rating agencies need to carefully consider whether to react to every adverse change or only respond to change in intrinsic creditworthiness.

Ratings are very useful for investors, issuers and regulators but they need to be used carefully (Reddy, 2000). Credit ratings are used by the regulators to supervise investment portfolios maintained by regulated institutions in order to promote stability and order in the financial market. In fact, ratings by NRSROs (Nationally Recognized Statistical Rating Organizations) have been incorporated in the investment guidelines by the regulators all over the world to set a benchmark with respect to credit risk for regulated entities. For example, in order to minimize risk

certain policy guidelines require only investment grade securities for the institutional portfolios. To issue commercial paper in India, Reserve Bank of India require a minimum credit rating by a registered credit rating agency. The regulatory changes in banks' capital requirements under Basel II and Basel III gave a new role to credit ratings. Risk weights are used to establish minimum capital charges for different categories of borrowers. These risk weights are computed using credit ratings. The credit rating is becoming more and more important globally due to many factors such as increasing role of capital and money markets, globalization, continuing growth of information technology, growth of confidence in the efficiency of the market mechanism, etc.

1.5 Role of Credit Rating in the Capital Market

With the expansion of the financial market and growing number of financial instruments, both the lenders and the borrowers are met with excessive number of funding and investing options. As a result, it becomes difficult for the borrowers to choose the right instruments for raising capital. In the same way, the investors are confused in the multitude of fund raisers, where all the borrowers have a credible name and reputation (Verma, 2000a).

The two fundamental factors that influence any investment decision are risk and return. The investor requires extensive information to ascertain risk-return relationships. The availability of accurate and timely information is vital for efficient financial markets. However, lack of symmetrical information between lenders and borrowers is generally observed. In a global environment, this asymmetry is even greater and the cost of collecting such Information is also higher (Verma, 2000b). As a result, the process of making investment decisions becomes highly information intensive and costly. In response to this situation and mitigate the problem of asymmetric information, credit rating was developed and credit rating agencies came into being.

In a market economy, the financial market acts as an effective middleman by mediating between savers and investors, mobilising capital and efficiently allocating it between competing users. This allocative role is severely dependent on the

availability of reliable information (Mohanrao, 1995). Ratings are meant to provide capital market participants with a standardised framework for comparing credit quality (Reddy Y.V, 2000). In this way, Credit ratings have a unique function in strengthening the capital market and building investors' confidence. Credit ratings are currently used in the financial markets of developed and emerging economies of the world (RBI, 1998).

In light of prevalent economic environment and the country's growing capital market with global postures, a strong need for rapid adoption of credit rating into corporate culture is felt in order to promote self-regulated and healthy corporate growth. To achieve such an objective, a thorough understanding of rating process, procedure and practices are required, especially to the investors, borrowers and regulators (Verma, 2000a).

Credit rating agencies provide un-biased and independent information to capital market participants in order to help them in decision making process involved in investing. Thus, Credit Rating Agencies serve an important role as information provider and thereby facilitate the flow of capital for businesses, whether they are small private firms or larger companies (Sunitha, 2021). The firms' issuance of securities with good credit rating guarantees its subscription. Furthermore, developed countries consider credit ratings as critical inputs in determining investment portfolio. The CRAs play an important role in the of modern capital markets by occupy the role as information gatekeeper.

1.6 Statement of the problem

The credit rating agencies play an important role in development of financial market by informing market participants about company's creditworthiness and enhanced transparency. The availability of clear and accepted indicators of the risk of default helps investors to make investment decision. A change in the issuer's credit rating reflects a substantial change in the long-term creditworthiness of the firm, and therefore is an important event (Hung et al., 2017). Hence, the change in credit rating will effect the investment decision of investor's. CRAs are considered critical gatekeepers in maintaining investor trust. Investors rely on credit rating grades for

information, and it is regarded as an essential parameter for investment by investors (Jaleel, 2018). The informational value of rating agencies is a controversial and inconclusive issue.

Credit rating agencies have criticized for their inaccurate or incomplete information as well as the lack of transparency of their methodology. The failure of the rating system was noticeable during the 2008 financial crisis, the Enron scandal in 2001, the collapse of Kingfisher Airlines, DHFL, Eros, Suzlon Energy, Amtek Auto, Zee Group, RCom, and most recently IL&FS. Credit rating agencies are now under scrutiny for their inability to predict default ratings and to warn investors of impending firm-related financial difficulties (Kumari, 2021). In these cases, CRAs were either bought out by the issuers or the issuers' credibility could not be assessed promptly. These high-profile cases are only a few illustrations of the unethical behavior CRAs.

Apart from global leaders in the rating industry such as, Moody's Group, S&P, and Fitch, numerous other CRAs exist in various countries. Still, the rating processes are time-consuming and expensive since it requires extensive analysis by experts (Hajek & Michalak, 2013). Sudden changes in rating grades from 'investment-grade' to 'default' without any extreme incident raise questions about how CRAs work and why they exist. The practice of rating shopping and the issuer pay model are often cited as the reasons for this phenomenon (Z. Chang et al., 2020),(Bolton et al., 2012),(White, 2010). The expanding business of CRAs and the close relationship between issuers' managing directors and CRAs' management may also be contributing factors (Bungum, 2017). In comparison to other countries, the number of companies with AAA status in India is extremely high. The Hindu's Business Line published an article in July 2020 stating that, according to Bloomberg data, 53% of the ratings assigned by CRAs were based on inadequate information, and ratings were therefore unreliable (Kalyanasundaram, 2020). In India, there is a growing perception that CRAs have become overly generous in awarding ratings, raising concerns about their authenticity, honesty, and utility (Dhanorkar, 2019).

The above examples show that CRAs have sacrificed their long-term reputation by issuing inflated ratings for short-term gains (Bolton et al., 2012). By doing so, CRAs have not only lost the trust of investors but also their credibility. As a result, investors' reliance on CR has decreased. This inspired the researcher to conduct research focussing on the investor-related aspects of the credit rating. So, the present study examines the awareness and perception of investors towards credit rating and its influence on their investment decision.

1.7 Research Question

The present study is proposed with following research question.

- What is the level of awareness and perception among investors with respect to credit rating?
- Do demographic factors have any influence on the awareness and perception of investors in related to credit rating?
- Do credit ratings influence the investment decision of investors?
- Does the level of awareness of credit rating influence the perception and investment decision of investors?
- How does the perception of investors about credit rating influence their investment decision?
- Does there is any relationship among level of awareness, perception and investment decision of investors regarding credit rating?

1.8 Objectives of the Study

1. To examine the extend of awareness and perception about credit rating among investors in Kerala.
2. To examine the association between clusters of awareness and demographic profile of investors.

3. To study the extent to which investors rely on credit ratings for making investment decisions.
4. To analyse the empirical relationship among awareness, perception and investment decision of investors regarding credit rating.
5. To measure the effect of awareness and perception about credit rating on the investment decision of investors.

1.9 Hypotheses

1. There is no significant difference in the level awareness of investors towards credit rating according to their Demographic factors.
2. There is no significant difference in the perception of investors towards credit rating according to their Demographic factors.
3. There is no significant association between clusters of awareness and demographic profile of investors.
4. There is no significant difference in investment decision of investors based on credit rating according to their demographic profiles.
5. There is no significant relationship between awareness level and perception of investors on credit rating.
6. There is no significant relationship between awareness on credit rating and investment decision of investors.
7. There is no significant relationship between perception on credit rating and investment decision of investors.
8. Awareness of investors towards credit rating has no significant impact on their perception towards credit rating.
9. Awareness of investors towards credit rating has no significant impact on their investment decision.

10. Perception of investors towards credit rating has no significant impact on their investment decision.

1.10 Significance of the Study

The investors cannot easily compute and compare the associated risk with a firm or financial instrument available in market. Credit rating establishes a link between risk and return. Such type of analysis enables the investors to take investment decision and help issuers to reach out of new investors. Credit rating provides comparable information on credit risk based on standard rating scale. Rating agencies world over are under scrutiny for various reasons particularly after the global financial crisis. CRAs fail to predict the corporate collapse and highly rated companies failed within a year of ratings during the global financial crisis.

Even though the credit rating helps the investors to take investment decision, there are number of occasions of failure to make timely prediction and inbuilt problem with credit rating system. On the other hand, investors are in need of reliable information about the borrowing companies. Worldwide, investors are rigorously watching withdrawals of rating or downward rating, as it cautions the investors. Hence, it is worthwhile to find out the extent to which credit ratings affect their investment decisions. The present study analyse the investors' awareness, perception towards credit rating and how it affect the investment decision of investors.

1.11 Scope of the Study

The study analyse the awareness and perception of equity investors in Kerala towards credit rating and change in their investment decision according to credit rating. The samples are selected from investors those have idea about credit rating such as investors working in stock broking firms, trading institution, banks, mutual funds etc. The study helps to understand the importance of credit rating and how credit rating effects the investment decision of investors.

1.12 Study Variables

Table 1.1
Variables used for the Study

Variables	Sub variables
Demographic factors	Gender
	Age
	District
	Educational Qualification
	Occupation
	Marital Status
	Experience in stock market
	Annual income
Awareness	Rating concept
	Rating Methodology
Perception	Relevance
	Reliability
	Timelines
	Understandability
	Usefulness
	Comparability
Investment Decision	Rating Announcement
	Investment Expectation

1.13 Operational Definition

Investors

Investors are individuals who are having demat account, buy and sell shares directly for themselves from the stock market to maximise their wealth.

Awareness

Investor awareness refers to the level of knowledge, understanding, and information that individuals have about various investment options, financial markets, and related factors that can impact their investment decisions. It involves being informed

about market trends, economic conditions, and different investment opportunities. Awareness provides the foundation for making informed investment decision.

Perception

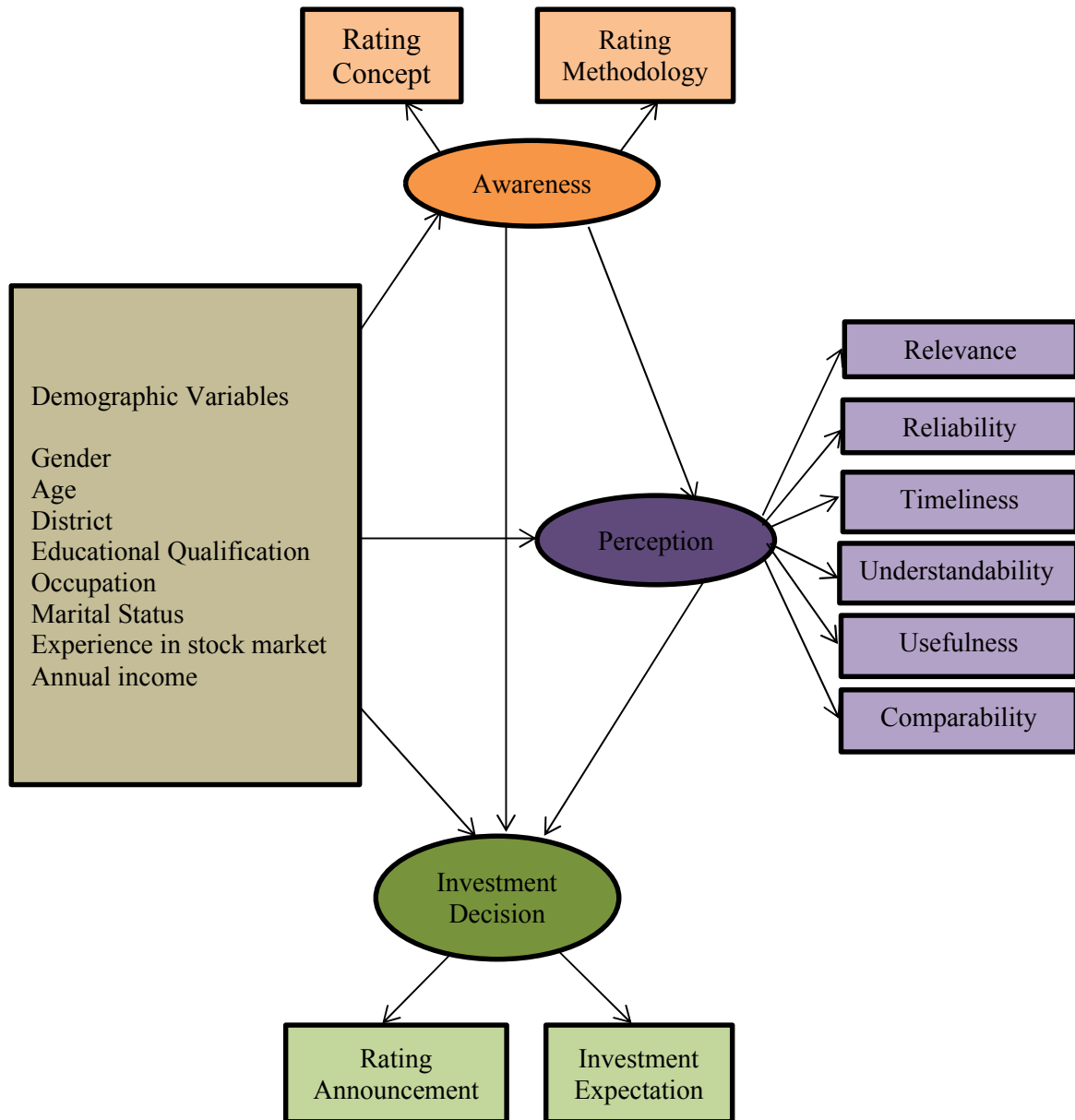
The perception of investors refers to the way in which individuals interpret, evaluate information related to investments, financial markets, and economic conditions. It encompasses their subjective understanding, beliefs, and judgments about various aspects of investing. Investors' perceptions are shaped by their personal experiences, attitudes, knowledge. Different investors may perceive the same investment differently based on their individual risk tolerance, financial goals, and previous experiences.

Investment Decision

An investment decision refers to the process of allocating funds to various assets with the expectation of generating a return or achieving a specific financial goal in the future.

1.14 Conceptual Model

Figure 1.1
Conceptual Model



1.15 Structure of the Thesis

The whole research report is mainly divided into nine chapters.

1. Introduction

This chapter covers a brief introduction to the topic under study, introduction to credit rating, role of credit rating, statement of the problem, objectives, scope and conceptual model.

2. Literature Review

This chapter is devoted for brief reviews of previous studies related to topic.

3. Conceptual Framework of Credit Rating

This chapter summarizes the theoretical overview of credit rating, history of credit rating, rating process, methodology used by rating agencies, functions of credit rating and criticism faced by credit rating agencies.

4. Research Methodology

This chapter explains the whole research process adopted in this research work. The chapter lays out the methodologies, sample design, instrument for data collection, tools for data analysis and software used for data analysis in the study. The limitations of the study have also been discussed.

5. Investors Awareness and Perception on Credit Rating - An Analysis from Demographic Aspects

This chapter captures the introduction to analysis, descriptive statistics, inferential statistics and interpretation of results. Descriptive statistics deals with classification, tabulation and establishing relationship between demographic variables. Inferential statistics deals with the testing of relationship between the variables framed in the hypotheses with a view to drawing conclusion about the influence of Demographic factors on Awareness and Perception of investors related to credit rating.

6. Exploring the Association between Credit Rating Awareness and Demographic Variables through Cluster Analysis

This chapter aims to categorize individuals into different clusters based on their level of Awareness regarding credit ratings and explore the relationships between these clusters and individuals' Demographic variables.

7. Analysis of Investment Decision based On Credit Rating: A Focus on Awareness and Perception of Investors

This Chapter analyse the relationship between: Awareness and Perception, Awareness and Investment Decision, Perception and Investment Decision and relation between Awareness, Perception on Investment Decision of investors in related to credit rating.

8. Summary, Findings and Conclusion

This chapter contains a brief outline of the entire research, findings based on the objectives and conclusions based on the findings are described.

9. Recommendations and Scope for Further Research

The chapter discuss about recommendations, implications and scope for further research. Recommendations based on the findings are presented in the first part of this chapter, and the implications of this research to various stakeholders are described in the second part. The scope of further research discussed at the end of this chapter.

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CHAPTER 3

CONCEPTUAL FRAMEWORK OF CREDIT RATING

3.1 Introduction

This chapter aims at building up the conceptual foundation for credit rating. Apart from introducing the very concept of credit rating, this chapter deals with history of credit rating, credit rating agencies in India, methodology used by credit rating agencies, rating process, functions of credit rating and criticism faced by credit rating agencies.

3.2 Introduction to Credit Rating

The expansion of financial markets and increasing number of financial instruments provide large number of funding and investing options. As the number of companies borrowing directly from the capital market increases and as the industrial environment becomes more competitive, investors find it difficult to make the right choice among the multiplicity of instruments and fund raisers. The capital market through the world was under the pressure in the term of investment option, so credit rating agencies were established. It serves as a watchdog, alerting investors about potential risks in the financial environment and protecting the interest of the investors. Furthermore, the growing number of defaults and frauds in payment of interest and principal sum borrowed has increased the importance of credit rating.

The term 'Credit Rating' is derived from the words 'credit' and 'rating'. Various meanings have been attributed to the word credit. But the most appropriate explanation is given to the word in Oxford Dictionary, calling 'credit' as 'the status of being trusted to pay back money to somebody who lends to you'. Rating is defined as, 'a measurement of how good, popular, important etc. somebody or something is, especially in relation to other people or things'. By combining the meanings of these two words, credit rating is defined as "an act of assigning values to the fund raising instrument by estimating worth, reputation, solvency and honesty

of the borrowing person so as to repose trust in a person's ability and intention to pay". Thus, credit rating performs the isolated function of credit risk evaluation, which is one element of the entire investment decision making process (S&P, 1993).

Standard & Poors defines "credit rating as judgement of borrower's creditworthiness based on relevant risk factors, expressed by a letter grade rating symbol, which markets have come to depend on a reliable user friendly tool for determining credit quality" (S&P, 1998).

Time's Dictionary of Finance and Investment Terms defines credit rating "as a formal evaluation of an individual's or company's credit history and capability of repaying obligations" (Times Dictionary of Finance and investment Terms, 1985).

According to CRISIL, India's premier credit rating agency, "credit rating is an unbiased, objective and independent opinion as to an issuer's capacity to meet financial obligations" (CRISIL, 2000a). Credit ratings are current opinion as to the relative safety of timely payment of interest and principal on rated instruments (CRISIL, 2001).

Securities and Exchange Board of India (SEBI) defines credit rating "as an opinion regarding securities, expressed in the form of standard symbols or in any other standardised manner, used by the issuer of such securities to comply with or fulfill a requirement prescribed by the board" (SEBI, 1999).

The primary goal of credit rating is to provide investors with comparable information on credit risk based on standard rating scales. According to (Elkhoury, 2008), Credit Rating Agencies were established to settle the information asymmetry between lenders and borrowers concerning the creditworthiness of the borrower. Roman Kraussl, Professor of Economics at the University of Crete, claims that credit rating agencies were created to address a fundamental issue in financial markets: asymmetric information.

Credit rating agencies fundamentally offer two services. Firstly, they provide an unbiased evaluation of issuers' capacity to fulfil their debts, thereby providing "information services" which leads to better investment decisions and reduce

information asymmetry. Second, by offer "monitoring services" through which they influence issuers to take corrective actions in order to prevent downgrades by implementing "watch" programmes. A rating is valid for several years, during which the rating agency monitors the client firm and revises the rating judgement if the client's financial status changes significantly (Christoph, 2001).

The rating agencies fall into two categories: (i) recognized and (ii) non-recognized. The three major credit rating agencies that are recognized as Nationally Recognised Statistical Rating Organisations (NRSRO) by the Securities and Exchange Commission (SEC) of the United States of America are Moody's Investor service, Fitch Ratings and Standard & Poor's Financial Services. All over the world, these organisations have subsidiaries and affiliates.

3.3 Significance of Credit Rating

Thomas Friedman, a well-known New York Times writer, stated in 1996 that there are two superpowers in the world today. The United States and Moody's rating service. The United States can destroy you by dropping bombs, and Moody's can destroy you by downgrading your bonds. And believe me, it is not clear sometimes who is more powerful. The above statement is the most powerful way to describe the significance of credit ratings.

Credit rating is used by investors, issuers, investment banks, brokers, dealers and government. The rating is considered significant to different parties in different ways. It broadens the investment scope of investors through the provision of measuring the relative credit risk independently. Credit ratings are used by issuers as independent verification of their creditworthiness. Regulators use ratings for the regulatory purpose. For example, under the Basel II agreement on banking supervision, banking regulator permits banks to use credit ratings from certain approved credit rating agencies while calculating their net capital reserve requirements (Devi, n.d.). As the credit rating serves as the market's baseline for risk assessment, investors can use it to match their financial goals and risk appetites while making investment decision (Devi, n.d.).

Credit Rating ensures efficiency in financial market. A vibrant financial market leads to growth of the economy. It acts as an intermediary in a market driven economy. It facilitates mobilization of funds from the persons who have surplus money and allocation of funds among competing users who need it for financing the operations of business. The availability of reliable information is critical for money mobilisation and allocation. To make a wise investment decision, investor needs to consider a number of factors, such as issuer of security, industry, instruments, current performance, future prospects and so on. Investors must be careful as the market is very sensitive to the information. They access to all material information which affect the performance of the instrument. On the other hand, investors may not be competent enough to process and interpret the information. Credit rating plays a crucial role in assisting investors to make them understand the fundamentals of the company and market, and read between the lines of information.

The simple letter used for rating agencies helps investors to quickly judge and compare the investment opportunities (Kumari, 2021). Many factors are associated with issuers influence the rating grades of securities (Kumari, 2021). Credit rating can be used as a useful tool by investors to measure the risks involved in an investment (Opp et al., 2013), (Bongaerts et al., 2012). A CRA is viewed as a 'reputable auditor' (Wakeman, 1981); a 'signal provider' about a firm's creditworthiness (Thompson & Vaz, 1990); a 'third party certification' (Stover, 1996); or an intermediary offering informative services (Kuhner, 2001). CRAs also play a significant role in "debt financing by solving problem of asymmetric information faced by investors in the markets" (Forsythe et al., 1999). The above mentioned works indicated that CRAs provide additional information to reduce the information asymmetry among entities and investors.

The credit rating agency determines the rating by thoroughly examining all aspect of financial, managerial, marketing, technical, business and future developmental programmes after determining the accuracy, fairness, and quality of the information provided by the issuer. For this reason, other stakeholders also have greater confidence and credibility of the financial and other non financial information. Experts of this area like (Bhalla, 2011), (Chandra, 2012), (Guruswami, 2011),

(Khan, 2013) state that the 'credit rating' helps in making the portfolios for institutional investors, mutual funds, and foreign investors. Issuers are directly benefited by many ways like reduction in costs of borrowing, attracting wide areas for investment, and for maintaining confidence of stakeholders (Viney, 2014).

3.4 Historical Parallels of Credit Rating

3.4.1 The World Scene

The origin of credit rating can be traced to the financial crisis of 1837 in the United States. Henceforth, the U.S. is treated as the motherland of credit rating. When railroad firms in the American west needed significant sums of money to acquire land and rolling stock, they discovered that they had to appeal to private savers to raise funds because banks could not take such large risks. Individuals, on the other hand, were opposed to placing money into companies about which they knew little. As a result, a market for financial information about these companies arose (Kohok, 1993). The predecessors of bond rating agencies were the 'mercantile credit agencies', which rated merchants' ability to pay their financial obligations (Richard & Frank, 1995).

In 1841, Louis Tappan established the first mercantile bank credit rating agency in New York. This agency rated the merchants' ability capacity to meet their financial obligations. This rating agency further acquired by Robert Dun, and published its first rating guide in 1859. A similar mercantile rating agency was formed by a financial analyst John Bradstreet in 1849 and published a rating book in 1857. In 1933, Robert Dun's mercantile rating agency and John Bradstreet's agency merged together to form Dun & Bradstreet, which became the owner of Moody's Investors Service in 1962 (Archana HN, 2016).

John Moody started Moody's Investors Service in 1900 and published his "Manual of Railroad Securities" in 1909, with comments on 200 major railroad companies. This was followed by the ratings of utility and industrial bonds in 1914 and the ratings of bonds issued by U.S. cities and other municipalities in the early 1920s (ICA, 1997a). Moody's also assigned sovereign ratings to debt issued by countries

such as the United Kingdom, Italy, Japan, and China. Furthermore, Moody's began rating foreign debt in 1950. The purpose of Moody's ratings is to provide simple grading system for American investors. Gradations of investment qualities are indicated by rating symbols representing a group in which the qualities of characteristics are generally the same (Pogue et al., 1969). As a result, Moody's was the first to use the alphabetical symbols like 'Ass', 'As' in the credit rating system which became the base of modern credit rating. In 1962, the Dun and Bradstreet acquired the Moody's Investor Services.

The publication of Henry Vernum Poor's financial data of railroad construction corporations entitled "The History of Rail-roads and Canals of the United States in the 1860s" is evidence of the first time use of credit rating to corporate instruments. The main goal of such efforts had been to claim a better image for those companies involved in rail-road building in order to attract investors to put their money in these companies (Verma, 2000). Prior to World War I, corporate bond ratings were formed in response to a commercially feasible requirement for independent and accurate judgment regarding the creditworthiness of corporate bonds (Pogue et al., 1969).

Further expansion of credit rating industry took place in 1916, when the Poor's Company published its first ratings followed by the Standard Statistics Company in 1922 and Fitch Publishing Company in 1924 (Mohammed maaz kazi, 2015). The Standard Statistics Bureau was established to provide previously unavailable financial information on industrial enterprises in the United States of America. In 1941, the Poor's Publishing Company and the Standard Statistics Company merged to form Standard and Poor's (S&P). It was publicly owned corporation until 1966, when it was acquired by McGraw Hill Inc., which serves as Standard & Poor's holding company. For almost 50 years since the establishment of Fitch Publishing in 1924, there were no major new entrants in the field of credit ratings (ICA, 1997b). The Credit Rating Agencies expanded from the 1970s to 1990s, much as they did from 1909, when John Moody introduced the concept (Jutur, 2005).

Numerous rating companies began rating activities worldwide in the 1970s. In 1972, Canadian Bonds Rating Service was established followed by the incorporation of Thomson Bank Watch in 1974, which was based in Canada. In 1975, Japanese Bond Rating Institute was incorporated by Japan Economic Journal. Soon after, several Japanese rating organisations like the Japan Bond Research Institute, Japan Credit Rating Agency, and Nippon Investor's Services were founded. McCarthy Crisanti and Maffei were established in the United States in 1975, and Duff and Phelps acquired them in 1991. In Canada, Dominion Bond Rating Service was founded in 1977. IBCA Limited established in 1978, was a London (UK) based independent and privately owned international credit rating agency. In 1980, the most notable new entrant in the United States has been the Chicago-based Duff & Phelps Company was formed, which is a key provider of credit information internationally. This corporation has operations in Latin American countries as well as Asian countries such as Pakistan and India.

Today, the majority of all the emerging economies in the world have one or more credit rating agencies in their country. The establishment of credit rating agencies in the emerging countries in the 20th century was due to the growing acceptance of credit rating by the various participants of the capital market. Majority of the credit rating agencies in the developing economies have technical tie-up with international credit rating agencies or international CRAs have acquired equity stake in such agencies. All these factors indicate that credit rating will remain a focal point in the capital markets of the emerging economies of the world. US is the originator of concept of credit rating but now with the development of capital markets the world over, it is becoming a universal phenomenon (Sarkar, 1994).

3.4.2 Origin and Growth in India

Credit rating agencies in India emerged in the early 1980s as a response to the growing need for independent assessments of the creditworthiness of Indian corporations and financial institutions. Prior to this, Indian financial markets were relatively undeveloped, and there was a lack of reliable information for investors to make informed decisions. The first credit rating agency in India was Credit Rating

Conceptual Framework of Credit Rating

Information Services of India Limited (CRISIL), established in 1987. CRISIL was promoted by leading financial institutions and was closely associated with the Industrial Development Bank of India (IDBI) initially. The establishment of CRISIL marked the beginning of credit rating services in the country. CRISIL played a crucial role in establishing the credibility of credit ratings in India. During this period, it focused on rating debt instruments and eventually expanded its services to cover a broader spectrum of financial products.

As India's economy liberalized and opened up to foreign investment, the need for credit ratings expanded. The success of CRISIL also paved the way for the entry of new credit rating agencies. Notable agencies like ICRA (formerly Investment Information and Credit Rating Agency of India Limited) and CARE (Credit Analysis and Research Limited) were established in the 1990s. The Securities and Exchange Board of India (SEBI) played a significant role in regulating and monitoring credit rating agencies to ensure transparency and fair practices. SEBI introduced the SEBI (Credit Rating Agencies) Regulations in 1999, which laid down the regulatory framework for these agencies. The diversification of services and the ability to rate various financial products, along with international partnerships helped these agencies cater to the increasing complexity and size of India's financial markets.

The credit rating agencies now play a crucial role in providing information to both domestic and international investors and assisting Indian corporations and financial institutions in raising capital. Alongside established agencies like CRISIL, ICRA, and CARE, new credit rating agencies entered the market. These agencies aimed to provide competition and offer alternative perspectives on credit assessments. They continue to evolve in response to changes in the financial and regulatory landscape to maintain their relevance and credibility in the Indian financial system.

Table 3.1

Credit Rating Agencies registered with SEBI

Name of the CRA	Year of Commencement of Operations
Crisil Rating Limited	1988
ICRA Limited	1991
Care Ratings Limited	1993
India RATING and research Pvt. Ltd. (Fitch India)	1996
Brickwork Rating India Private Limited	2008
Acuite Ratings and Research Limited	2011
Infomerics Valuation and Rating Pvt. Ltd.	2015

Source: SEBI Investor Website

3.5 Credit Rating Agencies in India

India was the first country in the developing world to set up a credit rating agency. The motivation for credit rating in India came in the eighties, when the country moved to liberalised open environment. Since the setting up of the first credit rating agency CRISIL, there has been a rapid growth of credit rating agencies in India. The concept of credit rating has been widely discussed and debated in recent times. This is the time for investors to measure risk as well as for the corporate borrowers to use credit rating as a marketing tool. The following are the Indian credit rating agencies registered with SEBI.

1. Credit Rating Information Services of India Limited (CRISIL)

Credit Rating Information Services of India Limited (CRISIL) is the pioneer rating agency in India, founded in 1987 as a public limited corporation (Niyas, 2019). The head office is located at Mumbai. It operates through various branch offices located in Ahmedabad, Bangalore, Kolkata, Chennai, Hyderabad, New Delhi and Pune and it has established offices outside India also. It has been promoted by Industrial Credit and Investment Corporation of India Limited (ICICI) and Unit Trust of India

(UTI) (Niyas, 2019). Asian Development Bank (ADB), General Insurance Corporation of India, State Bank of India (SBI), Housing Development Finance Corporation Limited (HDFC), and Life Insurance Corporation of India (LIC) are among the other shareholders. In 1993, CRISIL made its initial public offer of equity, making it one of the few rating agencies in the world to be listed on a stock exchange. Over time, its shareholding pattern shifted, especially after international investors began investment into CRISIL. In December 2003, CRISIL changed its name as CRISIL Limited, recognising its involvement in diverse operational fields beyond ratings.

CRISIL formed a strategic collaboration in 1996 with Standard and Poor's Rating Services (S&P), a division of McGraw-Hill Companies and a leading global rating agency based in the United States. The alliance has provided international experience, aided CRISIL in the development of operating systems and introduction of value added methodologies. CRISIL is very uniquely placed to contribute to Standard & Poor's developing market activities in credit rating and information services. Standard and Poor's eventually became a major shareholder in CRISIL, by acquiring majority of stocks. CRISIL formed another strategic relationship with National Economic Research Associates (NERA, USA) to get global expertise in regulations and regulatory reforms. CRISIL, being an Indian rating agency, established a presence internationally and now it has client base world-wide. It has provided technical assistance in establishing rating agencies in foreign countries. CRISIL is also ranked among the top five rating agencies in the world in terms of both coverage and analytical strength.

CRISIL is the market leader in India and functions as a 'full service' rating agency. CRISIL provide a wide range of services through its three divisions: Credit Rating Services, Advisory Services, and Research and Information Services. Credit rating is the primary and main objective of CRISIL, which is carried out by the Credit Rating Services division. It rates securitization programs and structured liabilities, as well as insurance firms' financial strength. It is also involved in performance grading for real estate developers, LPG parallel marketers, health care institutions, and services for stock brokers (Gill, 2019). It grades the performance of LPG parallel marketers,

real estate developers, healthcare facilities, stock broker services, construction sector companies, SMEs, and B2B exchanges. In addition, it rates preference shares and grades Initial Public Offerings (IPOs) of equity shares. With the adoption of Basel II standards, Bank Loan Rating (BLR) has brought about a huge business potential for rating agencies.

CRISIL Advisory Services offers consultancy services to governments, multilateral lending agencies and private sector. Such services are provided in the areas of energy, transport and urban-structure, banking and finance, disinvestment, privatisation and valuation (Khan & Jain, 2006). CRISIL's UK based subsidiary, Gas Strategies Group (GSG), also contributes to the CRISIL group's information and advisory capabilities in the global gas and LNG domains. CRISIL Research and Information Services (CRIS) publish value-added research and conducts customized studies in four areas: Indian economy, Indian capital market, Indian industries, and the Indian corporate sector. Some of the important assignments undertaken by CRIS include disinvestment studies on public sector undertaking, portfolio evaluation for leading mutual funds, etc.

Irevna, a CRISIL division, offers knowledge process outsourcing and customized equity research and analytics to world's leading financial institutions, investment banks, private equity firms and consulting companies (Mohammed maaz kazi, 2015). CRISIL has adopted the best global practices for corporate governance, disclosure standards and enhancing shareholders value. CRISIL was amongst the first to start the process of dematerialisation of its shares. It has constituted an Investors' Grievance Committee, which reviews the status of the investors' grievances and monitors the redressal mechanism regularly.

Global Data Services of India Limited (GDSIL), a CRISIL subsidiary, provides high-quality financial data analysis to users within and outside CRISIL Group, thereby improving the effectiveness of the market's financial analysis framework. India Index Services and Products Limited (IISL), a joint venture with the NSE, provides index services to investors on Indian equities. The main indices are S&P CNX Nifty, S&P CNX 500, and S&P CNX Industry Indices. CRISIL is licensed to

use the Standard and Poor's brand name, which is the world's premier index provider.

2. Investment information and Credit Rating Agency of India Limited (ICRA)

ICRA became the first credit rating agency in the liberalised Indian economy to restore market confidence. ICRA was formed on January 16, 1991 as an independent credit rating agency. It was promoted by IFCI (Industrial Finance Corporation of India) and 21 other stockholders, including nationalised and international banks and insurance companies. Industrial Finance Corporation of India contributed 26% of share capital. IFCI, State Bank of India, Moody's Investment Corporation India Pvt. Ltd., Life Insurance Corporation of India, General Insurance Corporation of India, Punjab National Bank, Central Bank of India, Allahabad Bank, United Bank of India, Indian Bank, Canara Bank, Andhra Bank, Uco Bank, Housing Development Finance Corporation, and Export Import Bank of India are among ICRA's major shareholders. ICRA had eight branch offices located in Ahmedabad, Bangalore, Calcutta, Chandigarh, Chennai, Hyderabad, Mumbai, and Pune in addition to its headquarters in New Delhi. It began rating on August 31, 1991. The company is Board managed comprising of seasoned professionals with financial and economic background, including Government and RBI nominees. In April of 2007, ICRA Limited's equity shares were initially listed on the National Stock Exchange and the Bombay Stock Exchange.

In 1996, the ICRA and Moody's Investors services signed an MOU aimed at introducing global best practices to the Indian capital markets. The participation of Moody's is supported by a technical services agreement which provides certain high-value technical services to ICRA. This has improved in-house research skills and access to Moody's global research network. Moody's aids ICRA in conducting formal training sessions and provides advice on rating-product strategy and the ratings industry in general. Moody's Investors Service, the international credit rating agencies, became ICRA's single largest stakeholder on March 31, 2011, with a 28.51% stake.

Conceptual Framework of Credit Rating

ICRA has extended its assistance to various foreign rating agencies. ICRA signed a MOU with Bulgarian Credit Rating Agency (BCRA) for providing it technical assistance in designing methodologies, impart training and help them carry out rating assignments. A similar MOU was signed between ICRA and Turkey's First Turkish Credit Rating Agency (FTCRA) in January 2005 and with the Credit Rating Agency of Bangladesh (CRAB). Originally, ICRA developed rating products for Indian corporations. However, within a few years of operation, it expanded into emerging industries such as grading, information, consulting, and research. While rating services remain its primary focus, other service domains also give it a wide spectrum of coverage.

ICRA assigns ratings to debt instruments denominated in rupees that are issued by manufacturing companies, commercial banks, non-banking finance companies, financial institutions, public sector undertakings, municipalities etc (Niyas, 2019). In addition, ICRA assigns ratings structured obligations and sector-specific debt obligations those issued by infrastructure, telecom, and power businesses. Corporate Governance Rating, Stakeholder Value and Governance Rating, Corporate Governance Assessment, Credit Risk Rating of Mutual Funds, Rating of Insurance Companies' Ability to Pay Claims, Project Finance Rating, and Line of Credit Rating are some of the other rating services provided by ICRA (Byjus, 2017). Performance and Credit Rating Scheme for Small Scale Enterprises has launched by ICRA in association with National Small Industries Corporation Limited (NSIC).

In addition to IPO grading, ICRA also provides grading services for construction projects using a methodology developed by ICRA and Construction Industry Development Council (CIDC), Real estate developers and Projects developed in collaboration with National Real Estate Development Council (NAREDCO), Health care institutions grading, Mutual Fund Grading, SSE grading and Micro finance institutions grading. Authentic data is provided to banks, asset managers, intermediaries, financial institutions, individual and institutional investors, and others through the Information Services Division of ICRA. The Advisory Services Division of ICRA offers wide ranging management advisory services covering the areas of strategy practice, risk management practice, regulatory practice, transaction

practice and content. ICRA Management Consulting Services Ltd (IMaCS), ICRA Techno Analytics Ltd (ICTEAS), ICRA Online Ltd, PT ICRA Indonesia, and ICRA Lanka Ltd are the five subsidiaries of ICRA. The ICRA Group of Companies consists of ICRA and its subsidiaries.

3. Credit Analysis and Research Ltd. (CARE)

CARE was incorporated on 21st April 1993 as a credit rating information and advisory services company (Bhat, 2008). It is promoted by Industrial Development Bank of India (IDBI), Canara Bank, Unit Trust of India (UTI) and other leading banks and financial service companies (Bhat, 2008). It has started its operations with a paid up share capital of Rs. 8 crore contributed by 15 shareholders. It provides a diverse range of products and services to the Indian industry and corporate organisations in the areas of credit rating information and equity research. CARE commenced its operations in October 1993. CARE is governed by an exceptional professional board that has carefully followed the policies of its promoters. CARE is a founder member of Association of Credit Rating Agencies in Asia (ACRAA) (Mohammed maaz kazi, 2015). In January 1994, CARE commenced publication of CAREVIEW, quarterly Journal of CARE ratings. In 1999, CARE signed a strategic alliance with London based international rating agency Fitch Ltd.

CARE's ratings are recognised by the Government of India and all regulatory authorities. The authorities like SEBI, RBI, Director General - Shipping, Ministry of Petroleum and Natural Gas (MoPNG), National Housing Bank (NHB), National Bank for Agriculture and Rural Development (NABARD), and National Small Scale Industries Commission (NSIC) have recognized the CARE Ratings. For Basel II implementation in India, RBI has approved CARE Ratings as an eligible Credit Rating Agency.

CARE is a full service rating organization. Its rating coverage goes beyond industrial units include public utilities, financial institutions, special purpose vehicles, infrastructure, projects, state governments, and municipalities. CARE rates all forms of debt securities, including short and long term. It also undertakes equity research study of listed or to be listed companies on the major stock exchanges. It

also provides rating of parallel marketers, corporate governance rating, rating of collective investment schemes, IPO grading, construction grading, fund credit quality grading, insurance grading services and so on.

CARE's clients include some of the largest private sector manufacturing and financial institutions of India. CARE's Advisory Service wing brings out credit reports on companies based on published information and CARE's in-house database. It also conducts sector studies on specific sectors of the Indian economy that were previously government-controlled but have recently been opened up to private business. CARE had enjoyed the privilege of being retained by Disinvestment Commission, Government of India, for assisting in equity valuation of a number of state owned companies and guiding on disinvestment strategies.

4. Fitch Ratings India Private Limited

Fitch is one of the three international giant credit rating agencies recognized as Nationally Recognised Statistical Rating Organisation (NRSRO) in 1975 by Securities Exchange Commission. It was established in 1913 as Fitch Investors Service. In 1997 it had merged with IBCA group. In the year 2000 Fitch IBCA acquired Duff & Phelps, another international rating agency. Duff & Phelps had set up its Indian franchise, Duff & Phelps India. The DCR is established in India by a joint venture between Duff and Phelps, USA and Alliance Capital Limited, JM Financials Group. Fitch Ratings India Private Ltd., formerly Duff and Phelps Credit Rating (India) Private Ltd was established in 1996. Fitch Ratings India is a 100% subsidiary of the Fitch Group. FITCH is the only international rating agency with a presence on the ground in India (Mohammed maaz kazi, 2015). It has been the first credit rating agency to introduce global standards in the Indian rating industry in the form of International Rating Committee, Structured rating rationals in booklet format etc.

Fitch is an internationally acclaimed statistical Rating Agency recognised by Securities and Exchange Commission, Federal Reserve Bank, Office of Controller of the Currency, Federal Deposit Insurance Commission, National Credit Union Association and many state securities and legal investment authorities (Rupareliya,

2010). In addition, it is recognized by many non-US authorities such as Ministry of Finance, Japan, Securities and Futures Authority of United Kingdom, Hong Kong Monetary Authority, Central Banks of Finland, Ireland and Netherlands, Bank of Italy and Bank of England (Rupareliya, 2010). Fitch is also recognised by the Reserve Bank of India, Securities and Exchange Board of India and the National Housing Bank.

Fitch has dual headquartered in New York and London. Fitch has four offices in India located at Mumbai, Delhi, Chennai and Kolkata. As a full service rating agency Fitch Ratings India offers debt ratings, issuer ratings, ratings of commercial paper, bank and financial institutions, securitization, project finance and so on. With a large global subscriber base, Fitch IBCA research division provides Fitch India with a platform to reach out to global investors. Fitch India analysts have access to Fitch International's global information network which helps Fitch India to make a global presence.

5. Brickwork Ratings India Pvt Limited

Brickwork Ratings India is a Bangalore-based company incorporated in 2007, formulated with the objective of providing strong research-based information for Indian investors to make appropriate investment decision. It is a SEBI registered credit rating agency and accredited by RBI. With the SEBI licensing, it became the first rating agency from southern part of India. The services provided by Brickwork are issuer rating, short term rating, long term rating, IPO grading, fixed deposit rating, mutual fund rating, SME rating, bank loan rating, facility rating, insurance company rating, corporate governance rating, real estate project rating.

Brickwork's methodology comes heavily from the standard rating process developed by Edward I Altman of Stem School of Business, New York. Brickwork values intangible assets like intellectual properties through latest valuation technology. Brickwork has developed the CAMEL-TP model in addition to the traditional CAMEL components. Brickwork feels that technology has come to redefine business and is extremely critical for the functioning and survival of a company. Level of information technology and its integration by issuers are also given weights

in rating. Human resource policies and talent of management are considered as critical factors for the success of the company. Brickwork uses most relevant information as well as the latest financial technology to decide on ratings. Brickwork Ratings focuses on the Indian investment scene and is completely in adjust with the Indian business socio-political economic developments and market psychology. Brickwork emphasizes the need for protecting investors' interests by providing them with easy access to better and more transparent information.

6. Acuite Ratings & Research Limited

Acuite Ratings and Research is incorporated in 2005 as an initiative of Ministry of Finance (GOI) and Reserve Bank of India (RBI) to facilitate credit rating of bank borrowers. It is a SEBI registered and RBI accredited credit rating agency, they enjoy the unique advantage of being backed by the country's largest and most powerful public and private sector banks. They are co-promoted by Dun & Bradstreet - a global data and analytics company. Since majority of bank borrowers are SMEs, they chose to call themselves as SME Rating Agency which we later rechristened to SMERA Ratings Limited. Acuite, a French origin from the word 'acuity', denotes a sharp vision in terms of expertise, opinion and purpose. Their goal is to unlock the growth potential of financial markets and enable their clients worldwide to sharpen their insights to make informed and judicious decisions. SMERA Gradings and Ratings, is their subsidiary, which transformed from an initiative of the Ministry of Finance and RBI back in 2005.

7. INFOMERICS Valuation and Rating

INFOMERICS (Integrated Financial Omnibus Metrics Research of International Corporate Systems) Valuation and Rating Private Limited is a SEBI registered and RBI accredited Credit Rating Agency conceived and instituted by a team of experienced professionals in finance, banking and administrative service. It has registered office at New Delhi with ambitious expansion of going global. High ethical standards and transparency is their prime importance. Their credit rating has enabled several smaller and mid-sized firms scale up to next generation large size firms. INFOMERICS has a dedicated team of economists and financial experts who

conduct various studies regularly and present papers which has received widespread acknowledgement. They are the only company where credit ratings are carried out by a team of autonomous committee independent of the Board of Directors. To mitigate human error, the inputs for rating are generated by software developed in-house. In sync with the technological advancement, artificial intelligence analysis with the ability to even predict probability of default is a guiding factor. INFOMERICS have now serviced small, medium and large scale industries, catering to all sectors such as constructions, power, urban local bodies, steel and ancillaries, chemicals, telecommunication, NBFC's, mutual funds etc.

3.6 Methodology used by Credit Rating Agencies:

Rating methodology is concerned with the selection and use of tools in the rating process (Mohammed maaz kazi, 2015). It is merely a small portion of the whole rating process. Rating methodology is a dynamic effort that adheres to a flexible and well-honed analytical pattern. Flexibility aids in the adaptability of change as rating system cannot be static or merely a mathematical exercise. It has to be a collaborative effort of qualitative and quantitative evaluation of not just financial factors but also other associated inner and exterior corporate business world sectors in which the company under rating operates and survives. The available literature demonstrates that International and Indian credit rating organisations have the same approach to credit rating parameters, although the rating methodology has been treated at a difference by each of them.

The ratings are based on information provided to the rating agency by the Issuer Company, or data from its in-house database, as well as data from other sources considered reputable. In accordance with industry practice, both qualitative and quantitative criteria are used to evaluate and monitor ratings. The basic focus of the rating process is to evaluate future cash generating potential and the ability to satisfy its commitments in bad conditions. The rating methodology entails an examination of all the elements influencing an issuer company's creditworthiness (business, financial, industry characteristics, operational efficiency, managerial quality, the issuer's competitive position and commitment to new initiatives, etc.). To analyse

performance and forecast the future, a detailed analysis of past financial accounts is performed. The following are the main elements that credit rating agencies examine while evaluating the instrument:

I. Business Risk Analysis

Business risk analysis seeks to evaluate the industry risk, market position of the company, operating efficiency and legal position of the company. This comprises an examination of industry risk, market position of the company, operating efficiency of the company and legal position of the company.

a) Industry risk

Rating agencies assess industry risk by taking into various factors such as the strength of the industry prospect, the nature and basis of competition, demand and supply position, industry structure, business cycle pattern, and so on. Industries compete with each other on the basis of price, product quality, distribution capabilities etc. Industries with stable demand growth and flexibility in capital outlays are in a better position and so have a higher credit rating.

b) Market position of the company

Rating agencies evaluate a company's market position by considering factors such as market share percentage, marketing infrastructure, competitive advantages, selling and distribution channels, product diversity, customer base, research and development projects undertaken to identify obsolete products, and quality improvement programs and so on.

c) Operating efficiency

Advantages related to location, management labour relations, cost structure, labour availability, raw material availability, pollution control program compliance, amount of capital used, technological advancements, etc. have an impact on each issuer company's operating efficiency and, consequently, its credit rating.

d) Legal position

The legal position is measured by a letter of offer covering terms of issue, trustees and their responsibilities, mode of timely payment of interest and principal, provision for fraud protection, and so on.

e) Size of business

One important consideration when assigning a rating to a company is its size. Compared to larger enterprises, smaller businesses are more exposed to risk as a result of shifts in the business cycle. The scope of operations, product offering, and customer base of smaller businesses are limited. Whereas, large businesses gain from diversification since they offer a wider variety of products and serve a wider geographic area. As a result, business analysis takes into account every significant aspect of an issuer company's business operations that are relevant to credit evaluation.

