Relationship between Rational and Irrational Investment Decisions and Multiple Intelligence of Investors

K. N. Rathi*, D. Geetha

Department of Commerce, Avinashilingam Institute of Home science and Higher Education for Women, Coimbatore, Tamil Nadu, India. *Email: rathijn@yahoo.com

ABSTRACT

This study focuses on investors' investment decision-making and examines the influence of multiple intelligences in investment decision-making, both rational and irrational. Multiple intelligences are a group of Intelligence with its entity and domain. Gardner suggests that the human being has different individual units of intellectual functioning. He labels these units as intelligence, each with identifiable and quantifiable aptitudes. The nine intelligence types differently influence an individual's behaviour and decisions. The multiple intelligence Inventory and a questionnaire on investment decision-making were used for data collection from a hundred investors. Analysis was done with the help of Pearson's correlation, multiple regression Chi-square test, and correspondence analysis. Rational decision-making is intellectual, as per the review, and it is proved here that intelligence influences rational decision-making significantly while the other is not influenced. The observed results help to get new visions of investment behaviour, including a new proof of the root causes of investment decisions.

Keywords: Multiple Intelligence, Investment Decision-making, Rational Decisions, Irrational Decisions
JEL Classifications: D90, G91, C00, E70, E71

1. INTRODUCTION

Investment is the process of setting aside a portion of finance to get a return as dividends or interest and capital appreciation. Different investment avenues are available for investors, like real assets and financial assets. Both have different classifications; each has a different rate of return and risk associated (Sprecher, 1975). Investment decision-making is a complex process of analysing the investment avenues, objectives, return, investment policies and investment environment. This process needs high cognitive involvement and rational thinking. Investment decision-making involves five stages: investment policy, investment analysis, valuation, portfolio construction, and portfolio evaluation (Babu, 2007).

Thinking is the base of any decision-making, which may or may not be rational. Rational and irrational thinking are part of human thinking and associated behaviour (Simon, 1993). Non-rational thinking is an extension of rational thinking, as a reflex of mixing thinking in to "n" pattern recurring to logic and extra logic structures to reach an objective. Emotions, imaginations, intuitions, and other skills are the components of non-rational thinking. (Burciu and Hapenciuc, 2010). Rational thinking is based on proven evidence and hypotheses that measure experiences and interactions to determine rational actions and decisions. Irrational thinking is usually based on emotions, often mixed with those emotions and limited or selective evidence. Rational thinking creates motivation because there is structure and clear evidence, while irrational thoughts cause anxiety (Brain, 2022).

The next section of the article presents the review of literature on rational and irrational decision making.

2. LITERATURE REVIEW

Investment decision-making may be rational and irrational in characteristics. Rational decisions are based on fundamental

analysis, technical analysis and expert opinion. According to Fama, an active market includes many informed and intelligent investors. Thus, the securities will be appropriately priced and reflect all the available information as per his Efficient Market Hypothesis (Chinas, 2019). Investor rationality based on principles underlying expected utility maximisation as the optimal role (Von Neumann and Morgenstern, 1947). Investors are presumed to use all available information to form rational expectations. Investment decisions can be derived from different financial models from the technical side. The rational theory is only a useful positive tool when the conditions are favourable, even though economists have been trying to prove that the rational theory is universally applicable (Binmore, 2008). Investors lean towards to trust on previous information from companies that show that representativeness heuristic and the availability heuristic consequence investor decision making then lead investors to make irrational decisions by listening to rumours and guidance from brokers, friends, and family (Dietrich, 2010 and Khan and Waqas, 2024).

Decisions also consider incidental factors, which consider the location and psychology of the market, in other words. The temperament and psychology of the investor are other crucial considerations in making an investment decision by the investors (Bindu, 2017). It invites investors to learn about the various biases that may appear in them and then take steps to avoid them, thus increasing their performance (Shunmugathangam, 2017). Moods and emotions can play helpful and disruptive roles in decision-making. Emotions can be trusted to lead to good or bad decisions (Shiv et al., 2004). Investors' psychological tendencies have a significant impact on the purchase of securities. The investor's psychological biases and subsequent investment-related behaviour are persistent and systematic (Pandit and Yeoh, 2014).