II. Financial Analysis

Financial analysis aims to determine the issuer company's financial strength through quantitative methods such as ratio analysis. The analysis of the company's profitability as well as cash flow patterns is evaluated in order to determine the borrower's ability to overcome business difficulties (CRISIL, 2000b). To forecast a company's future performance, both past and current performance is assessed. The following factors are taken into account in financial analysis:

a. Accounting quality

As credit rating agencies rely on the audited financial statements, the analysis of statements begins with the study of accounting quality. In order to achieve this, the qualifications of auditors, overstatement/understatement of profits, stock valuation, and the application of depreciation to fixed assets are examined.

b. Earnings potential/profitability

Profitability reflects a company's capacity to satisfy its obligations on time. A company with consistent earnings can withstand tough conditions and simultaneously generating cash internally. Profitability ratios such as operating profit and net profit to sales are computed and compared with previous five years' figures as well as similar other companies. As a rating is a forward-looking activity, more attention is placed on the issuer's future earning ability rather than its past earning capacity.

c. Cash flow analysis

A cash flow analysis is conducted with respect to the company's debt and its fixed and working capital requirements. A company's credit rating is facilitated by cash flows analysis since it provides a more accurate picture of the issuer's ability to serve its obligations than reported earnings.

d. Financial flexibility

A company's capital structure is evaluated to assess the debt/equity ratio, alternative ways of financing used to raise fund, ability to raise funds, and asset deployment potential, among other things. In order to establish the issuer's financial flexibility, future debt claims on the issuer's ability to raise money are determined.

III. Management Evaluation

The management objectives, plans, and strategies, ability to overcome adverse circumstances, personnel experience and expertise, planning and control system, etc., all have a major impact on the operation of any organization. An assessment of the management's strengths and shortcomings is necessary before rating any instrument.

IV. Geographical Analysis

Geographical analysis is performed to identify the issuer company's location advantages. An issuer company with operations spread across a vast geographical

area benefits from diversity and hence receives a higher credit rating. A company located in backward area may be eligible for government subsidies, resulting in lower operating costs.

V. Regulatory and Competitive Environment

Credit rating agencies assess the structure and regulatory framework of the financial system in which, issuer company works. CRAs analyse the impact of regulation/deregulation on the issuer company when awarding rating symbols.

VI. Fundamental Analysis

Fundamental research covers an examination of the company's liquidity management, profitability and financial situation, interest and tax rate.

1. Liquidity management involves the analysis of capital structure, the availability of liquid assets to meet financial obligations and the matching of assets and liabilities.
2. Asset quality includes aspects such as a company's credit risk management, exposure to individual borrowers, and credit management problem, among others.
3. Profitability and financial status include past profits, fund deployment, revenue from non-fund based operations, and reserve additions.
4. Interest and tax sensitivity demonstrates the company's sensitivity to changes in interest rates and tax laws.

The preceding analysis concludes that credit rating is essentially a business analysis, which has a much broader connotation than financial analysis (Mohammed maaz kazi, 2015). The rating agency has access to unpublished information and interactions with the senior management of issuers, providing meaningful insights into corporate plans and strategies (Mohammed maaz kazi, 2015). At the end of this thorough process, the rating reflects the well-considered opinion of a dozen or more highly skilled and experienced individuals.

3.7 Process of Rating

The rating process begins with rating request from the issuer and the signing of a rating agreement. The rating procedure typically takes three to four weeks from the initial meeting with management to the assignment of the rating (CARE, 2001). However, in order to address urgent requirements, the rating agency has sometimes made rating decisions in shorter time limits. When issuing a rating, credit rating agencies use a multi-layered decision-making process.

All over the world, rating process is similar and based on the practices established by internationally recognized credit rating organizations, particularly Standard and Poor's and Moody's Investment Services (Verma, 2000). Moody's employs a multidisciplinary or universal risk analysis approach, with the goal of bringing a knowledge of all relevant risk factors and opinions to every rating examination (Moody's, n.d.). Based on the practices of worldwide rating agencies such as S&P's and Moody's, the process or procedure followed by all of the country's major credit rating agencies is almost same and usually consists of the following steps:

1. Receipt of the request

The rating process initiates with the receipt of a formal rating request from a company that wishes to have its instrument rated by credit rating agencies. The rating agency and the issuer company entered into an agreement (CRISIL, 2000c). The general terms and conditions of the agreement include the credit rating agency to keep the information confidential, acceptance of the rating is in the hands of issuing company and the issuer company provides all material information to the CRA.

2. Assignment to analytical team

On receipt of the above request, the CRA allocates the job to an analytical team. Generally, the team comprises of two members who have expertise in the relevant business area and are accountable for carrying out the rating process. The team gathers all basic information and does basic research on the financial performance and position of the issuer.

3. Collection of information

A preliminary meeting is arranged between the CRA and the senior executives of the issuer company in order to understand the issuer's business setup, and data useful in the rating process is gathered from the issuers. Issuers are typically given a list of information needs as well as a broad framework for discussions. These requirements are drawn from the issuer's business experience and basically confirm all areas that have an impact on the rating. The analytical team examines information such as financial statements, cash flow estimates, and other pertinent data.

4. Plant visits and meeting with management

After gathering and evaluating information, the analytical team visit to the issuing company to have a deeper understanding of the client's activities and interact with company's executives. Plant visits facilitate first-hand information on the issuer-company's working and operational efficiency as well as validation of the information furnished and reports submitted by the issuer-company.

The management meeting covers a wide range of topics, including competitive position, strategies, financial policies, historical performance, and long-term financial and business prospects. In addition to evaluating financial data, the analytical team will evaluate the issuer's business risk profile and strategies. It enables the rating agency to include non-public information in the rating decision and allowing the rating to be forward-looking (CommercEducation, 2011).

05. Preview Meeting

The Rating Agency conducts a preview meeting after the plant visit and discussion with management on significant aspects or issues. This preview meeting takes in the form of internal discussion, where the experts' team interacts with the back-up team.

6. Rating committee meeting

Rating Committee is an apex committee of rating agency empowered to take decision on rating. This is the only phase of the procedure in which the issuer does not directly participate is the rating committee meeting (Patil, 2020). The Rating

Committee discusses on the Analytical team's analysis and conclusions. The rating is assigned after considering all the factors concerning the issuer with the key issues getting greater attention (CRISIL, 2000b).

7. Communication of Rating to the Issuer

The rating committee's decision is communicated to the issuer, together with the reasons or rationale for the decision (Singh, 2023). The ratings may be accepted or rejected by the issuing company. The credit rating agency does not reveal the rejected ratings.

8. Rating Review

The issuing company may file an appeal with its arguments backed up by data and facts, if they are not satisfied with the Rating assigned. After that, the Rating Committee considers the Rating in light of the issuer-company's objections. The Rating Committee makes the final decision based on this thorough review. The decision on Rating taken by the Rating Committee is communicated to the issuer-company.

9. Dissemination of Rating to the Public

Once the rating is accepted by the issuer, it is published in the Rating Agency's official document and posted on Rating Agency's website. Further, this information is disseminated to general public through other public print and e-media along with the rationale.

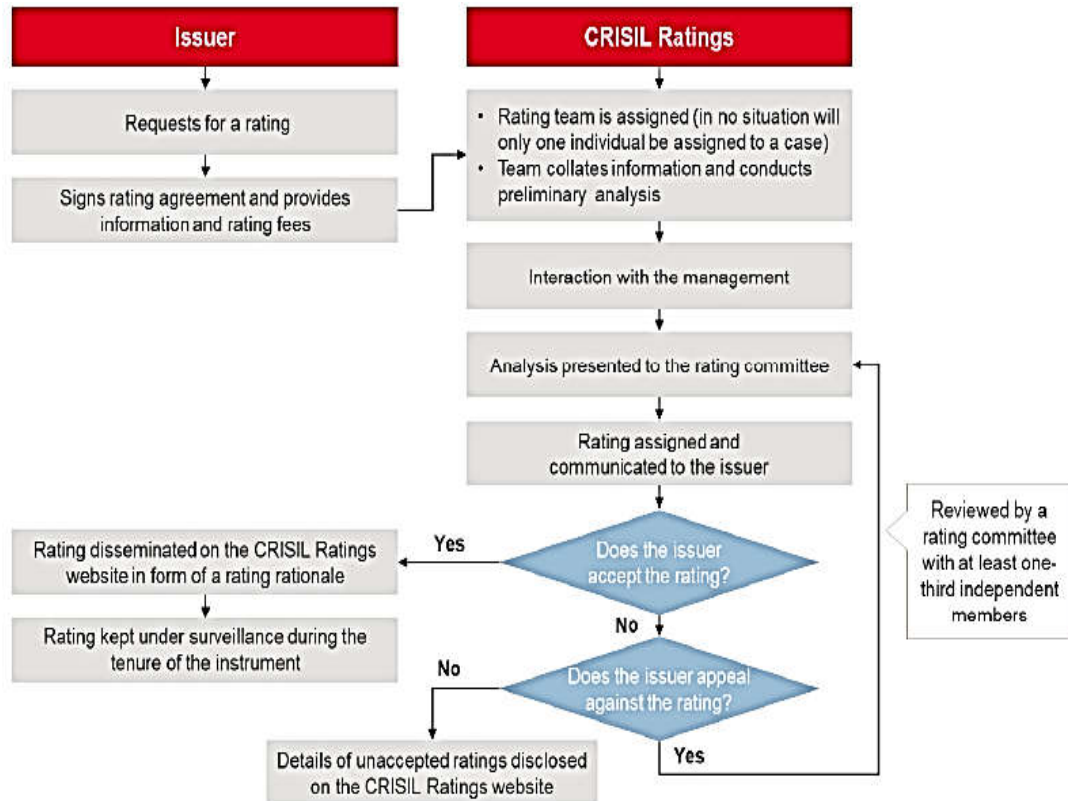
10. Surveillance:

Once the rating is accepted by the issuer-company, the credit rating agency will continue to monitor till the validity period of the ratings. Each Rating is formally examined once a year. A review can also be triggered anytime there is a major event in the issuer-company or in the industry that has a significant impact on the company's creditworthiness. As a result, based on the developments concerning the corporation, the rating may be reaffirmed, upgraded, lowered, or withdrawn (Shah P. Pradip, 1989). Ratings may be placed on 'Rating Watch' in some instances (CRISIL, 2000c).

Figure 3.1 Explains the CRISIL's Credit rating process.

Figure 3.1

CRISIL's Rating Process



3.8 Types of Rating Announcements

Due to fluctuations in a company's and its securities' performance, the initial rating may not hold true until maturity. Rating announcements can be made at any time until the maturity of rated securities (Kumari, 2021). The following are the various rating announcements made by rating agencies:

- 1. Initial Rating:** The rating assigned to an instrument for the first time by a rating agency in order to evaluate its securities. This can be done either before or after an instrument is made available to the public.
- 2. Rating Upgrade:** The ratings assigned to instruments are monitored and revised as needed based on their performance until they mature (Kumari, 2021). For instance, if an instrument's performance/return increases CRAs will adjust the

ratings and announce better CR grades (Kumari, 2021). CRAs will revise the ratings and announce higher grades of CR. The Rating upgrade refers to an improvement in rating grade.

3. Rating Downgrade: CRAs revise their ratings and announce new rating with lower grades, if an instrument's performance or return declines before the maturity period. Rating downgrade refers to a decline in rating.

4. Rating Reaffirmed: When the previous rating grades are re-examined and there is no change in performance/return, then the same grades are assigned is known as a rating reaffirmation (Kumari, 2021). Reaffirmed rating is considered to indicate a constant creditworthiness of an instrument (Kumari, 2021). Usually this announcement is considered either as a positive or stable information about the risk associated with an instrument (Kumari, 2021).

5. Suspended Rating: A rating can be cancelled either by CRAs or issuer, under SEBI (Credit Rating Agencies) regulations, and this cancelled rating is called suspended rating (Kumari, 2021). It does not mean that the financial position of an issuer has deteriorated or the issuer is unable to fulfil its obligations (Kumari, 2021). This happens if the important information of an issuer is not available to the CRAs or if the issuer refuses to cooperate with the assigned rating (Kumari, 2021).

6. Rating Watch: Credit rating of an instrument cannot be ascertained due to unanticipated events such as merger, demerger, acquisition, change in capital structure or spontaneous regulatory change (Kumari, 2021). To track ongoing changes and obtain additional information, CRAs use the time during which a credit rating remains on 'Watch' to determine whether the current credit rating should be revised or not (Kumari, 2021).

7. Rating Withdrawal: The issuer can withdraw the rating by fully paying the financial obligation. However, CRAs need to display the withdrawn rating and also state the reason (SEBI, 2016). The reasons for withdrawing ratings are as follows: (i) if the information provided by issuers to CRAs are insufficient to assess an issuer's creditworthiness, (ii) if an issuer is liquidated or bankrupt, or merged with another

entity, there is no need to maintain the ratings issued by CRAs, and (iii) if the obligation is paid in full (Kumari, 2021).

3.9 Essentials of a Good Credit Rating System

Credit rating is significant inputs in the decision-making process of various capital market participants, including regulators. A good credit rating system efficiently serves the interests of all market participants including regulator. As a result, in order to meet this criterion and ensure that the rating system functions properly, the following points must be mandatory.

- 1. Credible and Independent Credit Ratings:** Credible ratings can achieve only if the rating agency is independent of issuer's business, holds high degree of professionalism, and has industry-specific experience. Additionally, the ratings will be credible if they are unbiased, if strict confidentiality guidelines apply to sensitive and private information of the issuer, if rating reviews and changes are promptly announced, reach wide range of investors by means of press reports, print and electronic publications and research services.
- 2. The Meaning, Use, Level of Risk Inherent in the Rating should be clearly defined:** Credit rating agencies must clearly define the meaning and limitations of ratings. The rating serves as a trigger warning, indicating the level of safety in investing opportunities. To increase the importance of the ratings to investors, the rating agencies should use warning signals such as credit rating watch and rating outlook.
- 3. Disclosure of information:** One of the basic requirements of a good rating system is to make the adequate corporate disclosures and to publish all the necessary information required for the investors.
- 4. Investor Education:** Arriving on the rating is not the only role of the credit rating agencies. Credit rating agencies must ensure that, it enables investors to make meaningful interpretations. The rating information should use appropriately and the investor must capable to make decision based on these

rating outcomes. The investors should also be aware of the limitations of credit rating.

- 5. Transparency of Credit Rating Analysis:** There should be transparency in ratings process and methodologies for assigning and rating change. The transparency in rating helps to provide necessary information to investors, enable them to make informed decisions, review ratings, to compare ratings and to form their own opinions on the soundness of an agency's analytics.

3.10 Functions of Credit Rating Agencies

Credit rating expresses relative risk of an issuer's ability and willingness to repay both interest and principal during the course of the rated instrument. They try to provide investors with a better knowledge of the risks they face when lending to a specific borrower by sorting the massive quantity of information accessible on an issuer, its market, and economic circumstances (IOSCO, 2003). Since issuers have more insider information than investors, there is typically an information asymmetry between lenders and issuers. The process of acquiring pertinent data is expensive and time-consuming. Further, they may not have adequate knowledge of how to judge the creditworthiness of the borrower. "In a global environment, this asymmetry is even greater and the cost of collecting information is even higher. The practice of credit rating and the emergence of CRAs for the purpose are meant to help mitigate this problem of asymmetric information" (Reddy Y.V, 2004). The major functions of credit rating agencies are summarised below:

(i) Information Function

By generating information, CRAs serve as intermediaries between issuers and investors. Investors have very little information about the issuer while the issuers have complete knowledge about their own capabilities and intentions. The information held by the issuer is superior to investor. Rating agencies collect, evaluate, interpret, and summarise complicated information in a simple and readily understood formal manner. According to (Campbell & Kracaw, 1980), CRAs disclose the implications of various private-information to the market while keeping

confidentiality about the information itself. A credit rating agency can provide more authentic and credible information since it has highly trained and professional staffs, and it has access to information that is not publicly available.

An independent credit rating agency is likely to provide an unbiased opinion, it has no vested interest in an issue unlike brokers, financial intermediaries and its own reputation is at stake (Baresa et al., 2012). Institutional investors have their own mechanism of assessment of the issuer. In that case, they compare ratings to internal research they have conducted internally. However, for retail investors, it is difficult to conduct their own assessment exercises, because of their limited resources and difficult access to private information. By exploiting enormous economies of scale in information generation, rating agencies simplify their responsibilities (Grundman & Kerber, 2001). Thus, CRAs create value by reducing information costs in the market. Investors can utilize the information provided by CRAs about the firm being rated which investors can analyze and decide which investment is best for them.

(ii) Regulatory Function

Apart from serving as an information intermediary, CRAs perform another important function. Regulators of financial markets make use of rating in their regulatory frameworks. These rating-based regulations entrust rating agencies with the function, commonly known as the 'certification function'. "In this view, rating agencies not only assign a credit evaluation but they also issue a 'license' to access the capital markets or to lower regulatory burdens" (Partnoy, 1999). Rating-based regulation is largely used by regulators to defend against systematic risk.

(iii) Monitoring Function

Credit ratings serve as a monitoring mechanism for securities throughout their life cycle. This is done to reduce the moral hazard problem after a credit has been granted. In the absence of monitoring, issuers may act opportunistically at the cost of investors. Follow up with the issuer throughout the securities' life is beyond investors' capacity. Thus, CRAs monitor issuer behavior and issue periodic updates to their initial ratings.

(iv) Standardization Function

According to sociologists like (Sinclair, 2005) and (Kerwer, 2005), the relative nature of CRAs' risk assessment creates a value by itself. By standardizing the credit assessment process, they add value regardless of the ratings' informational usefulness. Rating agencies act as coordination firms establishing a common understanding of creditworthiness. From this point of view, CRAs are not only information providers, but also offer a standard of creditworthiness that can be voluntarily adopted by the investors. Furthermore, ratings allow for the easy comparison of risky investments across all classes and nations (Dittrich, 2007).

(v) Equilibrating Function

As stated by (Boot et al., 2006), credit ratings have the ability to act as a "focal point," which means that credit ratings help fix the desired equilibrium in a situation where there would otherwise be several equilibrium points. When a firm attempts to raise funds from the financial market, the market cannot easily assess the quality of a firm's investment opportunities. Depending on market assumptions, the firm may be induced to adopt high-risk or low-risk strategies. It will demand a high return if the market expects a riskier project decision. On the other hand, the firm may be induced to take the low-risk option, if the market expects it. Higher rating indicates that the entity is creditworthy and vice-versa.

3.11 Criticism Faced by Credit Rating Agencies

CRAs have been criticised on numerous occasions around the world. Many have questioned their independence, legitimacy, impartiality, authenticity, integrity, and the credit rating system as a whole. Given the importance of credit ratings, it is critical that the rating process and methodology accurately reflect the issuing company's creditworthiness, and the ratings are proactive. Credit rating agencies are under increasing pressure from regulatory bodies to make their methodologies and communication with investors and regulators more transparent. The question of why should a private body granted such a major role in market regulation is being debated by market participants and professionals. The criticism against credit rating agencies has been discussed in the following paragraphs:

Firstly, the CRA has been criticized for its inherent conflict of interest in the credit rating business model. There are various situations where CRA could lead to conflicts of interest. The “issuer pays” model followed by CRAs compels the issuer to pay for the ratings. Thus, CRAs may be interested in assigning higher ratings or May hesitant to downgrade issuers for fear of spoiling business relationships and revenue potential. The argument against this idea is that the reputational risk that CRAs face offers an overwhelming incentive to maintain high quality and award accurate ratings. Access to non-public information itself is a possible source of conflict of interest, in the sense that CRA officials may use the information to trade securities on their own account (IOSCO, 2004).

In addition to ratings, the CRAs provide certain auxiliary services that could considered as a potential source of conflict of interest. Issuers may feel under pressure to acquire supplementary services in order to improve their credit rating. While CRAs offer ancillary services and receive subscription fees, issuer fees for ratings account for the majority of their income. There is evidence that ancillary service fees are rising, even though rating agencies argue that fees from ancillary services are not substantial (Partnoy & Frank, 2006).

A major source of conflict is having a financial relationship in an issuer by holding shares or other affiliation. However, CRAs reject this possibility by stating that their internal policies prohibit them from rating issuers, in which the firm has a financial interest or from rating affiliates of the firm (IOSCO, 2003). CRA board members serve in various positions for companies they rate. For instance, Clifford L. Alexander, Jr., a former Moody's chairman, was a member of the boards of Wyeth, a business Moody's graded, and WorldCom for 19 years (Klein, 2004). A potential conflict exists in this case because WorldCom obtained favourable ratings even after its bonds were trading at non-investment grade (Partnoy & Frank, 2006).

Secondly, the oligopolistic structure of the credit rating industry has ensued small number of agencies hold a dominant position in the market. Lack of competition in the industry has led to higher costs, delayed innovation, lower quality of ratings, and unrestrained conflict of interests and anti-competitive practices (Elkhoury, 2008).

The issue of conflicts of interest might be resolved by more competition. Using the ratings of other companies, the market may discipline an agency if it was discovered to be giving exaggerated ratings (Kyi & Jon, 2006).

Thirdly, There have been widespread accusations that CRAs are not accountable for the ratings given by them (Reddy Y.V, 2004). This is because the rating agencies emphasize on the fact that their assessments are opinions. CRAs are never asked by regulators to provide an explanation for incorrect ratings. They are relieved of all charges due to the fact that ratings are not any recommendations to buy or sell a security (Reddy Y.V, 2004). Additionally, there is no private contract between an investor and a rating agency, and the investor is free to accept or reject the agency's assessment. CRAs sometimes downplay their responsibilities due to inadequate accounting and auditing standards of the issuers. A rating is no more credible than the information provided by the issuer of securities since ratings primarily on information provided by the issuer (Schwarcz Steven, 2002). CRAs decline to play the role of an auditor, in order to guarantee the correctness of an issuer's financial status. In this context, the Satyam case could be considered a clear example.

Fourthly, there is lack of transparency and do not provide clear information about the credit rating agencies methodologies. According to (Gonis et al., 2012), market players view the rating methodology employed by rating agencies as a "black box". Big corporations like the international insurance giant A.I.G (American International Group), Enron and WorldCom were assigned high investment grade ratings just months before their collapse. This raises questions on the quality and objectivity of the methodologies, practices and processes that credit rating organisations have employed.

Fifthly, credit rating agencies have faced serious criticism for their role in various financial crises over the last few decades. During the Asian financial crisis in 1997, the credit rating agencies were unable to provide any signal to the market participants about impending crisis. In fact, they responded to the situation by making quick and steep revisions. The global credit crisis of 2007-08 has focused attention on credit rating agencies, as many observers have stated that unjustified

high credit ratings on innovative financial instruments contributed significantly to the global credit crisis (Hunt, 2009). There have been a large number of regulatory reports on the crisis claiming that high credit ratings on financial instruments influenced investors to purchase these securities. The U.S. government accused Standard & Poor's for their alleged role in deceiving investors in the lead-up to the financial crisis, and in February 2013 it filed a civil suit against the company in a California court, requesting 5 billion dollars in damages (Christopher et al., 2013).

However, the Indian credit rating has also have incidents that brought rating agencies under public scrutiny such as the collapse of CR Bansali's business empire in mid-1990s, loan defaults by BPL (British Physical Laboratories), Satyam debacle and so on. The losses arising from the corporate collapses, including Enron, WorldCom have led to question the reliability of the ratings and the competence of the processes and the institutions. The nationally recognized credit rating agencies such as Moody's, Standard and Poor's, and Fitch have faced widespread criticism for their credit ratings' failure to foresee some high-profile bankruptcies on time. These rating firms maintained investment-grade ratings for Enron, Californian utilities, and other bankrupt companies for days before they declared bankruptcy.

Sometimes rating agencies show herding behaviour, thereby increasing the volatility of capital flows. This criticism gained ground in time of East Asian crisis as many analysts argued that the downgrading of the crisis-hit countries during an ongoing crisis may have made matters worse rather than helping the situation. Kuhner, (Kuhner & C, 2001) holds that "Collusion or herding results in a loss of information. Moreover, debtors who for any reasons think they have been inadequately evaluated by their agency have no opportunity to obtain a modification".

Sixthly, Inadequate Monitoring and Procyclical, The rating agencies are perceived as being reactive rather than proactive in their operations, even if they continue to monitor the credit conditions of the underlying firms. They act only when the market or the firm cannot reverse the change within a reasonable time period. Furthermore, credit ratings are unable to capture the changing features of an issuer and the issue over the life of the rated security due to time and cost

constraints. The credit rating agencies have been criticized for being procyclical, especially in the aftermath of South-east Asian crisis in the late 1990s. CRAs did not give any warning signals until after the Asian markets had started to experience volatility. In response, the agencies reacted by cumulatively downgrading issuers who had invested in the Southeast Asian markets without taking into account their individual portfolio quality, when the crisis was actually becoming worse.

3.12 Conclusion

Credit rating is born out of uncertainties in the financial market. Rating activity in India is of recent origin compared to that of in western countries. Rating Agencies have made remarkable progress during this short span of time. It may be said that CRAs act as information equaliser, thereby enlarging the investor base. Despite enormous importance attached to this service, rating agencies are faced with several criticisms. Criticisms range from conceptual deficiencies to operational inefficiencies. Lack of accountability on the part of CRAs brings them to the centre of criticism. The oligopolistic nature of the industry leads to inadequate competition and adds to that various conflicts of interests in the process of intermediation. However, there is no denying the fact that rating industry is reputation driven. Reputation is their most vital capital which CRAs normally would not like to stake for any occasional gain.

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CHAPTER 4

RESEARCH METHODOLOGY

4.1 Introduction

The whole research process adopted in this research work is explained stepwise in this chapter. The present chapter explains the suitable methodology to achieve the objectives. This chapter lays out the methodologies and sample characteristics, tools for data collection, tools for data analysis, reliability and validity are discussed. The limitations of the study have also been discussed.

4.2 Research Design

Research design can be assumed of as the structure of research (Kombo & Tromp, 2006). The present study emphasis on awareness, perception and investment decision of investors in related to credit rating. The present study is descriptive and analytical in nature. This is a fact-finding study aims to identify the desirable aspects and dimensions of the problem by explaining the descriptive information. As a result, it is known as descriptive research. Since the study uses first-hand data to examine the cause-and-effect relationship between the variables, these factors may usually be measured on constructs and the relationship of quantitative data measured with the help of statistical procedure, it can be described as analytical study also.

4.3 Sources of Data

Both primary and secondary data are used for the study. Primary data is used to know the awareness level of investor regarding credit rating and for analyzing the perception and change in investment decision of investors in related to credit rating.

4.3.1 Primary Data

First-hand information for the study has been collected from equity investors in Kerala. The data were collected using a well-structured questionnaire.

4.3.2 Secondary Data

Secondary data required for the study were compiled from official website of CRISIL, ICRA, CARE and SEBI, research dissertation and thesis, periodicals, study report, books related to study area, journals and other websites.

4.4 Sample Design

This section deals with the technique and procedure adopted for selecting items for the sample from population.

4.4.1 Population

Population of the study is the equity investors in the State of Kerala. Since exact information about the number of shareholders in the state of Kerala is not available, researcher has collected data from various stock broking firms, official sites of National stock Exchange, Bombay Stock Exchange and National Securities Depository Limited and also referred the book published by (Nishad, 2019). It has been found that as of 2019 December, there are approximately 3,15,000 shareholders in the state of Kerala. As per NSDL, the number of shareholders in the state of Kerala has indeed risen to a great extent during 2020 and 2021 (Parvathy P R, 2022). Therefore, exact information about the number of equities shareholders in Kerala are not available. Hence, the population size is infinite in nature.

4.4.2 Sample size

Sample size is determined according to Krejcie and Morgan. Based on the table created by Kerjcie and Morgan, a sample size of 384 is enough for population size up to 1,0,00,000. In India, a country with population of 138.92 crores, only less than 4% of the population invests in shares. The geographical region under investigation, Kerala, has a population of 3.46 crore, and less than 1% of the population invests in equity shares. Therefore, only less than 3,48,000 people invest in equity shares (Parvathy P R, 2022). Hence a maximum of 400 samples is more than enough (Parvathy P R, 2022). It can be verified using the following formula which was developed by (V. Krejcie Robert & W.Morgan Daryle, 1970). Since the exact

number of equity shareholders in Kerala is unknown, the formula used when population is infinite is applied in the study. It is calculated as follows:

$$S = Z^2 * P (1-P) / (M)^2$$

S = Required Sample Size for infinite/ unknown population

Z = Z score

P = Population Proportion

M = Margin of error

Z score is determined on the basis of confidence level. Confidence level is the probability that the value of parameter falls within a specified range of values. Here the researcher considers 95% confidence level and the Z score is 1.96.

Population proportion is assumed to be 50%, i.e., 0.5 (Since this would provide the maximum sample size.

Margin of error is a small amount that is allowed for in case of miscalculation or change of circumstances. 5%, i.e., 0.05 is taken as the margin of error.

$$S = (1.96)^2 * 0.5(1-0.5) / (.05)^2$$

$$= 3.8416 * 0.25 / 0.0025$$

$$= 384.16$$

As per the above calculation, the sample size of equity shareholders is arrived at

384. It is rounded to 400.

4.4.3 Sampling method

Purposive Sampling is employed as the sampling technique to select the sample investors for the study. On the basis of historical, geographical and cultural similarities, the districts are usually grouped into North Kerala: Kasaragod, Kannur, Wayanad, Kozhikode, and Malappuram, Central Kerala: Palakkad, Thrissur,

Ernakulam, Idukki, South Kerala: Thiruvananthapuram, Kollam, Alappuzha, Pathanamthitta, and Kottayam. In order to get samples of investors in Kerala, state will be divided into three regions namely; North region, Central region and South region. Two districts from each region were selected on the basis of most populated districts as per the estimated population in census 2021. From north Kerala Kozhikode and Malappuram were selected, from central Kerala, Kochi and Thrissur were selected and the two districts selected from south Kerala were Kottayam and Thiruvananthapuram. The final break up of samples among selected districts were as follows

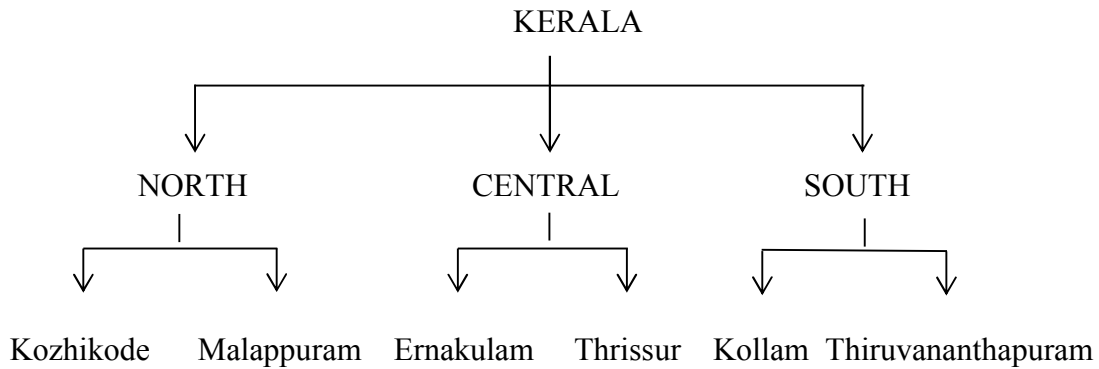


Table 4.1

Break up of samples among selected districts

Region	Districts	Selected districts	No of Sample
South Kerala	Thiruvananthapuram	Thiruvananthapuram	68
	Kollam	Kollam	54
	Alappuzha		
	Kottayam		
	Pathanamthitta		
Central Kerala	Palakkad	Thrissur	64
	Thrissur	Ernakulam	67
	Ernakulam		
	Idukki		
North Kerala	Kasaragod	Kozhikode	63
	Kannur	Malappuram	84
	Wayanad		
	Kozhikode		
	Malappuram		
Total district – 14		Selected district – 6	400

4.5 Research Instrument

The primary data was collected through well-structured questionnaire. It comprises of optional type, ranking question, multiple choices and Likert's five point scale type questions. The questionnaire consists of five parts which included questions regarding demographic profile of the investors, investment pattern of the investors, investors' awareness towards credit ratings, investors' perception towards credit rating and investment decision of investors based on credit rating.

The questionnaire consists of five parts as stated below:

Part I elicits the demographic profile of the respondents such as Age, Gender, Educational Qualification, Occupation, Marital Status and Annual Income of the respondents.

Part II consist of questions related to investment information of investors such as Experience of investors in stock market, source of information for investment decision, whether they use credit rating for investment decision, raking of credit rating agencies.

Part III deals with the statements related to awareness of investors about credit rating.

Part IV deals with the statements related to perception of investors towards credit rating.

Part V deals with the statements related to credit rating and investment decision of investors.

4.6 Scale Evaluation and Validation

a) Pilot Study and Pre-Testing of questionnaire

1 Pre-Testing of questionnaire

Pre-testing of questionnaire was done from among 10 investors in Kozhikode district. The investors were motivated to commend on unclear questions and questions which are difficult to answer.

2. Pilot Study

The pilot study is accompanied for testing the feasibility of the research questions related to the objectives. As a result, the researcher can test the reliability, validity

and efficiency of the research instruments and in that way it improve design of study before actual data collection procedure. Consequently, the researcher can evaluate the wordings, measurement, clarification of each question in the questionnaire. Here, Pilot study was done among 60 investors before finalizing the instruments for primary data collection. After pilot study, suitable modifications are incorporated in the questionnaire. Primary data are collected during the period from November 2021 to August 2022.

b) Test of Reliability

Reliability is said to be there in a particular item or set of items if it produces similar results under consistent conditions. Reliability testing is very essential for the validation of the scale. “Reliability concerns the extent to which a measurement of a phenomenon provides stable and consistent results” (Edward G. Carmines & Richard A. Zeller, n.d.). In this study, the reliability was tested by using Cronbach’s Alpha Reliability Coefficient. “An alpha value of 0.70 or above is considered to be a criterion for demonstrating strong internal consistency and alpha value of 0.60 or above is considered to be significant” (Cronbach, L., & Meehl, 1995). The Table 4.2 presented the measured variables, number of statements used in the study along with the values of Cronbach’s Alpha Reliability Co-efficient.

Table 4.2
Reliability Statistics

Serial No	Indicators	No. of items	Cronbach’s alpha
<i>Awareness</i>			
1	Credit rating concept	5	.785
2	Rating Methodology	3	.725
<i>Perception</i>			
1	Relevance	4	.771
2	Reliability	5	.863
3	Timeliness	4	.703
4	Understandability	4	.774
5	Usefulness	4	.782
6	Comparability	3	.709
<i>Investment Decision</i>			
1	Rating Announcement	5	.756
2	Investment Expectation	6	.706

c) Test of Validity

“Validity information gives some indication of how well as test or other assessment instrument measures a given characteristics, under certain circumstances and with a given set of subjects or objects”(Burns & Burns, 2008). Validity relates to the appropriateness of indicators to constructs, whereas reliability relates to the accuracy and consistency of the indicators. Therefore, measuring the relationship between the indicators and the underlying construct of study is the objective of validity.

The validity means the ability of the measurement scale to measure what it is supposed to measure (Balaji, 2011). The validity explains how well the collected data covers the actual area of investigation (Ghauri p & Gronhaugh, 2010). Validity can be classified into two: Content Validity and Construct Validity (it is further classified into Convergent and Discriminant Validity). A brief explanation of different types of validity are given below.

1. Content Validity

The first step of validity assessment is content validity. It is done by showing the instruments to a experts in the field of subject. Content validity is defined as “the degree to which items in an instrument reflect the content universe to which the instument will generalized” (Straub & Gefen, 2004). In the present study, the researcher has ensured the content validity by conducting discussion with supervisor teacher, senior academicians, statistician, managers of the share broking, other financial experts and the senior colleagues in the field of research and ensures that all the questions are relevant and suitable for fulfilling the research objectives. According to experts opinion, suitable modifications are incorporated in the instrument.

2. Construct Validity

Construct validity occurs when the measurement of construct correlates with the theoretical measurement (K, 2019). Construct validity refers to how well you transform a concept or behaviour that is a constuct into a functioning and operating reality (Subeesh & Joseph, 2023). There are two types of construct validity; Convergent Validity and Discriminant Validity. To achieve construct validity, both convergent and discriminant validity must be there. Both of this validity is checked

during data analysis through Confirmatory Factor Analysis.

i) Convergent Validity

Convergent validity refers to the degree to which two measures of constructs that theoretically should be related are in fact related (D.W.Fiske & D. T Campbell, 1959). Convergent validity is established when one measurement scale correlates with other measurement scale in the same construct (Nishad, 2019). Confirmatory Factor Analysis has used to measure the convergent validity. In the present study, convergent validity has been ensured for all measurement scale is by considering factor loadings of greater than 0.5 and "p" values of less than 0.01.

ii) Discriminant Validity

Discriminant validity is ensured when the measurement scale is sufficiently different from other items of different constructs. "Discriminant validity is assessed by comparing the shared variance (squared correlation) between each pair of constructs against the average of the AVEs for these two constructs"(Shiu et al., 2011). In present research, the square root of the Average Variance Extracted (AVE) is higher than correlation between latent variables. Hence discriminant validity is ensured.

d) Test of Normality

Normality test is computed to identify whether the data is normally distributed or not. In present study One Sample Kolmogorov- Smirnov (One sample KS) test is applied to test the normality of data. The test revealed that the data is not normal as well the 'p' values are less than 0.05. Hence it is essential to test the Skewness and Kurtosis to check whether the deviation is problematic or not. Skewness refers to the symmetry of a distribution and distribution is said to be normal when the values of skewness is equal to zero (K, 2019). Kurtosis refers to the degree of flatness or peakedness in the region about the mode of a frequency curve (Parmar & Bhardwaj, 2014). Data becomes normal when the Skewness and Kurtosis values are in the range of ± 2.58 and ± 1.96 (Hair et al., 1998). As the value of skewness and kurtosis were within the limit, normality can be assumed. Hence the researcher has used parametric tests to do the analysis part.

e) Test of Randomness

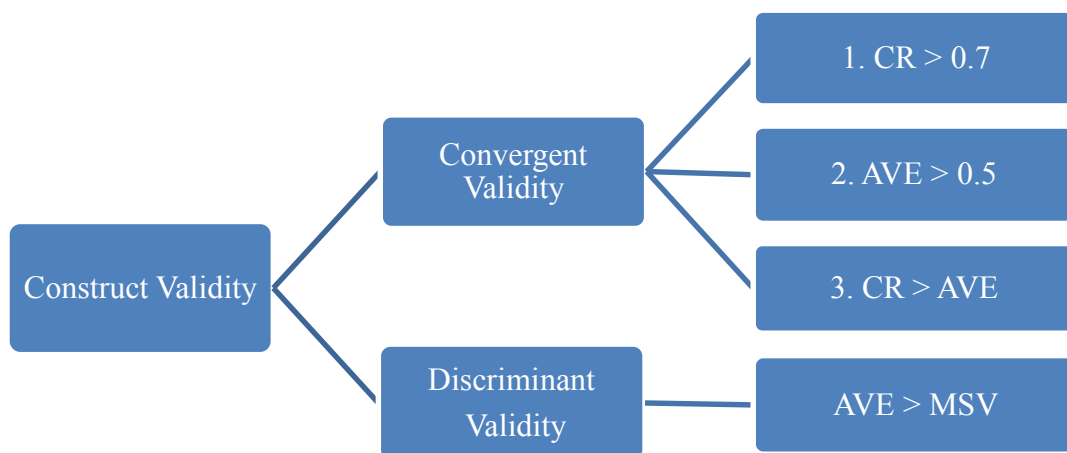
The Run test is used to test the randomness (random selection of samples from population) of data. The result exhibits that for all the variables, the ‘p’ values are above 0.05. Therefore the study assumes the randomness of data.

f) Test of Data Independence

Data independence is assumed by most statistical procedures, including multiple regression, logistic regression and other general linear models (D. Garson, 2012). Durbin Watson coefficient can be used for testing the data independence and Coefficient is between 1.5 and 2.5 (G. D. Garson, 2012). The present study, data fulfil the conditions and the data independence is assumed.

4.7 Validation of Measurement Scales

The study used a Confirmatory Factor Analysis to validate the measurement scales. It provides an explanation of the factor structure quality in assessing the proposed constructs of study. The model, model fit indices, validity and reliability findings are used to explain the CFA outcome. The following criteria describes convergent and discriminant validity.



Source: Secondary Data

4.8 Tools used for Data Analysis

In this section, the Statistical tools and techniques used for the analysis of primary data are described. Various tools used in this study are Levene's test of Homogeneity of Variance, Independent Sample 't' test, One-way ANOVA, Tukey HSD Post-hoc test for Multiple Comparison, Chi square test is used for the analysis of data. Furthermore, Confirmatory Factor Analysis and Structural Equation Modelling are used as the statistical techniques to identify the relationships and measurement models of the variables respectively. These are explained below.

1. Descriptive Statistics (Mean and Standard Deviation)

Descriptive Statistics are used to summarize and describe the data collected from the primary sources. It is intended to deliver information regarding distribution of the selected variables. Here, Mean (Measures of Central Tendency) and Standard Deviation (Measures of Variability) is used to describe the data. Mean is the average value of the distribution and Standard deviation is the amount of variation/ deviation of set of values or the positive square root of the variance. In the present study, descriptive statistics are used to describe the level of Awareness, Perception and Investment decision of selected variables. The results of measurement scale have interpreted and summarized with the help of Mean and Standard Deviation.

2. Levene's test of Homogeneity of Variance

This test has used to test the equal variances across the samples selected. Levene's test has used to confirm the assumption of homogeneity of variance. It tests the null hypothesis that the population variances have homoscedasticity and the alternative hypothesis that the population variances have heteroscedasticity. The result has attained from the 'p' value, if the p value of the Levene's test is less than .05, then we can conclude that the variance is heterogeneous and the equal variances can be assumed (G. D. Garson, 2012) and go for ANOVA or 't' – tests In that case second set of analysis (equal variance not assumed) has to be considered.

3. Independent Sample 't'- test

The Independent Sample 't' test is used for comparing the means of two independent groups in order to conclude whether there is any significant difference between these groups (K, 2019). To conduct Independent Sample 't'-test , two variables are required, one is a categorical variable (nominal variable) with two choices and another is continues variable. In independent sample t test, there is an assumption that each group of one or more categorical independent variables has the same variance on an interval dependent (D. Garson, 2012). This assumption can be tested by using Levene's test. In the present study, the Independent Sample 't' test is used to compare the mean score of Awareness, Perception and Investment decision according to the demographic profile (with two groups of categorical variables) of the investors.

4. One-way Analysis of Variance/Welch F

One-way ANOVA is used to test the significant difference between two or more groups as well as the interaction between two independent variables on the dependent variable. Here 'f' ratio allows identifying the ratio between group variances to within the group variances. The main difference between Independent Sample 't' test and One-way ANOVA is that the former test is limited two treatments conditions and the later has the advantages of comparison among two or more treatment conditions and several dependent variables. Furthermore, it helps to compare the significance difference in the sample means and the population means of corresponding population. The 'f' value is tested either in 1% or 5% level of significance to develop a conclusion.

In ANOVA, there is an assumption that the variance of outcome is homogeneous. This assumption can be verified by using Levene's test. If the p value of Levene's test is less than .05, then we can conclude that the variance is heterogeneous and adjust the F test to correct this problem. The researcher use Welch's F to correct the heterogeneity. In cases of 'ANOVA' the researcher tested the homogeneity and chose the ANOVA or Welch's F accordingly. Welch's F test is an alternative to ANOVA F test and is used when equality of group means cannot be assumed (G. D. Garson, 2012).

5. Tukey HSD Post-hoc Test for Multiple Comparison

Post hoc tests are used when there is any significant difference among sample groups (if null hypothesis is rejected) using ANOVA and to know the exact difference between these groups. Tukey's Honestly Significant Difference (HSD) test is more relevant post-hoc analysis to exhibits the exact pair-wise comparison of sample groups and used when equal variances are assumed. If the equal variances are not assumed Tamhane's T2 are used instead of Tukey HSD.

6. Multiple Regression

Multiple regression analysis is used to analyse the relationship between a single dependent variable and several independent variables (Hair et al., 2015).

7. Chi-square Test

Pearson's Chi-square test is used to determine whether any association exists between two variables or not. Chi-square test has been used to study the association of various demographic features with the clusters of Awareness related to credit rating highlighted by the respondents in the questionnaire.

8. Cluster Analysis

Cluster analysis is used to identify groups or clusters of similar objects within a dataset. Investor clustering is used to classify investors into different groups based on their investment preferences, behaviours and characteristics (Mp & Balaji, 2022). These clusters can then be examined separately to discover patterns and make independent decisions about each cluster (Bateira, 2002). In present study cluster analysis is used to classifying investors based on their awareness in related to credit rating.

9. Exploratory Factor Analysis

Exploratory factor analysis attempts to identify the underlying variables, or factors, that explain the pattern of correlation within a set of observed variables. It is useful for placing variables into meaningful categories.

10. Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) is a multivariate statistical method used to check the relationship between measured variables and their constructs (Abdulfattah, 2012). Exploratory factor analysis and Confirmatory factor analysis are almost identical technique; EFA provides information about the number of factors represent the data. But in CFA, we need to specify the number of factors required. CFA is a special form of factor analysis to specify the pattern of factor loadings based on the theoretical and empirical data and information. Henceforth, it is applied to determine the fitness of predetermined factors to an observed set of data. It is used to confirm the factor structure of a set of observed variables (Subeesh & Joseph, 2023).

In the present research work, Confirmatory Factor Analysis is used to confirm validity of the scales used for measuring the Awareness level about credit rating, Perception towards credit rating and Investment decision of investors in related to credit rating. Correspondingly, the relationship between variables and its constructs is established and the fitness of measurement model has confirmed with the help of recommended indicators.

11. Structural Equation Modeling (SEM)

Structural Equation Modeling (SEM) is a multivariate statistical technique uses structural models to analyze the causal relationship between dependent and independent variables. It is the combination of confirmatory factor analysis and multiple regressions between the variables of the study. Structural Equation Modeling refers to both structural and measurement model together (Nishad, 2019). It also exhibits the hypothesized path of directional linkage among group of observed variables (Greeshmadas M.H, 2022). Structural Equation Modeling (SEM) is a statistical methodology that takes confirmatory (i.e., hypothesis testing) approach to the analysis of a structural theory bearing on some phenomenon (Byrne & M., 2010).

As a result, SEM is intended to define the linearity of latent constructs by computing the value of the Regression Co-efficient, which demonstrates the explanatory power of the independent variables to the dependent variables. Thus, it has applied to solve

a series of equations established between the model's constructs before analysing the validity using the Model Fit Indices described below.

Table 4.3

Recommended Values of Model Fit Indices

Sl.No	Indices	Value of Good Fit	References
1	CMIN/DF	<5	(Wheaton et al., 1977)
2	Root Mean Square Residuals (RMR)	<0.05	(Barbara G. Tabachnick & Fidell, 2007)
3	Goodness of Fit Index (GFI)	>0.90	(Byrne & M., 2010)
4	Adjusted Goodness of Fit Index (AGFI)	>0.90	(Hooper et al., 2008)
5	Comparative Fit Index (CFI)	>0.90	(Wheaton et al., 1977)
6	Incremental Fit Index (IFI)	>0.90	(Bollen, 1989)
7	Tucker Lewis Index (TLI)	>0.90	(Bentler & Bonett, 1980)
8	Normed Fit Index (NFI)	>0.90	(Bentler & Bonett, 1980)
9	Root Mean Square Error of Approximation (RMSEA)	<0.08	(Maccallum et al., 1996)

4.9 Software used for Data Analysis

In order to conduct the analysis of primary data, SPSS (Statistical Package for Social Science) version 21.0 and AMOS (Analysis of Moment Structure) version 21.0 are used as the statistical software. Here, SPSS for comparative analysis and AMOS used for modeling.

4.10 Limitations of the Study:

Though the study has been carried out on scientific principles, it is normal that any research suffers from certain limitations. The following are considered to be the potential limitations subject to which the research had been carried out:

1. The human behaviours are complex and difficult to be understood as they vary according to situations, so it is not possible to ensure 100% accuracy in the result. However efforts have been made to ensure as much as accurate as possible.
2. The research field work is carried for a particular time period and hence the outcome might not be equally applicable to future scenarios, wherein business needs & industry behavior might change.
3. Even though all efforts will be taken to ensure correct data compilation, however some human error might crop in.
4. The information provided by the investors is purely based on their perception only. The quality and reliability of the data collected is the actual expression of investors.
5. Many respondents did not feel free to share their opinions, express their views and Casual approach of some of the respondents towards the questionnaire cannot be ruled out.

4.11 Conclusion

This chapter explained the research methodology of the thesis. Sampling design, tools for data collection and data analysis have been discussed in detail. The research design, result of reliability analysis, procedure for validating questionnaire was also presented in this chapter. The next chapter deals with the data analysis.

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CHAPTER 5

INVESTORS AWARENESS AND PERCEPTION ON CREDIT RATING: AN ANALYSIS FROM DEMOGRAPHIC ASPECTS

5.1 Introduction

Credit rating agencies have a significant impact on the growth of the financial market. CRAs assist investors in making decisions about their investments so that the risk – return profile is balanced. The rating agencies act as information mediators between issuers and investors, and they are expanding into new markets and creating new performance measurement techniques. A credit rating agency has greater capability to evaluate the relationship between risk and reward due to its accessibility to resource. The rating agencies gather and analyze all sorts of pertinent financial and other information, and then use it to provide a rating of the intrinsic value or quality of a security as a convenient way for investors to judge its quality and make investment decisions.

In today's market driven economy there is a genuine need for authentic investment information characterized by authenticity, quality analysis and good presentation and specially designed to facilitate decision making proven of investors and other participants in the financial service world (A.Morarji, 2005). The credit rating is now believed to be one of the primary requirements for a well organised market since most individually do not possess skills and techniques to evaluate various financial instruments that are available in the capital market. Strengthening of investor protection system is the need of the hour. In this context, credit rating is expected to provide worthwhile information for prospective investors. Even though, the rating concept appearing to be investor friendly has many loopholes such as there is no legal accountability for the rating agency, rating shopping, different rating by different agencies etc (R.Shanthi, 2004).

Understanding investors is the first step to understand the usefulness of any financial services in the capital market. The success or failure, the methodology or frame work, the quality and timeliness of services provided depends on the knowledge of the investors, awareness of the investor, investing habit and information supplied to him. This chapter titled “Investors Awareness and Perception on Credit Rating: An Analysis from Demographic Aspects” captures introduction to analysis, descriptive statistics, inferential statistics and interpretation of results of the data analysis. Descriptive statistics deals with classification, tabulation and establishing relationship between demographic variables of the respondents. Inferential statistics deals with the testing of relationship between the variables framed in the hypotheses with a view to drawing conclusion about the influence of Demographic factors on Awareness and Perception of investors about credit rating.

Section A

5.2 Profile of Sample Investors

The Demographic variables are the most popular base for segmenting the investors which led to understand the behavioural pattern of the investors. The Demographic profile of the investors is studied on parameters such as Gender, Age, District, Marital status, Educational qualification, Occupation, Annual income and Year of Experience in stock market.

5.2.1 Gender-wise Classification of Sample Investors

Kerala is one of the states known to have more female than male population. It gives a reasonable deal to women in all sectors. The gender-wise distribution of the data is presented in Table 5.1

Table 5.1

Gender-wise Classification of Sample Investors

Gender	Frequency	Percent
Male	260	65.0
Female	140	35.0
Total	400	100.0

Source: Primary data

It can be observed from the Table 5.1 that, 260 (65%) of the sample investors are male and the remaining 140 (35%) are female. Even though the female population in Kerala out numbers than male population, they are less in the field of stock market.

5.2.2 Age-wise Classification of Sample Investors

Age is the key demographic variable in any research in social sciences. In research study on investors, the Age of the respondent is important. It influences the level of awareness, perception, usage, benefit and knowledge of investors. The Age wise classification of the sample respondents are presented in the Table 5.2.

Table 5.2

Age-wise Classification of Sample Investors

Age (in years)	Frequency	Percent
Below 25	26	6.5
25 – 35	205	51.2
36 – 45	116	29.0
Above 45	53	13.3
Total	400	100.0

Source: Primary data

Table 5.2 illustrate that, out of 400 investors, 205 (51.2%) are found in the Age group of “25-35 years” followed by 116 (29%) of respondent falling under the age group of “36-45 years” and 53(13.3%) fall in the age group of “Above 45 years”.

Respondents in the Age group of “Below 25 years” constitute the least, 26 (6.5%) of the total sample unit.

5.2.3 District wise Classification of Sample Investors

Kerala state is divided into 14 Districts and each District has its own unique cultural, geographical and historical significance. In this study researcher selected six District such as Thiruvananthapuram and Kollam from southern region, Ernakulam and Thrissur from central region, Malappuram and Kozhikode from northern region.

Table 5.3

District wise Classification of Sample Investors

District	Frequency	Percent
Thiruvananthapuram	68	17.0
Kollam	54	13.5
Ernakulam	67	16.75
Thrissur	64	16.0
Malappuram	84	21.0
Kozhikode	63	15.75
Total	400	100.0

Source: Primary data

Table 5.3 shows that 85 (21%) of the sample investors reside in Malappuram district followed by Thiruvananthapuram district 68 (17%), Ernakulam 67 (16.75%), Thrissur 64 (16%), Kozhikode 63(15.75%) and Kollam 54 (13.5%). From the above distribution it can be inferred that majority of the investors in the sample belongs to Malappuram district and investors reside in Kollam district constitute the least i.e, 54 (13.5%) of the total sample unit.

5.2.4 Education-wise Classification of Sample Investors

Education qualification can be a very important tool in providing individuals with the knowledge and information they need to make sound financial decisions. It is a variable that can influence people's perceptions, understanding, and awareness of credit rating agencies. The educational background of the respondents is shown in the Table 5.4.

Table 5.4

Education-wise Classification of Sample Investors

Educational Qualification	Frequency	Percent
Graduate	194	48.5
Post Graduate	132	33.0
Professional	74	18.5
Total	400	100.0

Source: Primary data

It can be observed from the Table 5.4 that out of 400 sample investors 194 (48.5%) are Graduates, 132 (33%) are Post Graduates and 74 (18.5%) are having Professional qualification. Hence it can be concluded that the informants selected for the study are reasonably educated and are able to understand the technical side of the study.

5.2.5 Occupation-wise Classification of Sample Investors

Occupation is considered as an important determinant affecting the investment decision of the investors. So, Occupation-wise, the investors have been classified into three categories, viz. Salaried, Professional and Business as shown in Table 5.5.

Table 5.5

Occupation-wise Classification of Sample Investors

Occupation	Frequency	Percent
Salaried	245	61.25
Professional	69	17.25
Business	86	21.5
Total	400	100

Source: Primary data

The table 5.5 shows the classification of sample investors on the basis of their occupation. It can be observed from the table that out of 400 respondents 245 (61.25%) are Salaried person, 69 (17.25%) are in Profession and 86 (21.5%) are engaged in Business.

5.2.6 Marital Status-wise Classification of Sample Investors

It can be assumed that the Married people are more serious and careful in investment than a single. Particularly, how important is the Marital status and changes to Marital status over an individual's life which can affect important risk-taking decisions. So, an attempt has been made to find the influence of Marital status on the choice of investment and how it influences Perception and Awareness about credit rating. To test this assumption, the investors are categorised into Married and Unmarried investors.

Table 5.6

Marital Status-wise Classification of Sample Investors

Marital Status	Frequency	Percent
Married	304	76.0
Unmarried	96	24.0
Total	400	100.0

Source: Primary data

From the above table, it can be seen that 76% (304) of the sample investors are married and 24% (96) of sample investors are unmarried.

5.2.7 Annual income-wise Classification of Sample Investors

There are contradictory opinion about the relationship between Annual Income and Investment Decision. Some people argue that the one who is having less income will be more careful in investing, but others argue just opposite to that. To check this argument the investors are categorised according to their Annual Income and the relevant data is presented in the Table 5.7

Table 5.7

Annual income-wise Classification of Sample Investors

Annual Income (in rupees)	Frequency	Percent
Below 300000	142	35.5
300000-500000	170	42.5
500001-1000000	79	19.75
Above 1000000	9	2.25
Total	400	100.0

Source: Primary data

It can be seen from the Table 5.7 that out 400 of the sample investors, 142 (35.5 %) investors are belong to the Annual Income group of “Below 3,00,000”, 170 (42.5%) of investors belongs to “3,00,000 – 5,00,000” Annual Income group, 79 (19.75%) belongs to “5,00,001 - 10,00,000” Annual Income group and 9 (2.25%) belongs to “Above 10,00,000” Annual Income group.

5.2.8 Experience-wise Classification of Sample Investors

It may be assumed that the more experienced investors outperform the less experienced ones. To test this phenomenon, the investors are categorised according to their year of experience in the stock market. The table 5.8 illustrations the result of investors’ classification based on Year of Experience in stock market.

Table 5.8

Experience-wise Classification of Sample Investors

Experience in Stock Market (in years)	Frequency	Percent
Up to one year	63	15.75
1-5 years	88	22.0
5-10 years	123	30.75
More than 10 years	126	31.5
Total	400	100.0

Source: Primary data

The table 5.8 demonstrations the classification of sample investors according to their Year of experience in stock market. It can be observed that 31.5% (126) of the investors is having the Experience of “More than 10 years” in stock market, 30.75% (123) is having the Experience of “5-10 years” in stock market, 22 % (88) is having the Experience of “1- 5 years” and 15.75% (63) having “Upto one year” Experience in stock market.

5.2.9 Factors considering while Investing

Investment decisions are influenced by various factors that vary from one investor to another and also from one situation to another. The decision of investment depends mainly on their return, liquidity and risk characteristics. Acquiring information from information sources can be viewed as a risk reducing process. It

includes Credit rating, Company past performance, Technical and fundamentals, Risk / return factors, Cost involved, Reputation of issuer, Company's investment policy etc.

Table 5.9

Factors considering while Investing

Factors considering while Investment.	N	Mean	Std. Deviation	Ranks (based on mean)
Credit rating	400	3.65	1.241	5
Company past performance	400	4.07	1.243	2
Technical and fundamentals	400	3.61	1.337	6
Advice of friends, relatives and others	400	4.02	1.253	3
Cost involved	400	3.41	1.209	7
Reputation of issuer	400	4.11	1.260	1
Company's investment policy	400	3.89	1.409	4

Source: Primary data

The major factors influencing the investment decision shows that reputation of issuer ranked 1 and past performance of company ranked 2 are the major factors influencing in the Investment Decision making followed by advice of friends, relatives and others (Rank 3), Company's investment policy (Rank 4), Credit rating (Rank 5), Technical and fundamentals (Rank 6) and Cost involved (Rank 7) are also considered by the investors for taking Investment Decisions. From the analysis, it is explained that the majority of the investors consider the Reputation of the company for their investment decision (Table 5.9).

5.2.10 Popular Credit Rating Agency

The respondent investors were asked about their choice of the rating agency while taking their investment decision and they were given four options including CRISIL, ICRA, CARE and FITCH.

Table 5.10

Factors considering while Investment

Rating Agency	N	Mean	Std. Deviation	Ranks (based on mean)
CARE	400	2.45	.894	3
CRISIL	400	3.57	.704	1
FITCH	400	1.38	.633	4
ICRA	400	2.61	.936	2
Valid N (list wise)	400			

Source: Primary data

The Table 5.10 reveals that CRISIL is the most popular rating agency followed by ICRA, CARE and FITCH. The studies conducted by Ranadev Goswami and Venkatesh.S (1999) confirm that CRISIL is the most popular Rating agency in India.

5.2.11 Purpose of Referring Credit Rating

To know the purpose of referring credit rating among respondents, each respondent was given six choices regarding the Purpose of credit rating. These are – Information about risk and return, Assisting investments, Assure timely payment, Shows financial position of company, Assures safety of investment, Update information about the issuer.

Table 5.11

Purpose of referring Credit rating

Purpose of referring credit rating	N	Mean	Std. Deviation	Ranks (based on mean)
Information about risk and return	400	4.21	.885	2
Assisting investments	400	3.93	.826	5
Assure timely payment	400	3.73	1.018	6
Shows financial position of Company	400	4.25	.707	1
Assures safety of investment	400	3.94	.857	4
Update information about the issuer	400	3.99	.813	3

Source: Primary data

The Table 5.11 provides information about respondents ranking the Purposes of credit rating as follows, based on their mean ratings. These rankings suggest that respondents considered the option "Showing the financial position of the company" with mean score 4.25 (SD .707) is the most important purpose of credit ratings, followed closely by "Information about risk and return" with mean score of 4.21 (SD .885), "Update information about the issuer" with mean score 3.99 (SD .813), "Assures safety of investment" with mean score 3.94 (SD .857), "Assisting investments" with mean score 3.93 (SD .826). The option "Assure timely payment" is ranked lowest with mean score 3.73 (SD 1.018) among the provided purposes.

Section B

5.3 Factor Analysis of Awareness

Factor analysis is a statistical method that is used to analyse the relationships among a set of variables and identify underlying latent factors or dimensions (Martin & McPherson, 2010). By examining the relation between variables, factor analysis allows to identify common underlying factors that can provide meaningful explanations for the observed patterns in the data (Kleisiari et al., 2023). A principal component analysis for the eight statements related to Awareness on credit rating was performed using SPSS 21.0 to reduce the larger set of variables into a smaller, conceptually more coherent set of variables, by identifying redundancy among variables (Uchil, 2020). For factor analysis to be done, it is appropriate to first test whether variables are sufficiently interconnected and the Kaiser-Meyer-Olkin statistic is the usual measure (Eappen, 2014). The KMO statistic indicates the proportion of variance in the variables that might be caused by underlying factors. It presents the level of suitability of using Exploratory Factor Analysis for the collected data. The results of KMO and Bartlett's test is given in the table below (Table 5.12)

Table 5.12

KMO and Bartlett's Test - Awareness

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.771
Bartlett's Test of Sphericity	Approx. Chi-Square	1223.060
	Df	28
	Sig.	.000

Source: primary data

The KMO and Bartlett's test of Sphericity produces the Kaiser- Meyer- Olkin measure of sampling adequacy and Bartlett's test. KMO for overall matrix was found to be excellent (0.771) which is greater than 0.5 (Kaiser, 1974). The Bartlett's test of Sphericity is a statistical test for the presence of correlations among the variables and tests the hypothesis that the correlation matrix is an identity matrix i.e., all diagonal elements are 1 and off diagonal elements 0, implying that all the variables are uncorrelated and therefore unsuitable for structure detection.

The Bartlett's Test of Sphericity was significant ($p < 0.000$) and the test value was 1223.060 (Table 5.12) leading to the conclusion that there were correlations in the data set appropriate for factor analysis (Eppan, 2014).

Table 5.13

Total Variance Explained by Variables of Awareness

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.430	42.874	42.874	3.069	38.363	38.363
2	1.687	21.093	63.967	2.048	25.604	63.967
3	.779	9.732	73.699			
4	.629	7.863	81.562			
5	.497	6.207	87.770			
6	.406	5.074	92.843			
7	.336	4.204	97.047			
8	.236	2.953	100.000			

Extraction Method: Principal Component Analysis.

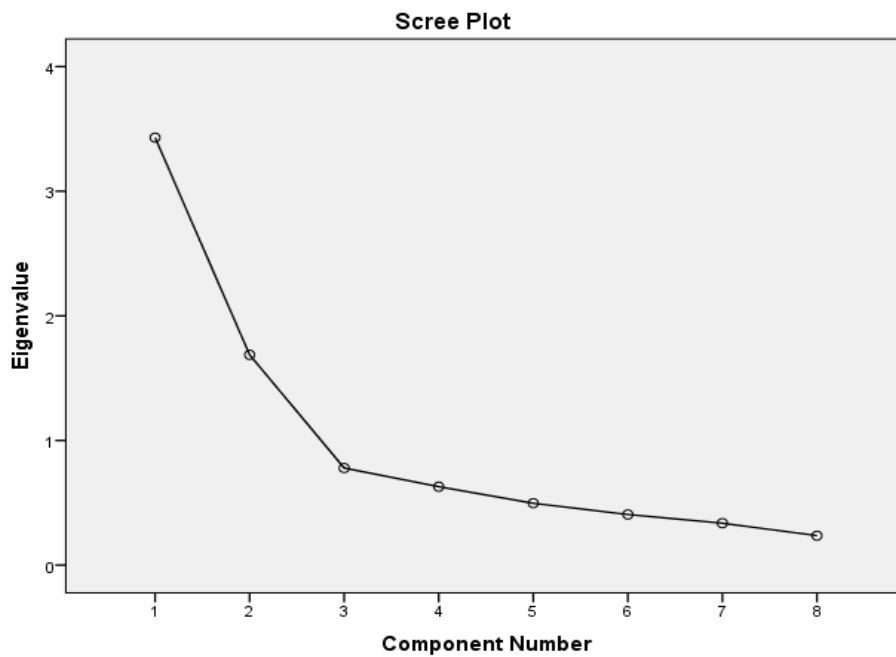
Source: primary data

The results of statistical assumption tests indicated that the data set was appropriate for factor analysis. Therefore principal component analysis was conducted. The results of latent root criterion revealed that the indicators captured two components with an Eigen value greater than 1, which together explained over 63.967 per cent of the variance (Table 5.13). With the principal component analysis, two components are extracted towards Awareness on credit rating. The first factor namely Credit rating Concept explains 42.874 per cent of variance with the eigen value of 3.430 and the second factor, Rating Methodology explains 21.093 per cent variance (eigen value of 1.687).

It is also clear from the following scree plot.

Figure 5.1

Scree Plot – Awareness



The Figure 5.1 makes it clear that all the eight statements are combined and split into two components (having eigen value more than one).

The Table 5.14 presented below explains the rotated component factor loadings of Awareness.

Table 5.14

Rotated Component Matrix of Awareness

Variable Name	Statements	Component	
		1	2
CR1	I know major rating agencies in India	.761	
CR2	I am able to differentiate the rating symbols of CRAs	.721	
CR3	Ratings symbols are understandable even without analytical skill	.787	
CR4	I am aware of various services provided rating agencies	.813	
CR5	CRAs provide advice but they cannot guarantee a return on investment	.793	
M1	I am aware about the methodology used by Credit Rating Agencies		.844
M2	I am aware about the working mechanism of rating agencies		.873
M3	CRAs disclosure practices are fairly transparent		.688

Source: primary data

The Table 5.14 depicts the result of Principle Component Analysis construct after rotated component matrix. Variables with factor loadings near to 0.70 were only chosen for the study. After performing Varimax Rotation Method in Kaiser Normalization, factors are grouped into two factors as following:

- The first group is extracted 42.874 per cent. It consists of five items. They are “I am aware of various services provided rating agencies” with highest factor loading 0.813, followed by the statements “CRAs provide advice but they cannot guarantee a return on investment” with factor loading 0.793, “Ratings symbols are understandable even without analytical skill” (loading 0.787), “I know major rating agencies in India” with factor loading 0.761 and “I am able to differentiate the rating symbols of CRAs” with factor loading 0.721. These variables together constitute a common factor, whose

characteristics are related to the basic concept of credit rating. Hence, it is entitled as **‘Credit rating Concept’**.

- Second group which is extracted 21.093 per cent of total variances included three items. They are “I am aware about the working mechanism of rating agencies” with highest factor loading 0.873 followed by the statements “I am aware about the methodology used by Credit Rating Agencies” with factor loading 0.844, and “CRAs provides transparency in the rating methodology” with factor loading 0.688. These variables together constitute a common factor, whose characteristics are related to Credit rating Methodology. Hence, it is called as **‘Rating Methodology’**.

Thus, through exploratory factor analysis, eight variables are split into two components, i.e, Concept of credit rating and Rating Methodology. They are identified as the dimensions of Awareness on credit rating in the present study.

The next step was to conduct a confirmatory factor analysis for the dimensions identified from the exploratory factor analysis to assess whether the factors generated from exploratory factor analysis have the same underlying structure as the intended measurement structure.

5.3.1 Confirmatory Factor Analysis (CFA)

The primary reason to adopt CFA was to measure the ability of a predefined factor model to fit an observed set of data. It provides estimates for each parameter of the measurement model. The measurement model consists of two unobserved variables Credit rating Concept (CR) and Rating Methodology (M), eight observed variables and eight error elements (e1 to e8).

Figure 5.2

Proposed Model - Awareness

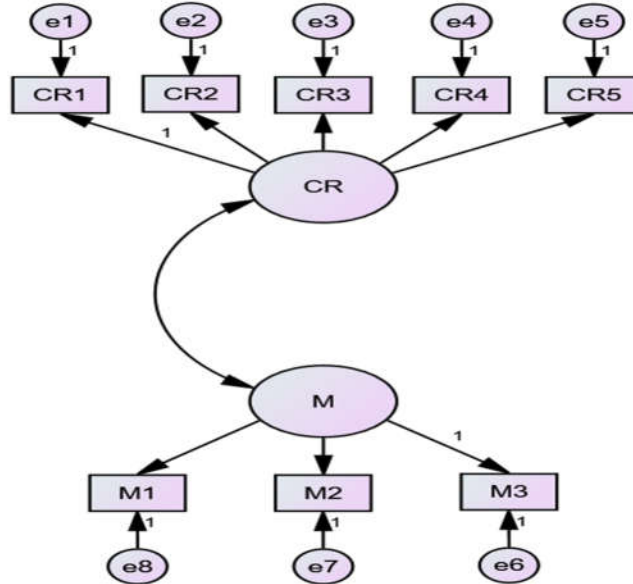


Figure 5.3

Measurement Model - Awareness

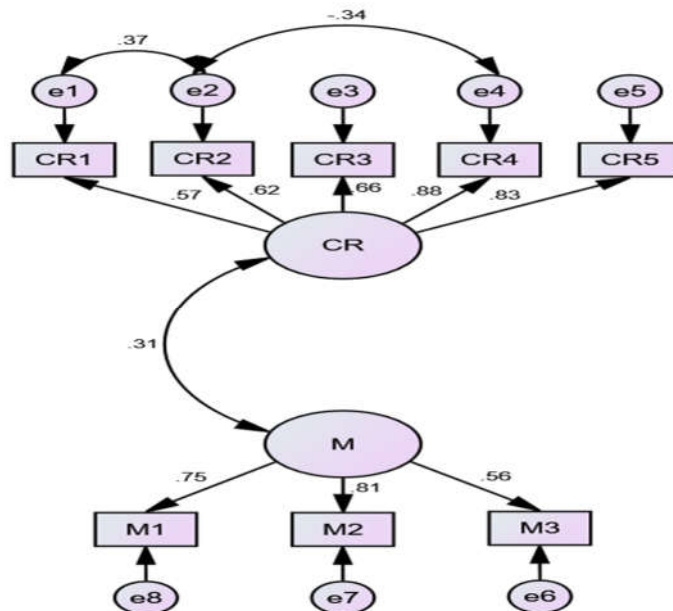


Table 5.15

Model Fit Indices – Awareness

Indices	Value Obtained	Recommended Value of Good/ Reasonable Fit
Normed chi-square (CMIN/df)	3.929	≤ 5
Root Mean Square Residuals (RMR)	0.050	≤ 0.08
Comparative Fit Index (CFI)	0.959	≥ 0.90
Goodness of Fit Index (GFI)	0.961	≥ 0.90
Adjusted GFI (AGFI)	0.918	≥ 0.90
Incremental Fit Index (IFI)	0.959	≥ 0.90
Tucker Leiw's Index (TLI)	0.932	≥ 0.90
Normed Fit Index (NFI)	0.946	≥ 0.90
Root Mean Square Error of Approximation (RMSEA)	0.080	≤ 0.08

Source: Primary Data

The suitability of first order CFA (Figure 5.3) is measured with the help of the above specified model fit indices. Here, the important measures such as Comparative Fit Index (CFI) 0.959, Goodness of Fit Index (GFI) 0.961, Adjusted GFI (AGFI) 0.918, Incremental Fit Index (IFI) 0.959, Tucker Leiw's Index (TLI) 0.932, Normed Fit Index (NFI) 0.946 are above the recommended limit of good fit. Similarly, CMIN/df, RMR and RMSEA are within the limit of good fit of the model. Therefore, the model is fit to measure the Awareness of investors towards credit rating.

Table 5.16

Validity and Reliability Statistics - Awareness

Constructs	Dimensions	Factor Loadings	CR	AVE	MSV
Credit Rating Concept	CR1	0.569	0.840	0.519	0.095
	CR2	0.615			
	CR3	0.663			
	CR4	0.877			
	CR5	0.828			
Rating Methodology	M1	0.752	0.757	0.515	
	M2	0.814			
	M3	0.563			

Source: Primary Data

Table 5.16 validates the standardized factor loadings, CR (Composite Reliability), AVE (Average Variance Extracted) and MSV (Maximum Shared Variance) of each dimension of the constructs used for the study. The values of standardized factor loadings are above 0.5, which indicates all the dimensions are satisfactorily contributes to the constructs. With regard to Convergent Validity, three conditions are fulfilled namely, the values of CR are greater than 0.7, the values of AVE are greater than 0.5 and the values of CR of the constructs are greater than AVE. Consequently, Convergent Validity is proved. Besides, the Discriminant Validity of the scale is proved with the help of MSV and AVE. Here, all the dimensions have the values of AVE greater than that of MSV and, the criteria of Discriminant Validity also proved for the dimensions of Awareness of Credit Rating.

5.3.2 Descriptive statistics of Awareness

Awareness in the context refers to an individual's knowledge and understanding of financial information. Being aware of the various investment options, investment information, risk factors, and market trends empowers investors to make more informed decision. Descriptive statistics are a set of techniques and methods used to

summarize, organize, and present data in a meaningful and interpretable way. These statistics provide an overview of data, highlighting its central tendencies, variability, and distribution.

Table 5.17

Descriptive statistics of Awareness

Statements	N	Mean	Std. Deviation
I know major rating agencies in India	400	4.01	.737
I am able to differentiate the rating symbols of CRAs	400	3.64	.887
Ratings symbols are understandable even without analytical skill	400	3.42	.914
I am aware of various services provided rating agencies	400	3.31	.909
CRAs provide advice but they cannot guarantee a return on investment	400	3.33	.977
I am aware about the methodology used by Credit Rating Agencies	400	2.86	1.192
I am aware about the working mechanism of rating agencies	400	2.84	1.051
CRAs disclosure practices are fairly transparent	400	3.05	.976
Valid N (listwise)	400		

Source: Primary data

The Table 5.17 demonstrations responses to statements related to awareness about credit rating in India. The statement "I know major rating agencies in India" has the highest mean score, indicating a high level of knowledge among respondents. The statement "I am aware about the methodology used by Credit Rating Agencies" has the lowest mean score, suggesting a lower level of awareness about the methodologies employed by credit rating agencies.

A significant majority are familiar with major rating agencies and their symbols, indicating a relatively strong foundational knowledge. However, the variations in mean scores and relatively high standard deviations in some areas, such as knowledge about Rating methodologies and the lack of knowledge about their working mechanisms among investors, suggest that there is room for improvement in educating investors about these critical aspects.

While the mean score for the transparency is moderately positive, the fairly high standard deviation indicates a wide range of opinions, implying that some investors may have concerns or uncertainties regarding the transparency of rating agencies' operations. This suggests a potential need for increased transparency efforts and better communication between Credit Rating Agencies and investors to strengthen trust and understanding in the industry. Additionally, the data suggests that there is need for improvement in enhancing investors' understanding of the workings of these agencies, as several respondents expressed a lack of knowledge in this regard.

5.4 Factor Analysis of Perception

Factor analysis is used to analyse the structure of correlation among large number of variables by defining group of variable that are highly correlated, called as factors. Factor analysis is a valuable tool in social science and psychology research, as it allows researchers to gain insights into the underlying dimensions or factors (Silva, 2011). To evaluate the perception of investors towards credit rating, a five point likert scale is developed with ranging from strongly agree (5) to strongly disagree (1). The number of statements included in the measurement instrument was 28; further the statements were reduced to 24 based on the communalities in the extraction. Four statements were excluded from the analysis frame because of the low extraction values. It is seen that the communalities after deleting four statements show significantly large values suggesting that the statements are useful to analyse the perception of investors towards credit rating.

In order to verify the adequacy or appropriateness of data for factor analysis, Kaiser - Meyer - Oklin Measure of sampling adequacy (KMO) and Bartlett's test of Sphericity are applied (Pillai, 2021). The Kaiser-Meyer - Olkin measure of sampling

adequacy is an index used for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. KMO statistics vary between 0 and 1. A value of 0 indicates that the sum of partial correlation is large relative to the sum of correlation. Hence factor analysis is likely to be inappropriate. A value close to 1 indicates that patterns of correlation are relatively compact and hence the factor analysis should yield distinct and reliable factors. The Bartlett's Test of Sphericity reveals the validity and suitability of the responses collected to the problem being addressed through the study. It is recommended that the Bartlett's Test of Sphericity must be less than 0.05 to be suitable in factor analysis. The following table shows the KMO and BTS results:

Table 5.18

KMO and Bartlett's Test - Perception

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.731
Bartlett's Test of Sphericity	Approx. Chi-Square	926.676
	Df	276
	Sig.	.000

Source: primary data

The correlation matrix showed sufficient items to justify the factorability of data. The KMO and Bartlett's test of sphericity produces the Kaiser- Meyer- Olkin measure of sampling adequacy and Bartlett's test. KMO for overall matrix was found to be excellent (0.731) which is greater than 0.5 (Kaiser, 1974) and Barlett's test of sphericity (BTS) value is found significant ($p < 0.000$) which meant that data is appropriate for Exploratory Factor Analysis (EFA). The details of factor analysis are given below:

Table 5.19

Total Variance Explained by Variables of Perception

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.645	19.352	19.352	3.120	12.999	12.999
2	3.221	13.420	32.772	2.886	12.023	25.022
3	2.453	10.219	42.991	2.508	10.452	35.474
4	1.918	7.991	50.983	2.430	10.125	45.599
5	1.687	7.030	58.013	2.419	10.081	55.680
6	1.419	5.911	63.924	1.979	8.244	63.924

Extraction Method: Principal Component Analysis.

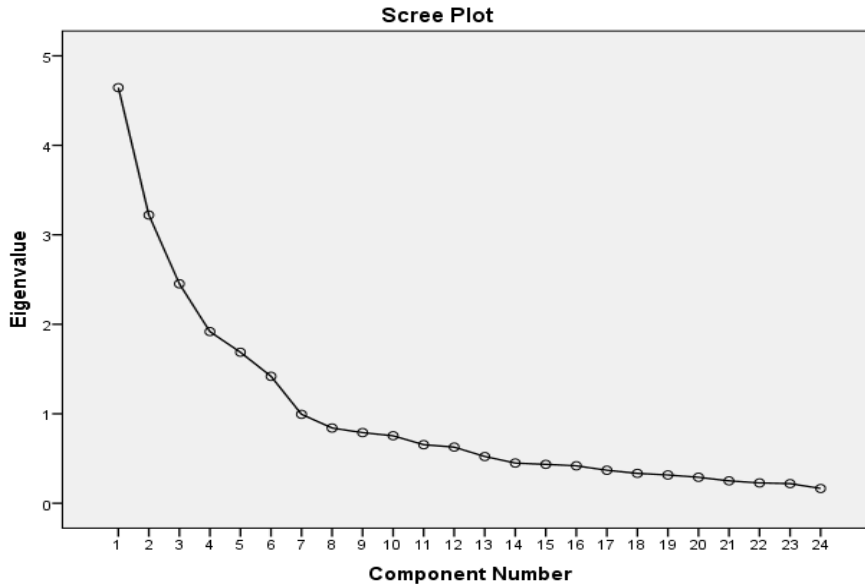
Source: primary data

Table 5.19 demonstrates the percentage of variances and the Eigen values of the six factors namely Relevance, Reliability, Timeliness, Understandability, Usefulness and Comparability which explained the 63.924 percentage of total variances. With the principal component analysis, six components are extracted towards Perception on credit rating. The result shows that 63.924 % of the total variance is explained by these six factors. The first factor namely Relevance explains 19.352 per cent of variance with the eigen value of 4.645. The second factor, Reliability explains 13.420 per cent variance (eigen value of 3.221) followed by third factor; Timeliness 10.219 per cent variance (eigen value 2.453), fourth factor; Understandability 7.991 per cent variance (eigen value 1.918), fifth factor; Usefulness 7.030 per cent variance (eigen value 1.687) and the last factor; Comparability 5.911 per cent variance (eigen value 1.419).

It is also clear from the following scree plot.

Figure 5.4

Scree Plot – Perception



The Figure 5.4 makes it clear that all the 24 statements are combined and split into six components (having eigen value more than one).

The Table 5.20 presented below explains the rotated component factor loadings of Perception.

Table 5.20

Rotated Component Matrix of Perception

Variable Name	Statements	Component					
		1	2	3	4	5	6
R1	Rating reduces the dependency on the financial intermediaries	.800					
R2	Rating is Just a marketing strategy of the issuing company	.776					
R3	It saves time and energy of investors	.873					
R4	It is very important for decision making	.775					

RE1	Rating is unbiased in giving opinion	.721
RE2	The Rating is influenced by the name and fame of the issuer-company	.634
RE3	Ratings match with creditworthiness of Issuers	.655
RE4	Rating depends on company performance	.685
RE5	It is Simply a grading system	.754
T1	Reactive rather proactive on defaulters	.648
T2	Monitor and disseminate credit opinion on issues in a timely and efficient manner	.750
T3	Agencies should revise ratings periodically	.691
T4	There is a delay in the publication of rating change announcement	.682
U1	The meaning conveyed by rating symbols are understood only by institutional investors and not by individuals	.707
U2	By looking at the symbols I understand whether the investments are investment grade or speculative grade.	.732
U3	It Sublimate complex financial structure into user friendly symbols	.724
U4	It is the duty of the Rating Agencies to educate investors about credit rating	.837
US1	Investment decisions based on the rating is beneficial	.610

US2	Rating facilitates Investor protection by providing opinion on credit risk	.767
US3	Provide common yardsticks to evaluate default risk for decision making	.753
US4	Bridge the information gap between issuers and investors	.676
C1	Highly rated instruments perform well	.628
C2	Ratings by different agencies on the same instrument creates confusion	.772
C3	Uniform symbols by all Credit Rating Agencies will helps to compare.	.596

Source: primary data

The Table 5.20 depicts the result of Principle Component Analysis of construct after rotated factor matrix. Variables with factor loadings near to 0.60 were only chosen for the study. After performing Varimax Rotation Method in Kaiser Normalization, factors are grouped into six factors as per the following:

- The first group is extracted 19.352 per cent. It consists of four items. They are “It saves time and energy of investors” with highest factor loading (0.873) followed by the statement “Rating reduces the dependency on the financial intermediaries” with factor loading 0.800, “Rating is Just a marketing strategy of the issuing company” (loading 0.776), and “It is very important for decision making” (loading 0.775). These variables together constitute a common factor, whose characteristics are related to the Relevance of financial information. Hence, it is entitled as ‘**Relevance**’.
- Second group which is extracted 13.420 per cent of total variances included five items. They are “It is simply a grading system” with highest loading 0.754 followed by the statements “Rating is unbiased in giving opinion” with

factor loading 0.721, “Rating depends on company performance” (loading 0.685), “Ratings match with creditworthiness of Issuers” (loading 0.655) and “The Rating is influenced by the name and fame of the issuer-company” (loading 0.634). These variables together constitute a common factor, whose characteristics are related to the Reliability financial data. Hence, it is called as ‘**Reliability**’.

- Third group is extracted 10.219 per cent of total variances included four items. They are, “Monitor and disseminate credit opinion on issues in a timely and efficient manner” with highest loading 0.750 followed by the statements “Agencies should revise ratings periodically” with factor loading 0.691), “There is a delay in the publication of rating change announcement” (loading 0.682) and “Reactive rather proactive on defaulters” (loading 0.648). These variables together constitute a common factor, whose characteristics are related to timeliness of publishing data. Hence, it is named as ‘**Timeliness**’.
- Fourth group which is extracted 7.991 per cent of total variances included four items. They are “It is the duty of the Rating Agencies to educate investors about credit rating” with highest loading 0.837 followed by “By looking at the symbols I understand whether the investments are investment grade or speculative grade.” (loading 0.732), “It Sublimate complex financial structure into user friendly symbols” (loading 0.724) and “The meaning conveyed by rating symbols are understood only by institutional investors and not by individuals” with factor loading 0.707. These variables together constitute a common factor, whose characteristics are related to the understandability of financial information. Hence, it is termed as ‘**Understandability**’.
- Fifth group which is extracted 7.030 per cent of total variances included four items. They are “Rating facilitates Investor protection by providing opinion on credit risk” with highest factor loading 0.767 followed by the statements “Provide common yardsticks to evaluate default risk for decision making” (

loading 0.753), “Bridge the information gap between issuers and investors” with factor loading 0.676 and “Investment decisions based on the rating is beneficial” with factor loading 0.610. These variables together constitute a common factor, whose characteristics are related to the usefulness of financial information. Hence, it is termed as ‘**Usefulness**’.

- Sixth and last group is extracted 5.911 per cent of total variances included three items. They are “Ratings by different agencies on the same instrument creates confusion” with highest factor loading 0.772 followed by the statements “Highly rated instruments perform well” with factor loading 0.628 and “Uniform symbols by all Credit Rating Agencies will helps to compare.” with factor loading 0.596. These variables together constitute a common factor, whose characteristics are related comparability. Hence, it is named as ‘**Comparability**’.

Thus, through exploratory factor analysis, 24 variables are split into six components, i.e, Relevance, Reliability, Timeliness, Understandability, Usefulness and Comparability. They are identified as the dimensions of perception on credit rating in the present study.

5.4.1 Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) is used to validate the scale of perception and test how well measured variable represents a smaller number of constructs. It is a measurement model of Structural Equation Modeling (SEM), which deals with the relationship between observed measures or indicator. This statistical technique tells us the suitability of theoretical specification of factors to the reality. It is used to confirm the factor structure of a set of observed variables. Structural Equation Modeling software is typically used for performing confirmatory factor analysis. The researcher used CFA as a first step to assess the proposed Measurement model in a structural equation model.

Figure 5.5

Proposed Model - Perception

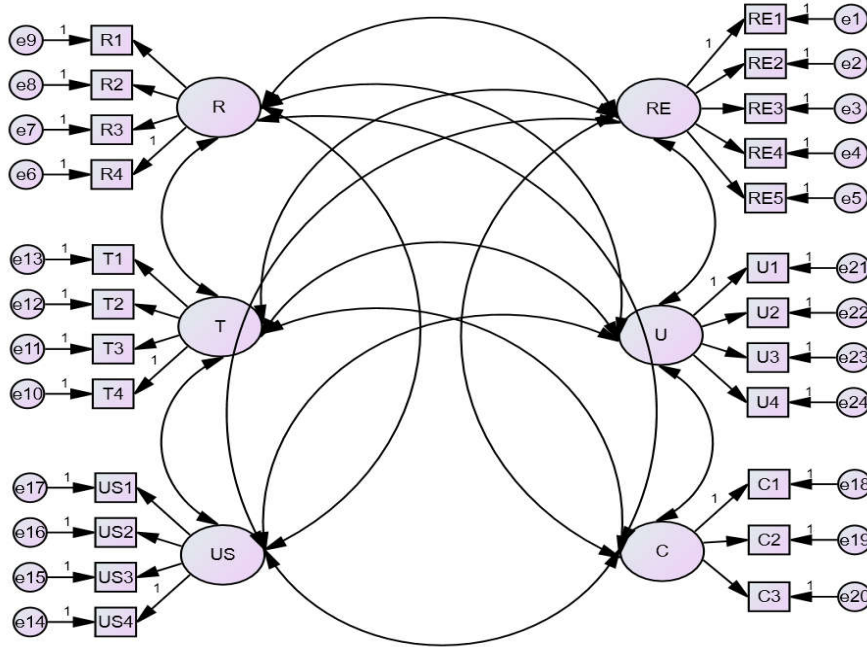


Figure 5.6

Measurement Model – Perception

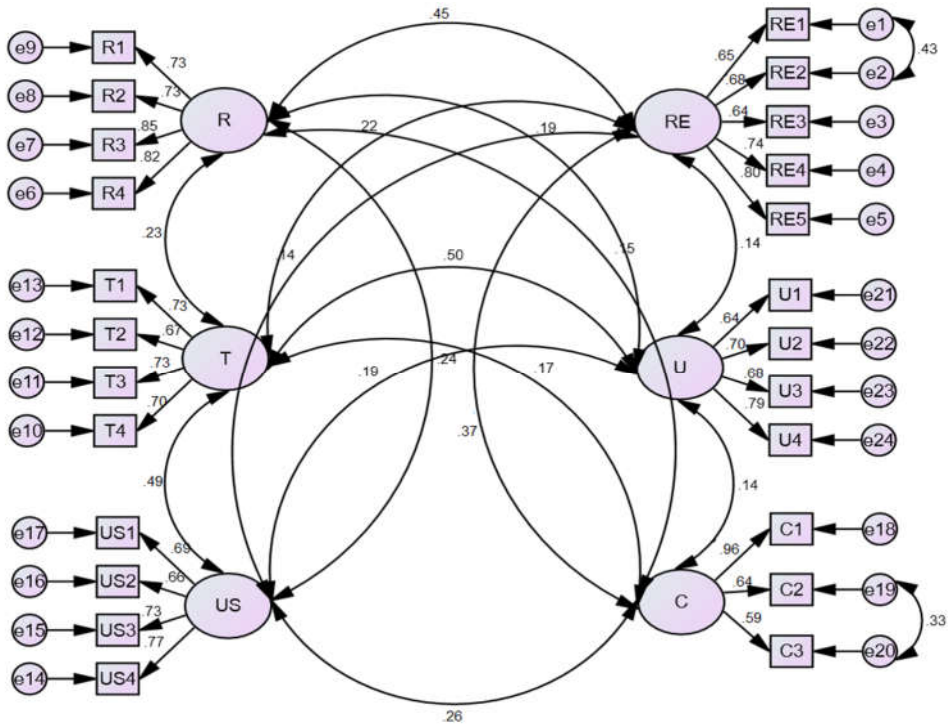


Table 5.21

Model Fit Indices – Perception

Indices	Value Obtained	Recommended Value of Reasonable Fit
Normed chi-square (CMIN/df)	1.528	≤ 3
Comparative Fit Index (CFI)	0.835	≥ 0.70
Goodness of Fit Index (GFI)	0.772	≥ 0.70
Adjusted GFI (AGFI)	0.711	≥ 0.70
Incremental Fit Index (IFI)	0.843	≥ 0.70
Tucker Leiw's Index (TLI)	0.807	≥ 0.70
Root Mean Square Error of Approximation (RMSEA)	0.073	≤ 0.08

Source: Primary Data

The acceptability of first order CFA is measured with the help of the above specified modification indices (Figure 5.21). Here, the important measures Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Adjusted GFI (AGFI), Incremental Fit Index (IFI), Tucker Leiw's Index (TLI) are within the acceptable fit of the proposed model. Similarly, CMIN/df and RMSEA are within the acceptable fit of the proposed model. Therefore, the model used to measure the Perception of investors in related to credit rating.

Table 5.22 describes the Standardized Factor Loadings, Composite Reliability, Average Variance Extracted (AVE) and Maximum Shared Variance (MSV) of each dimension used for the study. The values of standardized factor loadings are above 0.5, which indicates all the dimensions are satisfactorily contributes to the constructs. In respect of Convergent Validity, three conditions are fulfilled namely, the values of Composite Reliability (CR) are greater than 0.7, the values of AVE are greater than 0.5 and the values of CR of the constructs are greater than AVE. Therefore, Convergent Validity is proved. Furthermore, the Discriminant Validity of the scale is proved with the help of MSV and AVE. Here, AVE of all the dimensions is greater than the values of MSV. Hence, the criteria for Discriminant Validity also proved.

Table 5.22

Validity and Reliability Statistics – Perception

Constructs	Dimensions	Factor Loadings	CR	AVE	MSV
Relevance	R1	0.736	0.866	0.617	0.202
	R2	0.722			
	R3	0.853			
	R4	0.826			
Reliability	RE1	0.656	0.833	0.501	0.202
	RE2	0.687			
	RE3	0.643			
	RE4	0.737			
	RE5	0.806			
Timeliness	T1	0.734	0.804	0.507	0.250
	T2	0.676			
	T3	0.731			
	T4	0.706			
Understandability	U1	0.640	0.800	0.502	0.250
	U2	0.701			
	U3	0.686			
	U4	0.798			
	US1	0.697			
Usefulness	US2	0.660	0.807	0.511	0.240
	US3	0.731			
	US4	0.768			
Comparability	C1	0.964	0.790	0.568	0.136
	C2	0.647			
	C3	0.597			

Source: Primary Data

5.4.2 Descriptive statistics of Perception

The perception of investors refers to the way in which individuals interpret and evaluate information related to investments, financial markets, and economic conditions. It encompasses their subjective understanding, beliefs, and judgments about various aspects of investing, including risk, opportunity, value, and market dynamics. Investors' perceptions are shaped by their personal experiences, attitudes,

knowledge, and psychological factors. Descriptive statistics are a set of techniques and methods used to summarize, organize, and present data in a meaningful and interpretable way. These statistics provide a brief overview of data, highlighting its central tendencies, variability, and distribution.

Table 5.23

Descriptive Statistics of Perception

Statements	N	Mean	Std. Deviation
Relevance			
Rating reduces the dependency on the financial intermediaries	400	3.59	.811
Rating is Just a marketing strategy of the issuing company	400	2.97	1.023
It saves time and energy of investors	400	3.74	.838
It is very important for decision making	400	3.53	.998
Reliability			
Rating is unbiased in giving opinion	400	3.46	.748
The Rating is influenced by the name and fame of the issuer-company	400	3.36	.923
Ratings match with creditworthiness of Issuers	400	3.69	.806
Rating depends on company performance	400	3.62	.838
It is Simply a grading system	400	3.05	1.045
Timeliness			
Reactive rather proactive on defaulters	400	3.77	.765
Monitor and disseminate credit opinion on issues in a timely and efficient manner	400	3.36	1.028
Agencies should revise ratings periodically	400	3.96	.811
There is a delay in the publication of rating change announcement	400	3.66	.942
Understandability			
Meaning conveyed by rating symbols are understood only by institutional investors and not by individuals	400	3.37	1.139
By looking at the symbols I understand whether the investments are investment grade or speculative grade.	400	3.51	1.026

It Sublimate complex financial structure into user friendly symbols	400	3.73	.774
It is the duty of the Rating Agencies to educate investors about credit rating	400	3.95	1.025
Usefulness			
Investment decisions based on the rating is beneficial	400	3.78	.939
Rating facilitates Investor protection by providing opinion on credit risk	400	3.78	.793
Provide common yardsticks to evaluate default risk for decision making	400	3.81	.772
Bridge the information gap between issuers and investors	400	3.94	.792
Comparability			
Highly rated instruments perform well	400	3.57	.890
Ratings by different agencies on the same instrument creates confusion	400	3.52	.957
Uniform symbols by all Credit Rating Agencies will helps to compare.	400	4.10	.649
Valid N (listwise)	400		

Source: Primary data

The Table 5.23 illustrations statements related to credit rating, which provide understandings into the respondents' opinions on various Perceptions related to credit rating, including their Relevance, Reliability, Timeliness, Understandability, Usefulness, and Comparability. In the "Relevance" category, respondents found that credit ratings reduced dependency on financial intermediaries. In terms of "Reliability", participants generally felt that ratings matched the creditworthiness of issuers (mean of 3.69) but also believed that ratings were influenced by the issuer's name and fame (mean of 3.36), indicating a mixed perception of reliability. Under "Timeliness" the investors point out that that there is need for periodic rating revisions (mean of 3.96), although there was some concern about delays in rating change announcements (mean of 3.66). In the "Comparability" category, there was a strong consensus that uniform symbols by all credit rating agencies would help in comparisons (mean of 4.10). However, participants had more mixed views on whether highly-rated instruments perform well (mean of 3.57) and the potential for confusion from ratings by different agencies on the same instrument (mean of 3.52).