2.1. Factors in Decision Making

Rational decisions may be objective or subjective; if it is the correct behaviour to maximise the values given in a specific situation, it is termed as objectively rational, and if a decision maximises success relative to the subject's actual knowledge, it is called subjectively rational (Mahoney, 2012). Rational investors must consider all aspects and growth prospects of investment avenues while making investment decisions. This can be acquired through digital or advice-seeking searches in general and will influence the performance of investment (Baker and Nofsinger, 2002; Loibl and Hira, 2009). Professional investors and non-specialist investors do not differ statistically in irrational decision-making. Both experts and amateurs (professional and non-specialist) might be unconscious of the influence these biases have on their investment decisions (Stephan, 1998; Rzeszutek et al., 2015). The rational decision-making model emphasises investigating and logical assessment before selecting the best alternatives. This model is grounded on the hypothesis that cumulative social behaviour results from the behaviour of individual investors, which is just the opposite of the intuitive decision model (Uzonwanne, 2016). Congnitive Biases influence on investors' decision making, market reactions and earnings forecasts made by analysts (Karki et al., 2024). Awareness of investment opportunities and innovative financial instruments significantly affect investment decisions along with purchasing power, and internet usage (Chauhan and Patel, 2024).

The reviews of related literature evidenced the impact of Multiple Intelligence on many aspects of life like education, leadership, and social adjustment. Nevertheless, there are very few studies concerning investment behaviour or decision-making.

3. VARIABLES AND SAMPLE

The reputation of the firm, the firm's status in the industry, expected corporate earnings, profit and condition of the statement, past performance of firms' stock, price per share, feeling on the economy are the factors affecting investors' decision making. (Jagongo and Mutswenje, 2014).

There are a number of factors in investment decisions like the past performance of the company's stock, company stability, firm's goodwill, firm's reputation in the industry, dividend paid, expected corporate earnings and expected dividend (Kengatharan, 2019).

The identified factors of rational investment decisions of Indian stock market investors are general information, company management, prospectus details and financial parameters (Sreenivas et al., 2020). Rational and psychological decision-making models are concentrated on different points of view of decisions; the former depends on the mental process of information based on principles, values and beliefs. The latter establishes a weighing mechanism between alternatives and monetary values and leads to outcome optimisation (Oliveira, 2007). Investment decision-making depends on the degree of information dissemination, information content, information impact, specific inside issues and general outside issues on investors dominant in the given situations. This led to the investor's reaction, decision and unresolved reversals, and overreaction (Gowri and Ram, 2019). The factors in rational decision-making are return, risk, economic and social considerations, information, evaluation, influence from the persons in a narrow social circle and sustainability.

Figure 1 shows factors affecting rational decision making. I included the most prominent eight factors like Return, Economic consideration, influencing persons, Information dependence, Social consideration, Risk associated, Evaluation and Sustainability. While making decisions, investors are vulnerable to so-called behavioural biases, which interrupt the rationality of making investment decisions and contribute to inefficient market responses to information and, as a result, to asset mispricing (Camerer and Loewenstein, 2003). Individual psychological biases and differences have a solid influential role in the investment outcome. psychological biases can have an impact on risk-return optimisation and asset allocation in investment portfolios. The sources of investor biases that lead to investor investment faults can be put into the data for developing products and services that may save investors from interrupting their financial standing and future predictions (Mitroi, 2014). The economic expectations and overconfidence bias have a significant positive relationship with investment decision-making when the information searches are taken as mediating variables (Gill et al., 2018). Individual investors have a high level of involvement and overconfidence; at the same time, they are not much optimistic about the market's future outlook, and they have an aversion to risk (Kavitha, 2013).