From this descriptive statistics, it is evident that respondents hold strong opinions on certain aspects, as reflected by the highest and lowest mean scores in the dataset. The highest mean score, with an impressive average of 4.10, highlights the common belief among respondents that uniform symbols used by all credit rating agencies would facilitate comparisons and enhance clarity within the industry. Conversely, the lowest mean score of 2.97 reveals a degree of uncertainty among respondents regarding the perception that credit ratings serve as a marketing strategy for issuing companies. These provide valuable information for stakeholders in the financial industry to address concerns and enhance the transparency and effectiveness of credit rating systems.

5.5 Relation between Socio-Economic Variables with Awareness and Perception

Demographic behaviour is the basic behaviour that may influence the human behaviour. These behaviour include gender, marital status, education, occupation, religion, income etc. Here, Gender, Age, District, Education, Occupation, Marital Status, Experience in stock market and Annual Income of investors are considered as Socio-Economic variables. Independent sample 't' test is applied for analyzing Gender and Marital status with investor Awareness and Perception, as Gender and Marital status are categorical variable with two levels and investor Awareness and Perception are continuous in nature. One-way ANOVA is used to analyze the Differences among Age, Districts, Educational Qualification, Occupation, Annual Income, and Year of Experience in stock market with investor Awareness and Perception, as these behaviour are categorical with more than two levels. The descriptive and inferential statistics of the socio economic variables in respect to credit rating are presented below.

5.5.1 Gender wise comparison on Awareness and Perception

Investors belong to different Gender group may have different Awareness, Perception on credit rating and different extent of use of rating in their Investment Decision. The Gender groups include Male and Female. To study whether any differences between the Gender group towards Awareness and Perception in related to credit rating, independent sample 't' test is done for which the hypotheses are

framed as

H0₁: There are no significant differences in Awareness between Gender groups of investors

H0₂: There are no significant differences in Perception between Gender groups of investors

Table 5.24

Gender wise analysis of Awareness and Perception

Dimensions	Gender	N	Mean	Std. Deviation	Std. Error Mean
Awareness	Female	140	3.2830	.61687	.05214
	Male	260	3.3221	.61372	.03806
Perception	Female	140	3.5396	.42698	.03609
	Male	260	3.6577	.39389	.02443

Source: Primary Data

The Table 5.24 presents group statistics for two variables (Awareness and Perception) broken down by Gender (Female and Male). It can be observed that the mean score for Female is 3.2830 (SD .61687) and for Male is 3.3221(SD .61372) for Awareness. For Perception the mean score for Female is 3.5396 (SD .42698) and Male is 3.6577 (SD .39389). It appears that each group has different mean values and different levels of variability in their responses. The Independent samples ‘t’ test is used to check whether the difference is significant or not, between Male and Female with regard to Awareness and Perception towards credit rating.

Table 5.25

Independent Samples Test - Gender wise analysis of Awareness and Perception

Dimensions	Levene's Test for Equality of Variances					Remarks
	F	Sig.	T	Df	Sig. (2-tailed)	
Awareness	.777	.378	-.606	398	.545	Equal variances assumed
Perception	.314	.576	-2.777	398	.006	Equal variances assumed

Source: Primary data

The Table 5.25 shows the test result of significant value corresponding to Levene's test F value for Awareness (.378) and Perception (.576) of investors respectively, which are greater than .05. Thus, equal variance assumed is considered for further analysis. The investors show the t – test statistics towards Awareness (-.606) and Perception (-2.77) with degree of freedom as Awareness (398) and Perception (398) respectively.

In case of Awareness the two tailed p value is .545 which is greater than 0.05, hence the null hypothesis fails to reject and it is clear that there is no significant difference between Gender groups with regard to their Awareness towards credit rating. While the two tailed p value of Perception related variables from the Gender groups is .006 which is less than 0.05, hence the null hypothesis rejected and it is clear that there is significant difference between Gender groups with regard to their Perception of investors towards credit rating. These results indicate that Gender group of investors is different in case of their Perception towards credit rating.

5.5.2 Age wise comparison on Awareness and Perception

Investors in different Age group may have different level of Awareness and Perception in related to credit rating. Descriptive analysis has been done to check the same. If it is found that the mean score is different for investors in different Age group, then one way Analysis of Variance is applied to test the significance of difference among mean of different Age group. The hypotheses framed are as

follows:

H0₃: There is no significant difference in Awareness among Age group of investors

H0₄: There is no significant difference in Perception among Age group of investors

Table 5.26

Descriptive statistics for Awareness and Perception and - Age-wise

Dimensions	Age Group	N	Mean	Std. Deviation	Std. Error
Awareness	Below 25 years	26	3.4183	.63830	.12518
	25-35 years	205	3.3250	.62003	.04330
	36-45 years	116	3.3308	.58241	.05408
	Above 45 years	53	3.1415	.63645	.08742
	Total	400	3.3084	.61434	.03072
Perception	Below 25 years	26	3.7099	.43565	.08544
	25-35 years	205	3.6809	.39760	.02777
	36-45 years	116	3.5995	.37925	.03521
	Above 45 years	53	3.3577	.40665	.05586
	Total	400	3.6164	.40915	.02046

Source: Primary data

The Table 5.26 provides information on two different variables (Awareness and Perception) across different Age groups of investors. From the table, it can be ascertained that, in case of Awareness the people within the Age group of “Below 25 years” has the highest mean score of 3.4183 (SD .63830), and the lowest mean is 3.1415 (SD .63645) in the Age group “Above 45 years”. In case of Perception

people within the Age group of “Below 25 years” have the highest mean score of 3.7099 (SD .40665) and the lowest mean is 3.3577 (SD 3.3577) in Age group “Above 45 years”.

Table 5.27

Test of Homogeneity of Variances - Age wise comparison of Awareness and Perception

Dimensions	Levene Statistic	df1	df2	Sig.
Awareness	.784	3	396	.504
Perception	.575	3	396	.632

Source: Primary data

Table 5.27 shows the significant value of Levene’s Test of Homogeneity of variance of investors towards their Awareness and Perception in related to credit rating as .504 and .632 respectively. In both cases significant value which is greater than .05. Thus, it can be summarised that there is homogeneity and the corresponding test; one-way ANOVA and Tukey’s post hoc (in case of significant difference) are used for further analysis.

Table 5.28

ANOVA test for Awareness and Perception –Age wise

		Sum of Squares	Df	Mean Square	F	Sig.
Awareness	Between Groups	1.905	3	.635	1.691	.168
	Within Groups	148.682	396	.375		
	Total	150.587	399			
Perception	Between Groups	4.660	3	1.553	9.900	.000
	Within Groups	62.134	396	.157		
	Total	66.795	399			

Source: Primary data

It is found that, in case of Awareness the hypothesis is failed to rejected as the p value is .168 which is greater than 0.05. This indicates that there is no significant difference between the Age group of investors with respect to their Awareness

towards credit rating. While, in case of Perception of investors in related to credit rating hypotheses is rejected as the p value is .000 which is less than 0.05. This indicates that there is significant difference among the Age group of investors with respect to their Perception towards credit rating.

As the study reveals that there is significant difference in case of Perception, further analysis is needed to explain which Age group make the difference, for that Tukey's Post Hoc (equal variance assumed) analysis is used to explain the difference. The result for the Tukey's Post Hoc of Perception has shown in the Table 5.29

Table 5.29

Age -wise Post Hoc Test: Perception

Age Group (I)	Age Group (J)	Mean Difference (I-J)	Std. Error	Sig.
Below 25 years	25-35 years	.02904	.08246	.985
	36-45 years	.11044	.08595	.573
	Above 45 years	.35223*	.09484	.001
25-35 years	Below 25 years	-.02904	.08246	.985
	36-45 years	.08140	.04602	.290
	Above 45 years	.32319*	.06104	.000
36-45 years	Below 25 years	-.11044	.08595	.573
	25-35 years	-.08140	.04602	.290
	Above 45 years	.24179*	.06567	.001
Above 45 years	Below 25 years	-.35223*	.09484	.001
	25-35 years	-.32319*	.06104	.000
	36-45 years	-.24179*	.06567	.001

*. *The mean difference is significant at the 0.05 level.*

Source: primary data

Table 5.29 shows the Tukey's Post Hoc result for the Perception among different Age group of investors. In this case, there is a significant difference in investors in the Age group "Above 45 years" with all Age group such as with "Below 25 years" (.001), "25-35 years" (.000), "36-45 years" (.001)). Thus, it can be concluded that the Age group of "Above 45" makes the difference.

5.5.3 District wise comparison on Awareness and Perception

Investors belong to different Districts may have different in respect to their Awareness and Perception towards credit rating. In this study the researcher selected six districts such as Thiruvananthapuram, Kollam, Ernakulam, Trissur, Malappuram and Kozhikode. To study whether there is any differences among the investors Districts and their Awareness and Perception towards credit rating, One-way ANOVA is done for which the hypotheses are framed as:

H0₅: There is no significant difference between Awareness and Districts of investors

H0₆: There is no significant difference between Perception and Districts of investors

Table 5.30

Descriptive statistics for Awareness and Perception – Districts wise

Dimensions	Districts	N	Mean	Std. Deviation	Std. Error
Awareness	Thiruvananthapuram	68	3.1801	.66122	.08018
	Kollam	54	3.2569	.62402	.08492
	Ernakulam	67	3.3246	.54489	.06657
	Trissur	64	3.3770	.49023	.06128
	Malappuram	84	3.2381	.61989	.06764
	Kozhikode	63	3.4980	.69288	.08730
	Total	400	3.3084	.61434	.03072
Perception	Thiruvananthapuram	68	3.5551	.42022	.05096
	Kollam	54	3.5602	.34375	.04678
	Ernakulam	67	3.5410	.38432	.04695
	Trissur	64	3.6595	.38573	.04822
	Malappuram	84	3.6300	.42739	.04663
	Kozhikode	63	3.7487	.44676	.05629
	Total	400	3.6164	.40915	.02046

Source: Primary Data

Table 5.30 Shows that the mean score is different for investors based on their District. Investors from Kozhikode district is having the highest mean score of

3.4980 (SD .69288) of Awareness and the lowest score of 3.1801 (SD .66122) is among investors from Thiruvananthapuram district. In case of Perception, investors from Kozhikode district is having the highest mean score of 3.7487 (SD .44676) and the lowest mean score of 3.5410 (SD .38432) is among investors from Ernakulam district.

Table 5.31

Test of Homogeneity of variance – Districts wise comparison of Awareness and Perception

Dimensions	Levene Statistic	df1	df2	Sig.
Awareness	1.561	5	394	.170
Perception	.620	5	394	.684

Source: Primary data

Table 5.31 shows the significant value of Levene’s Test of Homogeneity of variance of investors based on their districts towards their Awareness and Perception towards credit rating as .170 and .684 respectively. In both cases significant value which are greater than .05. Thus, it can be summarised that there is homogeneity and the corresponding test; one-way ANOVA and Tukey’s post hoc (in case of significant difference) are used for further analysis.

Table 5.32

ANOVA -test for Awareness and Perception – District wise

		Sum of Squares	Df	Mean Square	F	Sig.
Awareness	Between Groups	4.260	5	.852	2.294	.045
	Within Groups	146.327	394	.371		
	Total	150.587	399			
Perception	Between Groups	2.043	5	.409	2.486	.031
	Within Groups	64.752	394	.164		
	Total	66.795	399			

Source: Primary Data

It was found that in case of Awareness and Perception the hypotheses is rejected as the p value is .045 and .031 respectively which are less than 0.05. This indicates that there is significant difference between the District of investors with respect to their

Awareness and Perception towards credit rating. As study shown that there is significant difference in the case of Awareness and Perception, further analysis is needed to explain which Districts makes the difference. Tukey's Post Hoc analysis is used to explain the difference.

The result of Tukey's Post Hoc analysis for the Awareness are explained in the Table 5.33

Table 5.33

District -wise Post Hoc Test: Awareness

District (I)	District (J)	Mean Difference (I-J)	Std. Error	Sig.
Thiruvananthapuram	Kollam	-.07680	.11108	.983
	Ernakulam	-.14448	.10490	.741
	Trissur	-.19681	.10613	.432
	Malappuram	-.05795	.09941	.992
	Kozhikode	-.31787*	.10657	.036
Kollam	Thiruvananthapuram	.07680	.11108	.983
	Ernakulam	-.06768	.11145	.990
	Trissur	-.12001	.11261	.895
	Malappuram	.01885	.10630	1.000
	Kozhikode	-.24107	.11302	.272
Ernakulam	Thiruvananthapuram	.14448	.10490	.741
	Kollam	.06768	.11145	.990
	Trissur	-.05233	.10652	.996
	Malappuram	.08653	.09982	.954
	Kozhikode	-.17339	.10695	.585
Trissur	Thiruvananthapuram	.19681	.10613	.432
	Kollam	.12001	.11261	.895
	Ernakulam	.05233	.10652	.996
	Malappuram	.13886	.10111	.743
	Kozhikode	-.12106	.10816	.873
Malappuram	Thiruvananthapuram	.05795	.09941	.992
	Kollam	-.01885	.10630	1.000
	Ernakulam	-.08653	.09982	.954
	Trissur	-.13886	.10111	.743
	Kozhikode	-.25992	.10157	.110
Kozhikode	Thiruvananthapuram	.31787*	.10657	.036
	Kollam	.24107	.11302	.272
	Ernakulam	.17339	.10695	.585
	Trissur	.12106	.10816	.873
	Malappuram	.25992	.10157	.110

*. *The mean difference is significant at the 0.05 level.*

Source: primary data

Table 5.33 shows the Tukey's Post Hoc result for the Awareness of investors among six Districts. It was observed that the difference is contributed by 'Thiruvananthapuram' and 'Kozhikode' (.036) district. Thus, it can be concluded that in case of Thiruvananthapuram and Kozhikode districts, the investors have different level of Awareness towards credit rating.

The result of Tukey's Post Hoc analysis for the Perception are explained in the Table 5.34

Table 5.34

District -wise Post Hoc Test: Perception

District(I)	District(J)	Mean Difference (I-J)	Std. Error	Sig.
Thiruvananthapuram	Kollam	-.00504	.07389	1.000
	Ernakulam	.01410	.06978	1.000
	Trissur	-.10436	.07060	.679
	Malappuram	-.07481	.06613	.868
	Kozhikode	-.19353	.07089	.072
Kollam	Thiruvananthapuram	.00504	.07389	1.000
	Ernakulam	.01914	.07414	1.000
	Trissur	-.09932	.07491	.771
	Malappuram	-.06978	.07071	.922
	Kozhikode	-.18849	.07518	.124
Ernakulam	Thiruvananthapuram	-.01410	.06978	1.000
	Kollam	-.01914	.07414	1.000
	Trissur	-.11846	.07086	.551
	Malappuram	-.08892	.06640	.763
	Kozhikode	-.20763*	.07114	.043
Trissur	Thiruvananthapuram	.10436	.07060	.679
	Kollam	.09932	.07491	.771
	Ernakulam	.11846	.07086	.551
	Malappuram	.02954	.06726	.998
	Kozhikode	-.08917	.07195	.817
Malappuram	Thiruvananthapuram	.07481	.06613	.868
	Kollam	.06978	.07071	.922
	Ernakulam	.08892	.06640	.763
	Trissur	-.02954	.06726	.998
	Kozhikode	-.11872	.06757	.495
Kozhikode	Thiruvananthapuram	.19353	.07089	.072
	Kollam	.18849	.07518	.124
	Ernakulam	.20763*	.07114	.043
	Trissur	.08917	.07195	.817
	Malappuram	.11872	.06757	.495

*. The mean difference is significant at the 0.05 level.

Source: Primary data

Table 5.34 shows the Tukey’s Post Hoc result for the Perception of investors among six districts. It is observed that the difference is contributed by “Ernakulam’ and ‘Kozhikode’ District (.043). Thus, it can be concluded that investors from Ernakulam and Kozhikode districts have different approach with respect to Perception towards credit rating.

5.5.4 Educational qualification wise comparison on Awareness and Perception

Investors with different Educational qualification may have different level of Awareness and Perception about credit rating. This aspect has been studied by the researcher by knowing the difference in mean scores of investors with different Educational qualification. To test the statistical significance of these difference F test is applied. Homogeneity of variance is checked by using Levene’s test. The null hypotheses are as follows:

H0₇: There is no significant difference between Awareness and Educational qualification of investors

H0₈: There is no significant difference between Perception and Educational qualification of investors

Table 5.35

Descriptive statistics for Awareness and Perception - Educational Qualification-wise

Dimensions	Educational Qualification	N	Mean	Std. Deviation	Std. Error
Awareness	Graduation	194	3.3112	.63665	.04571
	Post-graduation	132	3.3466	.56656	.04931
	Professional	74	3.2331	.63782	.07415
	Total	400	3.3084	.61434	.03072
Perception	Graduation	194	3.6269	.43666	.03135
	Post-graduation	132	3.6304	.39744	.03459
	Professional	74	3.5636	.35209	.04093
	Total	400	3.6164	.40915	.02046

Source: Primary data

The Post graduate is having the highest mean score 3.3466 (SD .56656) of Awareness followed by Graduates with mean score of 3.3112 (SD .63665) and the lowest score 3.2331(SD .63782) is among Professionals. In case of Perception, Post graduate is having the highest mean score of 3.6304 (SD .39744) followed by Graduates with mean score of 3.6269 (SD .43666) and the lowest score of 3.5636 (SD .35209) is among Professional.

Table 5.36

Test of Homogeneity of Variances - Educational Qualification-wise

Dimensions	Levene Statistic	df1	df2	Sig.
Awareness	1.354	2	397	.259
Perception	2.366	2	397	.095

Source: Primary data

Table 5.36 shows the significant value of Levene’s Test of Homogeneity of variance of investors about their Awareness and Perception towards credit rating as .259 and .095 respectively. In case of Awareness and Perception the significant values are greater than .05. Thus, it can be summarised that there is homogeneity and the corresponding test; one-way ANOVA and Tukey post hoc (in case of significant difference) are used for further analysis.

Table 5.37

ANOVA test for Awareness and Perception – Educational Qualification wise analysis

		Sum of Squares	Df	Mean Square	F	Sig.
Awareness	Between Groups	.614	2	.307	.812	.445
	Within Groups	149.974	397	.378		
	Total	150.587	399			
Perception	Between Groups	.253	2	.127	.756	.470
	Within Groups	66.541	397	.168		
	Total	66.795	399			

Source: Primary data

The Table 5.37 shows the differences of Awareness and Perception about credit rating among different Educational qualification of investors. The result of one way ANOVA shows that in both cases the null hypothesis is failed to reject at 5% level of significance. The p value of Awareness is 0.445 and Perception is 0.470 which is greater than 0.05. This indicates that there is no significant difference between the Educational qualification of investors with respect to their level of Awareness and Perception towards credit rating.

5.5.5 Occupation wise comparison on Awareness and Perception

Here researcher checks whether there is any relationship between Occupation of investors and their Awareness and Perception towards credit rating. Occupation is divided into three categories: Salaried, Professional and Business. ANOVA and Welch test is done to test whether there are any significant differences between Occupation of investors and their level of Awareness and perception towards credit rating. Descriptive statistics of Occupation of investors concerning credit rating are also presented. The hypotheses are as follows:

H0₉: There is no significant difference between Awareness and Occupation of investors

H0₁₀: There is no significant difference between Perception and Occupation of investors

Table 5.38

Descriptive statistics for Awareness and Perception - Occupation wise

Dimensions	Occupation	N	Mean	Std. Deviation	Std. Error
Awareness	Salaried	245	3.3367	.59702	.03814
	Professional	69	3.3098	.65712	.07911
	Business	86	3.2267	.62764	.06768
	Total	400	3.3084	.61434	.03072
Perception	Salaried	245	3.6362	.38618	.02467
	Professional	69	3.6643	.46814	.05636
	Business	86	3.5213	.41261	.04449
	Total	400	3.6164	.40915	.02046

Source: Primary Data

Table 5.38 shows the mean score for investors with different type of Occupation. The Salaried is having the highest mean score of 3.3367 (SD .59702) of Awareness followed by Professionals with mean score of 3.3098 (SD.65712) and the lowest mean score of 3.2267 (SD. 62764) is among Business. In case of Perception, Professionals is having the highest mean score of 3.6643(SD .46814) followed by Salaried investors with mean score of 3.6362 (SD. 38618) and the lowest score of 3.5213 (SD .41261) is among Business.

Table 5.39

Test of Homogeneity of Variances – Occupation wise

Dimensions	Levene Statistic	df1	df2	Sig.
Awareness	.438	2	397	.646
Perception	4.192	2	397	.016

Source: Primary Data

Table 5.39 shows the significant value of Levene’s Test of Homogeneity of variance of investors based on Occupation and their Awareness and Perception towards credit rating as .646 and .016 respectively. In case of Awareness the significant value is greater than .05. Thus, it can be summarised that there is homogeneity and the corresponding test; one-way ANOVA and Tukey’s post hoc (in case of significant difference) are used for further analysis. While in case of Perception, the significant value is lesser than .05, which indicates that there is no homogeneity, there for the corresponding test of Welch test and Tamhane’s post hoc (in case of significant difference) are used for further analysis.

Table 5.40

ANOVA test for Awareness – Occupation wise analysis

		Sum of Squares	Df	Mean Square	F	Sig.
Awareness	Between Groups	.770	2	.385	1.021	.361
	Within Groups	149.817	397	.377		
	Total	150.587	399			

Source: Primary Data

It was found from the Table 5.40 that, in case of Awareness, the null hypothesis is failed to rejected as the p value is .361 which is greater than 0.05. This indicates that there is no significant difference between the Occupations of investors with respect to their Awareness in related to credit rating.

Table 5.41

Robust Tests of Equality of Means of Perception - Occupation wise

		Statistic	df1	df2	Sig.
Perception	Welch	2.953	2	139.806	.055

a. Asymptotically F distributed.

The result of Welch test shows that in case Perception the null hypothesis has failed to reject as the p value (0.055) which is more than 0.05. Hence, it is concluded that there is no significant difference among the Occupation of investors with regard to their Perception on credit rating.

5.5.6 Marital status wise comparison on Awareness and Perception

The Married and Single investors may have different level of Awareness and Perceptions towards credit rating. Descriptive analysis has been done to find out the mean score among married and single. To find out the statistical significance of the difference “t” also applied. The null hypotheses are as follows:

H0₁₁: There is no significant difference between Awareness and Marital status of investors

H0₁₂: There is no significant difference between Perception and Marital status of investors

Table 5.42

Descriptive statistics of Awareness and Perception - Marital Status wise

Dimensions	Marital status	N	Mean	Std. Deviation	Std. Error Mean
Awareness	Married	304	3.2977	.60465	.03468
	Unmarried	96	3.3424	.64615	.06595
Perception	Married	304	3.6098	.40357	.02315
	Unmarried	96	3.6372	.42787	.04367

Source: Primary Data

From the Table 5.42, it can be observed that mean score of Awareness of Married investors is 3.2977 (SD .60465) differing from Unmarried investors 3.3424 (SD .64615). In case of Perception, mean score of Married is 3.6098 (SD .40357) and Unmarried investors is 3.6372 (SD .42787). The Independent sample t test is used to check the significance of the difference of the mean score among Married and Unmarried investors.

Table 5.43

Independent Samples Test – Marital status wise analysis of Awareness and Perception

Dimensions	Levene's Test for Equality of Variances					Remarks
	F	Sig.	T	Df	Sig. (2-tailed)	
Awareness	.454	.501	-.622	398	.534	Equal variances assumed
Perception	.741	.390	-.571	398	.568	Equal variances assumed

Source: Primary Data

In Independent sample ‘t’ test, we get two sets of analysis, the first one assuming equal variance and the second one assuming unequal variance. If the p value of the Levene’s test is less than .05, then we can conclude that the variance is heterogeneous. In that case second set of analysis; equal variance not assumed has to be considered. Since the p value of the Independent samples test is more than .05 for Awareness and Perception too, there is no significant difference between Married and Unmarried investors with regard to their level of Awareness and Perception towards credit rating.

5.5.7 Annual Income wise comparison on Awareness and Perception

Annual Income may play important role in investment decision making. They may have different Perception about the importance of credit rating and different level of Awareness. Descriptive analysis has been carried to find out the mean score of

informants of each Annual Income group. To test the statistical significance of the difference of these mean score F test has been done. Before doing the F test, homogeneity of variance has been checked by using Levene’s test. The hypotheses are as follows:

H₁₃: There is no significant difference between Awareness and Annual Income of investors

H₁₄: There is no significant difference between Perception and Annual Income of investors

Table 5.44

Descriptive statistics for Awareness and Perception – Annual Income wise

Dimensions	Annual Income	N	Mean	Std. Deviation	Std. Error
Awareness	Below 300000	142	3.3389	.61537	.05164
	300000-500000	170	3.2779	.60152	.04613
	500001-1000000	79	3.2642	.58698	.06604
	Above 1000000	9	3.7917	.91001	.30334
	Total	400	3.3084	.61434	.03072
Perception	Below 300000	142	3.6461	.39872	.03346
	300000-500000	170	3.5949	.40900	.03137
	500001-1000000	79	3.6034	.43326	.04875
	Above 1000000	9	3.6667	.39142	.13047
	Total	400	3.6164	.40915	.02046

Source: Primary Data

Table 5.44 demonstrations the mean score for investors having different Annual Income. From the table, it can be ascertained that in case of Awareness the people within the Annual Income group of “Above 1000000” has the highest mean score of 3.7917 (SD .91001), and the lowest mean is 3.2642 (SD .58698) is in the Annual Income group “500001-1000000”. In case of Perception people within the Annual

Income group of “Above 1000000” have the highest mean score of 3.6667 (SD .39142) and the lowest mean is 3.3577 (SD 3.3577) in Annual Income group “300000 - 500000”.

Table 5.45

Test of Homogeneity of Variances - Annual Income wise

Dimensions	Levene Statistic	df1	df2	Sig.
Awareness	2.297	3	396	.077
Perception	.189	3	396	.904

Source: Primary Data

Table 5.45 shows the significant value of Levene’s Test of Homogeneity of variance of investors based on Annual Income and their Awareness and Perception towards credit rating as .077 and .907 respectively. In both cases significant value which are greater than .05. Thus, it can be summarised that there is homogeneity and the corresponding test; one-way ANOVA and Tukey’s post hoc (in case of significant difference) are used for further analysis.

Table 5.46

ANOVA- Annual Income wise comparison of Awareness and Perception

		Sum of Squares	Df	Mean Square	F	Sig.
Awareness	Between Groups	2.546	3	.849	2.270	.080
	Within Groups	148.041	396	.374		
	Total	150.587	399			
Perception	Between Groups	.241	3	.080	.477	.698
	Within Groups	66.554	396	.168		
	Total	66.795	399			

Source: Primary Data

It was found from the Table 5.46 that, in case of Awareness and Perception the hypothesis is failed to rejected as the p value is .080 and .698 respectively which are greater than 0.05. This indicates that there is no significant difference between the

Annual Income of investors with respect to their level of Awareness and Perception towards credit rating.

5.5.8 Years of Experience in stock market comparison on Awareness and Perception

Experience in the stock market is different from one investor to another. Some investors may have years of experience, while others have experience of few months only. In this study, respondents of all categories of experience are selected. Here we test whether there is any significant difference between investors with different experience level. This has been studied by the difference in mean scores of investors with different Years of Experience in stock market. To test the statistical significance of these difference F test is applied. Homogeneity of variance is checked by using Levene's test. The hypotheses are as follows:

H₁₅: There is no significant difference between Awareness and investors Experience in stock market

H₁₆: There is no significant difference between Perception and investors Experience in stock market

Table 5.47

Descriptive statistics for Awareness and Perception – Experience wise

Dimensions	Year of Experience	N	Mean	Std. Deviation	Std. Error
Awareness	Upto one year	63	3.0298	.63130	.07954
	1-5 years	88	3.3082	.61907	.06599
	5-10 years	123	3.4197	.56224	.05070
	More than 10 years	126	3.3393	.61601	.05488
	Total	400	3.3084	.61434	.03072
Perception	Upto one year	63	3.2923	.33488	.04219
	1-5 years	88	3.4839	.35171	.03749
	5-10 years	123	3.7016	.342i28	.03086
	More than 10 years	126	3.7877	.41987	.03740
	Total	400	3.6164	.40915	.02046

Source: Primary Data

The Table 5.47 provides information on two different variables (Awareness and Perception) across different Year of Experience in stock market. From the table, it can be ascertained that the highest mean score of 3.4197 (SD .56224) for Awareness is within the Year of Experience group of “5-10 years” and the lowest mean score of 3.0298 (SD .63130) is within the Year of Experience group “Upto one year” . In case of Perception, people within the Year of Experience group “More than 10 years” have the highest mean score 3.7877 (SD .41987) and the lowest mean of 3.2923 (SD .04219) is in “Upto one year” Experience group.

Table 5.48

Test of Homogeneity of Variances - Experience wise

Dimensions	Levene Statistic	df1	df2	Sig.
Awareness	.269	3	396	.848
Perception	1.827	3	396	.142

Source: Primary Data

Table 5.48 shows the significant value of Levene’s Test of Homogeneity of variance based on Year of Experience of investors in stock market and their Awareness and Perception towards credit rating as .848 and .142 respectively. In both cases significant values are greater than .05. Thus, it can be summarised that there is homogeneity and the corresponding test; one-way ANOVA and Tukey’s post hoc (in case of significant difference) are used for further analysis.

Table 5.49

ANOVA- Experience wise comparison of Awareness and Perception

		Sum of Squares	Df	Mean Square	F	Sig.
Awareness	Between Groups	6.536	3	2.179	5.989	.001
	Within Groups	144.052	396	.364		
	Total	150.587	399			
Perception	Between Groups	12.751	3	4.250	31.143	.000
	Within Groups	54.044	396	.136		
	Total	66.795	399			

Source: primary data

The Table 5.49 shows the differences of Awareness and Perception of investors towards credit rating among different Years of investment Experience in stock market. The result of one way ANOVA shows that in both cases the null hypothesis is rejected at 5% level of significance. The p value of Awareness is .001 and Perception is .000, which is lesser than 0.05. It indicates that there are significant differences between the investors Year of Experience in stock market with regard to their Awareness and Perception towards credit rating. As the study revealed that there is significant difference in case of Awareness and Perception, further analysis is needed to explain which groups of Year of Experience make the difference. Tukey's Post Hoc analysis is used to explain the difference.

The Table 5.50 shows the Tukey's Post Hoc analysis for Awareness with Year of Experiences in stock market.

Table 5.50

Experience -wise Post Hoc Test: Awareness

Year of Experience (I)	Year of Experience (J)	Mean Difference (I-J)	Std. Error	Sig.
Upto one year	1-5 years	-.27848*	.09954	.028
	5-10 years	-.38995*	.09344	.000
	More than 10 years	-.30952*	.09307	.005
1-5 years	Upto one year	.27848*	.09954	.028
	5-10 years	-.11148	.08421	.548
	More than 10 years	-.03105	.08379	.983
5-10 years	Upto one year	.38995*	.09344	.000
	1-5 years	.11148	.08421	.548
	More than 10 years	.08043	.07645	.719
More than 10 years	Upto one year	.30952*	.09307	.005
	1-5 years	.03105	.08379	.983
	5-10 years	-.08043	.07645	.719

*. *The mean difference is significant at the 0.05 level.*

Source: primary data

The Table 5.50 shows that in case of Awareness, there is significant difference in the Year of Experience group between "Upto one year" with Year of Experience group "1-5 years" (p value -.27848), "5-10 years" (p value -.38995) and "More than 10

years” (p value -.30952). Thus, it can be concluded that the difference is contributed by the Year of Experience group “Upto one year”

The Table 5.51 shows the Tukey’s Post Hoc analysis for Perception with Year of Experiences in stock market.

Table 5.51

Experience -wise Post Hoc Test: Perception

Year of Experience (I)	Year of Experience (J)	Mean Difference (I-J)	Std. Error	Sig.
Upto one year	1-5 years	-.19157*	.06097	.010
	5-10 years	-.40923*	.05723	.000
	More than 10 years	-.49537*	.05700	.000
1-5 years	Upto one year	.19157*	.06097	.010
	5-10 years	-.21766*	.05158	.000
	More than 10 years	-.30380*	.05132	.000
5-10 years	Upto one year	.40923*	.05723	.000
	1-5 years	.21766*	.05158	.000
	More than 10 years	-.08614	.04683	.256
More than 10 years	Upto one year	.49537*	.05700	.000
	1-5 years	.30380*	.05132	.000
	5-10 years	.08614	.04683	.256

*. *The mean difference is significant at the 0.05 level.*

Source: primary data

The Table 5.51 shows that in the case of Perception, there is a significant difference in the Year of Experience group between all the category of investors except “More than 10 years” and “5- 10 Years”.

5.6 Conclusion

In this chapter, the primary data collected during the study have been analyzed. This chapter focused on testing of personal aspects of the investors such as Gender, Age, District, Educational qualification, Occupation, Marital status, Year of experience in stock market and Annual Income in related to Awareness and Perception of investors towards credit rating. Thus, this chapter will give an idea to the credit

rating agencies on which factor they must concentrate to fulfil the expectations of investors with respect to credit rating. The descriptive statistics suggest a prospective need for increased transparency efforts and better communication between credit rating agencies and investors to strengthen trust and understanding in the industry. Furthermore, the data suggests that there is need for improvement in enhancing investors' understanding of the workings of these agencies, as several respondents expressed a lack of knowledge in this regard.

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CHAPTER 6

EXPLORING THE ASSOCIATION BETWEEN CREDIT RATING AWARENESS AND DEMOGRAPHIC VARIABLES THROUGH CLUSTER ANALYSIS

6.1 Introduction

In this chapter, the aim is to categorize individuals into different clusters based on their level of Awareness regarding credit rating and explore the relationships between these clusters and individuals' Demographic variables. By using clustering techniques, we can identify homogeneous groups of individuals with similar Awareness levels and examine whether these groups exhibit Demographic characteristics. This approach will provide valuable understandings about the relationship between credit rating Awareness and Demographic factors, offering a deeper understanding of how these components are interconnected within the studied population.

6.2 Cluster Analysis

Cluster analysis is a type of data classification carried out by separating the data into groups. Cluster analysis involves the process of identifying clusters or groups in a dataset based on the similarities or dissimilarities between objects (Hale, 1981). Cluster analysis is particularly useful when dealing with large and complex datasets, as it can help to reveal underlying patterns and structures within the data. By analysing the similarities and differences between items, cluster analysis can assist in categorizing data into meaningful groups (L. Duan, 2022).

The goal of cluster analysis is to group similar objects together based on their characteristics, though keeping items from different groups as dissimilar as possible (Solutions, 2010). Cluster analysis is a more primitive method in that no assumptions are made regarding the number of groups or the group structure (Thakare & Dhote, 2015). Modern statistical packages such as SAS, SPSS or Matlab offer various clustering algorithms and commonly used in many areas (Kim, 2009).

Cluster analysis in SPSS involves using algorithms to divide data into groups or clusters based on the similarity of variables (Zampaligré et al., 2019). Once clusters are identified, researchers can further evaluate and interpret the characteristics of each cluster to gain understandings, identify patterns, and make meaningful comparisons between groups. Cluster analysis is a method for segmentation and identifies homogenous groups of objects called clusters. Objects in a certain cluster should be as similar as possible to each other, but as different as possible from objects in other clusters (Sarstedt, Marko, 2016).

6.3 Classification of Investors Based on Awareness on Credit Rating

The application of factor analysis identified the major factors of Awareness on credit rating. Now, the factors of Awareness on credit rating are classified into different type of clusters. Cluster analysis is a type of data classification carried out by separating the data into groups (Esteves et al., 2014). Hierarchical cluster with agglomeration schedule is used in determining the number of clusters. This analysis is useful in classifying different groups of investors with homogeneous qualities. The classification and coefficients are alienated into two homogeneous groups of investors through K-means cluster analysis (M. Jayanthi, 2014). The following results highlight the cluster centers of all the two factors of Awareness on credit rating.

Table 6.1

Final Cluster Centers based on Factors of Awareness on Credit Rating

Factors	Cluster	
	1	2
Credit Rating Concept	3.98	3.23
Rating Methodology	3.72	2.32

The final cluster centers are explained in the Table 6.1. The final cluster centers table reveals that there exist two heterogeneous groups of investors based on the factors of Awareness on credit rating.

Table 6.2

Ranking of Final Cluster Centers

Factors	Cluster	
	1	2
Credit Rating Concept	Aware	Low aware
Rating Methodology	Aware	Low aware

The Table 6.2 displays the Ranking of Final Cluster Centers. The Final cluster Centers mentions two categories that are segmented into “Aware” and “Low Aware”. Variables with more than 3.5 have designated as “Aware”, and below 3.5 are considered as “Low aware”.

Table 6.3

Number of Cases in each Cluster

Clusters	Number of Investors	Per cent
1	169	42.25
2	231	57.75
Total	400	100.0

The number of cases in each Cluster is explained in the Table 6.3. The first cluster of investors with 42.25 per cent possesses Awareness of basic concept of credit ratings and credit rating methodology. Hence, they are called as “*Conscious investors*”. The second cluster of investors with 57.75 per cent of sample with 231 respondents is clearly identified as Low level of Awareness on basic concept on credit rating and credit rating methodology. Hence, they are known as “*Ignorant investors*”.

6.4 Chi-Square Analysis between cluster of investors’ Awareness of credit rating and Demographic Variable

The researcher identified two clusters based on Awareness of credit rating i.e.; Conscious investors and Ignorant investors. The clusters are appropriately measured and named with suitable similarity. In this section, the researcher aims to find out association between cluster of investors based on Awareness and Demographic

variable. The Cross-Tab analysis is performed between the clusters of investors' Awareness on credit rating and Demographic profile. Further, Chi square test is also applied to test the existence of the same.

6.4.1 Association between Awareness of credit rating and Gender of investors

To find out the degree of association between Gender of the investors and their level of Awareness on credit rating, a two- way table was prepared and presented in the Table 6.4.

Table 6.4

Association between Awareness of credit rating and Gender

Gender	Conscious investors		Ignorant investors		Total
	Frequency	Percentage	Frequency	Percentage	
Female	54	31.95	86	37.23	140
Male	115	68.05	145	62.77	260
Total	169	100	231	100	400

Source: Primary data

From the Table 6.4, it is found that 68.05 per cent of Conscious investors are Male and 31.95 per cent are Female. Further, it is found that 62.77 per cent of Ignorant investors are Male and 37.23 per cent are Female. Verification of association has been done in the Table 6.5.

The hypothesis is as follows:

H₀₁: There is no association between Gender of investors and Awareness on credit rating

Table 6.5

Chi-Square Test for Awareness of credit rating and Gender

Particulars	Value	Df	Significant value
Pearson Chi-Square	1.195	1	.274
Likelihood Ratio	1.200	1	.273
Linear-by-Linear Association	1.192	1	.275
N of Valid Cases	400		

Source: Primary data

The Table 6.5 reveals that the Pearson Chi-square value is equal to 1.195 and likelihood ratio of 1.200 along with linear-by-linear association of 1.192. All the probabilistic values are not significant at 5 per cent level. Hence, the null hypothesis is accepted. Therefore, it is concluded that there is no association between Gender of the investors and Awareness of investors towards credit rating.

6.4.2 Association between Awareness of credit rating and Age of investors

In order to find out the degree of association between the Age of the investors and level of Awareness in related to credit rating, a two way table was prepared and is demonstrated in the Table 6.6.

Table 6.6

Association between Awareness of credit rating and Age

Age	Conscious investors		Ignorant investors		Total
	Frequency	Percentage	Frequency	Percentage	
Below 25	14	8.28	12	5.19	26
25 to 35	85	50.30	120	51.95	205
36 to 45	54	31.95	62	26.84	116
Above 45	16	9.47	37	16.02	53
Total	169	100	231	100	400

Source: Primary data

From the Table 6.6, it is found that 50.30 per cent of Conscious investors belong to the Age group ‘25 to 35’ and 51.95 per cent of Ignorant investors belong to ‘25 – 35’ Age groups. 31.95 per cent of Conscious investor are in the Age group of ‘36 to 45’ and 26.84 per cent of Ignorant investors are in the Age group of ‘36 to 45’. Further, it is found that 9.47 per cent of Conscious investors and 16.02 per cent of Ignorant investors fall in the Age group of ‘Above 45’. Finally, 8.28 per cent of Conscious investor and 5.19 per cent of Ignorant investors are fall in the Age group of ‘Below 25’. Verification of association has been done in Table 6.7.

The hypothesis is formulated as follows:

H0₂: There is no association between Age of investors and Awareness on credit rating

Table 6.7

Chi-Square Test for Awareness of credit rating and Age

Particulars	Value	Df	Significant value
Pearson Chi-Square	5.525	3	.137
Likelihood Ratio	5.616	3	.132
Linear-by-Linear Association	1.852	1	.174
N of Valid Cases	400		

Source: Primary data

The Table 6.7 reveals that the Pearson Chi-square value is equal to 5.525 and likelihood ratio of 5.616 along with linear-by-linear association of 1.852. All the probabilistic values are not significant at 5 per cent level. Hence, the null hypothesis is accepted. So, it is concluded that there is no association between Age of investors and level of Awareness towards the credit rating.

6.4.3 Association between Awareness of credit rating and District of investors

To find out the degree of association between the District of the investors and level of Awareness in related to credit rating, a two way table was prepared and explained in the Table 6.8.

Table 6.8

Association between Awareness of credit rating and District

District	Conscious investors		Ignorant investors		Total
	Frequency	Percentage	Frequency	Percentage	
Thiruvananthapuram	24	14.2	44	19.05	68
Kollam	25	14.79	29	12.56	54
Ernakulam	31	18.34	36	15.58	67
Thrissur	32	18.94	32	13.85	64
Malappuram	24	14.2	60	25.97	84
Kozhikode	33	19.53	30	12.99	63
Total	169	100	231	100	400

Source: Primary data

From the Table 6.8, it is conceived that 19.53 per cent of Conscious investors belong to ‘Kozhikode’ district and 25.97 per cent of Ignorant investors belong to ‘Malappuram’ district. 18.94 per cent of Conscious investors are from ‘Thrissur’ district and 18.34 per cent from ‘Ernakulam’ district. In case of Ignorant investors 19.05 per cent are from ‘Thiruvananthapuram’ district and 15.58 per cent of investors are from ‘Ernakulam’ district. Further, it is found that in case of Conscious investors 14.79 per cent are from ‘Kollam’ district; ‘Thiruvananthapuram’ and ‘Malappuram’ district consist of 14.2 of Conscious investors. While, in case of Ignorant investors 13.85 per cent of investors are from ‘Thrissur’, 12.99 per cent are from ‘Kozhikode’ district and 12.56 per cent of investors belong to ‘Kollam’ district.

The hypothesis is formulated as follows:

HO₃: There is no association between District of investors and Awareness on credit rating

Table 6.9

Chi-Square Test for Awareness of credit rating and District

Particulars	Value	Df	Significant value
Pearson Chi-Square	12.821 ^a	5	.025
Likelihood Ratio	13.074	5	.023
Linear-by-Linear Association	.249	1	.618
N of Valid Cases	400		

Source: Primary data

The chi-square test exhibits that the Pearson Chi-square value is equal to 12.821 and likelihood ratio of 13.074 along with linear-by-linear association of .249. The probabilistic value of Pearson Chi-Square is significant at 5 per cent level. Hence, the null hypothesis is rejected. Therefore, it is concluded that there is an association between District of investors and Awareness towards credit rating (Table 6.9).

6.4.4 Association between Awareness of credit rating and Education qualification of investors

With a view to find out the degree of association between Educational qualification of the investors and Awareness towards credit rating, a two table was prepared and presented in the Table 6.10.

Table 6.10

Association between Awareness of credit rating and Education qualification

Education qualification	Conscious investors		Ignorant investors		Total
	Frequency	Percentage	Frequency	Percentage	
Graduation	85	50.30	109	47.19	194
Post-Graduation	54	31.95	78	33.77	132
Professional	30	17.75	44	19.04	74
Total	169	100	231	100	400

Source: Primary data

It is highlighted from the Table 6.10 that 50.30 per cent of Conscious investors and 47.19 per cent of Ignorant investors are Graduation qualified, 31.95 per cent of Conscious investors and 33.77 of Ignorant investors are Post-Graduates. Further, it is found that 17.75 per cent of Conscious investors and 19.04 per cent of Ignorant investors are Professionals. Confirmation of association has been done in Table 6.11.

The hypothesis is formulated as follows:

HO₄: There is no association between Education qualification of investors and Awareness on credit rating

Table 6.11

Chi-Square Test for Awareness of credit rating and Education qualification

Particulars	Value	Df	Significant value
Pearson Chi-Square	.380	2	.827
Likelihood Ratio	.381	2	.827
Linear-by-Linear Association	.326	1	.568
N of Valid Cases	400		

Source: Primary data

The Table 6.11 discloses that the Pearson Chi-square value is equal to .380 and likelihood ratio of .381 along with linear-by-linear association of .326. All the values are insignificant at 5 per cent level. Hence, the null hypothesis is failed to reject. Therefore, it is concluded that there is no association between Educational qualification of investors and Awareness towards credit rating.

6.4.5 Association between Awareness of credit rating Occupation of investors

In order to discover the degree of association between the Occupation of the investors and level of Awareness towards credit rating, a two way table was prepared and is demonstrated as in the Table 6.12.

Table 6.12

Association between Awareness of credit rating and Occupation

Occupation	Conscious investors		Ignorant investors		Total
	Frequency	Percentage	Frequency	Percentage	
Salaried	110	65.09	135	58.44	245
Professional	28	16.57	41	17.75	69
Business	31	18.34	55	23.81	86
Total	169	100	231	100	400

Source: Primary data

From the Table 6.12, it is observed that 65.09 per cent of Conscious investors and 58.44 per cent of Ignorant investors are Salaried. 18.34 per cent of Conscious investors and 23.81 of Ignorant investors are engaged in Business. Additionally, it is

found that 16.57 per cent of Conscious investors and 17.75 per cent of Ignorant investors are Professionals. Verification of association has been done in the Table 6.13.

The hypothesis is formulated as follows:

H0₅: There is no association between Occupation of investors and Awareness on credit rating

Table 6.13

Chi-Square Test for Awareness of credit rating and Occupation

Particulars	Value	Df	Significant value
Pearson Chi-Square	2.139 ^a	2	.343
Likelihood Ratio	2.158	2	.340
Linear-by-Linear Association	2.134	1	.144
N of Valid Cases	400		

Source: Primary data

The chi-square test reveals that the Pearson Chi-square value is equal to 2.139 and likelihood ratio of 2.158 along with linear-by-linear association of 2.134. All the values are insignificant at 5 per cent level. Henceforth, the null hypothesis is failed to reject. Therefore, it is concluded that there is no association between Occupation of investors and Awareness towards credit rating (Table 6.13).

6.4.6 Association between Awareness of credit rating and Marital Status of investors

In order to examine the degree of association between the Marital status of the investors and level of Awareness towards credit rating, a two way table was prepared and is presented in Table 6.14.