Figure 2. shows factors affecting irrational decision making. Behavioural biases like Representativeness, Availability bias, Anchoring bias, Herd effect, Mental accounting, Gamblers' fallacy, Overconfidence and Regret aversion are the apparent biases in investment. (Kahneman and Tversky, 1979); (Benartzi and Thaler, 1995; Prelec and Loewenstein, 1998 and Thaler, 1999).

3.1. Intelligence

Investors' psychological, sociological and demographic factors are significant predictors of their investment. Financial service providers can use the regression equation to predict the portfolio choice of individual investors (Mak, and Ip, 2017). Psychological factors like Intelligence and personality are significant in investment behaviour. "Intelligence is the mental abilities necessary for adaptation to, as well as shaping and selection of, any environmental context" (Sternberg, 1997). Intelligence is a combination of numerous elements, one being a minute ability. Thus there are a number of specific Intelligence along with general factors (Thorndike, as cited by Garret, 1946). A single g-factor represents an individual's general Intelligence across multiple abilities. A second factor, s, refers to an individual's specific ability in one particular area (Spearman, as cited in Thomson, 1947). Thurstone's model's seven primary mental abilities are verbal comprehension, fluency, number facility, spatial visualisation, perceptual speed, memory, and inductive reasoning (Thurstone, as cited in Sternberg, 2003). Multiple intelligence theory is introduced with Seven types of intelligences like linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, and intrapersonal (Gardner, 1983). Naturalistic Intelligence is added to the multiple intelligences later (Gardner, 1987). In recent years, Gardner has introduced the ninth and perhaps most significant form of "intelligence," which he calls "existential" Intelligence. Others refer to it as "cosmic" or "spiritual" Intelligence. As I speculated the existential Intelligence, now Existential Intelligence got more acceptance and inquiries about this type of Intelligence. In COVID-19 hit the world, it is proved that human beings can adapt to the environment and change their behaviour when life is threatened (Gardener, 2020).

Gardener initially introduced Multiple Intelligence in the light of the biological origins of each skill in his book "Frames of Mind" in 1983. He updated his theory in the book "Intelligence Reframed" in 2000. As per this theory, an individual has more than one Intelligence, and each of them must have an identifiable core operation or set of operations. Multiple Intelligences, as per the theory, are:

Gardener and his followers treated all these intelligences are separate entities and related to the behaviour, attitude, personality, career preferences and success in different professions.

No.	Dimension	Concept	Attributes of persons	References
1	Verbal Intelligence (VI)	The cognitive ability to learn languages, interpret words and signs and use words that lead towards specific goals.	• Understand and use complex phrases or learn more than one language • Highly developed auditory skills • Marvel at the use of language.	Gardener (1983)
2	Logical Intelligence (LI)	It helps to analyse information or problems logically and investigate issues scientifically.	• Think conceptually in logical and numerical patterns • Making a connection between the bits of data • Curious about the universe. Interested in experiments and posing questions.	Gardener (1983)
3	Musical Intelligence (MI)	The ability to identify different sounds and distinguish between specific pitches, tones and rhythms.	• Immediate response to the sounds they hear. • Sensitive listeners • Reflect or reproduce music quite accurately.	Gardener (1983)
4	Spatial Intelligence (SI)	The capacity to visualise, recognise and manipulate patterns of vast space. This ability includes manipulating images, graphic skills and spatial reasoning.	• Think in pictures and need to develop visions for processing and retaining information.	Gardener (1983)
5	Kinesthetic Intelligence (KI)	The ability to manipulate both body and object with a keen sense of timing. This is the ability to control body movements and handle things skillfully through eye-hand coordination.	• Success as dancers, magicians, athletes, sportspeople and builders.	Gardener (1983)
6	Intra-personal Intelligence (II)	The capacity to be aware of his or her own emotions, needs, interests, confidence, feelings, motivation, attitude and personality.	• Understand the basis of their feelings, motivation and attitude. • Daydreamers, enjoy self-reflection and analysis and are able to assess themselves.	Gardener (1983)
7	Interpersonal Intelligence (IpI)	The ability to communicate effectively with others verbally and non-verbally and accurately understand others' emotions and mental states.	• Observe things from others' points of view to know how they think and feel.	Gardener (1983)
8	Naturalistic Intelligence (NI)	The ability to sensitise with the environment and distinguish and expertise in recognising and classifying species in the environment.	• Aware of even subtle changes in the environment • Interested in natural science	(Gardner, 1987)
9	Existential Intelligence (EI)	The ability to think about the meaning of life and human beings' existence and survival during unfavourable situations	• Futuristic and sensitive to rational decisions in difficult situations.	(Gardner, 2006)

The conceptual framework for the study
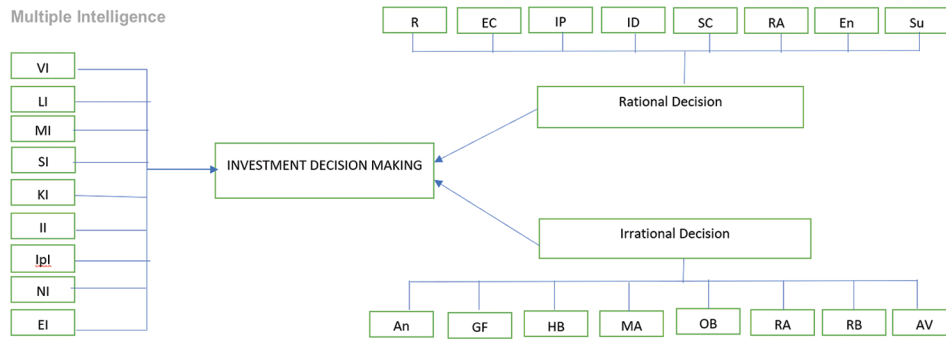
They have developed practical interpretation through Multiple intelligence theory, market segmentation and the interpretative Recreation Opportunity Spectrum (ROS). ROS has been used as the basis for creating a management tool concerned with visitors' social function using Rouse Hill Regional Park (Edinborough and Wearing, 2011). The psychological concept of Multiple intelligences can enhance the public participation model in the Multiple Intelligence theory (Hollander, 2011). After trying to answer some questions related to Intelligence, like what it studies and identified the main areas of work within contemporary intelligence studies in terms of historical, methodological organisational and policy perspectives (Gill and Phythian, 2016). Evaluated Multiple Intelligences theory and its application to gifted education and found that It is more helpful to developing gifted learners than traditional intelligence theories (Adetula, 2016). An empirical study from Haryana evidenced the gender difference among rural adolescence in their Multiple Intelligence. Male and female adolescents differ significantly in their Multiple intelligences (Kaur and Chikkara, 2008).

In the present study, the investigator aimed to study the role of multiple intelligences in investment. Here the researchers want to know the relationship between Multiple Intelligence and investment decision-making. The targeted population is salaried persons from Kerala.

The study was conducted in Kerala, and the data collected were duly analysed with the help of statistical techniques like multiple regression analysis, Pearson's correlation analysis, and the chi-square test. A structured questionnaire with two parts, like an investment decision-making questionnaire and a Multiple Intelligence inventory, is used for collecting data.

3.2. Research Questions
Is multiple Intelligence have any impact on rational investment decisions?

Here the investigator wants to know the role of investor intelligence in rational decision-making. Rational decision-making includes the decisions on investment related to the information available, return and risk of the particular investment avenue. Each investment avenue has its own risk and return; the rational investor might check the return, risk and other relevant matters before investing. The availability of information and market efficiency

Table 1: Reliability test of the questionnaire

Dimensions	Cronbach's α	Number of items
Investment decision making	0.756	47
Investor intelligence	0.895	36

also helps portfolio construction, analysis and rational decisions on individual portfolios. A few studies related to rational decisions and Intelligence and Emotional Intelligence. On the other hand, this study focuses on multiple Intelligence and rational decision-making on investment.