Table 6.14

Association between Awareness of credit rating and Marital status

Marital status	Conscious investors		Ignorant investors		Total
	Frequency	Percentage	Frequency	Percentage	
Married	125	73.97	179	77.49	304
Unmarried	44	26.03	52	22.51	96
Total	169	100	231	100	400

Source: Primary data

From the Table 6.14, it is found that 73.97 per cent of Conscious investors are Married and 26.03 per cent are Unmarried. Further, it is found that 77.49 per cent of Ignorant investors are Married and 22.51 are Unmarried investors. Verification of association has illustrated in Table 6.15.

The hypothesis is formulated as follows:

H₀: There is no association between Marital Status of investors and Awareness on credit rating

Table 6.15

Chi-Square Test for Awareness of credit rating and Marital status

Particulars	Value	Df	Significant value
Pearson Chi-Square	.665	1	.415
Likelihood Ratio	.486	1	.486
Linear-by-Linear Association	.663	1	.415
N of Valid Cases	400		

Source: Primary data

The Table 6.15 illustrate, the Pearson Chi-square value is equal to .665 and likelihood ratio of .486 along with linear-by-linear association of .663. All the values are insignificant at 5 per cent level. Hence, the null hypothesis is failed to reject. Therefore, it is concluded that there is no association between Marital status of the investors and level of Awareness in related to credit rating.

6.4.7 Association between Awareness of credit rating and Annual Income of investors

In order to examine the degree of association between the Annual Income of the investors and level of Awareness towards credit rating, a two way table was prepared and is illustrated in Table 6.16.

Table 6.16

Association between Awareness of credit rating and Annual Income

Annual Income	Conscious investors		Ignorant investors		Total
	Frequency	Percentage	Frequency	Percentage	
Below 300000	63	37.28	79	34.2	142
300000-500000	70	41.42	100	43.29	170
500001-1000000	31	18.34	48	20.78	79
Above 1000000	5	2.96	4	1.73	9
Total	169	100	231	100	400

Source: Primary data

From the Table 6.16, it is observed that 41.42 per cent of Conscious investors and 43.29 per cent of Ignorant investors earn Annual Income between ‘300000 to 500000’. 37.28 per cent of Conscious investors and 34.2 per cent of Ignorant investors earn Annual Income ‘Below 300000’. In case of Conscious investors, 18.34 per cent earn Annual Income between ‘500001 to 1000000’ and 2.96 of them earn Annual Income ‘Above 300000’. Further, it is found that 20.78 per cent of Ignorant investors earn Annual Income between ‘500001 to 1000000’ and 1.73 per cent of them earn Annual Income ‘Above 1000000’. Verification of association has been done in the Table 6.17.

The hypothesis is formulated as follows:

H0₇: There is no association between Annual Income of investors and Awareness on credit rating

Table 6.17

Chi-Square Test for Awareness of credit rating and Annual Income

Particulars	Value	Df	Significant value
Pearson Chi-Square	1.287	3	.732
Likelihood Ratio	1.278	3	.734
Linear-by-Linear Association	.145	1	.704
N of Valid Cases	400		

Source: Primary data

The chi-square test exhibits that the Pearson Chi-square value is equal to 1.287 and likelihood ratio of 1.278 along with linear-by-linear association of .145. All the probabilistic values are insignificant at 5 per cent level. Hence, the null hypothesis is failed to reject. Therefore, it is concluded that there is no association between Annual Income and Awareness towards credit rating (Table 6.17).

6.4.8 Association between Awareness of credit rating and Year of Experience of investors in stock market

In order to analysing the degree of association between the Year of Experience of investors in stock market and Awareness towards credit rating, a two way table was prepared and illustrated in Table 6.18.

Table 6.18

Association between Awareness of credit rating and Year of experience in stock market

Year of experience in stock market	Conscious investors		Ignorant investors		Total
	Frequency	Percentage	Frequency	Percentage	
Upto one year	16	9.47	47	20.35	63
1-5 years	36	21.30	52	22.51	88
5-10 years	64	37.87	59	25.54	123
More than 10 years	53	31.36	73	31.60	126
Total	169	100	231	100	400

Source: Primary data

It is seen from the Table 6.18 that, 37.87 per cent of Conscious investors have ‘5-10 years’ of Experience in stock market and 31.60 per cent of Ignorant investors are include in ‘More than 10 years’ of Experience group. 31.36 per cent of Conscious investors are from ‘More than 10 years’ of Experience group and 25.54 per cent of Ignorant investors are included in ‘5-10 years’ of Experience group. In Conscious investors cluster 21.30 per cent investors are in ‘1-5 years’ of Experience and 9.47 per cent are in ‘Upto one year’ Experience group. In Ignorant investors cluster 22.51 per cent investors are in ‘1-5 years’ of Experience and 20.31 per cent are in ‘Upto one year’ Experience group. Confirmation of association has been concluded in the Table 6.19.

The hypothesis is formulated as follows:

H0₈: There is no association between Year of Experience of investors in stock market and Awareness on credit rating

Table 6.19

Chi-Square Test for Awareness of credit rating and Year of experience

Particulars	Value	Df	Significant value
Pearson Chi-Square	12.225	3	.007
Likelihood Ratio	12.606	3	.006
Linear-by-Linear Association	4.503	1	.034
N of Valid Cases	400		

Source: Primary data

The Table 6.19 validates the Pearson Chi-square value is equal to 12.225 and likelihood ratio of 12.606 along with linear-by-linear association of 4.503. All the probabilistic values are significant at 5 per cent level. Henceforth, the null hypothesis is rejected. Consequently, it is concluded that there is an association between Year of Experience of investors in stock market and Awareness on credit rating.

6.5 Conclusion

In this chapter, adequate consideration has been given to critically analyse the awareness on credit rating among the investors. The main function of any rating agency is to evaluate the creditworthiness and rank them on a relative rating scale. Thus, a rating given by any credit rating agency would be a symbolic indicator of present opinion on the relative capability of the corporate entity concerned to ensure timely servicing of its obligation. The investors' awareness on credit ratings assists to choose correct type of portfolio in the investment field. Hence, investors' awareness on credit rating has considered as integral part of investment decision making process.

In this chapter, the individual's clusters are formed based on their level of Awareness regarding credit ratings and explore the relationships between these clusters and individuals' Demographic variables. So, this chapter analyse the investors' awareness towards credit rating in terms of Credit Rating Concept and Rating Methodology. The result shows that, Gender, Age, Education qualification, Occupation, Marital status, Annual Income of investors have no association with clusters of awareness. On the other hand, District, Year of experience in stock market of investors has association with awareness cluster of investors in related to credit rating. The outcome of this study will be helpful to the credit rating agencies in understanding the investor' awareness on credit rating, to frame appropriate mechanism for improve awareness of investors and adopt suitable strategy to serve stakeholders in the capital market.

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CHAPTER 7

ANALYSIS OF INVESTMENT DECISION BASED ON CREDIT RATING: A FOCUS ON AWARENESS AND PERCEPTION OF INVESTORS

7.1 Introduction

A credit rating agency has greater capability to evaluate the relationship between risk and reward due to its accessibility to resource. The agencies collect and analyse all sorts of relevant financial and other information, then use it to provide a rating of the core value or quality of a security as a convenient way for investors to judge quality and make investment decisions (Richard M. Levich, Giovanni Majnoni, 2002). While credit ratings are more directly associated with fixed-income investments, they can indirectly affect the perception and investment decision of equity investors by providing insights into the financial health of companies or the broader economic environment. In the world of finance, credit rating plays a serious role in investment decisions (Petrovska et al., 2022), (Said et al., 2019). Credit ratings play a crucial role in the investment decision-making procedure of equity investors (Boot et al., 2006). Equity investors often consider a range of factors, including financial statements, economic conditions, and market sentiment, combined with credit ratings when making investment decisions. By considering the credit rating of a company, equity investors can make more informed decisions by evaluating the probability of default and potential loss on their investments. This helps them minimize the risk of default and shield the value of their assets (Cilizoglu & Bapat, 2020), (Boot et al., 2006).

Investor Awareness refers to the level of knowledge, understanding, and information that individuals have about various investment information, financial markets, and related factors that can impact their investment decisions. The Perception of investors refers to the way in which individuals interpret, evaluate information related to investment, financial markets and economic conditions. Hence, the

relationship between awareness, perception, and investment decision is important in the field of finance and investing. These three elements are interrelated and influence how investors make choices regarding their investments. This chapter titled “Analysis of Investment Decision Based on Credit Rating: A Focus on Awareness and Perception of Investors” analyse the relationship between: Awareness and Perception, Awareness and Investment Decision, Perception and Investment Decision and relation between Awareness, Perception on Investment Decision of investors in related to credit rating.

7.2 Factor Analysis of Investment Decision

Factor analysis is used for classifying the underlying factors and it examines the structure of relationship among large number of variables by defining group of variable that are highly interrelated called as factors. Factor analysis is mostly useful when dealing with a large number of variables as it can reduce the difficulty of the data by classifying common underlying factors (Silva, 2011). In order to authorize the adequacy or suitability of data for factor analysis, Kaiser- Meyer- Oklin Measure of sampling adequacy (KMO) and Bartlett’s test of Sphericity are applied (Pillai, 2021). The Kaiser-Meyer- Oklin measure of sampling adequacy is an index used for comparing the degrees of the observed correlation coefficients to the degrees of the partial correlation coefficients. KMO statistics vary between 0 and 1. A value of 0 directs that the sum of partial correlation is large relative to the sum of correlation. Hence factor analysis is expected to be inappropriate. A value close to 1 indicates that patterns of correlation are relatively close and hence the factor analysis should produce distinct and reliable results. The Bartlett’s Test of Sphericity discloses the validity and suitability of the responses collected to the problem being addressed through the study. It is recommended that the Bartlett’s Test of Sphericity must be less than 0.05 to be suitable in factor analysis. Table 7.1 shows the KMO and BTS results:

Table 7.1

KMO and Bartlett's Test - Investment Decision

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.823
Bartlett's Test of Sphericity	Approx. Chi-Square	4249.012
	Df	55
	Sig.	.000

Source: Primary Data

The correlation matrix exhibited sufficient items to justify the factorability of data. The Kaiser-Meyer- Olkin (KMO) measure of sampling adequacy was 0.823 (Table 7.1), a level described as 'Meritorious' by (Kaiser, 1974) and Barlett's test of sphericity (BTS) value is found significant ($p < 0.000$) which meant that data is appropriate for Exploratory Factor Analysis (EFA). The details of factor analysis are specified below:

Table 7.2

Total Variance Explained by Variables of Investment Decision

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.665	42.411	42.411	4.087	37.158	37.158
2	3.059	27.808	70.219	3.637	33.061	70.219
3	.919	8.350	78.569			
4	.801	7.283	85.853			
5	.624	5.670	91.523			
6	.316	2.875	94.398			
7	.257	2.336	96.734			
8	.159	1.442	98.176			
9	.097	.879	99.055			
10	.063	.575	99.630			
11	.041	.370	100.000			

Extraction Method: Principal Component Analysis.

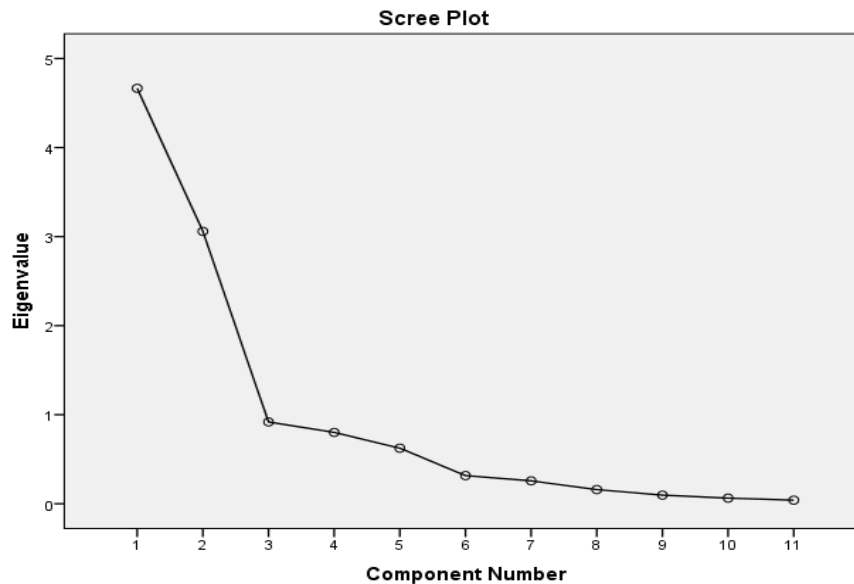
Source: primary data

Table 7.2 illustrates the percentage of variances and the eigen values of the two components, namely Investment Expectation and Rating Announcement which explained the 70.219 % of total variances of Investment Decision. The first factor namely Investment Expectation explains 42.411 per cent of variance with the eigen value of 4.665 and the second factor namely Rating Announcement explains 27.808 per cent variance (eigen value of 3.059).

It is clear from the following scree plot.

Figure 7.1

Scree Plot – Investment Decision



The Figure 7.1 makes it clear that all the 11 statements are combined and split into two components (having eigen value more than one).

The Table 7.3 presented below explains the rotated component factor loadings of Investment Decision.

Table 7.3

Rotated Component Matrix of Investment Decision

Variable Name	Statements	Component	
		1	2
RA1	Downgrading reduce the image of the company		.917
RA2	Frequent downgrading, placing instruments on rating watch reduce confidence of investor		.777
RA3	Only initial ratings are well researched, subsequent ratings are not backed by scientific methods		.687
RA4	Can anticipate rating change based on other information		.917
RA5	The reasons for rating change are well explained and able to review investment decisions		.899
IE1	Rating leads to efficiency in the market	.926	
IE2	Rating announcements will move the market	.793	
IE3	I would you prefer to sell instrument when it is downgraded	.949	
IE4	Upgrading leads to investment	.912	
IE5	Rating Outlooks/Watch lists are use in investment decision	.702	
IE6	Rating announcements are sometimes delayed and decision based on rating is misleading	.566	

Source: Primary Data

The Table 7.3 depicts the result of Principle Component Analysis of Investment Decision created after rotated factor matrix. Variables with factor loadings near 0.60 are selected for the study. After performing Varimax Rotation Method in Kaiser Normalization, factors of Investment Decision are grouped into two factors as per the following:

- The first group is extracted 42.411 per cent. It consists of six items. They are “I would you prefer to sell instrument when it is downgraded” with highest factor loading 0.949, followed by the statement “Rating leads to efficiency in the market” with factor loading 0.926, “Upgrading leads to investment”

(loading 0.912), “Rating announcements will move the market” (loading 0.793), “Rating Outlooks/Watch lists are use in Investment decision” (loading 0.702) and “Rating announcements are sometimes delayed and decision based on rating is misleading” (loading 0.566). These variables together constitute a common factor, whose characteristics are related to how investors are expecting to change their investment according to credit rating. Hence, it is named as **‘Investment Expectation’**.

- Second group which is extracted 27.808 per cent of total variances included five items. They are “Downgrading reduce the image of the company” and “Can anticipate rating change based on other information” with highest factor loading 0.917 followed by “The reasons for rating change are well explained and able to review investment decisions” (loading 0.899), “Frequent downgrading, placing instruments on rating watch reduce confidence of investor” (loading 0.777) and “Only initial ratings are well researched, subsequent ratings are not backed by scientific methods” (loading 0.687). These variables together constitute a common factor, whose characteristics are related to rating announcement. Hence, it is named as **‘Rating Announcement’**.

Thus, through exploratory factor analysis, 11 variables are split into two components, i.e, Rating Announcement and Investment Expectation. They are identified as the dimensions under Investment Decision in the present study.

7.3 Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) is a measurement model of Structural Equation Modeling (SEM), which deals with the relationship between observed measures or indicator. This statistical technique tells us the suitability of theoretical specification of factors to the reality. It is used to confirm the factor structure of a set of observed variables. Structural Equation Modeling software is normally used for performing confirmatory factor analysis. The researcher used CFA as a first step to evaluate the proposed Measurement model in a structural equation model. The Figure 7.2 shows the proposed model and the Figure 7.3 displays the measurement model:

Figure 7.2

Proposed Model – Investment Decision

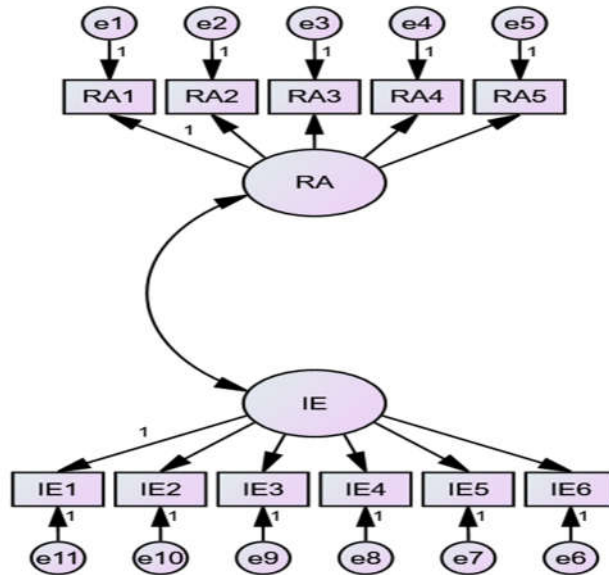


Figure 7.3

Measurement Model – Investment Decision

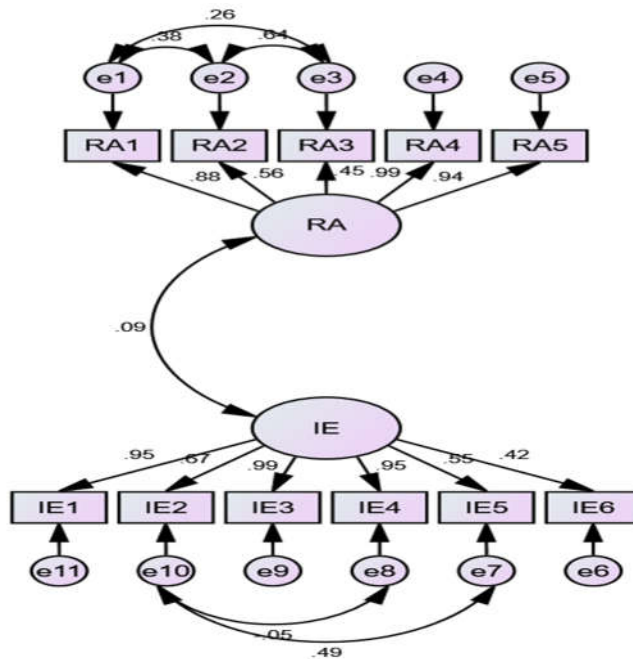


Table 7.4

Model Fit Indices – Investment Decision

Indices	Value Obtained	Recommended Value of Good Fit
Normed chi-square (CMIN/df)	2.415	≤ 3
Root Mean Square Residuals (RMR)	0.073	≤ 0.08
Comparative Fit Index (CFI)	0.987	≥ 0.90
Goodness of Fit Index (GFI)	0.961	≥ 0.90
Adjusted GFI (AGFI)	0.932	≥ 0.90
Incremental Fit Index (IFI)	0.987	≥ 0.90
Tucker Lewis Index (TLI)	0.982	≥ 0.90
Normed Fit Index (NFI)	0.979	≥ 0.90
Root Mean Square Error of Approximation (RMSEA)	0.060	≤ 0.08

Source: Primary Data

The adequacy of first order CFA is measured with the help of the above specified modification indices (Table 7.4). Here, the important measures (CFI, GFI, AGFI, IFI, TLI, NFI) are above the limit of good fit. Likewise, CMIN/df, RMR and RMSEA are within the limit of good fit of the model. Therefore, the model used to measure Investment Decision of investors in related to Credit Rating is acceptable to measure the validity of scale.

Table 7.5

Validity and Reliability Statistics - Investment Decision

Constructs	Dimensions	Factor Loadings	CR	AVE	MSV
Rating Announcement	RC1	0.879	0.888	0.630	0.008
	RC2	0.562			
	RC3	0.448			
	RC4	0.990			
	RC5	0.940			
Investment Expectation	IE1	0.424	0.900	0.619	0.008
	IE2	0.551			
	IE3	0.947			
	IE4	0.995			
	IE5	0.667			
	IE6	0.948			

Source: Primary Data

Table 7.5 confirms the standardized factor loadings, CR, AVE and MSV of each dimension used in Investment Decision based on Credit Rating. In respect of Convergent Validity, three conditions are satisfied specifically, the values of CR are greater than 0.7, the values of AVE are greater than 0.5 and the values of CR of the constructs are greater than AVE. Consequently, Convergent Validity is proved. Furthermore, the Discriminant Validity of the scale is verified with the help of MSV and AVE. Here, all the dimensions have the values of AVE greater than that of MSV. Hence, the criteria for Discriminant Validity also proved.

7.4 Descriptive statistics of Investment decision

Descriptive statistics are a set of techniques and methods used to summarize, organize and present data in a meaningful and interpretable way. These statistics provide summary of data, highlighting its central tendencies, variability and distribution. Descriptive statistics are fundamental in data analysis and research as they provide a preliminary understanding of a dataset, help to identify patterns and trends and assist in making informed decisions.

Table 7.6

Descriptive Statistics of Investment Decision

Statements	N	Mean	Std. Deviation
Downgrading reduce the image of the company	400	3.95	.863
Frequent downgrading, placing instruments on rating watch reduce confidence of investor	400	4.03	.777
Only initial ratings are well researched, subsequent ratings are not backed by scientific methods.	400	3.57	1.024
Can anticipate rating change based on other information	400	3.59	.827
The reasons for rating change are well explained and able to review investment decisions	400	3.70	.905
Rating leads to efficiency in the market	400	3.36	.942
Rating announcements will move the market	400	3.30	1.043
I would you prefer to sell instrument when it is downgraded	400	3.51	.958
Upgrading leads to investment	400	3.38	1.055
Rating announcements are sometimes delayed and decision based on rating is misleading	400	3.58	.858
Rating Outlooks/Watchlists are use in Investment decision	400	3.44	1.017
Valid N (listwise)	400		

Source: Primary data

The Table 7.6 provides data related to ratings and their influence on Investment Decision and market behavior. It reveals that respondents generally hold a strong agreement that frequent downgrading and placing instruments on rating watch significantly reduce investor confidence, as evidenced by the highest mean score of 4.03 with a relatively low standard deviation. Overall, these results indicate that respondents are usually concerned about the negative impact of downgrading and frequent rating changes on a company's image and investor confidence.

On the other hand, the respondents have mixed opinions on the effectiveness of ratings. While statements like "The reasons for rating changes are well explained and able to review investment decisions" and "I would prefer to sell an instrument when it is downgraded" received mean ratings of 3.70 and 3.51 respectively, indicating moderate positive sentiment. Other statements like "Rating leads to efficiency in the market" and "Rating announcements will move the market" received lower mean ratings of 3.36 and 3.30, suggesting a more neutral or slightly negative sentiment. The standard deviations for these statements are relatively low, indicating that respondents' opinions are relatively consistent. These results suggest that while some believe in the usefulness of ratings in investment decisions, there's a more mixed opinion regarding their impact on market efficiency and market-moving potential. These findings underscore the importance of clear and well-explained rating practices in maintaining investor confidence also highlighting the varied perspectives on the immediate market impact of rating announcements.

7.5 Relation between Socio-Economic Variables with Investment Decision

Socioeconomic variables employ a significant influence on how individuals approach and make Investment decisions. For example, higher income frequently delivers individuals with greater resources to invest and take on more significant risks, while lower income can lead to a more cautious approach to investing. In this study; Gender, Age, District, Education, Occupation, Marital Status, Year of Experience in stock market and Annual income considered as Socio-Economic variables. Independent sample 't' test is applied for analyzing Gender and Marital Status with Investment Decision, as Gender and Marital Status are categorical

variable with two levels and Investment Decision are continuous in nature. One-way ANOVA is used to analyze the Differences among Age, Districts, Education, Occupation, Annual Income, and Year of Experience in stock market with Investment decision, as these are categorical with more than two levels.

7.5.1 Gender wise comparison on Investment decision

The Gender groups include male and female. To study whether any differences between the Gender groups towards their Investment Decision in related to Credit Rating, independent sample ‘t’ test is done for which the hypothesis is framed as

H₀₁: There are no significant differences in Investment Decisions between Gender groups of investors

Table 7.7

Gender wise analysis of Investment Decision

Dimensions	Gender	N	Mean	Std. Deviation	Std. Error Mean
Investment Decision	Female	140	3.4974	.55168	.04663
	Male	260	3.6269	.46287	.02871

Source: Primary Data

The Table 7.7 presents group statistics for Investment Decision broken down by Gender (Female and Male). It can be observed that the mean score for female is 3.4974 and for a male 3.6269. It appears that each group has different mean values and different levels of variability in their responses. The Independent sample ‘t’ test is used to check whether the difference is significant or not, between male and female with regard to Investment Decision.

Table 7.8

Independent Samples Test - Gender wise analysis of Investment Decision

Dimensions	Levene's Test for Equality of Variances					Remarks
	F	Sig.	T	Df	Sig. (2-tailed)	
Investment Decision	10.624	.001	-2.493	398	.013	Equal variances not assumed

Source: Primary data

The Table 7.8 shows the test result of significant value corresponding to Levene's test F value for Investment Decision (.001) shows a value less than .05 and it assumed that Equal variances not assumed. The investors shows that the t – test statistics towards Investment Decision is -2.493 with degree of freedom 398 and the two tailed p value is .013, which is less than 0.05, hence the null hypothesis is rejected and it is clear that there is significant difference between Gender groups with regard to their Investment Decisions.

7.5.2 Age wise comparison on Investment Decision

Investors in different Age group may have different in their Investment Decision. Descriptive analysis has been used to check the same. Then one way Analysis of Variance is applied to test the significance of difference among mean of different Age group. The hypothesis framed is as follows:

H0₂: There is no significant difference in Investment Decisions among Age group of investors

Table 7.9

Descriptive statistics for Investment Decision - Age-wise

Dimensions	Age Groups	N	Mean	Std. Deviation	Std. Error
Investment Decision	Below 25 years	26	3.8811	.45836	.08989
	25-35 years	205	3.7055	.45201	.03157
	36-45 years	116	3.4953	.44863	.04165
	Above 45 years	53	3.1441	.49519	.06802
	Total	400	3.5816	.49892	.02495

Source: Primary data

The Table 7.9 provides information on Investment Decision based on credit rating across different Age group. From the table, it can be ascertained that the people with Age group of “Below 25 years” has the highest mean score of 3.8811 (SD .45836) followed by Age group “25 - 35 years” with mean score 3.7055 (SD .45201), “36-45 years” with mean score 3.4953 (SD .4953) and the lowest mean of 3.1441 (SD .49519) is in the Age group “Above 45 years”.

Table 7.10

Test of Homogeneity of Variances - Age wise comparison of Investment Decision

Dimensions	Levene Statistic	df1	df2	Sig.
Investment Decision	1.237	3	396	.296

Source: Primary data

Table 7.10 shows the significant value of Levene’s Test of Homogeneity of variance of investors based on Age group towards Investment Decision as 0.296, which is greater than .05. Thus, it can be summarised that there is homogeneity and the corresponding test; one-way ANOVA and Tukey’s post hoc (in case of significant difference) are used for further analysis.

Table 7.11

ANOVA test for Investment Decision – Age wise

		Sum of Squares	Df	Mean Square	F	Sig.
Investment Decision	Between Groups	16.491	3	5.497		
	Within Groups	82.830	396	.209	26.281	.000
	Total	99.321	399			

Source: Primary data

It was found that the hypothesis is rejected as the p value is .000, which is less than 0.05. This indicates that there is significant difference among the Age group of investors with respect to their Investment Decision in related to credit rating. Hence, further analysis is needed to explain which Age group of investors make the difference, for that Tukey’s Post Hoc (equal variance assumed) analysis is used to explain the difference.

The Table 7.12 provide the details regarding the different Age group which make the difference.

Table 7.12

Age -wise Post Hoc Test: Investment Decision

Age Group (I)	Age Group (J)	Mean Difference (I-J)	Std. Error	Sig.
Below 25 years	25-35 years	.17558	.09521	.254
	36-45 years	.38582*	.09924	.001
	Above 45 years	.73704*	.10951	.000
25-35 years	Below 25 years	-.17558	.09521	.254
	36-45 years	.21025*	.05314	.001
	Above 45 years	.56146*	.07048	.000
36-45 years	Below 25 years	-.38582*	.09924	.001
	25-35 years	-.21025*	.05314	.001
	Above 45 years	.35122*	.07583	.000
Above 45 years	Below 25 years	-.73704*	.10951	.000
	25-35 years	-.56146*	.07048	.000
	36-45 years	-.35122*	.07583	.000

*. *The mean difference is significant at the 0.05 level.*

Source: primary data

Table 7.12 displays the Tukey’s Post Hoc result for the Investment Decision among different Age group of investors. It was observed that the difference is contributed between all Age groups except the Age group “Below 25 years” and “25-35 years” (.254).

7.5.3 District wise comparison on Investment Decision

Investors belong to different Districts may have different Investment Decision based on credit rating. In this study the researcher selected six Districts such as Thiruvananthapuram, Kollam, Ernakulam, Trissur, Malappuram and Kozhikode. To study whether there have any differences among the Districts and Investment Decision of investors, One-way ANOVA is performed, for which the hypothesis is framed as:

H0₃: There is no significant difference in Investment Decisions among different Districts of investors

Table 7.13

Descriptive statistics for Investment Decision – Districts wise

Dimensions	Districts	N	Mean	Std. Deviation	Std. Error
Investment Decision	Thiruvananthapuram	68	3.5160	.53964	.06544
	Kollam	54	3.5657	.48417	.06589
	Ernakulam	67	3.6459	.42082	.05141
	Trissur	64	3.6562	.46340	.05792
	Malappuram	84	3.4740	.52878	.05770
	Kozhikode	63	3.6652	.51757	.06521
	Total		400	3.5816	.49892

Source: Primary Data

Table 7.13 demonstrates that the mean score is different for investors from different District. Investors from Kozhikode district is having the highest mean score of 3.6652 (SD .51757), followed by Trissur district mean score 3.6562 (SD .46340), Ernakulam district mean score 3.6459 (SD .42082), Kollam district mean score 3.5657(SD .48417), Thiruvananthapuram district mean score 3.5160 (SD .53964) and the lowest score mean score of 3.4740 (SD .52878) is for investors from Malappuram district.

Table 7.14

Test of Homogeneity of variance – Districts wise comparison of Investment Decision

Dimensions	Levene Statistic	df1	df2	Sig.
Investment Decision	1.970	5	394	.082

Source: Primary data

Table 7.14 shows that the significant value of Levene’s Test of Homogeneity of variance of investors towards Investment Decision is .082, which is greater than .05. Thus, it can be summarised that there is homogeneity and the corresponding test; one-way ANOVA and Tukey post hoc (in case of significant difference) are used for further analysis.

Table 7.15

ANOVA -test for Investment Decision – District wise

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2.352	5	.470		
Investment Decision Within Groups	96.969	394	.246	1.911	.091
Total	99.321	399			

Source: Primary Data

It was found from the Table 7.15 that the hypothesis is failed to reject as the p value is more than 0.05 which is .091. It indicates that there is no significant differences between the Districts of investors with regard to their Investment Decision in related to credit rating.

7.5.4 Educational qualification wise comparison on Investment Decision.

Investors with different Educational qualification may have different in their Investment Decision. Descriptive analysis has been used to check the difference in mean scores of investors with different Educational qualification. To test the statistical significance of these difference F test is applied. Homogeneity of variance is checked by Levene’s test. The null hypothesis is as follows:

H04: There is no significant difference between Investment Decision and Educational qualification of investors

Table 7.16

Descriptive statistics for Investment Decision- Educational Qualification-wise

Dimension	Educational Qualification	N	Mean	Std. Deviation	Std. Error
Investment Decision	Graduation	194	3.5811	.54326	.03900
	Post-graduation	132	3.6247	.44895	.03908
	Professional	74	3.5061	.45767	.05320
	Total	400	3.5816	.49892	.02495

Source: Primary data

From the Table 7.16 it is observed that the investors with Educational qualification of ‘Post graduate’ is having the highest mean score of 3.6247 (S.D .44895), followed by ‘Graduation’ having mean score of 3.5811 (S.D .54326) and the lowest mean score of 3.5061 (SD .45767) is among ‘Professional’.

Table 7.17

Test of Homogeneity of variance – Educational Qualification wise comparison of Investment Decision

Dimensions	Levene Statistic	df1	df2	Sig.
Investment Decision	3.089	2	397	.047

Source: Primary data

Table 7.17 shows the significant value of Levene’s Test of Homogeneity of variance of investors towards their Investment Decision is 0.047. Thus, the significant value is lesser than .05, which indicates that there is no homogeneity, there for the corresponding test of Welch test and Tamhane’s post hoc (in case of significant difference) are used for further analysis.

Table 7.18

Robust Tests of Equality of Means of Investment Decision - Educational Qualification wise

		Statistic	df1	df2	Sig.
Investment Decision	Welch	1.607	2	201.826	.203

a. Asymptotically F distributed.

The result of Welch test shows that in case of Investment Decision the null hypothesis has failed to reject as the p value (0.203) is more than 0.05. Hence, it is concluded that there is no significant difference among the Educational qualification of investors with their Investment Decision based on credit rating.

7.5.5 Occupation wise comparison on Investment decision

Here researcher checks whether there is any relationship between Occupation of investors and Investment Decision. Occupation is divided into three categories: Salaried, Professional and Business. ANOVA or welch test is done to test whether there are any significant differences between Investment Decision based on credit rating with Occupation of investors. Descriptive statistics are also presented. The hypothesis is as follows:

H0s: There is no significant difference between Investment Decisions and Occupation of investors

Table 7.19

Descriptive statistics for Investment Decision - Occupation wise

Dimensions	Occupation	N	Mean	Std. Deviation	Std. Error
Investment Decision	Salaried	245	3.6252	.45089	.02881
	Professional	69	3.6719	.57817	.06960
	Business	86	3.3848	.51590	.05563
	Total	400	3.5816	.49892	.02495

Source: Primary Data

Table 7.19 shows the mean score for investors with different type of Occupation and Investment Decision. Professional investors is having the highest mean score of 3.6719 (SD. 57817) followed by Salaried investors with mean score of 3.6252 (.45089) and the lowest score of 3.3848 (SD .51590) is among Business.

Table 7.20

Test of Homogeneity of Variances - Occupation wise comparison of Investment Decision

Dimension	Levene Statistic	df1	df2	Sig.
Investment Decision	7.118	2	397	.002

Source: Primary Data

Table 7.20 illustrate the significant value of Levene's Test of Homogeneity of variance of Investment Decision is .002. The significant value is lesser than .05, which indicates that there is no homogeneity, there for Welch test and Tamhane's post hoc (in case of significant difference) are used for further analysis.

Table 7.21

Robust Tests of Equality of Means of Investment Decision- Occupation wise

		Statistic	df1	df2	Sig.
Investment decision	Welch	8.191	2	136.151	.000

a. Asymptotically F distributed.

The result of Welch test shows that the null hypothesis has rejected as the p value is .000 which is less than 0.05. Hence, it is concluded that there is significant difference among the Occupation of investors with regard to Investment Decision based on credit rating. Hence, in order to explore the exact difference, Tamhane's T2 (if equal variance not assumed) test are used. The result for Tamhane's T2 of the Investment Decision has shown in the Table 7.22

Table 7.22

Occupation -wise Post Hoc Test: Investment Decision

Occupation (I)	Occupation (J)	Mean Difference (I-J)	Std. Error	Sig.
Salaried	Professional	-.04670	.07533	.901
	Business	.24045*	.06265	.001
Professional	Salaried	.04670	.07533	.901
	Business	.28716*	.08910	.005
Business	Salaried	-.24045*	.06265	.001
	Professional	-.28716*	.08910	.005

*. *The mean difference is significant at the 0.05 level.*

Source: primary data

Table 7.22 shows the Tamhane’s Post Hoc result for the Investment Decision among three Occupation group. It is observed from the table, that the difference is contributed by ‘Business’ with ‘Salaried’ (.001) and ‘Business’ with ‘professional’ (005). Thus, it can be concluded that investors engaged in Business have different approach in respect to Investment Decision based on credit rating.

7.5.6 Marital status wise comparison on Investment Decisions

The Married and Single investors may have different level of Awareness, Perceptions regarding credit rating and it may affect their Investment Decision based on credit rating. Descriptive analysis has been done to find out the mean score among Married and Single. To find out the statistical significance of the difference “t” test is also applied. The null hypothesis is as follows:

H0₆: There is no significant difference between Investment Decision between and Marital status of investors

Table 7.23

Descriptive statistics of Investment Decision - Marital Status -wise

Dimensions	Marital status	N	Mean	Std. Deviation	Std. Error Mean
Investment Decision	Married	304	3.5589	.50094	.02873
	Unmarried	96	3.6534	.48810	.04982

Source: Primary Data

From the Table 7.23, it can be observed that for Investment Decision mean score for Married investor is 3.5589 (SD .50094) and Unmarried is 3.6534 (SD .48810) respectively. The Independent sample ‘t’ test is used to check the significance of the difference of the mean score among Married and Unmarried investors.

Table 7.24

Independent Samples Test – Marital status wise analysis of Investment Decision

Dimensions	Levene's Test for Equality of Variances					Remarks
	F	Sig.	T	Df	Sig. (2-tailed)	
Investment Decision	.011	.917	-1.621	398	.106	Equal variances assumed

Source: Primary Data

In Independent sample ‘t’ test, we get two sets of analysis, the first one assuming equal variance and the second one assuming unequal variance. If the p value of the Levene’s test is less than .05, then we can conclude that the variance is heterogeneous. In that case second set of analysis; equal variance not assumed has to be considered. Here, the p value is greater than .05. Thus, the equal variance of homogeneity is ensured and the corresponding p value of the Independent samples test is more than .05, there no significant difference between Married and Unmarried investors with regard to their Investment Decision based on credit rating.

7.5.7 Annual Income wise comparison on Investment decision

Annual Income of investors may play important role in their Investment Decision. Descriptive analysis has been carried to find out the means score of each category of Annual Income of investors. To test the statistical significance of the difference of this, mean score and F test has been done. Before doing the F test, homogeneity of variance has been checked by using Levene’s test. The hypothesis is as follows:

H0₇: There is no significant difference between Investment Decision and Annual Income of investors

Table 7.25

Descriptive statistics Investment Decision – Annual Income wise

Dimensions	Annual income	N	Mean	Std. Deviation	Std. Error
Investment Decision	Below 300000	142	3.6671	.48648	.04082
	300000-500000	170	3.5626	.48540	.03723
	500001-1000000	79	3.4499	.53306	.05997
	Above1000000	9	3.7475	.39568	.13189
Total		400	3.5816	.49892	.02495

Source: Primary Data

From the Table 7.25, it can be ascertained that the Highest mean score 3.7475 (SD .39568) is with Annual Income group “Above 1000000” followed by Annual Income group “Below 300000” with mean score of 3.6671 (SD.48648), “500001-1000000” with mean score of 3.4499 (SD. 53306) and the lowest mean score is 3.4499 (SD .53306) in the Annual Income group “500001-1000000”.

Table 7.26

Test of Homogeneity of Variances - Annual Income wise

Dimensions	Levene Statistic	df1	df2	Sig.
Investment Decision	.955	3	396	.414

Source: Primary Data

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Table 7.26 shows the significant value of Levene's Test of Homogeneity of variance of investors towards their Investment Decision is .414, Which indicate that the significant value is greater than .05. Therefore, it can be summarised that there is homogeneity and the corresponding test; one-way ANOVA and Tukey post hoc (in case of significant difference) are used for further analysis.

Table 7.27

ANOVA- Annual Income wise comparison of Investment Decision

		Sum of Squares	Df	Mean Square	F	Sig.
Investment Decision	Between Groups	2.716	3	.905	3.712	.012
	Within Groups	96.604	396	.244		
	Total	99.321	399			

Source: Primary Data

It was found from the Table 7.27 that, the hypothesis is to reject as the p value less than 0.05 which is .012. It indicates that there is significant difference between the Annual Income of investors with regard to their Investment Decisions. As the study reveals that there is significant difference, further analysis is needed to explain which category of Annual Income group make the difference. Tukey's Post Hoc (equal variance assumed) analysis is used to explain the difference. The result has shown in the Table 7.28

Table 7.28

Annual Income -wise Post Hoc Test: Investment Decision

Annual Income (I)	Annual Income (J)	Mean Difference (I-J)	Std. Error	Sig.
	300000-500000	.10453	.05615	.246
Below 300000	500001-1000000	.21715*	.06932	.010
	Above1000000	-.08038	.16977	.965
300000-500000	Below 300000	-.10453	.05615	.246
	500001-1000000	.11262	.06725	.338
	Above1000000	-.18491	.16894	.693
500001-1000000	Below 300000	-.21715*	.06932	.010
	300000-500000	-.11262	.06725	.338
	Above1000000	-.29753	.17376	.319
Above1000000	Below 300000	.08038	.16977	.965
	300000-500000	.18491	.16894	.693
	500001-1000000	.29753	.17376	.319

*. *The mean difference is significant at the 0.05 level*

Table 7.28 displays the Tukey’s Post Hoc result for the Investment Decision among investors with different Annual Income. It is observed that the difference is contributed by the investors with Annual Income of “Below 300000” and “500001 – 1000000” (.010). Thus, it can be concluded that in case of Annual Income, Investors with Annual Income of “Below 300000” and Annual Income between “500001 – 1000000” have different approach with respect to Investment Decision based on credit rating.

7.5.8 Year of Experience in Stock Market comparison on Investment Decision

Experience in the stock market is different from one investor to another. Some investors may have years of experience, while others have experience of few months only. In this study, respondents of all categories of Year of Experience in stock market are selected. Here researcher test whether there is any significant difference between investors with different Year of Experience in stock market and their Investment Decision. This has been studied by the difference in mean scores of investors with different Years of Experience. To test the statistical significance of these difference F test is applied. Homogeneity of variance is checked by using Levene’s test. The hypothesis is as follows:

H0: *There is no significant difference between Investment Decision and Year of experience of investors in stock market*

Table 7.29

Descriptive statistics for Investment decision – Experience wise

Dimensions	Year of Experience	N	Mean	Std. Deviation	Std. Error
Investment Decision	Upto one year	63	3.0664	.46704	.05884
	1-5 years	88	3.3636	.40351	.04301
	5-10 years	123	3.7110	.36698	.03309
	More than 10 years	126	3.8651	.42058	.03747
	Total	400	3.5816	.49892	.02495

Source: Primary Data

The Table 7.29 provides information on variable Investment Decision across different Years of Experience in stock market. From the table, it can be ascertained that the highest mean score of 3.8651 (SD .42058) is with Year of Experience group “More than 10 years” followed by Year of Experience group “5-10 years” with mean score 3.7110 (SD .36698), “1-5 years” with mean score 3. 3636 (SD .40351) and the lowest mean score of 3.0664 (SD .46704) is in Experience group “Upto one year”.

Table 7.30

Test of Homogeneity of Variances - Experience wise

Dimensions	Levene Statistic	df1	df2	Sig.
Investment Decision	1.632	3	396	.182

Source: Primary Data

Table 7.30 shows the significant value of Levene’s Test of Homogeneity of variance based on investors’ Year of Experience in stock market towards their Investment Decision is 0.182, i.e. significant value are greater than 0.05. Thus, it can be summarised that there is homogeneity and the corresponding test; one-way ANOVA and Tukey post hoc (in case of significant difference) are used for further analysis.

Table 7.31

ANOVA- Experience wise comparison with Investment Decision

		Sum of Squares	Df	Mean Square	F	Sig.
Investment Decision	Between Groups	33.090	3	11.030	65.949	.000
	Within Groups	66.231	396	.167		
	Total	99.321	399			

Source: primary data

The Table 7.31 shows the differences of Investment Decision among different level of investment experienced investors. The result of one way ANOVA shows that the null hypothesis is rejected at 5% level of significance. Since, the p value is .000 which is lesser than 0.05. It indicates that there is significant difference between the Year of Experience of investors in stock market with regard to their Investment Decision based on credit rating. As the study reveals that there is significant difference; further analysis is needed to explain which category of Experience of investors makes the difference. Tukey’s Post Hoc analysis is used to explain the difference.

Table 7.32

Experience -wise Post Hoc Test: Investment Decision

Year of Experience (I)	Year of Experience (J)	Mean Difference (I-J)	Std. Error	Sig.
	1-5 years	-.29726*	.06749	.000
Upto one year	5-10 years	-.64463*	.06336	.000
	More than 10 years	-.79870*	.06310	.000
	Upto one year	.29726*	.06749	.000
1-5 years	5-10 years	-.34738*	.05710	.000
	More than 10 years	-.50144*	.05682	.000
	Upto one year	.64463*	.06336	.000
5-10 years	1-5 years	.34738*	.05710	.000
	More than 10 years	-.15407*	.05184	.017
	Upto one year	.79870*	.06310	.000
More than 5 years	1-5 years	.50144*	.05682	.000
	5-10 years	.15407*	.05184	.017

*. *The mean difference is significant at the 0.05 level.*

Source: primary data

The Table 7.32 shows that there is significant difference in investors Year of Experience in stock market and their Investment Decision. The difference is contributed by all the categories among them.

7.6 Awareness and Perception

Awareness and Perception are closely related but different cognitive processes. They work together to help us make sense of the world around us. The relationship between Awareness and Perception of investors is important in the context of financial markets and Investment Decisions. The information sources that investors depend on can affect their Awareness and Perception. Investors who mainly follow normal financial news may have different Perceptions than those who conduct in-

depth research or seek alternative sources of financial information. In this section researcher make an attempt to find out the relationship between Awareness on credit rating and Perception of investors in related to credit rating.

7.6.1 Correlation between Awareness and Perception

The relationship among various factors of investors' Awareness regarding credit rating and the Perception of investors has been established to make this study more meaningful. Hence, an attempt has been made to find out the relationship among factors of Awareness such as Awareness on Credit Rating Concept and Rating Methodology on Perception of investors (Relevance, Reliability, Timeliness, Understandability, Usefulness and Comparability) related to credit rating. In this regard, Karl Pearson's coefficient of correlation is employed to find out the interrelationship among the factors of investors Awareness towards Perception of investors in related to credit rating.

Following hypotheses are formulated.

H₁: There is a significant relationship between Awareness on Credit Rating Concept and Relevance

H₂: There is a significant relationship between Awareness on Credit Rating Concept and Reliability

H₃: There is a significant relationship between Awareness on Credit Rating Concept and Timeliness

H₄: There is a significant relationship between Awareness on Credit Rating Concept and Understandability

H₅: There is a significant relationship between Awareness on Credit Rating Concept and Usefulness

H₆: There is a significant relationship between Awareness on Credit Rating Concept and Comparability

H₇: There is a significant relationship between Awareness on Rating Methodology and Relevance

H₈: There is a significant relationship between Awareness on Rating Methodology and Reliability

H₉: There is a significant relationship between Awareness on Rating Methodology and Timeliness

H₁₀: There is a significant relationship between Awareness on Rating Methodology and Understandability

H₁₁: There is a significant relationship between Awareness on Rating Methodology and Usefulness

H₁₂: There is a significant relationship between Awareness on Rating Methodology and Comparability

Table 7.33

Awareness and Perception - Correlation

		Rating Concept	Rating Methodology
Relevance	Pearson Correlation	.247**	.365**
	Sig. (2-tailed)	.000	.000
	N	400	400
Reliability	Pearson Correlation	.100*	.243**
	Sig. (2-tailed)	.046	.000
	N	400	400
Timeliness	Pearson Correlation	.116*	.259**
	Sig. (2-tailed)	.021	.000
	N	400	400
Understandability	Pearson Correlation	.374**	.265**
	Sig. (2-tailed)	.000	.000
	N	400	400
Usefulness	Pearson Correlation	.245**	.348**
	Sig. (2-tailed)	.000	.000
	N	400	400
Comparability	Pearson Correlation	.221**	.257**
	Sig. (2-tailed)	.000	.000
	N	400	400

Source: Primary Data

******. Correlation is significant at the 0.01 level (2-tailed), *****. Correlation is significant at the 0.05 level (2-tailed).