Is multiple Intelligence have any impact on irrational investment decisions?

Irrational decisions are mostly behavioural decisions and may not be intellectual in nature, so the investigators also want to know the role of investor intelligence in irrational decisions. Mainly the different dimensions of Multiple Intelligence

3.2.1. Objectives
To study the impact of multiple Intelligence in investment decision making – Rational and irrational decisions.

3.2.2. Hypothesis
There is no significant relationship between Multiple Intelligence and investment decision-making – Rational and irrational.

4. RESULTS, FINDINGS AND DISCUSSION

Content validity and construct validity test of the questionnaire is done. Construct validity test using the internal correlation between the items in each dimension. All the dimensions included four items, and the correlation between these four statements is calculated, and the items which are not significant are to be deleted. All the items are found significant and included in the final questionnaire. A reliability test was conducted using Cronbach's alpha.

Table 1 evidenced the Cronbach's alpha of both the variables are above the acceptance level and thus the items are finalized.

Table 2 shows the difference in investors' investment decisions by age, region and savings percentage by the initial ANOVA.

Table 2: Investment decisions related to demographic factors

Factors	Age		Locale		Savings percentage	
	Between groups	Within groups	Between groups	Within groups	Between groups	Within groups
Sum of squares	771.713	3919.277	376.31	4314.68	521.801	4169.189
F	6.301**		4.23*		2.972*	

*Significant at the 0.05 level (two-tailed), **Significant at the 0.01 level (two-tailed)

Table 3: Multiple comparisons

(I) age	(J) age	Mean difference (I–J)	SE
20–30	30–40	−3.4947	3.03966
	40–50	−7.8439	3.02670
	50–60	−9.6625*	3.27365
30–40	20–30	3.49474	3.03966
	40–50	−4.3491*	1.43879
	50–60	−6.1677*	1.90420
40–50	20–30	7.84390	3.02670
	30–40	4.34917*	1.43879
	50–60	−1.8186	1.88344
50–60	20–30	9.66250*	3.27365
	30–40	6.16776*	1.90420
	40–50	1.81860	1.88344
(I) locale	(J) locale	Mean difference (I−J)	SE
Rural	Semi–urban	2.16121	1.62661
	Urban	−2.47831	1.7230
Semi-urban	Rural	−2.16121	1.62661
	Urban	−4.63952*	1.5959
Urban	Rural	2.47831	1.7230
	Semi–urban	4.63952*	1.5959

*Significant at the 0.05 level (two-tailed). SE: Standard error

Table 4: Multiple regression – multiple intelligence and rational and irrational decision making

Multiple regression (multiple intelligence)	Rational decisions		Irrational decisions	
R^2	0.287		0.178	
F	4.026*		4.026*	
Adjusted R^2	0.216		0.096	
Model	Coefficient B	t	Coefficient B	t
Constant	76.472	15.844	32.693	13.203
VI	−0.757	−0.874	−0.508	−1.143
LI	2.132*	2.562	0.178	0.416
SI	1.977*	2.031	−0.596	−1.193
KI	0.514	0.514	1.522*	2.963
MI	1.684*	2.317	−0.322	−0.863
II	−0.416	−0.423	0.538	1.068
IpI	−1.787	−1.719	−0.275	−0.515
NI	−0.416	−0.582	−0.345	−0.942
HI	−0.769	−0.912	−0.973*	−2.251

*Significant at the 0.05 level (two-tailed). VI: Verbal intelligence, LI: Logical intelligence, MI: Musical intelligence, SI: Spatial intelligence, KI: Kinesthetic intelligence, II: Intra-personal intelligence, IpI: Interpersonal intelligence, NI: Naturalistic intelligence, EI: Existential intelligence

Table 3 shows after the *post hoc* test, it has been clear that the age group 30-40 years has a difference in investment decisions as compared to the 40 above group and the age group 20-30 has shown a different investment decision as compared to the 50-60 age group. Semi-urban and urban people show different investment decisions.