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From the Table 7.33, it is found that there is a significant low correlation between Awareness on Credit rating Concept and Relevance ($r = .247, p < .001$). Hence, the H_1 is supported in 1% level of significance. There is a significant low correlation between Awareness on Credit rating Concept and Reliability ($r = .100, p = .046$). Hence, the H_2 is supported in 5% level of significance. There is a significant low correlation between Awareness on Credit rating Concept and Timeliness ($r = .116, p = .021$). Hence, the H_3 is supported in 5% level of significance. There is a significant moderate correlation between Awareness on Credit rating Concept and Understandability of credit rating ($r = .374, p < .001$). Hence, the H_4 is supported in 1% level of significance. There is a significant low correlation between Awareness on Credit rating Concept and Usefulness ($r = .245, p < .001$). Hence, the H_5 is supported in 1% level of significance. There is a significant low correlation between Awareness on Credit rating Concept and Comparability ($r = .221, p < .001$). Hence, the H_6 is supported in 1% level of significance. It can be concluded that the investors' Awareness on Credit rating Concept has low positive correlation with Perception related to Relevance, Reliability, Timeliness, Usefulness and Comparability of credit rating, at the same time investors' Awareness on Credit rating Concept has moderate positive correlation with Perception in related to Understandability of credit rating.

It is found that there is a significant moderate correlation between Awareness on Credit rating Methodology and Relevance of credit rating ($r = .365, p < .001$). Hence, the H_7 is supported in 1% level of significance. There is a significant low correlation between Awareness on Credit rating Methodology and Reliability ($r = .243, p < .001$). Hence, the H_8 is supported in 1% level of significance. There is a significant low correlation between Awareness on Credit rating Methodology and Timeliness ($r = .259, p < .001$). Hence, the H_9 is supported in 1% level of significance. There is a significant low correlation between Awareness on Credit rating Methodology and Understandability ($r = .265, p < .001$). Hence, the H_{10} is supported in 1% level of significance. There is a significant moderate correlation between Awareness on Credit rating Methodology and Usefulness of credit rating ($r = .348, p < .001$). Hence, the H_{11} is supported in 1% level of significance. There is a significant low correlation between Awareness on Credit rating Methodology and Comparability ($r = .257, p < .001$). Hence, the H_{12} is supported in 1% level of

significance. It can be concluded that the investors' Awareness on Rating Methodology has low positive correlation with perception related to Reliability, Timeliness, Understandability and Comparability of credit rating, at the same time investors' Awareness on Rating Methodology has moderate positive correlation with Perception related to Relevance and Usefulness of credit rating.

Table 7.34

Result of Hypotheses Testing- Awareness and Perception - Correlation

	Hypotheses	R	p-value	Result
H ₁	There is a significant relationship between Awareness on Credit Rating Concept and Relevance	.247	.000	Supported
H ₂	There is a significant relationship between Awareness on Credit Rating Concept and Reliability	.100	.046	Supported
H ₃	There is a significant relationship between Awareness on Credit Rating Concept and Timeliness	.116	.021	Supported
H ₄	There is a significant relationship between Awareness on Credit Rating Concept and Understandability	.374	.000	Supported
H ₅	There is a significant relationship between Awareness on Credit Rating Concept and Usefulness	.245	.000	Supported
H ₆	There is a significant relationship between Awareness on Credit Rating Concept and Comparability	.221	.000	Supported
H ₇	There is a significant relationship between Awareness on Rating Methodology and Relevance	.365	.000	Supported
H ₈	There is a significant relationship between Awareness on Rating Methodology and Reliability	.243	.000	Supported
H ₉	There is a significant relationship between Awareness on Rating Methodology and Timeliness	.259	.000	Supported
H ₁₀	There is a significant relationship between Awareness on Rating Methodology and Understandability	.265	.000	Supported
H ₁₁	There is a significant relationship between Awareness on Rating Methodology and Usefulness	.348	.000	Supported
H ₁₂	There is a significant relationship between Awareness on Rating Methodology and Comparability	.257	.000	Supported

Source: Primary Data

In order to prove the exact cause and effect relationship between the variables of Awareness and Perception on credit rating, Multiple Regression Analysis is accompanied. The result is demonstrated in the below table (Table 7.35).

7.6.2 Regression Analysis of Factors of Awareness and Perception

It can be inferred that awareness of a person related to an information is one of the important factor that, how that person perceive on that information. Here the researcher tests the impact of the different factors of Awareness on Perception in related to credit rating. As discussed earlier, the attributes of Awareness is grouped into two factors through factor analysis. The two factors are Credit Rating Concept and Rating Methodology. The researcher tests the impact of these factors on Perception through multiple regression analysis. The dependent variable is Perception and independent variables are factors of Awareness.

Following hypotheses are formulated.

H₁₃: Awareness on Credit Rating Concept has significant positive impact on Perception of investors.

H₁₄: Awareness on Rating Methodology has significant positive impact on Perception of investors.

Table 7.35

Multiple Regression Analysis of Factors of Awareness on Perception

Variables	Coefficients	Std. Error	T	Sig.
(Constant)	2.736	.105	26.120	.000
Credit rating concept	.123	.031	3.690	.000
Rating Methodology	.153	.023	6.547	.000
F- statistic	47.506			
Prob (F-statistic)	.000			
R-squared	.193			
Adjusted R ²	.189			

Source: Primary Data

The dependent variable (Perception) is regressed on Predicting Variables; Awareness on Credit Rating Concept and Rating Methodology. The Independent variables significantly predict the Perception, $F = 47.506$, $P < .001$, which indicates that the two factors under the study have a significant impact on Perception of investors. Moreover, the $R^2 = .193$ shows that the model explains 19.3 per cent of the variance in Perception.

Additionally, coefficients were further assessed to ascertain the influence of each of the factors on Perception. H_{13} evaluates whether the Awareness on Credit Rating Concept has significant positive impact on Perception of the investors. The result reveals that Awareness on Credit Rating Concept has significant positive impact on Perception of the investors ($B = .123$, $t = 3.690$, $p < .001$), Hence H_{13} is supported in 1% level of significance. H_{14} evaluates whether the Awareness on Credit Rating Methodology has significant positive impact on Perception of the investors. The results show that Awareness on Rating Methodology has significant positive impact on Perception of investors ($B = .153$, $t = 6.547$, $p < .001$). Consequently, H_{14} was supported in 1% level of significance. The results are presented in Table 7.36.

Table 7.36

Result of Hypotheses Testing -Multiple Regression of Awareness on Perception

Hypotheses	Regression Weight	B	T	p-value	Result
H_{13}	Credit Rating Concept → Perception	.123	3.690	.000	Supported
H_{14}	Rating Methodology → Perception	.153	6.547	.000	Supported

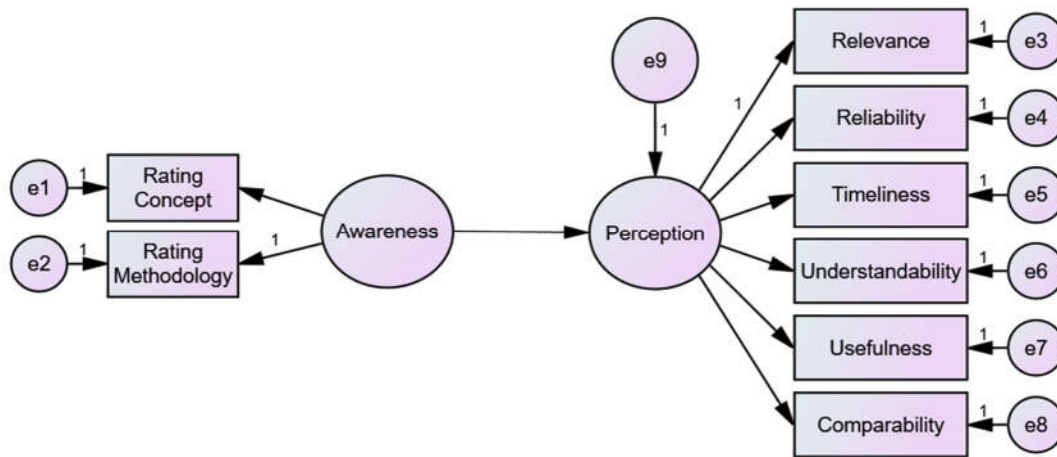
Source : Primary Data

7.6.3 Proposed Model and Structural Model Assessment of relationship between Awareness and Perception of Credit Rating

Figure 7.4 exhibits the proposed model for checking, how the Awareness on Credit Rating is related to Perception on Credit Rating. Here, Awareness is considered as the independent variables and Perception is identified as the dependent variables.

Figure 7.4

Proposed Model for the relationship between Awareness and Perception on Credit Rating



Source : Primary Data

Table 7.37

Model Fit Indices for the Proposed Model of Awareness and Perception

Indices	Value Obtained	Recommended Value of Good Fit
Normed chi-square (CMIN/df)	3.261	≤ 5
Root Mean Square Residuals (RMR)	0.018	≤ 0.05
Comparative Fit Index (CFI)	0.969	≥ 0.90
Goodness of Fit Index (GFI)	0.973	≥ 0.90
Adjusted GFI (AGFI)	0.930	≥ 0.90
Incremental Fit Index (IFI)	0.969	≥ 0.90
Tucker Lewis Index (TLI)	0.937	≥ 0.90
Normed Fit Index (NFI)	0.956	≥ 0.90
Root Mean Square Error of Approximation (RMSEA)	0.075	≤ 0.08

Source: Primary Data

The acceptability of the measurement model is based on the Model Fit Indices of the proposed model. Table 7.37 explains the result of model test, whether it meets the criteria of goodness of fit of the structural model. From the above table it is clear that the Comparative Fit Index for the model is 0.969, which is greater than 0.9 and said to be good fit. The RMSEA (Root Mean Square Error of Approximation) of 0.075 indicate that it is less than 0.08 at the recommended value of good fit. The Tucker Lewis Index for the model is 0.937, which is greater than the guideline for the good fit. And all other Indices like, Root Mean Square Residuals (0.018), Goodness of Fit Index (0.973), Adjusted GFI (0.930), Incremental Fit Index (0.969), Normed Fit Index (0.956) are said to be good fit with the CMIN value of 3.261. Based on the above indices, the proposed model is a good fit to the data and it is accepted to construct the measurement model. On the basis of this explanation, hypothesis testing is done by looking at whether there is significant influence of exogenous variables on endogenous variables.

7.6.4 Relationship between Awareness and Perception on Credit Rating

In order to measure the relationship between Awareness and Perception on Credit Rating, a structured model is developed and tested with the help of Structural Equation Modeling. Here, two latent variables and eight observed variables are taken for the analysis. Awareness is the independent latent variables and Perception is the dependent latent variable.

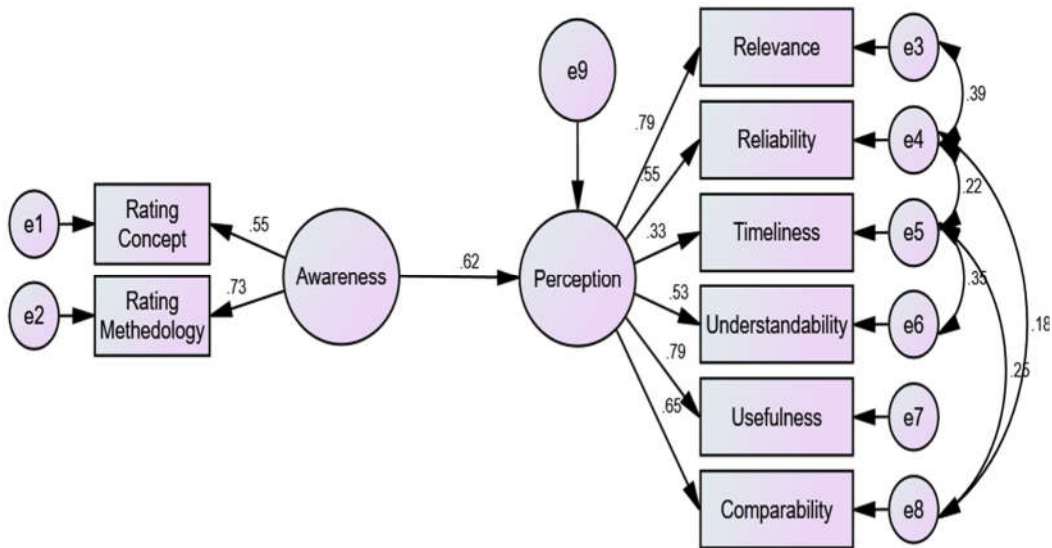
Following hypotheses are formulated and tested for the proposed model (Figure 7.4)

H₀₁₅: Awareness has no significant positive impact on Perception of investors related to credit rating

H₁₅: Awareness has significant positive impact on Perception of investors related to credit rating

Figure 7.5

Measurement Model of Awareness and Perception on Credit Rating



Source : Primary Data

Result of Hypothesis Testing

The SEM is applied to modeling the bivariate relationship between each variable to the latent constructs. Consequently, the examination of direct and indirect relationship among the constructs of the proposed model is measured with the help of Path Co-efficient at 1% level of significance. Table 7.38 shows the hypothesis testing results and observations of each hypothesized significance path of the model. It explains the fitness of hypothesized structural model with the data obtained from the respondents. The Table 7.38 illustrates the relationship between the Awareness and Perception of investors related to credit rating.

Table 7.38

Result of Hypothesis Testing: Awareness and Perception model

Hypothesis	Path	Path Co- efficient	P (sig.) value	Result (Supported/ Not Supported)
Awareness has significant positive impact on Perception of investors related to credit rating	Awareness → Perception	0.619	<0.01	Supported

Source : Primary Data

The main objective of the present analysis is to investigate the relationship between Awareness of investors regarding credit rating and Perception of investors regarding credit rating. The hypothesized structural model is used to identify the cause-and-effect relationship among Awareness and Perception. Table 7.38 shows the hypotheses testing results and observations of hypothesized significance path. The result provides the directional linkage of Awareness and Perception related to credit rating among investors is measured with the help of significant positive beta coefficient of 0.619. It explains that 1-point increase in the level of Awareness among investors will predict 61 percent positive change in investors Perception. The ‘p’ value of less than 0.01 validates the proposed hypothesis that Awareness has significant positive impact on perception of investors related to Credit Rating.

7.7 Awareness and Investment Decision

Awareness in the context of investments refers to an individual's knowledge and understanding of financial markets, investment products, financial information etc. Being aware of the various investment options, investment information, risk factors, and market trends empowers investors to make more informed decision. Informed investors are more likely to diversify their portfolios, consider costs, and maintain a long-term perspective which can lead to better investment outcomes. So, Awareness is closely tied to making sensible Investment Decisions. The relationship between Awareness and Investment Decisions is vital in the world of finance.

7.7.1 Correlation between Awareness and Investment Decision

The relationship among various factors of investors' Awareness regarding credit rating towards Investment Decision has been established to make this study more meaningful. Hence, an attempt has been made to find out the relationship among factors such as, Rating Announcement, Investment Expectation and the total of two factors i.e.; Investment Decision on Awareness related to credit rating. In this regard, Karl Pearson's Coefficient of Correlation is employed to find out the interrelationship among the factors of investors' Awareness towards Investment Decision in related to credit rating.

Following hypotheses are formulated.

H₁: There is a significant relationship between Awareness on Credit Rating Concept and Rating Announcement.

H₂: There is a significant relationship between Awareness on Credit Rating Concept and Investment Expectation

H₃: There is a significant relationship between Awareness on Credit Rating Concept and Investment Decision

H₄: There is a significant relationship between Awareness on Rating Methodology and Rating Announcement

H₅: There is a significant relationship between Awareness on Rating Methodology and Investment Expectation

H₆: There is a significant relationship between Awareness on Rating Methodology and Investment Decision

Table 7.39

Awareness and Investment Decision - Correlation

		Credit rating concept	Rating Methodology
Rating Announcement	Pearson Correlation	.166**	.312**
	Sig. (2-tailed)	.001	.000
	N	400	400
Investment Expectation	Pearson Correlation	.109*	.364**
	Sig. (2-tailed)	.030	.000
	N	400	400
Investment Decision	Pearson Correlation	.153**	.400**
	Sig. (2-tailed)	.002	.000
	N	400	400

Source: Primary Data

***.* Correlation is significant at the 0.01 level (2-tailed)

*.** Correlation is significant at the 0.05 level (2-tailed).

From the Table 7.39, it is found that there is a significant low positive correlation between Awareness on Credit rating Concept and Rating Announcement ($r = .166$, $p = .001$). Hence, the H_1 is supported in 1% level of significance. Similarly, there is a significant low positive correlation between Awareness on Credit rating Concept and Investment Expectation ($r = .109$, $p = .030$). Hence, the H_2 is supported in 5% level of significance. Likewise, there is a significant low positive correlation between Awareness on Credit rating Concept and Investment Decision ($r = .153$, $p = .002$). Henceforth, the H_3 is supported in 1% level of significance. It can be concluded that the investors' Awareness on Rating Concept has only low positive correlation with Rating Announcement, Investment Expectation as well as Investment Decision.

At the same time, It is found that there is a significant moderate positive correlation between Awareness on Credit rating Methodology and Rating Announcement ($r = .312$, $p < .001$). Therefore, the H_4 is supported in 1% level of significance. Also, there is a significant moderate positive correlation between Awareness on Credit rating Methodology and Investment Expectation ($r = .364$, $p < .001$). Accordingly,

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the H₅ is supported in 1% level of significance. Correspondingly, there is a significant moderate positive correlation between Awareness on Credit rating Methodology and Investment Decision ($r = .400, p < .001$). Hereafter, the H₆ is supported in 1% level of significance. More precisely, the result reveals that the investors' Awareness about Rating Methodology has moderate positive relationship with Rating Announcement, Investment Expectation and Investment Decision.

Table 7.40

Result of Hypotheses Testing: Awareness and Investment Decision – Correlation

	Hypotheses	R	p-value	Result
H ₁	There is a significant relationship between Awareness on Credit Rating Concept and Rating Announcement.	.166	.001	Supported
H ₂	There is a significant relationship between Awareness on Credit Rating Concept and Investment Expectation	.109	.030	Supported
H ₃	There is a significant relationship between Awareness on Credit Rating Concept and Investment Decision	.153	.002	Supported
H ₄	There is a significant relationship between Awareness on Rating Methodology and Rating Announcement	.312	.000	Supported
H ₅	There is a significant relationship between Awareness on Rating Methodology and Investment Expectation	.364	.000	Supported
H ₆	There is a significant relationship between Awareness on Rating Methodology and Investment Decision	.400	.000	Supported

Source: Primary Data

In order to prove the exact cause and effect relationship between the variables of Awareness and Investment Decision, Multiple Regression Analysis is conducted. The result is exhibited in the below table (Table 7.41).

7.7.2 Regression Analysis of Factors of Awareness and Investment Decision

Correlation means how closely two variables are correlated, but they tell us nothing about predictive power of variables. Regression analysis is used to measure the strength of relationship and it says how much one variable is explained by the other variable (Sanuja & Joseph, 2022).

Here the researcher tests the impact of the different factors of Awareness on Investment Decision. As discussed earlier, the attributes of Awareness is grouped into two factors through factor analysis. The two factors are Credit Rating Concept and Rating Methodology'. The researcher tests the impact of these factors on Investment Decision through multiple regression analysis. Here, the factors of Awareness are considered as the independent variable and Investment Decision is identified as the dependent variable.

Following hypotheses are formulated and tested.

H₇: Awareness on Credit Rating Concept has significant positive impact on Investment Decision of investors.

H₈: Awareness on Rating Methodology has significant positive impact on Investment Decision of investors.

Table 7.41

Multiple Regression Analysis of Factors of Awareness on Investment Decision

Variables	Coefficients	Std. Error	T	Sig.
(Constant)	2.929	.130	22.476	.000
Credit Rating Concept	-.008	.039	-.207	.836
Rating Methodology	.233	.029	8.045	.000
F- statistic	37.898			
Prob (F-statistic)	.000			
R-squared	.160			
Adjusted R ²	.156			

Source: Primary Data

The dependent variable (Investment Decision) is regressed on Predicting Variables; Credit Rating Concept and Rating Methodology. The Independent variables significantly predict the Investment decision, $F = 37.898$, $P < .001$, which indicates the two factors under the study have a significant impact on Investment Decision of investors. Moreover, the $R^2 = .160$ depicts that the model explains 16 per cent of the variance in Investment Decision.

Additionally, coefficients were further assessed to ascertain the influence of each of the factors on Investment Decision. H_7 evaluates whether the Awareness on Credit Rating Concept has significant positive impact on Investment Decision of the investors. The result reveals that Awareness on Credit Rating Concept has no significant positive impact on Investment Decision ($B = -.008$, $t = -.207$, $p = .836$). Hence, H_7 is rejected. H_8 evaluates whether the Awareness on Credit Rating Methodology has significant positive impact on Investment Decision of investors. The results show that Awareness on Rating Methodology has a significant and positive impact on Investment Decision ($B = .233$, $t = 8.045$, $p < .001$). Hence, the H_8 is supported in 1% level of significance. The results are presented in Table 7.42

Table 7.42

Result of Hypotheses Testing: Multiple Regression of Awareness on Investment Decision

Hypotheses	Regression Weight	B	T	p-value	Result
H_7	Credit Rating Concept → Investment Decision	-.008	-.207	.836	Rejected
H_8	Rating Methodology → Investment Decision	.233	8.045	.000	Supported

Source : Primary Data

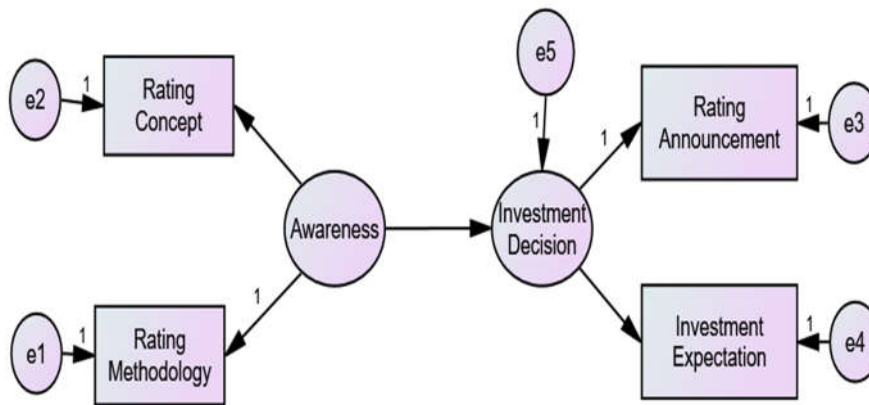
7.7.3 Proposed Model and Structural Model Assessment of relationship between Awareness and Investment Decision

Figure 7.6 displays the proposed model used for checking the relationship between Awareness of investors in relation to Credit Rating and Investment Decision. Here,

importance of Awareness of investors in related to credit rating is proposed as the important predecessor of Investment Decision. Hence, there is need to confirm the cause-and-effect relationship between them.

Figure 7.6

Proposed Model for the relationship between Awareness on Credit Rating and Investment Decision



Source : Primary Data

Table 7.43

Model Fit Indices for the Proposed Model of Awareness and Investment Decision

Indices	Value Obtained	Recommended Value of Good Fit
Normed chi-square (CMIN/df)	2.617	≤ 5
Root Mean Square Residuals (RMR)	0.006	≤ 0.05
Comparative Fit Index (CFI)	0.993	≥ 0.90
Goodness of Fit Index (GFI)	0.997	≥ 0.90
Adjusted GFI (AGFI)	0.967	≥ 0.90
Incremental Fit Index (IFI)	0.993	≥ 0.90
Tucker Lewis Index (TLI)	0.957	≥ 0.90
Normed Fit Index (NFI)	0.989	≥ 0.90
Root Mean Square Error of Approximation (RMSEA)	0.064	≤ 0.08

Source: Primary Data

The validity of the measurement model is based on the Model Fit Indices (structural model assessment) of the proposed model. Here, the values of model fit indices like Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Adjusted GFI (AGFI), Incremental Fit Index (IFI), Tucker Lewis Index (TLI), Normed Fit Index (NFI) , Root Mean Square Error of Approximation (RMSEA) and Normed chi-square (CMIN/df) have suggested that the model developed is valid and good fit.

7.7.4 Relationship between Awareness on Credit Rating and Investment Decision

In order to measure the relationship between Awareness and Perception on Credit Rating, a structured model is developed and tested with the help of Structural Equation Modeling. Here, two latent variables and four observed variables are taken for the analysis. Awareness is the independent latent variables and Investment Decision is the dependent latent variable.

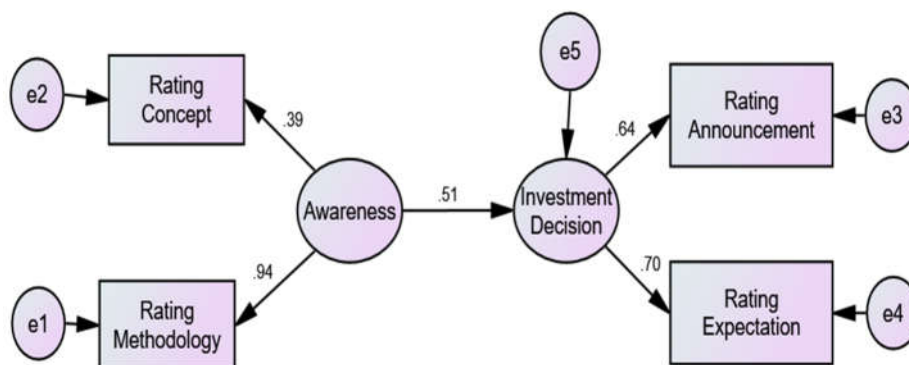
Following hypotheses are formulated and tested for the proposed model (Figure 7.6)

H₀: *Awareness has no significant positive impact on Investment Decision related to credit rating*

H₁: *Awareness has significant positive impact on Investment Decision related to credit rating*

Figure 7.7

Measurement Model of Awareness on credit rating and Investment Decision



Source : Primary Data

Result of Hypothesis Testing

The SEM is applied to modeling the bivariate relationship between variables. Accordingly, the examination of positive and negative relationship among the constructs of the proposed model is measured with the help of Path Co-efficient at 1% level of significance. Table 7.44 displays the hypothesis testing result and observation of hypothesized significance path of the model. It explains the fitness of hypothesized structural model with the data obtained from the respondents. The Table 7.44 shows the relationship between Awareness of investors in related to credit rating and their Investment Decision.

Table 7.44

Result of Hypothesis Testing: Awareness and Investment Decision model

Hypothesis	Path	Path Co-efficient	P (sig.) value	Result (Supported/ Not Supported)
Awareness has significant positive impact on Investment Decision related to credit rating	Awareness → Investment Decision	0.512	.000	Supported

Source : Primary Data

Table 7.44 describes the hypothesis testing results of the measurement model (Figure 7.7) to explain the relationship status of Awareness of investors on credit rating and Investment Decision based on credit rating. The beta coefficient standardized direct effect of Awareness on Investment decision is 0.512. It means, every one-point increase in the Awareness of investors predicts 0.51 per cent positive change in Investment Decision.

7.8 Perception and Investment Decision

Perception, in the context of investment, refers to the way individuals or investors perceive and interpret information and events related to financial markets, assets, and economic conditions. Investors' perceptions and interpretation of information

play a critical role in determining their investment choices. For example, how individuals perceive the risk associated with an investment, directly impacts the amount of capital they are willing to allocate. Likewise, how investors interpret financial news, data can impact their investment choices. Different investors may perceive the same information differently, leading to varied investment decisions. The relationship between Perception and Investment Decisions is vital to the world of finance.

7.8.1 Correlation between Perception and Investment Decision

The relationship among various factors of Perception of the investors regarding credit rating towards their Investment Decision is analysed to make this study more meaningful. Hence, an attempt has been made to find out the relationship among factors such as, Rating Announcement, Investment Expectation and the total of two factors i.e.; Investment Decision on Perception of investors related to credit rating. In this regard, Karl Pearson's Coefficient of Correlation is employed to find out the interrelationship among the factors of investors' Perception on credit rating towards Investment Decision.

Following hypotheses are formulated and tested.

H₁: There is a significant relationship between Perception on Relevance of credit rating and Rating Announcement.

H₂: There is a significant relationship between Perception on Relevance of credit rating and Investment Expectation

H₃: There is a significant relationship between Perception on Relevance of credit rating and Investment Decision

H₄: There is a significant relationship between Perception on Reliability of credit rating and Rating Announcement.

H₅: There is a significant relationship between Perception on Reliability of credit rating and Investment Expectation

H₆: There is a significant relationship between Perception on Reliability of credit rating and Investment Decision

H₇: There is a significant relationship between Perception on Timeliness of credit rating and Rating Announcement.

H₈: There is a significant relationship between Perception on Timeliness of credit rating and Investment Expectation

H₉: There is a significant relationship between Perception on Timeliness of credit rating and Investment Decision

H₁₀: There is a significant relationship between Perception on Understandability of credit rating and Rating Announcement.

H₁₁: There is a significant relationship between Perception on Understandability of credit rating and Investment Expectation

H₁₂: There is a significant relationship between Perception on Understandability of credit rating and Investment Decision

H₁₃: There is a significant relationship between Perception on Usefulness of credit rating and Rating Announcement.

H₁₄: There is a significant relationship between Perception on Usefulness of credit rating and Investment Expectation

H₁₅: There is a significant relationship between Perception on Usefulness of credit rating and Investment Decision

H₁₆: There is a significant relationship between Perception on Comparability of credit rating and Rating Announcement.

H₁₇: There is a significant relationship between Perception on Comparability of credit rating and Investment Expectation

H₁₈: There is a significant relationship between Perception on Comparability of credit rating and Investment Decision

Table 7.45

Perception and Investment decision Correlation

		Relevance	Reliability	Timeliness	Understandability	Usefulness	Comparability
Rating Announcement	Pearson Correlation	.431**	.394**	.522**	.485**	.502**	.571**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	400	400	400	400	400	400
Investment Expectation	Pearson Correlation	.653**	.561**	.204**	.297**	.640**	.475**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	400	400	400	400	400	400
Investment Decision	Pearson Correlation	.659**	.578**	.384**	.433**	.683**	.597**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	400	400	400	400	400	400

Source: Primary Data

***.* Correlation is significant at the 0.01 level (2-tailed).

From the Table 7.45, it is found that there is a significant moderate positive correlation between Perception on Relevance of credit rating and Credit Rating Announcement ($r = .431$, $p < .001$). So, the H_1 is supported according to the test statistic in 1% level of significance. Correspondingly, there is a significant moderate positive correlation between Perception on Relevance of credit rating and Investment Expectation ($r = .653$, $p < .001$). Hence, the H_2 is supported according to the test statistic in 1% level of significance. Likewise, there is a significant moderate

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positive correlation between Perception on Relevance of credit rating and Investment Decision ($r = .659, p < .001$). Henceforth, the H_3 is supported according to the test statistic in 1% level of significance. It can be concluded that the investors' Perception on Relevance of credit rating has moderate positive correlation with Rating Announcement, Investment Expectation as well as Investment Decision.

It is found that there is a significant moderate positive correlation between Perception on Reliability of credit rating and Credit Rating Announcement ($r = .394, p < .001$). Hence, the H_4 is supported in 1% level of significance. Furthermore, there is a significant moderate positive correlation between Perception on Reliability of credit rating and Investment Expectation ($r = .561, p < .001$). Hence, the H_5 is supported in 1% level of significance. Additionally, there is a significant moderate positive correlation between Perception on Reliability of credit rating and Investment Decision ($r = .578, p < .001$). Thus, the H_6 is supported in 1% level of significance. More precisely, the result reveals that the investors' Perception on Reliability of credit rating has moderate positive correlation with Rating Announcement, Investment Expectation as well as Investment Decision.

It is found that there is a significant moderate positive correlation between Perception on Timeliness of credit rating and Credit Rating Announcement ($r = .522, p < .001$). Thus, the H_7 is supported in 1% level of significance. In addition, there is a significant low positive correlation between Perception on Timeliness of credit rating and Investment Expectation ($r = .204, p < .001$). So, the H_8 is supported in 1% level of significance. Similarly, there is a significant moderate positive correlation between Perception on Timeliness of credit rating and Investment Decision ($r = .384, p < .001$). Hence, the H_9 is supported in 1% level of significance. It can be concluded that the investors' Perception on Timeliness of credit rating has moderate positive correlation with Rating Announcement and Investment Decision and low positive correlation with Investment Expectation.

It is found that there is a significant moderate positive correlation between Perception on Understandability of credit rating and Credit Rating Announcement ($r = .485, p < .001$). Hence, the H_{10} is supported with the test results in 1% level of

significance. There is a significant low positive correlation between Perception on Understandability of credit rating and Investment Expectation ($r = .297, p < .001$). So, the H_{11} is supported in 1% level of significance. Likewise, there is a significant moderate positive correlation between Perception on Understandability of credit rating and Investment Decision ($r = .433, p < .001$). Hence, the H_{12} is supported in 1% level of significance. More specifically, the result reveals that the investors' Perception about of Understandability of credit rating has moderate positive correlation with Rating Announcement and Investment Decision, and low positive correlation with Investment Expectation.

It is found that there is a significant moderate positive correlation between Perception on Usefulness of credit rating and Credit Rating Announcement ($r = .502, p < .001$). Hence, the H_{13} is supported in 1% level of significance. Furthermore, there is a significant moderate positive correlation between Perception on Usefulness of credit rating and Investment Expectation ($r = .640, p < .001$). Therefore, the H_{14} is supported in 1% level of significance. Further, there is a significant moderate positive correlation between Perception on Usefulness of credit rating and Investment Decision ($r = .683, p < .001$). Hence, the H_{15} is supported in 1% level of significance. More specifically, the result reveals that the investors' Perception about Usefulness of credit rating has moderate positive correlation with Rating Announcement, Investment Expectation as well as Investment Decision.

It is found that there is a significant moderate positive correlation between Perception on Comparability of credit rating and Credit Rating Announcement ($r = .571, p < .001$). Thus, the H_{16} is supported in 1% level of significance. Additionally, there is a significant moderate positive correlation between Perception on Comparability of credit rating and Investment Expectation ($r = .475, p < .001$). Hence, the H_{17} is supported in 1% level of significance. Further, There is a significant moderate positive correlation between Perception on Comparability of credit rating and Investment Decision ($r = .597, p < .001$). Hence, the H_{18} is supported in 1% level of significance. It can be concluded that, the investors' Perception related to Comparability of credit rating has moderate positive

correlation with Rating Announcement, Investment Expectation as well as Investment Decision.

Table 7.46

Result of Hypotheses Testing: Perception and Investment decision Correlation

	Hypotheses	R	p-value	Result
H ₁	There is a significant relationship between Perception on Relevance of credit rating and Rating Announcement.	.431	.000	Supported
H ₂	There is a significant relationship between Perception on Relevance of credit rating and Investment Expectation	.653	.000	Supported
H ₃	There is a significant relationship between Perception on Relevance of credit rating and Investment Decision	.659	.000	Supported
H ₄	There is a significant relationship between Perception on Reliability of credit rating and Rating Announcement.	.394	.000	Supported
H ₅	There is a significant relationship between Perception on Reliability of credit rating and Investment Expectation	.561	.000	Supported
H ₆	There is a significant relationship between Perception on Reliability of credit rating and Investment Decision	.578	.000	Supported
H ₇	There is a significant relationship between Perception on Timeliness of credit rating and Rating Announcement.	.522	.000	Supported
H ₈	There is a significant relationship between Perception on Timeliness of credit rating and Investment Expectation	.204	.000	Supported
H ₉	There is a significant relationship between Perception on Timeliness of credit rating and Investment Decision	.384	.000	Supported
H ₁₀	There is a significant relationship between Perception on Understandability of credit rating and Rating Announcement.	.485	.000	Supported
H ₁₁	There is a significant relationship between Perception on Understandability of credit rating and Investment Expectation	.297	.000	Supported
H ₁₂	There is a significant relationship between Perception on Understandability of credit rating and Investment Decision	.433	.000	Supported

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H ₁₃	There is a significant relationship between Perception on Usefulness of credit rating and Rating Announcement.	.502	.000	Supported
H ₁₄	There is a significant relationship between Perception on Usefulness of credit rating and Investment Expectation	.640	.000	Supported
H ₁₅	There is a significant relationship between Perception on Usefulness of credit rating and Investment Decision	.683	.000	Supported
H ₁₆	There is a significant relationship between Perception on Comparability of credit rating and Rating Announcement.	.571	.000	Supported
H ₁₇	There is a significant relationship between Perception on Comparability of credit rating and Investment Expectation	.475	.000	Supported
H ₁₈	There is a significant relationship between Perception on Comparability of credit rating and Investment Decision	.597	.000	Supported

Source: Primary Data

In order to prove the exact cause and effect relationship between the variables of Perception and Investment Decision, Multiple Regression Analysis is conducted. The result is displayed in Table 7.47.

7.8.2 Regression Analysis of Factors of Perception and Investment decision

It can be inferred that Perception of a person is one of the important factor to have a better Investment Decision. Here the researcher tests the impact of the different factors of Perception in related to credit rating on Investment Decision of investors. As discussed earlier, the attributes of Perception is grouped into six factors through factor analysis such as Relevance, Reliability, Timeliness, Understandability, Usefulness and Comparability. The researcher tests the impact of these factors on Investment Decision through Multiple Regression Analysis. The dependent variable is Investment Decision and independent variables are factors of Perception.

Following hypotheses are formulated.

H₁₉: The Perception on Relevance of Credit Rating has significant positive impact on Investment Decision of investors.

H₂₀: The Perception on Reliability of Credit Rating has significant positive impact on Investment Decision of investors.

H₂₁: The Perception on Timeliness of Credit Rating has significant positive impact on Investment Decision of investors.

H₂₂: The Perception on Understandability of Credit Rating has significant positive impact on Investment Decision of investors.

H₂₃: The Perception on Usefulness of Credit Rating has significant positive impact on Investment Decision of investors.

H₂₄: The Perception on Comparability of Credit Rating has significant positive impact on Investment Decision of investors.

Table 7.47

Multiple Regression Analysis for Factors of Perception on Investment Decision

Variables	Coefficients	Std. Error	T	Sig.
(Constant)	.265	.143	1.852	.065
Relevance	.165	.038	4.314	.000
Reliability	.150	.040	3.783	.000
Timeliness	.098	.036	2.721	.007
Understandability	.043	.032	1.348	.179
Usefulness	.281	.034	8.186	.000
Comparability	.171	.038	4.546	.000
F- statistic	111.544			
Prob (F-statistic)	.000			
R-squared	.630			
Adjusted R ²	.624			

Source: Primary Data

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The dependent variable (Investment Decision) is regressed on Predicting Variables of Perception such as Relevance, Reliability, Timeliness, Understandability, Usefulness and Comparability. The Independent variables significantly predict the Investment Decision, $F = 111.544$, $P < .001$, which indicates the six factors under the study have a significant impact on Investment Decision. Moreover, the $R^2 = .630$ depicts that the model explains 63 per cent of the variance in Investment Decision.

Additionally, coefficients were further assessed to ascertain the influence of each of the factors on Investment Decision. H_{19} evaluates whether the Relevance of credit rating has significant positive impact on Investment Decision of the investors. The result reveals that Relevance of credit rating has significant positive impact on Investment Decision of the investors ($B = .165$, $t = 4.314$, $p < .001$). Hence, H_{19} is supported in 1% level of significance. H_{20} evaluates whether the Reliability of credit rating has significant positive impact on Investment Decision of the investors. The result reveals that Reliability of credit rating has significant positive impact on Investment Decision of the investors ($B = .150$, $t = 3.783$, $p < .001$). Consequently, H_{20} is supported in 1% level of significance. H_{21} evaluates whether the Timeliness of credit rating has significant positive impact on Investment Decision of the investors. The result reveals that Timeliness of credit rating has significant positive impact on Investment Decision of the investors ($B = .098$, $t = 2.721$, $p = .007$). Hence, H_{21} is supported in 1% level of significance. H_{22} evaluates whether the Understandability of credit rating has significant positive impact on Investment Decision of the investors. The result reveals that Understandability of credit rating has no significant but positive impact on Investment Decision of the investors ($B = .043$, $t = 1.348$, $p = .179$). Consequently, H_{22} was rejected. H_{23} evaluates whether the Usefulness of credit rating has significant positive impact on Investment Decision of the investors. The result reveals that Usefulness of credit rating has significant positive impact on Investment Decision of the investors ($B = .281$, $t = 8.186$, $p < .001$). Hence, H_{23} was supported in 1% level of significance. H_{24} evaluates whether the Comparability of credit rating has significant positive impact on Investment Decision of the investors. The result reveals that Comparability of credit rating has significant positive impact on Investment Decision of the investors ($B = .171$, $t = 4.546$, $p < .001$). Consequently,

H₂₄ was supported in 1% level of significance. The results are presented in Table 7.48.

Table 7.48

Result of Hypotheses Testing: Multiple Regression Perception on Investment Decision

Hypotheses	Regression Weight	B	T	p-value	Result
H ₁₉	Relevance → Investment Decision	.165	4.314	.000	Supported
H ₂₀	Reliability → Investment Decision	.150	3.783	.000	Supported
H ₂₁	Timeliness → Investment Decision	.098	2.721	.007	Supported
H ₂₂	Understandability → Investment Decision	.043	1.348	.179	Rejected
H ₂₃	Usefulness → Investment Decision	.281	8.186	.000	Supported
H ₂₄	Comparability → Investment Decision	.171	4.546	.000	Supported

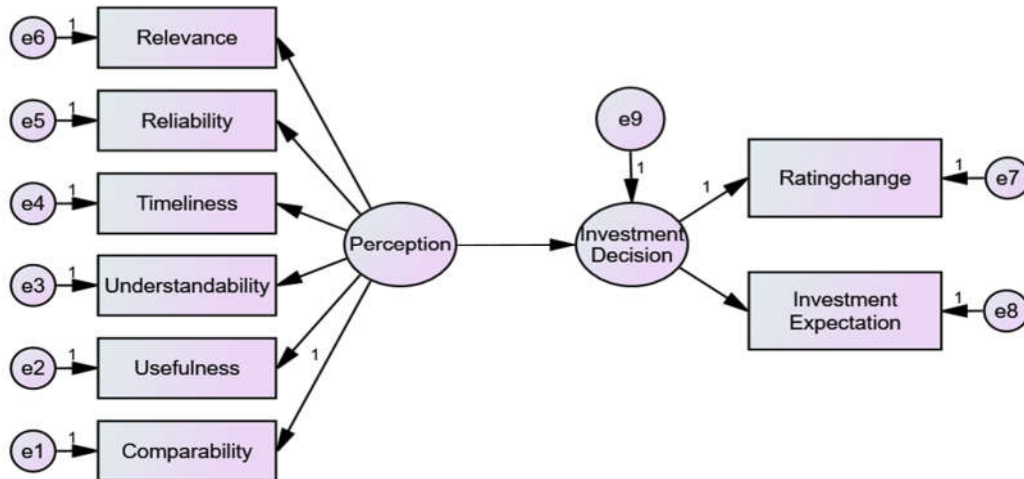
Source: Primary Data

7.8.3 Proposed Model and Structural Model Assessment of relationship between Perception and Investment Decision

Figure 7.8 shows the proposed model for checking the relationship between Perception on Credit Rating and Investment Decision. Here, Perception of investos related to Credit Rating is proposed as the important predecessor of Investment Decision. Hence, there is need to confirm the cause-and-effect relationship between them.

Figure 7.8

Proposed Model for the relationship between Perception on Credit Rating and Investment Decision



Source : Primary Data

Table 7.49

Model Fit Indices for the Proposed Model of Perception and Investment Decision

Indices	Value Obtained	Recommended Value of Good Fit
Normed chi-square (CMIN/df)	2.913	≤5
Root Mean Square Residuals (RMR)	0.010	≤0.05
Comparative Fit Index (CFI)	0.963	≥0.90
Goodness of Fit Index (GFI)	0.969	≥0.90
Adjusted GFI (AGFI)	0.938	≥0.90
Incremental Fit Index (IFI)	0.964	≥0.90
Tucker Lewis Index (TLI)	0.943	≥0.90
Normed Fit Index (NFI)	0.946	≥0.90
Root Mean Square Error of Approximation (RMSEA)	0.069	≤0.08

Source : Primary Data

The Model Fit Indices (structural model assessment) like, Goodness of Fit Index (GFI), Tucker Lewis Index (TLI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), Adjusted GFI (AGFI), Incremental Fit Index (IFI), Normed Fit Index (NFI), Root Mean Square Residuals (RMR) and Normed chi-square (CMIN/df) are selected to measure the goodness of fit for the proposed model. In order to obtain an acceptable fit, the values should be within the recommended value of good fit. Here, all the values are within the limit and it suggested that the model developed is valid and good fit to measure the interrelationship.

7.8.4 Relationship between Perception on Credit Rating and Investment Decision

In order to measure how the investors Perception on Credit Rating affect the Investment Decision of investors, a structured model is developed and tested with the help of Structural Equation Modeling. Here, two latent variables and eight observed variables are taken for the analysis. Perception is the independent latent variables and Investment Decision is the dependent latent variable.

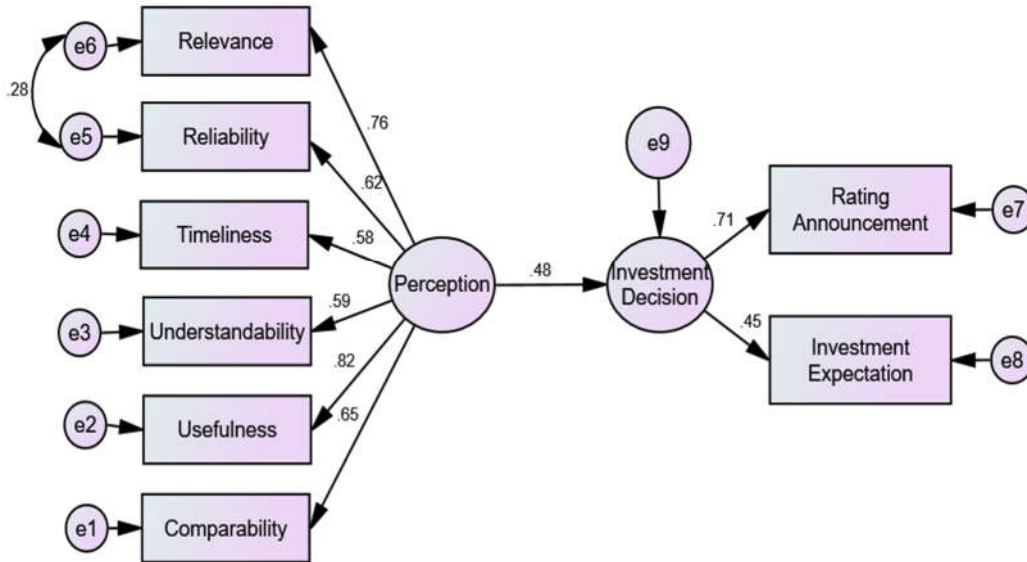
Following hypotheses are formulated and tested for the proposed model (Figure 7.8)

H₀₂₅: Investors' Perception on credit rating has no significant positive impact on Investment Decision

H₂₅: Investors' Perception on credit rating has significant positive impact on Investment Decision

Figure 7.9

Measurement Model of Perception on Credit Rating and Investment Decision



Source : Primary Data

Result of Hypothesis Testing

This section of analysis depicts the directional linkage between investors Perception on credit rating and Investment Decision based on credit rating. It explains the results with the help of path analysis and beta co-efficient at 1% level of significance. Table 7.50 shows the hypothesis testing results of the proposed model used for the measurement.