Table 5: Relationship between Rational and Irrational decision making

Correlations	
Rational decisions	Irrational decision
Pearson correlation	0.417**
Significance (two-tailed)	0.000
n	100

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

Multiple regression showed in Table 4 evidenced that multiple intelligence influences rational and irrational decision-making because the F values are significant at the 0.00 level. The coefficient of multiple determination is 0.216 for Rational decisions and 0.096 for Irrational decisions. Therefore above 21.6% of rational decisions and 9.6% of irrational decisions are explained by Multiple Intelligence.

4.1. Rational Decision-making and Multiple Intelligence

Rational investment decisions are significantly influenced by multiple Intelligence.

$F(9,90) = 4.026$, $P < 0.05$, R2 = 0.287. Among the nine variables, three added significantly to the prediction. The equation is Investment Decision Score = 76.472 + (2.132 × LI) + (1.977 × SI) + (1.684×MI).

4.2. Irrational Decision-making and Multiple Intelligence

Investor Intelligence significantly influences irrational decisions.

$F(9,90) = 2.164$, $P < 0.05$, R2 = 0.178. Among the nine variables, two added significantly to the prediction.

The equation is Investment Decision Score = 32.693– (1.522 × KI) – (0.973 × EI).

Thus the hypothesis; there is no significant relationship between Multiple Intelligence and investment decision-making is rejected.

Table 5 showed Correlation between Rational and irrational decision-making is established with an R-value of 0.417, which is significant at 0.001. According to the analysis, rational and irrational decision-making have a moderate positive relationship.

The partial correlation technique applied nine times for Rational and Irrational decisions are the main variables and controlling for each dimension of Multiple Intelligence. The Table 6 evidenced that all the analysis shows a significant relationship. Rational and irrational decision-making have a positive correlation that has

Table 6: Relationship between rational and irrational decision making - controlling each intelligence

Variable	R
VI	0.424**
LI	0.420**
SI	0.444**
KI	0.390**
MI	0.441**
II	0.418**
IpI	0.406**
NI	0.420**
HI	0.414**

**Correlation is significant at the 0.01 level (two-tailed). VI: Verbal intelligence, LI: Logical intelligence, MI: Musical intelligence, SI: Spatial intelligence, KI: Kinesthetic intelligence, II: Intra-personal intelligence, IpI: Interpersonal intelligence, NI: Naturalistic intelligence, EI: Existential intelligence

Table 7: Association between different decision-making criteria with each intelligence

Intelligence	Variables	Chi-square
VI	Investment depends on Information	36.889*
LI	Risk-taking behaviour in investment	29.349*
	Always taking calculated decisions	26.907*
	Increase investment where an increase in the stable income	31.183*
SI	Never withdraw investment before the maturity	38.498**
MI	I cannot save the extra income	27.24*
II	Family influence investment decision	37.015*
	Investment satisfying esteem needs, i.e., acceptance in a social group	36.334*
	Agent influence investment decision	67.734**
IpI	Sacrificing current income for future return	35.062*
NI	Environment consideration in investment	36.162*
	Preferences for sustainable investment	46.792**
HI	Preference of investment with the low capital loss	30.403*
	Sometimes borrow money for investment	50.295**

*Significant at the 0.05 level (two-tailed). **Significant at the 0.01 level (two-tailed). VI: Verbal intelligence, LI: Logical intelligence, MI: Musical intelligence, SI: Spatial intelligence, KI: Kinesthetic intelligence, II: Intra-personal intelligence, IpI: Interpersonal intelligence, NI: Naturalistic intelligence, EI: Existential intelligence

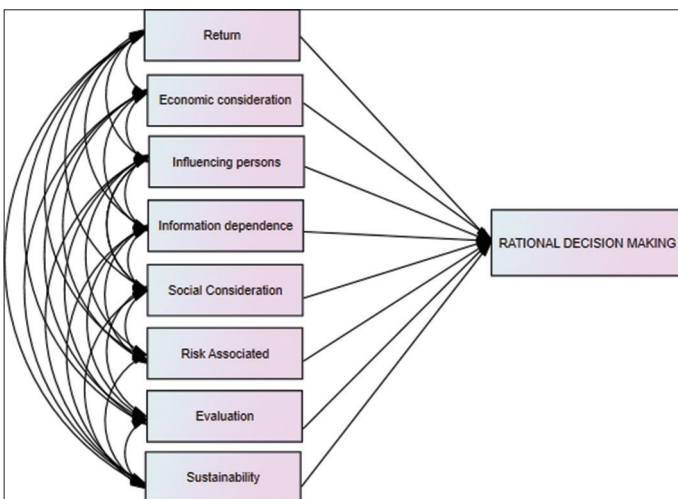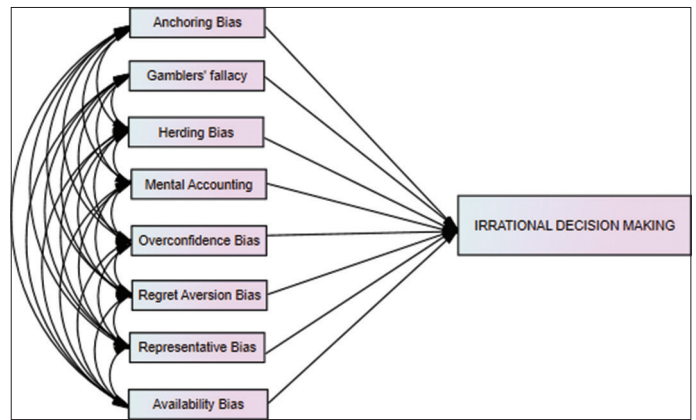**Figure 1:** Factors affecting rational decision making

Figure 2: Factors affecting irrational decision making

already been proven with simple correlation. After controlling each Intelligence, all the partial correlation coefficient values are moderate positive correlations.

Table 7 shows the result of chi square test for association between different decision-making criteria with each Intelligence.

Verbal Intelligence is associated with information dependence only, while Logical Intelligence is associated with risk-taking behaviour, calculated decisions, and investment from stable income. Never withdraw investment before maturity, and spatial Intelligence has an association. Kinesthetic Intelligence has no association with any of the above criteria for decision-making. Extra income cannot be invested by those who have more musical Intelligence. Interpersonal Intelligence is associated with family and agent influence in investment and acceptance in a social group. Sacrificing current income for future return has an association with Intrapersonal investment. Natural Intelligence is associated with environmental consideration and a preference for sustainable investment. The persons with more Existential Intelligence are aware of capital loss and are ready to borrow and invest.

4.3. Discussion

Multiple Intelligence is a group of psychological abilities in the cognitive structure of individuals. Multiple Intelligence is a theory developed by Howard Gardner, which conceptualises that human beings have nine types of intelligences. Investment decision-making may be rational or irrational. Here the assessment of the different dimensions of multiple Intelligence is done, and it is studied along with the investment decision-making of the individuals. The hypothesis, i.e. there is no significant relationship between Multiple Intelligence and investment decision-making, is rejected, and there is a significant relationship between these variables. All the variables have a substantial role in rational investment decision-making. Rational decision-making depends more on logical, kinaesthetic and spatial and less on verbal, musical, interpersonal, intrapersonal, mathematical and existential Intelligence. These dimensions have no significant role in irrational decision-making. There is a significant relationship between rational and irrational decision-making. Association tests were conducted for different variables, most of which were significantly associated.