Table 7.50

Result of Hypothesis Testing: Perception and Investment Decision model

Hypothesis	Path	Path Co-efficient	P (sig.) value	Result (Supported/ Not Supported)
Investors' Perception on credit rating has significant positive impact on Investment Decision	Perception → Investment decision	0.485	<0.01	Supported

Source : Primary Data

From the table 7.50 it is clear that investors Perception on credit rating have significant positive impact on Investment decision of investors in related to credit rating with regression co-efficient of 0.485. It explains that 1-point increase in the Perception of investors will predict 48 per cent positive change in Investment Decision of investors. Since, the 'p' value is less than 0.01, the null hypothesis is rejected and the relationship between the variables has established.

7.9 Analysis of the Impact of Awareness and Perception on Investment Decision using Structural Equation Modeling (SEM)

This section of analysis shows the combined effect between investors Awareness and Perception on Investment Decision in related to credit rating. Structural Equation Modeling (SEM) denotes the causal processes under a study by a series of regression equations and these causal relations are exhibited pictorially using a path diagram to enable a clear conceptualization of theory under study (Byrne & M., 2010). SEM represents relationships among the observed and unobserved variables using path diagrams. Ovals represent the latent variables, whereas the rectangle or squares represent measured variables (Ray, 2022). Residuals (errors) are always unobserved and represented by circles (Hair et al., 2019). Structural Equation Modeling proceeds a hypothesis-testing approach to confirm the causal relationship between the variables (Fan et al., 2016). In order to examine the impact of Awareness and Perception on Investment Decision in related to credit rating the following structural model (Figure 7.10) is proposed.

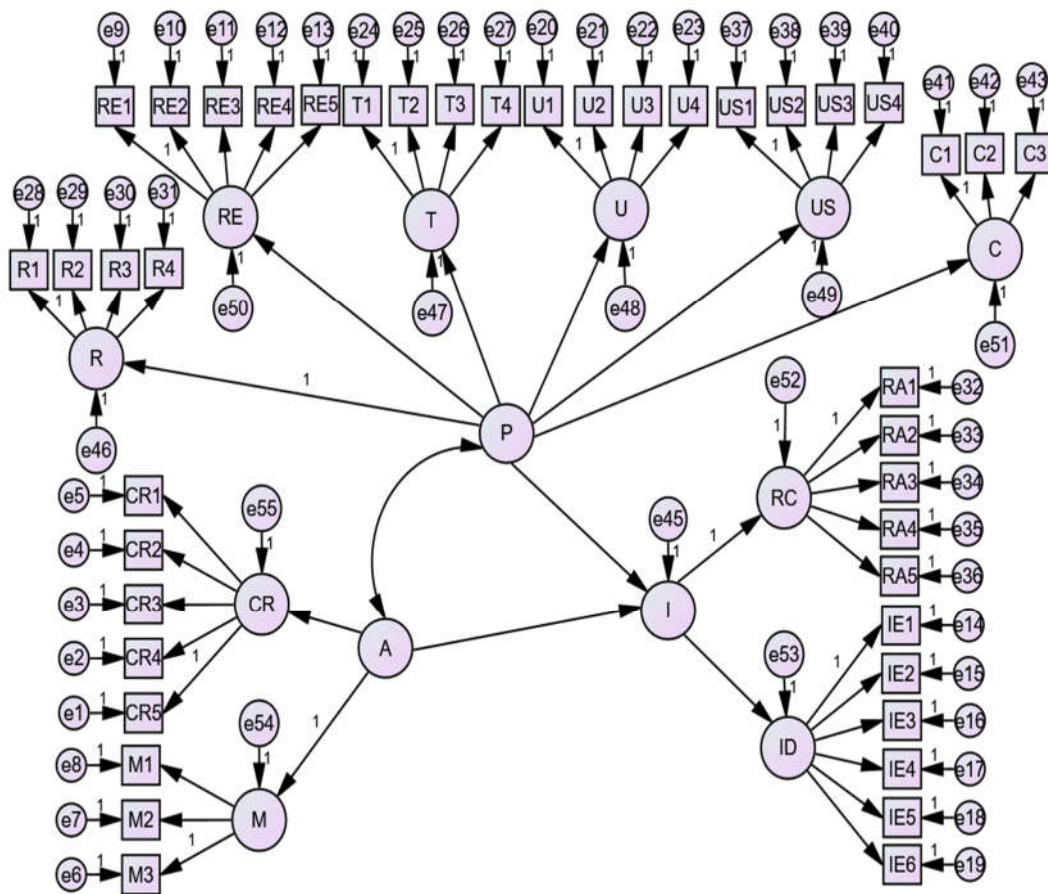
7.9.1 Proposed Model for Assessment of relationship between Awareness, Perception and Investment Decision

The main aim of this section is to examine the impact of Awareness and Perception of investors on their Investment Decision in related to Credit Rating. For the purpose of analysis of research model, the statistical technique called Structural Equation Modeling (SEM) is used. Structural Equation Modelling (SEM) is used to represent the relationships among variables. SEM can examine a series of dependence relationship simultaneously. Figures 7.10 represent the proposed structural model for

the two independent variables (Awareness and Perception) and one dependent variable (Investment Decision). This is a simple model and only the direct relationship between dependent and independent variables are studied under this model.

Figure 7.10

Proposed Model of Awareness, Perception and Investment Decision



Source : Primary Data

7.9.2 Relationship of Awareness, Perception and Investment decision

The purpose of this section is to identify the relationship of Awareness, Perception and Investment decision in related to Credit Rating. To explain the cause-and-effect relationship between these variables, Structural Equation Modeling is used. The path diagram visually portrays the relationship between the variables. The following

hypotheses are tested using a Structural Equation Model showing impact of Awareness and Perception on Investment Decision of investors in related to credit rating.

H₁: Awareness of Credit Rating Concept and Rating Methodology has significant positive impact on Investment Decision.

H₂: Perception of Relevance, Reliability, Timeliness, Understandability, Usefulness and Comparability of Credit Rating has significant positive impact on Investment Decision.

7.9.3 Model Fit Indices for the Model of Awareness, Perception and Investment Decision

The Structural Model Assessment is prepared with the help of Model Fit Indices. The Structural Equation Model using AMOS produces several indices of fit like measure of goodness of fit, incremental fit, comparative fit etc. The most important Model Fit Indices are considered and reported in the Table 7.51.

Table 7.51

Model Fit Indices for the Proposed Model of Awareness, Perception and Investment Decision

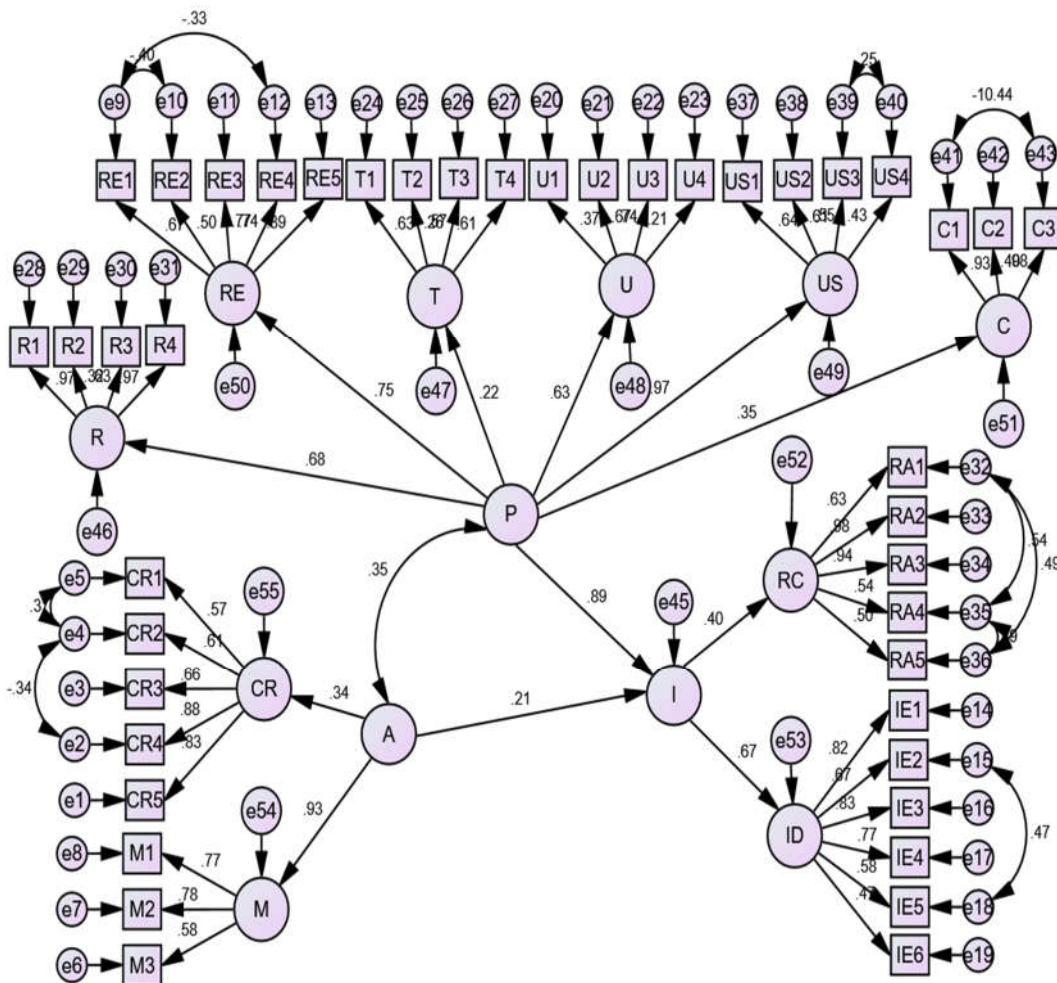
Indices	Value Obtained	Recommended Value of Reasonable Fit
Normed chi-square (CMIN/df)	3.042	≤ 5
Comparative Fit Index (CFI)	0.793	≥ 0.70
Goodness of Fit Index (GFI)	0.79	≥ 0.70
Adjusted GFI (AGFI)	0.738	≥ 0.70
Incremental Fit Index (IFI)	0.795	≥ 0.70
Tucker Lewis Index (TLI)	0.777	≥ 0.70
Normed Fit Index (NFI)	0.722	≥ 0.70
Root Mean Square Error of Approximation (RMSEA)	0.72	≤ 0.08

Source : Primary Data

The Table 7.51 illustrates the model fit summary. The Model Fit Indices (structural model assessment) like, Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Adjusted GFI (AGFI), Incremental Fit Index (IFI), Tucker Lewis Index (TLI), Normed Fit Index (NFI) Root Mean Square Error of Approximation (RMSEA) and Normed chi-square (CMIN/df) are selected to measure the goodness of fit for the proposed model. In order to obtain an acceptable fit, the values should be within the recommended limit. Here, all the values are within the Recommend value of reasonable fit limit and it suggested that the model developed is valid and fit to measure the interrelationship.

Figure 7.11

Measurement Model of Awareness, Perception and Investment Decision



Source : Primary Data

Figure 7.11 illustrates the path diagram of combined effect of Awareness, Perception on Investment Decision based on credit rating. The figure visually represent the relationship between the variables. The rectangular boxes denote the measured variables and the oval shapes represent the latent variables (factors). One-sided arrows from the factors illuminate the factor loadings (estimates). The two-sided arrows denotes the error covariances. The residuals or errors are represented by small circles. Awareness and Perception are independent variables and Investment Decision is dependent variable in this model. The one-sided arrows from exogenous variables to endogenous variables represent the hypothesized relationship between these variables which are tested using SEM model. The values of standardized regression coefficients (estimates) are also represented in the path diagram for each relationship.

Result of Hypotheses Testing

The hypotheses is formulated and tested to examine the impact of independent variable on dependend variable. The independent variables are Awareness and Perception and the dependend variable is Investment Decision. The results of tests hypotheses are summarized in the Table 7.52.

Table 7.52

Result of Hypotheses Testing: Proposed Model of Awareness, Perception and Investment Decision

Hypotheses	Path	Path Co-efficient	P (sig.) value	Result (Supported/ Not Supported)
Awareness of Credit Rating Concept and Rating Methodology has significant positive impact on Investment Decision.	Awareness → Investment Decision	.210	.087	Not Supported
Perception of Relevance, Reliability, Timeliness, Understandability, Usefulness and Comparability of Credit Rating has significant positive impact on Investment Decision.	Perception → Investment Decision	.890	<0.01	Supported

Source : Primary Data

The Table 7.52 shows the path - wise standardized regression coefficient and their respective *p*-values. The aim of this analysis is to understand the cause-and-effect relationship between the independent variables a dependent variable. The relationship between Awareness and Investment Decision is examined and shows that, the path coefficient of standardized direct effect of Awareness on Investment Decision is 0.210 ($p = 0.87$), which indicates that there is no significant but positive influence of Awareness on credit rating and the investors Investment Decision based on credit rating.

Similarly, the above table illustrates the causal relationship between Perception and Investment Decision. The regression coefficient of standardized direct effect of Perception on Investment Decision is 0.890 ($p < .01$). Since the path coefficient is positive and significant at 1% level of significance, the causal relationship is established between Perception on credit rating and Investment Decision based on credit rating. It explains that 1-point increase in the Perception of investors will predict 89 per cent positive change in Investment Decision of investors in related to credit rating.

7.10 Conclusion

This chapter examined the relationship between Awareness, Perception and Investment Decision of investors in related to credit rating. In the first part of this chapter, the Investment Decision of investors in related to credit rating is compared concerning eight demographic variables using ANOVA and independent sample 't' test. It is found that there is no significant difference in the Investment Decision of investors belonging to different District, Education qualification and Marital status. Whereas; Gender, Age, Occupation, Annual income and Year of Experience in stock market significantly influence the Investment Decision of investors in related to credit rating. A correlation and multiple regression analysis is also conducted between the Awareness and Perception, Awareness and Investment Decision, Perception and Investment Decision of investors in related to credit rating to know their direction and degree of relationship. Finally, this chapter examined the impact of Awareness and Perception on Investment Decision in related to credit rating using

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Structural Equation Model, to understand the cause-and-effect relationship between the independent and dependent variables. The summary, findings and conclusion of this study is presented in the next chapter.

CHAPTER 9

RECOMMENDATIONS AND SCOPE FOR FURTHER RESEARCH

9.1 Introduction

The chapter discuss about recommendations, implications and scope for further research. Recommendations based on the findings are presented in the first part of this chapter, and the implications and contributions of this research to various stakeholders are described in the second part. The scope of further research discussed at the end of this chapter.

9.2 Recommendations

The study concludes with certain potentially relevant recommendations addressing those problem areas so as to reform the existing state of credit rating system for the improved functioning of the financial system in India.

9.2.1 Recommendations for CRAs

- It is the responsibility of rating agencies to ensure possible transparency in the rating procedure and methodology. This is very essential to ensure the use of rating as an objective and reliable information for taking informed decisions. The Rating Agencies should keep the interest of the investors in their business. Because, basically, Rating is meant for investors.
- Frequent rating revisions should be avoided as much as possible. The rating Agencies should have the best lenses to visualise the failure and factor that make possible fluctuations in the assigned rating. The rating agencies should work intelligently and meticulously in the interest of investors. Credit rating agencies should not encourage the simultaneous upgrade of two rating levels.
- The Rating Agencies should establish a 'Retail-investor Help Desk', at least at their branches, to aid the investors to cracking the complex Rating.

Recommendations and Scope for Further Research

- Widespread publicity in e-media and print media should be provided to convey the information on rating and rating revision. Rating information should be made available in all regional language newspapers.
- Credit rating agencies should clearly define the various quantitative and qualitative data that they consider in credit rating process. Though the rating methodology is made public in the agencies' websites, however the conversion of quantitative and qualitative data into rating symbols is not mentioned. This would bring more transparency in the credit rating procedure and also inspiring investor confidence in the symbols. This would motivate them to use them more frequently in their decisions.
- The Credit Rating Agencies can conduct short term certificate programmes for the graduates and also the students of professional, Post Graduate courses. This would improve the students' understanding of credit ratings and also teach them how to use the rating.
- Credit rating agencies may send periodic electronic news letters to investors about rating revisions. This may be sent to those who have registered themselves in their website.
- Credit Rating Agencies should react quickly to any changes in the environment with respect to the issuers.
- The Rating methodology is to be revised to suit to the changing economic condition and environment as well as the weightages assigned to each of the rating factors to reflect the changed circumstances.

9.2.2 Recommendations for Investors

- Investors should also consider other publicly available information apart from rating grades given by CRAs before making investment decisions. Investors should consider credit rating as an indication of corporate health; hence rating should doesn't indicate the buy, selling, or hold investment recommendations.

Recommendations and Scope for Further Research

- Investors should try to understand the rating policy and methodology followed by the rating agency when assigning a rating to a security. They should verify that whether the rating agency is receiving any unfair benefit while rating a particular issue.
- Before relying on a rating agency's rating, investors should compare it to other rating agencies' ratings for the same issue to ensure that rating is similar at least to a certain extent.
- Investors should aware that Credit Rating Agencies are intended to provide an assessment of relative quality, not an assessment of absolute default risk for any particular issuer.
- Investors must actively participate in the market regulatory process in order to obtain the best services from CRAs. They must rise up to effectively question the faults of the CRAs and inadequacies on the part of legislators. Investors in developing countries like India have an inherent aversion to actively criticizing organized business malpractices, partially due to a lack of information and more importantly, they are not organized themselves. As a result, it is needed to increase investor education and boost investor activism through both public and private programs. The formation of a retail investor forum may increase negotiating power of the investors. Apart from addressing rating-related investor problems, such forum might help to spread general investor awareness.

9.2.3 Recommendations for Issuers

- The issuers in the same industry have to compete among themselves to get higher rating from the rating agencies.
- The corporates must be forced to obtain dual rating from the agencies and both the ratings must be published.

Recommendations and Scope for Further Research

- The issuer companies make public only those ratings which are favour to them. They should also publish the ratings given by rating agencies even it is favourable or not.
- One of the key expectations of investors is that the issuer will provide up to date information to the rating agency for rating the instrument. Hence Issuer Company should provide up to date and reliable information to credit rating agencies.

9.2.4 Recommendations for Regulators

- The regulatory authorities make mandatory to the rating agencies to disclose their complete and comprehensive methodology for each rating assigned by them.
- Regular advertising regarding credit ratings, their benefits and utilities would assist to increase their visibility. The SEBI can direct the Credit Rating Agencies in collaboration with the issuers to launch wide publicity programmes. Thus, effective education about credit rating can be provided to investors.
- Ratings comparability should be enabled, so that investors can compare the ratings provided by various agencies. Credit rating agencies should follow uniformity in rating symbols. It helps investors to understand the ratings easily.
- CRAs are using their own methods to assign ratings. The different CRAs rate the same instrument differently based on the methods that were employed. This creates confusion among investors about the credibility of an instrument. Therefore, the introduction of a standardised methodology and standard definition of default could help investors to trust Credit rating.
- Penalties and punitive action should be implemented to prevent unreliable ratings.

Recommendations and Scope for Further Research

- CRAs are expanding their businesses with the diversification of their service areas. The additional services offered by CRAs could harm the quality of rating. Strongly regulate or remove the purchase of non-rating services by the issuers from the same CRA to prevent biased ratings and ensure fair ratings.
- Standardise rating fee as well as to determine minimum and maximum fees.
- The regulatory bodies should ensure that credit rating agencies have policies and procedures for maintain their employees to treat non- public information confidentially. Rating agencies are able to deliver more informed analysis since they have access to non-public information, which could improve the quality of the ratings they provide.
- SEBI can form Memorandums of Understanding (MOUs) with foreign financial institutions that deal with CRAs. To encourage effective information exchange among Indian investors and to improve the effective use of rating.
- CRAs may form an association with a well defined professional and ethical code of standards, similar to the Association of Mutual Funds of India (AMFI) or the Association of Merchant Bankers of India (AMBI). The creation of a Self-Regulatory Organization (SRO) will considerably relieve the supervisory duties of SEBI. The SEBI and the rating-SRO may work in collaboration to improve the performance of both rating agencies and the financial market.

9.2.5 General Recommendations

- The rating agencies make public only those ratings which are accepted by the issuer companies. They should also disclose ratings that are not accepted by the companies.
- Credit rating agencies provide only an indication about instruments and do not provide any credible assessment proof. They are not accountable for the

Recommendations and Scope for Further Research

ratings assigned by them. Hence, CRAs should be made accountable for issuing unreliable rating grades.

- Coordinated efforts of relevant authorities such as SEBI, RBI, Ministry of Finance, Consumer Affairs towards defining duties, level of transparency, determining accountability, risk assessment rules, and use of rating information may be put together to get concrete benefits from the rating of securities.
- Currently, credit rating symbols are in the form of Alpha numeric symbols. These symbols do not provide users with any clear information about the issuer's creditworthiness. If the rating is broken down into a few parameters and ratings are given for each one, for example, the parameters could be Opinion about the safety of the principal and interest payment, Opinion about the efficiency of operations, Opinion about the efficiency of management, Opinion about the income generation capacity. For each such parameter a rating from A to D may be given. This would significantly improve the usefulness and practical utility of these rating symbols.
- Credit rating agencies in association with SEBI can arrange investor education programmes that raise investor awareness and to explain the importance of Rating in their investment decisions, as well as the rating process and mechanisms used by rating agencies. The basic goal of rating will be crushed, if the investors do not understand and make use of the Rating service. Therefore, it is essential to organise the investor-education programmes about the Rating.
- Indian credit rating industry, like its global counterparts, is characterized by limited competition. For the efficient functioning of the capital market, entry barrier must be reduced to encourage more service providers to enter the industry. Measures should be taken by both the government and the private sector to introduce courses that will train individuals with the necessary competence to meet the needs of the rating industry. At the same time, the

Recommendations and Scope for Further Research

government may encourage qualified institutions to enter rating industry by providing financial and other incentives.

- Implementation of a mediator pays model (SEBI / Government / Investors' fund / Bankers' fund pays model) can eliminate any confusion of conflict of interest.
- The credit ratings must be published in regional languages and the rating agencies can use English connotations such as 'Safe', 'Average' than using the symbols.
- The regulators of credit rating agencies must be authorized to conduct inspections of credit rating agencies.

9.3 Implications of the Research

Implications of the present research work on different beneficiaries are briefly explained below.

9.3.1 Implication to Regulators

There is a clear need to establish a credit rating industry in India for creating an accessible and attractive market for investors. A well supervised and established credit rating industry will provide investors with a guarantee of the type of securities they are trading based on international standards, will attract more domestic and foreign investors. It would provide healthy competition for domestic rating agencies and also helps to improve overall analytical and transparency requirements. Since the Rating fees are paid by issuer-companies, the conflict of interest certainly exists. So, Proper fire-walls are to be built in between. Regulators must ensure that the legislation does not remain in mere letter; rather its real spirit gets reflected in the actions of the rating agencies. Adopting appropriate supervision and sound regulatory policies plays a vital role in strengthening the functioning of credit rating agencies. This study has also make some recommendations which can be useful for the regulators in developing rules and guidelines related to credit rating.

9.3.2 Implication to Credit Rating Agencies

The meaning and benefit of ratings should be made clear to the investors by the rating agencies, including the level of risk inherent in the ratings. The rating agencies should clearly explain what basics they do not address, such as, suitability of investments for any particular investor. This would provide investors with important information that they need to make informed decisions, to compare ratings, and to form their own opinion on the soundness of an agency's analytics. The awareness of investors towards the credit rating is very less. Therefore, investor education services need to be strengthened. The investors need to be educated on how to take investment decisions using rating symbols.

CRA's must recognise that profit making is not the sole purpose of their existence; they are a social-moral agent for upholding certain values for the ethical functioning of the financial market. Frequent Rating revisions should be avoided as much as possible. The Rating Agencies should have the best lenses to visualise the failure and factor that make possible fluctuations in the assigned Rating. Rating agencies, by providing independent, credible and unbiased opinions on issuing companies have an important role to play in assisting investors about the fundamentals of issuers. Efforts are to be taken to improve the transparency in assessment, impose accountability, ensuring continuous risk assessment to in still confidence in investors and motivate them to use credit ratings rating as a base for their investment decisions. Better transparency and communication between Credit Rating Agencies and investors to strengthen trust and understanding of industry. The Rating completely depends upon the credibility of Rating Agencies. Credibility is the only weapon for sustainability.

9.3.3 Implication to Investors

Investors are the pillars of capital market. The investors are dependent on credit rating agencies for the information about the issuer. Investors should review periodically their invest security in order to knowing performance of security as well as reliability of rating offered by credit rating agencies. Investors should try to

understand the rating policy and methodology followed by the rating agency, when assigning a rating to a security. Before relying on a rating agency's rating, investors should compare it to other rating agencies' ratings for the same issue to ensure that rating is similar at least to a certain extent. Investors must actively participate in the market regulatory process in order to obtain the best services from credit rating agencies. They must rise up to effectively question the faults of the credit rating agencies and inadequacies on the part of legislators. The formation of a retail investor forum may increase negotiating power of the investors. Apart from addressing rating-related investor problems, such forum might help to spread general investor awareness.

9.4 Scope for Further Study

During the course of the present research, the researcher has identified certain areas where further research studies could be conducted in the Indian context which are being enlisted as under:

1. A comparative study can be carried out with the rating practices followed by Indian and Foreign credit rating agencies to know how credit rating agencies stand against the international credit rating standards.
2. A comparative study on awareness of Credit Rating by Indian investors and foreign investors.
3. Though the credit rating agencies first started their operations through the rating of the debt instruments, they have expanded their operations into a number of types of ratings like corporate governance, ESG rating and value creation ratings. A detailed study can be done into the various operations being done by the credit rating agencies in India.
4. The latest entrant in the list of credit rating agencies in India is SMERA – The Small and Medium Enterprise Rating Agency which aims to rate the SMEs. Such studies provide a great help to the SME sector with valuable

inputs. Similarly there are no studies conducted about ONICRA, Individual Credit Rating Agency in India.

5. There is a wide scope for research taking the investors from different states and comparing their perceptions towards credit rating.

9.5 Conclusion

This chapter discuss the major contribution of this research. Recommendations based on the findings are presented in the first part of this chapter, and the implications and contributions of this research to various stakeholders are described in the second part. The scope of further research also reported at the end of this chapter. The usefulness of the credit ratings is depends on the expertise and the honesty of the credit rating agencies. The policy makers and regulators may take efforts to enhance the regulatory framework to improve reliability of in assessment, impose accountability by insisting on integrity of procedure and methodology adopted by rating agencies. SEBI should protect the rights of the investors and properly regulate the rating agencies to ensure quality rating. Investors should review the periodically their invest security in order to knowing performance of security as well as reliability of rating offered by CRAs.

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CHAPTER 8

SUMMARY, FINDINGS AND CONCLUSION

8.1 Introduction

The summary, findings, and conclusions are presented in this chapter. A brief discussion of the Research problem, objectives, hypotheses and summary of research methodology are included in the initial part of this chapter. The key findings in relation to the research objectives and conclusions drawn from the study are given in the last part of this chapter.

8.2 The Research Problem in Brief

The credit rating agencies play an important role in development of financial market by informing market participants about company's creditworthiness and enhanced transparency. The availability of clear and accepted indicators of the risk of default helps investors to make investment decision. CRAs are considered critical gatekeepers in maintaining investor trust. Investors rely on credit rating grades for information, and it is regarded as an essential parameter for investment by investors (Jaleel, 2018). The informational value of rating agencies is a controversial and inconclusive issue.

Credit rating agencies have criticized for their inaccurate or incomplete information as well as the lack of transparency of their methodology. The failure of the rating system was noticeable during the 2008 financial crisis, the Enron scandal in 2001, the collapse of Kingfisher Airlines, DHFL, Eros, Suzlon Energy, Amtek Auto, Zee Group, RCom, and most recently IL&FS. These high-profile cases are only a few illustrations of the unethical behavior CRAs. The rating processes are time-consuming and expensive since it requires extensive analysis by experts (Hajek & Michalak, 2013). Sudden changes in rating grades from 'investment-grade' to 'default' without any extreme incident raise questions about how CRAs work and why they exist. The practice of rating shopping and the issuer pay model are often cited as the reasons for this phenomenon (Chang et al., 2020),(Bolton et al.,

2012),(White, 2010). The expanding business of CRAs and the close relationship between issuers' managing directors and CRAs' management may also be contributing factors (Bungum, 2017). In comparison to other countries, the number of companies with AAA status in India is extremely high. The Hindu's Business Line published an article in July 2020 stating that, according to Bloomberg data, 53% of the ratings assigned by CRAs were based on inadequate information, and ratings were therefore unreliable (Kalyanasundaram, 2020). In India, there is a growing perception that CRAs have become overly generous in awarding ratings, raising concerns about their authenticity, honesty, and utility (Dhanorkar, 2019).

The above examples show that CRAs have sacrificed their long-term reputation by issuing inflated ratings for short-term gains (Bolton et al., 2012). By doing so, CRAs have not only lost the trust of investors but also their credibility. As a result, investors' reliance on credit rating has decreased. This inspired the researcher to conduct research focussing on the investor-related aspects of the credit rating. So, the present study examines the awareness and perception of investors towards credit rating and its influence on their investment decision.

8.3 Objectives of the Study

1. To examine the extend of awareness and perception about credit rating among investors in Kerala.
2. To examine the association between clusters of awareness and demographic profile of investors.
3. To study the extent to which investors rely on credit ratings for making investment decisions.
4. To analyse the empirical relationship among awareness, perception and investment decision of investors regarding credit rating.
5. To measure the effect of awareness and perception about credit rating on the investment decision of investors.

8.4 Hypotheses of the Study

1. There is no significant difference in the level awareness of investors towards credit rating according to their Demographic factors.
2. There is no significant difference in the perception of investors towards credit rating according to their Demographic factors.
3. There is no significant association between clusters of awareness and demographic profile of investors.
4. There is no significant difference in investment decision of investors based on credit rating according to their demographic profiles.
5. There is no significant relationship between awareness and perception of investors on credit rating.
6. There is no significant relationship between awareness on credit rating and investment decision of investors.
7. There is no significant relationship between perception on credit rating and investment decision of investors.
8. Awareness of investors towards credit rating has no significant impact on their perception towards credit rating.
9. Awareness of investors towards credit rating has no significant impact on their investment decision.
10. Perception of investors towards credit rating has no significant impact on their investment decision.

8.5 Significance of the Study

Even though the credit rating helps the investors to take investment decision, there are number of occasions of failure to make timely prediction and inbuilt problem with credit rating system. On the other hand, investors are in need of reliable information about the strength and weaknesses of the borrowing companies.

Worldwide, investors are rigorously watching withdrawals of rating or downward rating, as it cautions the investors. Hence, it is worthwhile to find out the extent to which credit ratings affect their investment decisions. So, the present study analyse the investors' awareness, perception towards credit rating and how it affect the investment decision of investors.

8.6 Scope of the Study

The study analyse the awareness and perception of equity investors in Kerala towards credit rating and change in their investment decision according to credit rating. The samples are selected from investors those have idea about credit rating such as investors working in stock broking firms, trading institution, banks, mutual funds etc. The study helps to understand the importance of credit rating and how credit rating effects the investment decision of investors.

8.7 Research Design

The present study emphasis on awareness, perception and investment decision of investors in related to credit rating. The present study is descriptive and analytical in nature. Both primary and secondary data were used for the study. Primary data are used to know the awareness of investor regarding credit rating and for analyzing the perception and change in investment decision of investor. Secondary data required for the study were compiled from official website of CRISIL, ICRA, CARE and SEBI, research dissertation and thesis, periodicals, study report, books related to study area, journals and other websites.

8.8 Sample Design

Population of the study is the equity shareholders in the state of Kerala. Sample size is determined as 400. Purposive Sampling is employed as the sampling technique to select the sample investors for the study.

In order to get samples of investors in Kerala state were divided into three regions namely; North region, Central region and South region. Two districts from each region were selected on the basis of most populated districts as per the estimated

population in census 2021. From north Kerala Kozhikode and Malappuram were selected, from central Kerala, Kochi and Thrissur were selected and the two districts selected from south Kerala were Kottayam and Thiruvananthapuram.

8.9 Research Instrument

The primary data were collected through well-structured questionnaire. The questionnaire consists of five parts which included questions regarding demographic profile of the investors, investment pattern of the investors, investors' awareness towards credit ratings, investors' perception towards credit rating and investment decision of investors based on credit rating.

8.10 Tools used for Data Analysis

Various tools used in this study are Levene's test of Homogeneity of Variance, Independent Sample 't' test, One-way ANOVA, Tukey HSD Post-hoc test for Multiple Comparison and Chi square test also used for the analysis of data. Furthermore, Confirmatory Factor Analysis and Structural Equation Modelling are used as the statistical techniques to identify the relationships and measurement models of the variables.

8.11 Findings of the study

Based on the analysis of the data collected from the individual equity investors in Kerala, the study turns up some valuable findings, which are shown under different heads in the following pages.

8.11.1 Profile of the Respondents

The summary of the demographic profile of the respondents are listed below:

1. The study found that 260 (65%) of the sample investors are male and the remaining 140 (35%) are female. Even though the female population in Kerala outnumbered male population, males are more active in the field of stock market.

Summary, Findings And Conclusion

2. Out of 400 investors, 205 (51.2%) are in the Age group of “25-35 years” followed by 116 (29%) of respondent falling under the age group of “36-45 years”. Respondents in the Age group of “Below 25 years” constitute the least, 26 (6.5%) of the total sample unit.
3. The majority of the investors in the sample belongs to Malappuam district (21%) and investors reside in Kollam district constitute the least, 54 (13.5%) of the total sample unit.
4. Out of 400 sample investors 194 (48.5%) are graduates, 132 (33%) are post graduates and 74 (18.5%) are having professional qualification. Hence it can be concluded that the informants selected for the study are reasonably educated and are able to understand the technical side of the study.
5. Out of 400 respondents, 245 (61.25%) are salaried person, 69 (17.25%) are in profession and 86 (21.5%) are engaged in business.
6. Majority of sample investors (76%) are married.
7. Out 400 of the sample investors, Majority of investors 170 (42.5%) belongs to “3,00,000 – 5,00,000” Annual Income group, 142 (35.5 %) investors are belong to the Annual Income group of “Below 3,00,000”, 79 (19.8%) belongs to “5,00,001 - 10,00,000” Annual Income group and 9 (2.3%) of investors belongs to “Above 10,00,000” Annual Income group.
8. In case of investors’ Year of Experience in stock market, 31.5% (126) of the investors having the Experience of “More than 10 years” in stock market, 30.8% (123) is having the Experience of “5-10 years” in stock market.
9. The respondents were asked to rank major factors influencing their investment decision. The analysis reveals that the majority of the investors consider the reputation of the company for their investment decision followed by past performance of company, advice of friends, relatives and others, Company’s investment policy, Credit rating, Technical and

fundamentals. Cost involved is given the least preference as a basis of investment.

10. CRISIL is the most popular rating agency followed by ICRA, CARE and FITCH, which is confirm with studies conducted by Ranadev Goswami .
11. The respondents were asked to rank various purposes of referring credit rating. The respondents considered the option "Showing the financial position of the company" is the most important purpose of referring credit ratings, followed by "Information about risk and return", "Update information about the issuer", "Assures safety of investment", "Assisting investments". The option "Assure timely payment" is ranked lowest among the provided purposes.

8.11.2 Awareness

1. In gender wise analysis, the mean score for Female is 3.2830 (SD .61687) and for Male is 3.3221 (SD .61372). But the difference of male and female investors is not significant.
2. In age wise comparison, the investors within the Age group of "Below 25 years" has the highest mean score of 3.4183 (SD .63830), and the lowest mean is 3.1415 (SD .63645) is in the Age group "Above 45 years". It is found that there is no significant difference between the Age group of investors with respect to their Awareness towards credit rating.
3. In district wise comparison, Investors from Kozhikode district is having the highest mean score of 3.4980 (SD .69288) of Awareness and the lowest score of 3.1801 (SD .66122) is among investors from Thiruvananthapuram district. There is significant difference between the districts of investors with respect to their Awareness towards credit rating. The difference is contributed by 'Thiruvananthapuram' and 'Kozhikode'.
4. In education wise analysis, the Post graduate is having the highest mean score 3.3466 (SD .56656) followed by Graduates with mean score of 3.3112

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(SD .63665) and the lowest score 3.2331 (SD .63782) is among Professionals. There is no significant difference between the Educational qualifications of investors with respect to their Awareness towards credit rating.

5. In Occupation wise analysis, the Salaried is having the highest mean score of 3.3367 (SD .59702) of Awareness followed by Professionals with mean score of 3.3098 (SD.65712) and the lowest mean score of 3.2267 (SD. 62764) is among Business. There is no significant difference between the Occupations of investors with respect to their Awareness towards credit rating.
6. The mean score of Married investors is 3.2977 (SD .60465) differing from Unmarried investors 3.3424 (SD .64615). There is no significant difference between married and unmarried investors with regard to their awareness towards credit rating.
7. In Annual Income wise comparison, the people within the Annual Income group of “Above 1000000” has the highest mean score of 3.7917 (SD .91001), and the lowest mean is 3.2642 (SD .58698) is in the Annual Income group “500001-1000000”. There is no significant difference between the Annual Income of investors with respect to their awareness in related to credit rating.
8. In Experience in stock market wise comparison, the highest mean score of 3.4197 (SD .56224) is within the Year of Experience group of “5-10 years” and the lowest mean score of 3.0298 (SD .63130) is within the Year of Experience group “Upto one year”. There is significant difference between the investors Year of Experience in stock market with regard to their awareness towards credit rating. The difference is contributed by the Year of Experience group “Upto one year”.
9. Investors exhibit a reasonable level of awareness about major rating agencies and their symbols.

10. The investors' responses related to awareness about credit rating, suggesting a lower level of awareness about the methodologies employed by credit rating agencies.
11. Investors have concerns regarding the transparency of rating agencies' operations. This suggests a potential need for increased transparency efforts and better communication between Credit rating agencies and investors to strengthen trust and understanding in the industry.
12. Majority of respondents expressed low awareness regarding workings of credit rating agencies.

8.11.3 Perception

1. The mean score for male and female are difference in case of perception and the difference is significant at 5%.
2. Investors within the Age group of "Below 25 years" have the highest mean score of 3.7099 (SD .40665) and the lowest mean is 3.3577 (SD 3.3577) is in Age group "Above 45 years". There is significant difference among the Age group of investors with respect to their Perception in related to credit rating. The Age group of "Above 45" makes the significant difference with all other Age groups.
3. In district wise analysis, investors from Kozhikode district is having the highest mean score of 3.7487 (SD .44676) and the lowest mean score of 3.5410 (SD .38432) is among investors from Ernakulam district. The investors from Ernakulam and Kozhikode districts have different approach with respect to Perception in related to credit rating.
4. Post graduate is having the highest mean score 3.6304 (SD .39744) followed by Graduates with mean score of 3.6269 (SD .43666) and the lowest score of 3.5636 (SD .35209) is among Professionals. There is no significant difference between the Educational qualifications of investors with respect to their Perception in related to credit rating.

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5. In case of Occupation wise analysis, Professionals is having the highest mean score of 3.6643 (SD .46814) followed by Salaried investors with mean score of 3.6362 (SD. 38618) and the lowest score of 3.5213 (SD .41261) is among Business. There is no significant difference among the Occupation of investors with regard to their Perception on credit rating.
6. The mean score of Married investor is 3.6098 (SD .40357) and Unmarried investors is 3.6372(SD .42787). Since the p value of the “t” test is more than .05, there is no significant difference between married and unmarried investors with regard to their Perception towards credit rating.
7. In case Annual Income wise comparison, investors within the Annual Income of “Above 1000000” have the highest mean score 3.6667 (SD .39142) and the lowest mean of 3.3577 (SD 3.3577) in Annual Income group “300000-500000”. There is no significant difference between the Annual Income of investors with respect to their Perception towards credit rating.
8. Investors having “More than 10 years” of experience in stock market have the highest mean score 3.7877 (SD .41987) and the lowest mean of 3.2923 (SD .04219) is in “Upto one year” Experience group. There are significant differences between the investors Year of Experience in stock market with regard to their Perception towards credit rating. Significant difference is contributes by Year of Experience group between all the category of investors except “More than 10 years” and “5- 10 Years”.
9. In related to Timeliness, the investors point out that that there is a need for periodic rating revisions and although there was some fear about delays in rating change announcements.
10. The investors have strong consensus that uniform symbols used by all credit rating agencies would facilitate comparisons and enhance clarity within the industry.

Investors have mixed views on whether highly-rated instruments perform well and the potential for confusion from ratings by different agencies on the same

instrument.

11. There is uncertainty among respondents regarding the perception that credit ratings serve as a marketing strategy for issuing companies. These provide valuable information for stakeholders in the financial industry to address concerns and enhance the transparency and effectiveness of credit rating systems.

8.11.4 Investment Decision

1. The mean score for female is 3.4974 and for a male is 3.6269. Each group has different mean values and different levels of variability in their responses and there is significant difference between Gender groups with regard to their Investment Decisions.
2. The investors in the Age group of “Below 25 years” has the highest mean score of 3.8811 (SD .45836) and the lowest mean of 3.1441 (SD .49519) is in the Age group “Above 45 years”. There is significant difference among the Age group of investors with respect to their Investment Decision. The difference is contributed between all Age groups except the Age group “Below 25” and “25-35 years”.
3. Investors from Kozhikode district is having the highest mean score of 3.6652 (SD .51757) and the lowest score mean score of 3.4740 (SD .52878) is from investors from Malappuram district. There is no significant difference between the Districts of investors with regard to their Investment Decision.
4. The investors with Educational qualification of ‘Post graduate’ is having the highest mean score of 3.6247 (S.D .44895), followed by ‘Graduation’ having mean score of 3.5811 (S.D .54326) and the lowest mean score 3.5061 (SD .45767) is among ‘Professionals’. There is no significant difference among the Educational qualification of investors with their Investment Decision.
5. The mean score for investors with different type of Occupation shows that, Professional investors is having the highest mean score of 3.6719 (SD.

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57817) followed by Salaried investors with mean score of 3.6252 (SD .45089) and the lowest score of 3.3848 (SD .51590) is among Business. There is significant difference among the Occupation of investors with regard to Investment Decision. Investors engaged in Business have different approach in respect to Investment Decision.

6. The mean score for Married investor is 3.5589 (SD .50094) and Unmarried is 3.6534 (SD .48810). There is no significant difference between Married and Unmarried investors with regard to their Investment Decision.
7. Highest mean score 3.7475 (SD .39568) is with Annual Income group “Above 1000000” and the lowest mean score is 3.4499 (SD .53306) in the Annual Income group “500001-1000000”. There is significant difference between the Annual Income of investors with regard to their Investment Decisions as the p value is less than 0.05. Investors with Annual Income of “Below 300000” and Annual Income between “500001 – 1000000” have different approach with respect to Investment Decision.
8. In case of Years of Experience in stock market, the highest mean score of 3.8651 (SD .42058) is with Year of Experience group “More than 10 years” and the lowest mean score 3.0664 (SD .46704) is in Experience group “Upto one year”. There is significant difference between the Year of Experience of investors in stock market with regard to their Investment Decision. The difference is contributed by all the categories among them.
9. The respondents hold a strong agreement that frequent downgrading and placing instruments on rating watch significantly reduce investor confidence.
10. The respondents are concerned about the negative impact of downgrading and frequent rating changes on a company's image and investor confidence.
11. The respondents have mixed opinions on the effectiveness of ratings. Results suggest that while some believe in the usefulness of ratings in investment decisions, there's a more mixed opinion regarding their impact on market efficiency and market-moving potential. These findings underscore the

importance of clear and well-explained rating practices in maintaining investor confidence also highlighting the varied perspectives on the immediate market impact of rating announcements.

8.11.5 Cluster Analysis of investors

The cluster analysis is applied to classify the respondents based on two factors that emerged from the principal component analysis for awareness of credit rating. It has resulted in the formation of two clusters on the basis of similar characteristics. The first cluster of investors with 42.25 per cent possesses Awareness of basic concept of credit ratings and credit rating methodology and they are called as “Conscious investors”. The second cluster of investors with 57.75 per cent of sample with 231 respondents identified as Low level of Awareness on basic concept on credit rating and credit rating methodology and they are known as “Ignorant investors”.

1. 68.05 per cent of Conscious investors are Male and 31.95 per cent are Female and there is no association between Gender and Awareness of investors towards credit rating.
2. 50.30 per cent of Conscious investors and 51.95 per cent of Ignorant investors belong to ‘25 – 35 years’ Age group. Further, there is no association between Age of investors and Awareness towards the credit rating since the Pearson Chi-square value is insignificant at 5 per cent level.
3. In related to District of investors, 19.53 per cent of Conscious investors belong to ‘Kozhikode’ district and 25.97 per cent of Ignorant investors belong to ‘Malappuram’ district. Further, ‘Thiruvananthapuram’ and ‘Malappuram’ district consist of 14.2 per cent of Conscious investors. Whereas, in case of Ignorant investors 12.99 per cent are from ‘Kozhikode’ district and 12.56 per cent belong to ‘Kollam’ district. Since, the Pearson Chi-square is significant at 5 per cent level; there is an association between District of investors and Awareness.
4. Majority of Conscious investors and Ignorant investors are Married. There is no association between marital status of the investors and their Awareness

towards credit rating, since the Pearson Chi-square value is insignificant at 5 per cent level.

5. While in case of Occupation, 65.09 per cent of Conscious investors and 58.44 per cent of Ignorant investors are Salaried, 16.57 per cent of Conscious investors and 17.75 per cent of Ignorant investors are Professionals. There is no association between Occupation of investors and Awareness towards credit rating.
6. In case of Education qualification 50.30 per cent of Conscious investors and 47.19 per cent of Ignorant investors are Graduate. 17.75 per cent of Conscious investors and 19.04 per cent of Ignorant investors are Professionals. The Pearson Chi-square value is insignificant at 5 per cent level. Therefore, there is no association between Educational qualification and Awareness of investors.
7. In case of Annual Income of investors, 41.42 per cent of Conscious investors and 43.29 per cent of Ignorant investors receive Annual Income between '300000 to 500000'. Further, it is found that 20.78 per cent of Ignorant investors receive Annual Income between '500001 to 1000000' and 1.73 per cent of them receive Annual Income 'Above 1000000'. There is no association between Annual Income and Awareness of investors towards credit rating, since the Pearson Chi-square value is insignificant at 5 per cent level.
8. In case of Year of Experience of investors in stock market, 37.87 per cent of Conscious investors have '5-10 years' of Experience and 31.60 per cent of Ignorant investors have 'More than 10 years' of Experience group. The Pearson Chi-square value is significant at 5 per cent level. So, there is association between Experience of investors in stock market and Awareness towards credit rating.

8.11.6 Awareness and Perception

1. The investors' Awareness on Rating Concept has low positive correlation with Perception related to Relevance, Reliability, Timeliness, Usefulness and Comparability of credit rating, at the same time investors' Awareness on Rating Concept has moderate positive correlation with Perception in related to Understandability of credit rating.
2. The investors' Awareness on Rating Methodology has low positive correlation with perception related to Reliability, Timeliness, Understandability and Comparability of credit rating, at the same time investors' Awareness on Rating Methodology has moderate positive correlation with Perception on Relevance and Usefulness of credit rating.
3. Awareness on Credit Rating Concept has significant positive impact on Perception of the investors and is supported at 1% level of significance.
4. The Awareness on Rating Methodology has significant positive impact on Perception of investors and supported in 1% level of significance.
5. The SEM model proposed for testing the impact of Awareness on different dimensions of Perception demonstrates that there is significant positive causal relationship between the Awareness of investors and their Perception related to credit rating.
6. The result provides the directional linkage of Awareness and Perception related to credit rating among investors is measured with the help of significant positive beta coefficient of 0.619. It explains that 1-point increase in the level of Awareness among investors will predict 61 percent positive change in investors Perception.

8.11.7 Awareness and Investment Decision

1. The investors' Awareness on Rating Concept has only low positive correlation with Rating Announcement, Investment Expectation as well as Investment Decision.
2. The investors' Awareness about Rating Methodology has moderate positive relationship with Rating Announcement, Investment Expectation and Investment Decision.
3. The result reveals that Awareness on Credit Rating Concept has no significant but positive impact on Investment Decision.
4. The investors Awareness on Rating Methodology has significant and positive impact on Investment Decision.
5. The measurement model is proposed for testing the impact of investors Awareness on Investment Decision in related to credit rating. The result of the measurement model shows that, the beta coefficient standardized estimate shows the significant direct effect of Awareness on Investment decision is 0.512. It means, every one-point increase in the Awareness of investors predicts 0.512 per cent positive change in Investment Decision.

8.11.8 Perception and Investment Decision

1. The investors' Perception on Relevance of credit rating has moderate positive correlation with Rating Announcement, Investment Expectation as well as Investment Decision.
2. The investors' Perception on Reliability of credit rating has moderate positive correlation with Rating Announcement, Investment Expectation as well as Investment Decision.
3. The investors' Perception on Timeliness of credit rating has moderate positive correlation with Rating Announcement and Investment Decision and low positive correlation with Investment Expectation

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4. The investors' Perception about on Understandability of credit rating has moderate positive correlation with Rating Announcement and Investment Decision, and low positive correlation with Investment Expectation.
5. The investors' Perception about Usefulness of credit rating has moderate positive correlation with Rating Announcement, Investment Expectation as well as Investment Decision.
6. The investors' Perception related to Comparability of credit rating has moderate positive correlation with Rating Announcement, Investment Expectation as well as Investment Decision.
7. Relevance of credit rating has significant positive impact on Investment Decision of the investors and supported in 1% level of significance.
8. Reliability of credit rating has significant positive impact on Investment Decision of the investors at 1% level of significance.
9. Timeliness of credit rating has significant positive impact on Investment Decision of the investors at 1% level of significance.
10. Understandability of credit rating has no significant but positive impact on Investment Decision of the investors.
11. The Usefulness of credit rating has significant positive impact on Investment Decision of the investors and supported in 1% level of significance.
12. The Comparability of credit rating has significant positive impact on Investment Decision of the investors.
13. The regression model is proposed for testing the impact of investors Perception on Investment Decision in related to credit rating. The investors Perception on credit rating have significant positive impact on Investment decision of investors in related to credit rating with regression co-efficient of 0.485. It explains that 1-point increase in the level of Perception of investors will predict 48 per cent positive change in Investment Decision of investors.

8.11.9 Impact of Awareness, Perception on Investment decision

This section discuss the findings about the combined effect between investors Awareness and Perception on Investment decision in related to credit rating. To explain the cause-and-effect relationship between these variables, Structural Equation Modeling is used. The model consist of two independend variable and one dependent variable. Awareness and Perception are independend variable and Investment decision is dependent variable in this model. Based on the model fit indices produced by AMOS, the goodness of fit of the model has been confirmed and established that data fit well to the model created for the purpose of research.

1. The measurement model proposed for testing the impact of awareness on different dimensions of investment decision exhibits that, the path coefficient of standardized direct effect of Awareness on Investment Decision is 0.210 but not significant, which indicates that there is no significant but positive influence of investors awareness on credit rating and their Investment Decision based on credit rating.
2. The SEM model proposed for testing the impact of Perception on Investment Decision demonstrates that there is significant positive causal relationship between the Perception of investors and their Investment Decision related to credit rating.
3. The regression coefficient of standardized direct effect of Perception on Investment Decision is 0.890 and path coefficient is positive and significant at 1% level of significance. It explains that 1-point increase in the level of perception of investors will predict 89 per cent positive change in investment decision of investors in related to credit rating.

8.12 Conclusions based on Findings

The study examines the awareness and perception of investors towards credit rating and its influence on their investment decision. Sample of four hundred equity investors from Kerala were selected for conducting this study. A structured questionnaire was developed and used for data collection. The collected data is

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analysed with sophisticated statistical tools including SPSS and AMOS. The major conclusions based on the findings of the study are explained below.

The demographic profile of the respondents shows that the majority of the investors are male and salaried persons. Investors selected for the study is reasonably educated and are able to understand the technical side of the study. Majority of sample investors are married. The age profile of respondents indicates that the majority are in the age group of “25-35 years”. Among the total respondents, 42 per cent of investors belong to the annual income group of “3,00,000 – 5,00,000”. With regards to year of experience in stock market, 31.5 per cent of the sample investors have experience of more than 10 years.

The majority of the investors consider the reputation of the company for their investment decision followed by past performance of company, advice of friends, relatives and others, company’s investment policy, credit rating, technical and fundamentals. Cost involved is given the least preference as a basis of investment. It is revealed that CRISIL is the most popular credit rating agencies followed by ICRA CARE and FITCH. The respondents considered the option "Showing the financial position of the company" is the most important purpose of referring credit ratings, followed by "Information about risk and return". The option "Assure timely payment" is ranked lowest among the provided purposes.

There is no significant difference between the Gender, Age, Educational qualifications, Occupation, Marital status and Annual Income of investors with respect to their Awareness related to credit rating. There is significant difference between the District of investors and Year of Experience in stock market with respect to their Awareness towards credit rating. Investors exhibit a reasonable level of awareness about major rating agencies and their symbols. But, the investors’ responses, suggesting a lower level of awareness about the methodologies employed by credit rating agencies. Investors have concerns regarding the transparency of rating agencies' operations. This suggests a potential need for increased transparency efforts and better communication between credit rating agencies and investors to strengthen trust and understanding of industry. Majority of respondents expressed

low awareness regarding workings of credit rating agencies; hence there is need for improvement in enhancing investors' understanding of the workings of these agencies.

There is significant difference between the Gender, Age, District, Year of Experience in stock market of investors with respect to their Perception in related to credit rating. There is no significant difference between the Educational qualifications, Occupation, Marital status, Annual Income of investors with respect to their Perception in related to credit rating. The investors point out that, there is a need for periodic rating revisions and although there was some fear about delays in rating change announcements. The investors have strong consensus that uniform symbols used by all credit rating agencies would facilitate comparisons and enhance clarity within the industry. Investors have mixed views on whether highly-rated instruments perform well and the potential for confusion from ratings by different agencies on the same instrument. There is uncertainty among respondents regarding the perception that credit ratings serve as a marketing strategy for issuing companies. These provide valuable information for stakeholders in the financial industry to address concerns and effectiveness of credit rating systems.

There is significant difference between the Gender, Age, Occupation, Annual Income, Year of Experience in stock market of investors with respect to their Investment Decision in related to credit rating. There is no significant differences between the Districts, Educational qualification, Marital status of investors with regard to their Investment Decision in related to credit rating. The respondents hold a strong agreement that frequent downgrading and placing instruments on rating watch significantly reduce investor confidence. The respondents are concerned about the negative impact of downgrading and frequent rating changes on a company's image and investor confidence. The respondents have mixed opinions on the effectiveness of ratings. Results suggest that while some believe in the usefulness of ratings in investment decisions, there's a more mixed opinion regarding their impact on market efficiency and market-moving potential. These findings underscore the importance of clear and well-explained rating practices in

maintaining investor confidence also highlighting the varied perspectives on the immediate market impact of rating announcements.

The cluster analysis is applied to classify the respondents based on two factors that emerged from the principal component analysis for awareness of credit rating. It has resulted in the formation of two clusters on the basis of similar characteristics namely Conscious investors and Ignorant investors. The study analyse the investors' awareness towards credit rating which in terms of Credit Rating Concept and Rating Methodology. The result shows that, Gender, Age, Education qualification, Occupation, Marital status, Annual Income of investors have no association with awareness but District, Year of experience in stock market of investors have association with awareness of investors in related to credit rating.

Awareness on Credit Rating Concept and Rating Methodology has significant positive impact on Perception of the investors. The SEM model proposed for testing the impact of Awareness on different dimensions of Perception demonstrates that there is significant positive causal relationship between the Awareness of investors and their Perception related to credit rating. The Awareness on Credit Rating Concept has no significant positive impact on Investment Decision and Awareness on Rating Methodology has significant and positive impact on Investment Decision. The measurement model proposed for testing the impact of investors Awareness on Investment Decision shows that there is significant and positive impact. The regression model is proposed for testing the impact of investors Perception on Investment Decision in related to credit rating shows there is significant positive impact.

The Structural Equation Model is used to investigate the impact of awareness and perception on investment decision based on credit rating. The findings denote that there is no significant but positive influence of investors' awareness on credit rating and their Investment Decision based on credit rating. Further, it shows that there is significant positive causal relationship between the Perception of investors and their Investment Decision related to credit rating.

The lack of awareness about Rating methodologies and their working mechanisms among investors, suggest that there is room for improvement in educating investors. Educating investors about CRA methodologies and their working can contribute to a more informed and confident investor base when engaging with credit rating agencies. Hence, need to create more awareness program for the investors and other market participants. The investors are also to be educated on how to make the decisions by using rating.

The study illustrates the complexity of investors' perceptions of credit rating agencies, highlighting varying opinions on their relevance, reliability, and comparability. These insights offer valuable information for stakeholders in the financial industry to address concerns and enhance the transparency and effectiveness of credit rating systems. Strengthening transparency efforts and development of better communication between rating agencies and investors can lead to greater trust and understanding within the industry, ultimately benefiting both investors and the agencies themselves.

8.13 Conclusion

This chapter discusses a brief outline of the entire research, findings based on the objectives and conclusions based on the findings are described. Ratings are opinions on the creditworthiness based on the objective and subjective analysis. It is recommended that CRAs shall be made to disclose the detailed information about the rating assessment. Methodology used and quantitative variables to stable their standards and to enhance the quality in providing reliable information to the investors. The rating agencies can serve market in best way, only when they operate independently. Especially in these days when there are more and more Initial Public Offerings being issued, it is hoped that the services of Credit Rating agencies are utilised by the investors in their investment decisions.

CHAPTER 9

RECOMMENDATIONS AND SCOPE FOR FURTHER RESEARCH

9.1 Introduction

The chapter discuss about recommendations, implications and scope for further research. Recommendations based on the findings are presented in the first part of this chapter, and the implications and contributions of this research to various stakeholders are described in the second part. The scope of further research discussed at the end of this chapter.

9.2 Recommendations

The study concludes with certain potentially relevant recommendations addressing those problem areas so as to reform the existing state of credit rating system for the improved functioning of the financial system in India.

9.2.1 Recommendations for CRAs

- It is the responsibility of rating agencies to ensure possible transparency in the rating procedure and methodology. This is very essential to ensure the use of rating as an objective and reliable information for taking informed decisions. The Rating Agencies should keep the interest of the investors in their business. Because, basically, Rating is meant for investors.
- Frequent rating revisions should be avoided as much as possible. The rating Agencies should have the best lenses to visualise the failure and factor that make possible fluctuations in the assigned rating. The rating agencies should work intelligently and meticulously in the interest of investors. Credit rating agencies should not encourage the simultaneous upgrade of two rating levels.
- The Rating Agencies should establish a 'Retail-investor Help Desk', at least at their branches, to aid the investors to cracking the complex Rating.

Recommendations and Scope for Further Research

- Widespread publicity in e-media and print media should be provided to convey the information on rating and rating revision. Rating information should be made available in all regional language newspapers.
- Credit rating agencies should clearly define the various quantitative and qualitative data that they consider in credit rating process. Though the rating methodology is made public in the agencies' websites, however the conversion of quantitative and qualitative data into rating symbols is not mentioned. This would bring more transparency in the credit rating procedure and also inspiring investor confidence in the symbols. This would motivate them to use them more frequently in their decisions.
- The Credit Rating Agencies can conduct short term certificate programmes for the graduates and also the students of professional, Post Graduate courses. This would improve the students' understanding of credit ratings and also teach them how to use the rating.
- Credit rating agencies may send periodic electronic news letters to investors about rating revisions. This may be sent to those who have registered themselves in their website.
- Credit Rating Agencies should react quickly to any changes in the environment with respect to the issuers.
- The Rating methodology is to be revised to suit to the changing economic condition and environment as well as the weightages assigned to each of the rating factors to reflect the changed circumstances.

9.2.2 Recommendations for Investors

- Investors should also consider other publicly available information apart from rating grades given by CRAs before making investment decisions. Investors should consider credit rating as an indication of corporate health; hence rating should doesn't indicate the buy, selling, or hold investment recommendations.

Recommendations and Scope for Further Research

- Investors should try to understand the rating policy and methodology followed by the rating agency when assigning a rating to a security. They should verify that whether the rating agency is receiving any unfair benefit while rating a particular issue.
- Before relying on a rating agency's rating, investors should compare it to other rating agencies' ratings for the same issue to ensure that rating is similar at least to a certain extent.
- Investors should aware that Credit Rating Agencies are intended to provide an assessment of relative quality, not an assessment of absolute default risk for any particular issuer.
- Investors must actively participate in the market regulatory process in order to obtain the best services from CRAs. They must rise up to effectively question the faults of the CRAs and inadequacies on the part of legislators. Investors in developing countries like India have an inherent aversion to actively criticizing organized business malpractices, partially due to a lack of information and more importantly, they are not organized themselves. As a result, it is needed to increase investor education and boost investor activism through both public and private programs. The formation of a retail investor forum may increase negotiating power of the investors. Apart from addressing rating-related investor problems, such forum might help to spread general investor awareness.

9.2.3 Recommendations for Issuers

- The issuers in the same industry have to compete among themselves to get higher rating from the rating agencies.
- The corporates must be forced to obtain dual rating from the agencies and both the ratings must be published.

Recommendations and Scope for Further Research

- The issuer companies make public only those ratings which are favour to them. They should also publish the ratings given by rating agencies even it is favourable or not.
- One of the key expectations of investors is that the issuer will provide up to date information to the rating agency for rating the instrument. Hence Issuer Company should provide up to date and reliable information to credit rating agencies.

9.2.4 Recommendations for Regulators

- The regulatory authorities make mandatory to the rating agencies to disclose their complete and comprehensive methodology for each rating assigned by them.
- Regular advertising regarding credit ratings, their benefits and utilities would assist to increase their visibility. The SEBI can direct the Credit Rating Agencies in collaboration with the issuers to launch wide publicity programmes. Thus, effective education about credit rating can be provided to investors.
- Ratings comparability should be enabled, so that investors can compare the ratings provided by various agencies. Credit rating agencies should follow uniformity in rating symbols. It helps investors to understand the ratings easily.
- CRAs are using their own methods to assign ratings. The different CRAs rate the same instrument differently based on the methods that were employed. This creates confusion among investors about the credibility of an instrument. Therefore, the introduction of a standardised methodology and standard definition of default could help investors to trust Credit rating.
- Penalties and punitive action should be implemented to prevent unreliable ratings.

Recommendations and Scope for Further Research

- CRAs are expanding their businesses with the diversification of their service areas. The additional services offered by CRAs could harm the quality of rating. Strongly regulate or remove the purchase of non-rating services by the issuers from the same CRA to prevent biased ratings and ensure fair ratings.
- Standardise rating fee as well as to determine minimum and maximum fees.
- The regulatory bodies should ensure that credit rating agencies have policies and procedures for maintain their employees to treat non- public information confidentially. Rating agencies are able to deliver more informed analysis since they have access to non-public information, which could improve the quality of the ratings they provide.
- SEBI can form Memorandums of Understanding (MOUs) with foreign financial institutions that deal with CRAs. To encourage effective information exchange among Indian investors and to improve the effective use of rating.
- CRAs may form an association with a well defined professional and ethical code of standards, similar to the Association of Mutual Funds of India (AMFI) or the Association of Merchant Bankers of India (AMBI). The creation of a Self-Regulatory Organization (SRO) will considerably relieve the supervisory duties of SEBI. The SEBI and the rating-SRO may work in collaboration to improve the performance of both rating agencies and the financial market.

9.2.5 General Recommendations

- The rating agencies make public only those ratings which are accepted by the issuer companies. They should also disclose ratings that are not accepted by the companies.
- Credit rating agencies provide only an indication about instruments and do not provide any credible assessment proof. They are not accountable for the

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ratings assigned by them. Hence, CRAs should be made accountable for issuing unreliable rating grades.

- Coordinated efforts of relevant authorities such as SEBI, RBI, Ministry of Finance, Consumer Affairs towards defining duties, level of transparency, determining accountability, risk assessment rules, and use of rating information may be put together to get concrete benefits from the rating of securities.
- Currently, credit rating symbols are in the form of Alpha numeric symbols. These symbols do not provide users with any clear information about the issuer's creditworthiness. If the rating is broken down into a few parameters and ratings are given for each one, for example, the parameters could be Opinion about the safety of the principal and interest payment, Opinion about the efficiency of operations, Opinion about the efficiency of management, Opinion about the income generation capacity. For each such parameter a rating from A to D may be given. This would significantly improve the usefulness and practical utility of these rating symbols.
- Credit rating agencies in association with SEBI can arrange investor education programmes that raise investor awareness and to explain the importance of Rating in their investment decisions, as well as the rating process and mechanisms used by rating agencies. The basic goal of rating will be crushed, if the investors do not understand and make use of the Rating service. Therefore, it is essential to organise the investor-education programmes about the Rating.
- Indian credit rating industry, like its global counterparts, is characterized by limited competition. For the efficient functioning of the capital market, entry barrier must be reduced to encourage more service providers to enter the industry. Measures should be taken by both the government and the private sector to introduce courses that will train individuals with the necessary competence to meet the needs of the rating industry. At the same time, the

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government may encourage qualified institutions to enter rating industry by providing financial and other incentives.

- Implementation of a mediator pays model (SEBI / Government / Investors' fund / Bankers' fund pays model) can eliminate any confusion of conflict of interest.
- The credit ratings must be published in regional languages and the rating agencies can use English connotations such as 'Safe', 'Average' than using the symbols.
- The regulators of credit rating agencies must be authorized to conduct inspections of credit rating agencies.

9.3 Implications of the Research

Implications of the present research work on different beneficiaries are briefly explained below.

9.3.1 Implication to Regulators

There is a clear need to establish a credit rating industry in India for creating an accessible and attractive market for investors. A well supervised and established credit rating industry will provide investors with a guarantee of the type of securities they are trading based on international standards, will attract more domestic and foreign investors. It would provide healthy competition for domestic rating agencies and also helps to improve overall analytical and transparency requirements. Since the Rating fees are paid by issuer-companies, the conflict of interest certainly exists. So, Proper fire-walls are to be built in between. Regulators must ensure that the legislation does not remain in mere letter; rather its real spirit gets reflected in the actions of the rating agencies. Adopting appropriate supervision and sound regulatory policies plays a vital role in strengthening the functioning of credit rating agencies. This study has also make some recommendations which can be useful for the regulators in developing rules and guidelines related to credit rating.

9.3.2 Implication to Credit Rating Agencies

The meaning and benefit of ratings should be made clear to the investors by the rating agencies, including the level of risk inherent in the ratings. The rating agencies should clearly explain what basics they do not address, such as, suitability of investments for any particular investor. This would provide investors with important information that they need to make informed decisions, to compare ratings, and to form their own opinion on the soundness of an agency's analytics. The awareness of investors towards the credit rating is very less. Therefore, investor education services need to be strengthened. The investors need to be educated on how to take investment decisions using rating symbols.

CRA's must recognise that profit making is not the sole purpose of their existence; they are a social-moral agent for upholding certain values for the ethical functioning of the financial market. Frequent Rating revisions should be avoided as much as possible. The Rating Agencies should have the best lenses to visualise the failure and factor that make possible fluctuations in the assigned Rating. Rating agencies, by providing independent, credible and unbiased opinions on issuing companies have an important role to play in assisting investors about the fundamentals of issuers. Efforts are to be taken to improve the transparency in assessment, impose accountability, ensuring continuous risk assessment to in still confidence in investors and motivate them to use credit ratings rating as a base for their investment decisions. Better transparency and communication between Credit Rating Agencies and investors to strengthen trust and understanding of industry. The Rating completely depends upon the credibility of Rating Agencies. Credibility is the only weapon for sustainability.

9.3.3 Implication to Investors

Investors are the pillars of capital market. The investors are dependent on credit rating agencies for the information about the issuer. Investors should review periodically their invest security in order to knowing performance of security as well as reliability of rating offered by credit rating agencies. Investors should try to

understand the rating policy and methodology followed by the rating agency, when assigning a rating to a security. Before relying on a rating agency's rating, investors should compare it to other rating agencies' ratings for the same issue to ensure that rating is similar at least to a certain extent. Investors must actively participate in the market regulatory process in order to obtain the best services from credit rating agencies. They must rise up to effectively question the faults of the credit rating agencies and inadequacies on the part of legislators. The formation of a retail investor forum may increase negotiating power of the investors. Apart from addressing rating-related investor problems, such forum might help to spread general investor awareness.

9.4 Scope for Further Study

During the course of the present research, the researcher has identified certain areas where further research studies could be conducted in the Indian context which are being enlisted as under:

1. A comparative study can be carried out with the rating practices followed by Indian and Foreign credit rating agencies to know how credit rating agencies stand against the international credit rating standards.
2. A comparative study on awareness of Credit Rating by Indian investors and foreign investors.
3. Though the credit rating agencies first started their operations through the rating of the debt instruments, they have expanded their operations into a number of types of ratings like corporate governance, ESG rating and value creation ratings. A detailed study can be done into the various operations being done by the credit rating agencies in India.
4. The latest entrant in the list of credit rating agencies in India is SMERA – The Small and Medium Enterprise Rating Agency which aims to rate the SMEs. Such studies provide a great help to the SME sector with valuable

inputs. Similarly there are no studies conducted about ONICRA, Individual Credit Rating Agency in India.

5. There is a wide scope for research taking the investors from different states and comparing their perceptions towards credit rating.

9.5 Conclusion

This chapter discuss the major contribution of this research. Recommendations based on the findings are presented in the first part of this chapter, and the implications and contributions of this research to various stakeholders are described in the second part. The scope of further research also reported at the end of this chapter. The usefulness of the credit ratings is depends on the expertise and the honesty of the credit rating agencies. The policy makers and regulators may take efforts to enhance the regulatory framework to improve reliability of in assessment, imposer accountability by insisting on integrity of procedure and methodology adopted by rating agencies. SEBI should protect the rights of the investors and properly regulate the rating agencies to ensure quality rating. Investors should review the periodically their invest security in order to knowing performance of security as well as reliability of rating offered by CRAs.

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APPENDIX 1
QUESTIONNAIRE

Dear sir/madam,

I am SHAFNA.T, doing research in Department of commerce and management studies, University of Calicut on topic entitled “Credit Rating: Effect of Awareness and Perception on Investment Decisions among Equity Investors in Kerala”. I kindly request Equity investors from Kozhikode, Malappuram, Ernakulam, Trissur, Kollam and Thiruvananthapuram to be an active part of my research work in form of your valuable response to the questionnaire. Your response would be kept strictly confidential and used only for academic purposes.

Part 1 -Investor’s Profile

1. Name (Optional):

2. Gender: Female Male Other

3. Age:

4. District:

5. Educational Qualification:

School education Graduation Post-Graduation

Professional (CA/MBA/ACS/ICWA) others (please specify).....

6. Occupation

Salaried Professional Business Retired

Others

7. Marital status : Married Unmarried

8. Annual income

Below 3, 00,000 3, 00,000-5, 00,000

5, 00,001-10, 00,000 Above 10, 00,000

PART 2 - Investment Information

1. Year of experience in investment in capital market?

a) Up to one year b) 1 - 5 years c) 5 - 10years

d) More than 10 years

2. Rate the following information you consider while taking investment decision

Particulars	Always	Often	Occasionally	Rarely	Never
Credit rating					
Company past performance					
Technical and fundamentals					
Advice of friends, relatives and others					
Cost involved					
Reputation of issuer					
Company's investment policy					

3. The purpose of referring credit rating

Particulars	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
Information about risk of return					
Assisting investments					
Assure timely payment					
Shows financial position of Company					
Assures safety of investment					
Update information about the issuer					

4. Rank following Credit Rating Agency you rely upon for your investment decision

CARE	
CRISIL	
Fitch	
ICRA	

Part 3 - Awareness on credit Rating

Give your opinion about the following statements regarding credit rating	Highly Aware	Aware	Neutral	Unaware	Highly Unaware
I know major rating agencies in India					
I am able to differentiate the rating symbols of CRAs					
Ratings symbols are understandable even without analytical skill					
I am aware of various services provided rating agencies					
CRAs provide advice but they cannot guarantee return on investment					
I am aware about the methodology used by Credit Rating Agencies					
I am aware about the working mechanism of rating agencies					
CRAs disclosure practices are fairly transparent					

Part 4- Perception on Credit Rating

(Note: SA - Strongly Agree, A -Agree, NAD -Neither Agree or Disagree, DA - Disagree and SDA - Strongly Disagree)

Particulars	SA	A	NAD	DA	SDA
Rating reduces the dependency on the financial intermediaries					
Rating is Just a marketing strategy of the issuing company					
It saves time and energy of investors					
It is very important for decision making					
Rating is unbiased in giving opinion					
The Rating is influenced by the name and fame of the issuer-company					
Ratings match with creditworthiness of Issuers					
Rating depends on company performance					
It is Simply a grading system					

Appendices

Particulars	SA	A	NAD	DA	SDA
Reactive rather proactive on defaulters					
Monitor and disseminate credit opinion on issues in a timely and efficient manner					
Agencies should revise ratings periodically					
There is a delay in the publication of rating change announcement					
the meaning conveyed by rating symbols are understood only by institutional investors and not by individuals					
By looking at the symbols I understand whether the investments are investment grade or speculative grade.					
It Sublimate complex financial structure into user friendly symbols					
It is the duty of the Rating Agencies to educate investors about credit rating					

Particulars	SA	A	NAD	DA	SDA
Investment decisions based on the rating is beneficial					
Rating facilitates Investor protection by providing opinion on credit risk					
Provide common yardsticks to evaluate default risk for decision making					
Bridge the information gap between issuers and investors					
Highly rated instruments perform well					
Ratings by different agencies on the same instrument creates confusion					
Uniform symbols by all Credit Rating Agencies will helps to compare.					

Part 5 - Credit Rating change and investment decision

Particulars	SA	A	NAD	DA	SDA
Downgrading reduce the image of the company					
Frequent downgrading, placing instruments on rating watch reduce confidence of investor					
Only initial ratings are well researched, subsequent ratings are not backed by scientific methods					
Can anticipate rating change based on other information					
The reasons for rating change are well explained and able to review investment decisions					
Rating leads to efficiency in the market					
Rating announcements will move the market					
I would you prefer to sell instrument when it is downgraded					
Upgrading leads to investment					
Rating Outlooks/Watch lists are use in investment decision					
Rating announcements are sometimes delayed and decision based on rating is misleading					

Appendices

APPENDIX 2

Normality

Kolmogrov- Smirnov test of Normality

Statements	Kolmogorov-Smirnov ^a			
	N	Mean	Std. Deviation	P
I know major rating agencies in India	400	4.01	.737	.000
I am able to differentiate the rating symbols of CRAs	400	3.64	.887	.000
Ratings symbols are understandable even without analytical skill	400	3.42	.914	.000
I am aware of various services provided rating agencies	400	3.31	.909	.000
CRAs provide advice but they cannot guarantee a return on investment	400	3.33	.977	.000
I am aware about the methodology used by Credit Rating Agencies	400	2.86	1.192	.000
I am aware about the working mechanism of rating agencies	400	2.84	1.051	.000
CRAs disclosure practices are fairly transparent	400	3.05	.976	.000
Rating reduces the dependency on the financial intermediaries	400	3.59	.811	.000
Rating is Just a marketing strategy of the issuing company	400	2.97	1.023	.000
It saves time and energy of investors	400	3.74	.838	.000
It is very important for decision making	400	3.53	.998	.000
Rating is unbiased in giving opinion	400	3.46	.748	.000
The Rating is influenced by the name and fame of the issuer-company	400	3.36	.923	.000
Ratings match with creditworthiness of Issuers	400	3.69	.806	.000
Rating depends on company performance	400	3.62	.838	.000
It is Simply a grading system	400	3.05	1.045	.000
Reactive rather proactive on defaulters	400	3.77	.765	.000
Monitor and disseminate credit opinion on issues in a timely and efficient manner	400	3.36	1.028	.000
Agencies should revise ratings periodically	400	3.96	.811	.000
There is a delay in the publication of rating change announcement	400	3.66	.942	.000

Meaning conveyed by rating symbols are understood only by institutional investors and not by individuals	400	3.37	1.139	.000
By looking at the symbols I understand whether the investments are investment grade or speculative grade.	400	3.51	1.026	.000
It Sublimate complex financial structure into user friendly symbols	400	3.73	.774	.000
It is the duty of the Rating Agencies to educate investors about credit rating	400	3.95	1.025	.000
Investment decisions based on the rating is beneficial	400	3.78	.939	.000
Rating facilitates Investor protection by providing opinion on credit risk	400	3.78	.793	.000
Provide common yardsticks to evaluate default risk for decision making	400	3.81	.772	.000
Bridge the information gap between issuers and investors	400	3.94	.792	.000
Highly rated instruments perform well	400	3.57	.890	.000
Ratings by different agencies on the same instrument creates confusion	400	3.25	.957	.000
Uniform symbols by all Credit Rating Agencies will helps to compare.	400	4.10	.649	.000
Downgrading reduce the image of the company	400	3.95	.863	.000
Frequent downgrading, placing instruments on rating watch reduce confidence of investor	400	4.03	.777	.000
Only initial ratings are well researched, subsequent ratings are not backed by scientific methods.	400	3.57	1.024	.000
Can anticipate rating change based on other information	400	3.59	.827	.000
The reasons for rating change are well explained and able to review investment decisions	400	3.70	.905	.000
Rating leads to efficiency in the market	400	3.36	.942	.000
Rating announcements will move the market	400	3.30	1.043	.000
I would prefer to sell instrument when it is downgraded	400	3.51	.958	.000
Upgrading leads to investment	400	3.38	1.055	.000
Rating Outlooks/Watchlists are use in Investment decision	400	3.44	1.017	.000
Rating announcements are sometimes delayed and decision based on rating is misleading	400	3.58	.858	.000

APPENDIX 3

Skewness and Kurtosis

Statements	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
I know major rating agencies in India	400	-.811	.122	1.068	.243
I am able to differentiate the rating symbols of CRAs	400	-.773	.122	.791	.243
Ratings symbols are understandable even without analytical skill	400	-.256	.122	-.308	.243
I am aware of various services provided rating agencies	400	-.270	.122	-.345	.243
CRAs provide advice but they cannot guarantee a return on investment	400	-.065	.122	-.667	.243
I am aware about the methodology used by Credit Rating Agencies	400	.242	.122	-.847	.243
I am aware about the working mechanism of rating agencies	400	.094	.122	-.615	.243
CRAs disclosure practices are fairly transparent	400	.008	.122	-.861	.243
Rating reduces the dependency on the financial intermediaries	400	-.372	.122	-.064	.243
Rating is Just a marketing strategy of the issuing company	400	.173	.122	-.922	.243
It saves time and energy of investors	400	-.331	.122	-.398	.243
It is very important for decision making	400	-.168	.122	-.977	.243
Rating is unbiased in giving opinion	400	.038	.122	-.312	.243
The Rating is influenced by the name and fame of the issuer-company	400	-.230	.122	-.293	.243
Ratings match with creditworthiness of Issuers	400	-.107	.122	-.496	.243
Rating depends on company performance	400	-.157	.122	-.407	.243
It is Simply a grading system	400	.143	.122	-.955	.243
Reactive rather proactive on defaulters	400	-.390	.122	-.035	.243
Monitor and disseminate credit opinion on issues in a timely and efficient manner	400	-.406	.122	-.673	.243
Agencies should revise ratings periodically	400	-.470	.122	-.236	.243
There is a delay in the publication of rating change announcement	400	-.345	.122	-.208	.243
Meaning conveyed by rating symbols are understood only by institutional investors and not by individuals	400	-.086	.122	-1.136	.243
By looking at the symbols I understand whether the investments are investment grade or speculative grade.	400	-.307	.122	-.896	.243

Appendices

It Sublimate complex financial structure into user friendly symbols	400	-.430	.122	-.039	.243
It is the duty of the Rating Agencies to educate investors about credit rating	400	-.672	.122	-.456	.243
Investment decisions based on the rating is beneficial	400	-.301	.122	-.736	.243
Rating facilitates Investor protection by providing opinion on credit risk	400	-.186	.122	-.439	.243
Provide common yardsticks to evaluate default risk for decision making	400	-.449	.122	.034	.243
Bridge the information gap between issuers and investors	400	-.675	.122	.359	.243
Highly rated instruments perform well	400	-.529	.122	-.009	.243
Ratings by different agencies on the same instrument creates confusion	400	-.452	.122	-.459	.243
Uniform symbols by all Credit Rating Agencies will helps to compare.	400	-.542	.122	1.360	.243
Downgrading reduce the image of the company	400	-.398	.122	-.611	.243
Frequent downgrading, placing instruments on rating watch reduce confidence of investor	400	-.564	.122	.078	.243
Only initial ratings are well researched, subsequent ratings are not backed by scientific methods.	400	-.303	.122	-.666	.243
Can anticipate rating change based on other information	400	-.246	.122	-.199	.243
The reasons for rating change are well explained and able to review investment decisions	400	-.379	.122	-.497	.243
Rating leads to efficiency in the market	400	-.359	.122	-.712	.243
Rating announcements will move the market	400	-.098	.122	-1.076	.243
I would prefer to sell instrument when it is downgraded	400	-.364	.122	-.631	.243
Upgrading leads to investment	400	-.222	.122	-.861	.243
Rating Outlooks/Watchlists are use in Investment decision	400	-.706	.122	-.142	.243
Rating announcements are sometimes delayed and decision based on rating is misleading	400	-.186	.122	-.586	.243

APPENDIX 4

Agglomeration Schedule

	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	387	400	.000	0	0	14
2	398	399	.000	0	0	3
3	381	398	.000	0	2	355
4	396	397	.000	0	0	5
5	325	396	.000	0	4	7
6	394	395	.000	0	0	7
7	325	394	.000	5	6	9
8	392	393	.000	0	0	9
9	325	392	.000	7	8	11
10	390	391	.000	0	0	11
11	325	390	.000	9	10	13
12	237	389	.000	0	0	326
13	325	388	.000	11	0	315
14	7	387	.000	0	1	111
15	279	386	.000	0	0	107
16	384	385	.000	0	0	17
17	14	384	.000	0	16	68
18	326	383	.000	0	0	68
19	27	382	.000	0	0	357
20	379	380	.000	0	0	21
21	1	379	.000	0	20	312
22	2	377	.000	0	0	312
23	244	376	.000	0	0	137
24	293	375	.000	0	0	96
25	356	374	.000	0	0	42
26	372	373	.000	0	0	27
27	84	372	.000	0	26	130
28	370	371	.000	0	0	29
29	33	370	.000	0	28	34
30	365	369	.000	0	0	34
31	367	368	.000	0	0	32
32	31	367	.000	0	31	45
33	352	366	.000	0	0	45
34	33	365	.000	29	30	199
35	363	364	.000	0	0	36
36	245	363	.000	0	35	76
37	360	361	.000	0	0	38
38	57	360	.000	0	37	40
39	358	359	.000	0	0	40
40	57	358	.000	38	39	50
41	263	357	.000	0	0	122
42	348	356	.000	0	25	315

Appendices

43	354	355	.000	0	0	44
44	185	354	.000	0	43	183
45	31	352	.000	32	33	82
46	350	351	.000	0	0	47
47	159	350	.000	0	46	151
48	308	349	.000	0	0	82
49	346	347	.000	0	0	50
50	57	346	.000	40	49	190
51	280	345	.000	0	0	106
52	180	344	.000	0	0	190
53	342	343	.000	0	0	54
54	332	342	.000	0	53	56
55	340	341	.000	0	0	56
56	332	340	.000	54	55	58
57	338	339	.000	0	0	58
58	332	338	.000	56	57	60
59	336	337	.000	0	0	60
60	332	336	.000	58	59	63
61	333	335	.000	0	0	63
62	171	334	.000	0	0	195
63	332	333	.000	60	61	384
64	330	331	.000	0	0	366
65	328	329	.000	0	0	66
66	230	328	.000	0	65	67
67	230	327	.000	66	0	328
68	14	326	.000	17	18	160
69	323	324	.000	0	0	70
70	290	323	.000	0	69	72
71	321	322	.000	0	0	72
72	290	321	.000	70	71	319
73	318	319	.000	0	0	74
74	96	318	.000	0	73	250
75	299	317	.000	0	0	90
76	245	316	.000	36	0	324
77	314	315	.000	0	0	317
78	275	313	.000	0	0	111
79	302	312	.000	0	0	87
80	284	311	.000	0	0	102
81	166	309	.000	0	0	199
82	31	308	.000	45	48	84
83	305	306	.000	0	0	84
84	31	305	.000	82	83	123
85	261	304	.000	0	0	123
86	217	303	.000	0	0	156
87	55	302	.000	0	79	101
88	286	301	.000	0	0	101
89	297	300	.000	0	0	92
90	6	299	.000	0	75	103
91	283	298	.000	0	0	103

Appendices

92	29	297	.000	0	89	256
93	89	296	.000	0	0	256
94	160	295	.000	0	0	204
95	287	294	.000	0	0	361
96	219	293	.000	0	24	153
97	276	292	.000	0	0	110
98	221	291	.000	0	0	153
99	181	289	.000	0	0	189
100	178	288	.000	0	0	350
101	55	286	.000	87	88	266
102	21	284	.000	0	80	133
103	6	283	.000	90	91	270
104	254	282	.000	0	0	130
105	76	281	.000	0	0	266
106	222	280	.000	0	51	152
107	272	279	.000	0	15	113
108	259	278	.000	0	0	125
109	273	277	.000	0	0	113
110	114	276	.000	0	97	202
111	7	275	.000	14	78	273
112	69	274	.000	0	0	273
113	272	273	.000	107	109	321
114	270	271	.000	0	0	115
115	145	270	.000	0	114	186
116	184	269	.000	0	0	186
117	267	268	.000	0	0	118
118	179	267	.000	0	117	317
119	229	266	.000	0	0	147
120	264	265	.000	0	0	121
121	54	264	.000	0	120	200
122	262	263	.000	0	41	322
123	31	261	.000	84	85	296
124	32	260	.000	0	0	296
125	172	259	.000	0	108	171
126	257	258	.000	0	0	127
127	47	257	.000	0	126	128
128	47	256	.000	127	0	342
129	241	255	.000	0	0	139
130	84	254	.000	27	104	260
131	85	253	.000	0	0	260
132	251	252	.000	0	0	133
133	21	251	.000	102	132	134
134	21	250	.000	133	0	346
135	248	249	.000	0	0	136
136	247	248	.000	0	135	323
137	243	244	.000	0	23	325
138	201	242	.000	0	0	172
139	100	241	.000	0	129	339
140	157	240	.000	0	0	206

Appendices

141	238	239	.000	0	0	349
142	72	236	.000	0	0	270
143	233	234	.000	0	0	144
144	50	233	.000	0	143	146
145	231	232	.000	0	0	146
146	50	231	.000	144	145	188
147	225	229	.000	0	119	149
148	227	228	.000	0	0	149
149	225	227	.000	147	148	150
150	225	226	.000	149	0	320
151	159	224	.000	47	0	327
152	222	223	.000	106	0	331
153	219	221	.000	96	98	154
154	219	220	.000	153	0	322
155	182	218	.000	0	0	188
156	132	217	.000	0	86	333
157	103	216	.000	0	0	249
158	163	215	.000	0	0	202
159	213	214	.000	0	0	160
160	14	213	.000	68	159	162
161	211	212	.000	0	0	162
162	14	211	.000	160	161	164
163	209	210	.000	0	0	164
164	14	209	.000	162	163	166
165	207	208	.000	0	0	166
166	14	207	.000	164	165	168
167	205	206	.000	0	0	168
168	14	205	.000	166	167	170
169	203	204	.000	0	0	170
170	14	203	.000	168	169	303
171	172	202	.000	125	0	330
172	197	201	.000	0	138	331
173	199	200	.000	0	0	174
174	198	199	.000	0	173	329
175	195	196	.000	0	0	176
176	68	195	.000	0	175	179
177	192	194	.000	0	0	179
178	66	193	.000	0	0	275
179	68	192	.000	176	177	181
180	190	191	.000	0	0	181
181	68	190	.000	179	180	259
182	86	189	.000	0	0	259
183	185	188	.000	44	0	356
184	186	187	.000	0	0	185
185	90	186	.000	0	184	205
186	145	184	.000	115	116	215
187	158	183	.000	0	0	205
188	50	182	.000	146	155	344
189	45	181	.000	0	99	269

Appendices

190	57	180	.000	50	52	268
191	119	177	.000	0	0	238
192	113	176	.000	0	0	325
193	129	174	.000	0	0	230
194	122	173	.000	0	0	236
195	41	171	.000	0	62	233
196	142	170	.000	0	0	218
197	168	169	.000	0	0	321
198	165	167	.000	0	0	200
199	33	166	.000	34	81	294
200	54	165	.000	121	198	319
201	125	164	.000	0	0	233
202	114	163	.000	110	158	228
203	121	161	.000	0	0	335
204	38	160	.000	0	94	213
205	90	158	.000	185	187	333
206	150	157	.000	0	140	208
207	155	156	.000	0	0	208
208	150	155	.000	206	207	210
209	153	154	.000	0	0	210
210	150	153	.000	208	209	211
211	150	151	.000	210	0	329
212	148	149	.000	0	0	213
213	38	148	.000	204	212	287
214	49	147	.000	0	0	287
215	145	146	.000	186	0	332
216	120	144	.000	0	0	237
217	131	143	.000	0	0	228
218	102	142	.000	0	196	224
219	134	141	.000	0	0	226
220	138	140	.000	0	0	222
221	136	139	.000	0	0	224
222	4	138	.000	0	220	265
223	78	137	.000	0	0	265
224	102	136	.000	218	221	235
225	123	135	.000	0	0	235
226	91	134	.000	0	219	239
227	118	133	.000	0	0	239
228	114	131	.000	202	217	232
229	127	130	.000	0	0	232
230	126	129	.000	0	193	231
231	126	128	.000	230	0	334
232	114	127	.000	228	229	336
233	41	125	.000	195	201	290
234	44	124	.000	0	0	290
235	102	123	.000	224	225	338
236	98	122	.000	0	194	245
237	13	120	.000	0	216	243
238	115	119	.000	0	191	241

Appendices

239	91	118	.000	226	227	252
240	95	117	.000	0	0	252
241	115	116	.000	238	0	314
242	111	112	.000	0	0	243
243	13	111	.000	237	242	292
244	109	110	.000	0	0	245
245	98	109	.000	236	244	247
246	107	108	.000	0	0	247
247	98	107	.000	245	246	248
248	98	106	.000	247	0	341
249	39	103	.000	0	157	288
250	96	101	.000	74	0	340
251	37	97	.000	0	0	292
252	91	95	.000	239	240	254
253	93	94	.000	0	0	254
254	91	93	.000	252	253	255
255	91	92	.000	254	0	357
256	29	89	.000	92	93	258
257	87	88	.000	0	0	258
258	29	87	.000	256	257	332
259	68	86	.000	181	182	363
260	84	85	.000	130	131	324
261	82	83	.000	0	0	262
262	77	82	.000	0	261	264
263	80	81	.000	0	0	264
264	77	80	.000	262	263	351
265	4	78	.000	222	223	310
266	55	76	.000	101	105	284
267	73	75	.000	0	0	269
268	57	74	.000	190	0	347
269	45	73	.000	189	267	289
270	6	72	.000	103	142	277
271	48	71	.000	0	0	288
272	11	70	.000	0	0	308
273	7	69	.000	111	112	348
274	53	67	.000	0	0	285
275	12	66	.000	0	178	276
276	12	65	.000	275	0	340
277	6	64	.000	270	0	328
278	62	63	.000	0	0	279
279	22	62	.000	0	278	281
280	60	61	.000	0	0	281
281	22	60	.000	279	280	283
282	58	59	.000	0	0	283
283	22	58	.000	281	282	297
284	55	56	.000	266	0	342
285	51	53	.000	0	274	286
286	51	52	.000	285	0	343
287	38	49	.000	213	214	344

Appendices

288	39	48	.000	249	271	343
289	45	46	.000	269	0	345
290	41	44	.000	233	234	291
291	41	42	.000	290	0	318
292	13	37	.000	243	251	336
293	35	36	.000	0	0	294
294	33	35	.000	199	293	295
295	33	34	.000	294	0	338
296	31	32	.000	123	124	335
297	22	30	.000	283	0	323
298	26	28	.000	0	0	299
299	23	26	.000	0	298	301
300	24	25	.000	0	0	301
301	23	24	.000	299	300	330
302	19	20	.000	0	0	303
303	14	19	.000	170	302	305
304	17	18	.000	0	0	305
305	14	17	.000	303	304	307
306	15	16	.000	0	0	307
307	14	15	.000	305	306	346
308	9	11	.000	0	272	309
309	9	10	.000	308	0	345
310	4	8	.000	265	0	334
311	3	5	.000	0	0	316
312	1	2	.000	21	22	364
313	307	378	.040	0	0	361
314	115	362	.040	241	0	358
315	325	348	.040	13	42	366
316	3	320	.040	311	0	364
317	179	314	.040	118	77	350
318	41	310	.040	291	0	354
319	54	290	.040	200	72	352
320	225	285	.040	150	0	348
321	168	272	.040	197	113	349
322	219	262	.040	154	122	360
323	22	247	.040	297	136	373
324	84	245	.040	260	76	360
325	113	243	.040	192	137	368
326	162	237	.040	0	12	377
327	159	235	.040	151	0	367
328	6	230	.040	277	67	371
329	150	198	.040	211	174	359
330	23	172	.040	301	171	351
331	197	222	.040	172	152	367
332	29	145	.040	258	215	374
333	90	132	.040	205	156	369
334	4	126	.040	310	231	363
335	31	121	.040	296	203	347
336	13	114	.040	292	232	354

Appendices

337	104	105	.040	0	0	362
338	33	102	.040	295	235	372
339	79	100	.040	0	139	365
340	12	96	.040	276	250	353
341	40	98	.040	0	248	370
342	47	55	.040	128	284	376
343	39	51	.040	288	286	379
344	38	50	.040	287	188	371
345	9	45	.040	309	289	369
346	14	21	.040	307	134	358
347	31	57	.056	335	268	386
348	7	225	.057	273	320	373
349	168	238	.074	321	141	368
350	178	179	.088	100	317	378
351	23	77	.093	330	264	383
352	54	175	.100	319	0	385
353	12	99	.100	340	0	370
354	13	41	.110	336	318	372
355	353	381	.111	0	3	377
356	185	246	.111	183	0	389
357	27	91	.111	19	255	381
358	14	115	.124	346	314	375
359	150	152	.127	329	0	365
360	84	219	.129	324	322	375
361	287	307	.131	95	313	378
362	43	104	.131	0	337	384
363	4	68	.135	334	259	381
364	1	3	.138	312	316	398
365	79	150	.139	339	359	394
366	325	330	.142	315	64	397
367	159	197	.143	327	331	382
368	113	168	.145	325	349	382
369	9	90	.145	345	333	380
370	12	40	.157	353	341	379
371	6	38	.158	328	344	374
372	13	33	.159	354	338	376
373	7	22	.159	348	323	380
374	6	29	.167	371	332	387
375	14	84	.205	358	360	387
376	13	47	.207	372	342	385
377	162	353	.208	326	355	393
378	178	287	.208	350	361	388
379	12	39	.217	370	343	383
380	7	9	.273	373	369	386
381	4	27	.281	363	357	390
382	113	159	.295	368	367	388
383	12	23	.295	379	351	392
384	43	332	.360	362	63	395
385	13	54	.397	376	352	390

Appendices

386	7	31	.418	380	347	391
387	6	14	.444	374	375	391
388	113	178	.449	382	378	389
389	113	185	.696	388	356	393
390	4	13	.792	381	385	392
391	6	7	.865	387	386	395
392	4	12	.895	390	383	394
393	113	162	.944	389	377	396
394	4	79	1.244	392	365	398
395	6	43	1.543	391	384	396
396	6	113	1.910	395	393	397
397	6	325	2.353	396	366	399
398	1	4	2.820	364	394	399
399	1	6	3.620	398	397	0