5. CONCLUSION

Decision-making on investment is a crucial factor in the individual's financial well-being. Here the decision-making of the individuals was studied in relation to their Intelligence. The Intelligence here taken for the study is multiple Intelligence which includes nine types of Intelligence. Each Intelligence is a unique ability in character and may help in career selection, vision in life, and base of attitude and perception. The study was conducted in Kerala, the southern state of India, where the literacy rate and education are high. Investment decision-making is rational and irrational, and here both types of decisions are studied with multiple Intelligence. The nine types of intelligence and their influence on rational and irrational decision-making are rested statistically and found that there is a significant influence of multiple intelligences in the decision-making of individuals. Rational decision-making is intellectual in character, and irrational decision-making is behavioural in character. The behavioural factors affecting decisions are known as behavioural biases. Decisions are taken by cognitive analysis and intuition. After analysis, it is evidenced that rational decisions are dependent upon some types of Intelligence more than others. However, irrational decisions are also dependent on multiple intelligences. The study concludes that the multiple Intelligence of individuals has an impact on their investment decisions.

REFERENCES

Adetula, G. (2016), Emotional, social, and cognitive intelligence as predictors of job performance among law enforcement agency personnel. Journal of Applied Security Research, 11, 149-165.

Babu, R.G. (2007), Portfolio Management (Including Security Analysis). India: Concept Publishing Company.

Baker, H.K., Nofsinger, J.R. (2002), Psychological biases of investors. Financial Services Review, 11(2), 97-116.

Benartzi, S., Thaler, R.H. (1995), Myopic loss aversion and the equity premium puzzle. The Quarterly Journal of Economics, 110(1), 73-92.

Bindu, P.K. (2017), Analysis of investment pattern of college teachers in Kerala. International Journal of Advanced Research and Development, 2(2), 87-89.

Binmore, K. (2008), Rational Decisions. Ukraine: Princeton University Press.

Brain, P. (2022), 10 Differences between Rational and Irrational Thoughts. Available from: https://ideapod.com/rational-vs-irrational-thought

Burciu, A., Hapenciuc, C.V. (2010), Non-rational Thinking in the Decision-making Process. In: Proceedings of the European Conference on Intellectual Capital. Lisbon: Academic Publishing International Ltd. p152-160.

Camerer, C., Loewenstein, G. (2003), Behavioral Economics: Past, Present, Future. Mimeo: Carnegie Mellon University.

Chauhan, R., Patel, N. (2024), Unraveling investor behavior: Exploring the influence of behavioral finance on investment decision-making. Journal of Economics, Assets, and Evaluation, 1(4), 1-13.

Chinas, M. (2019), Efficient Market Hypothesis: Weak Form Efficiency: An Examination of Weak Form Efficiency. Portugal: Amazon Digital Services LLC - KDP Print US.

Dietrich, C. (2010), Decision making: Factors that influence decision making, heuristics used, and decision outcomes. Inquiries Journal/Student Pulse, 2(2), 180.

Edinborough, P., Wearing, S. (2011), Developing effective interpretation through Multiple intelligence theory, market segmentation and the interpretive opportunity spectrum: A case study of the preferred learning styles of Rouse Hill Regional Park visitors. Annals of Leisure Research, 8(4), 250-266.

Fama, E. (1970), Efficient capital markets: A review of theory and empirical. Journal of Finance, 25, 383-417.

Gardener, H. (1983), Frames of Mind: Theory of Multiple Intelligences. New York: Basic Books.

Gardner, H. (1983). Frames of Mind: Theory of Multiple Intelligences. New York: Basic books.

Gardner, H. (1987). The theory of multiple intelligence. Annals Of Dyslexia, 37, 19-35

Gardner, H. E. (2000). Intelligence reframed: Multiple intelligences for the 21st century. Hachette UK.

Gardner, H. (2006), Changing Minds: The Art and Science of Changing Our Own and Other Peoples Minds. United States: Harvard Business Review Press.

Garrett, H. E. (1946). A developmental theory of intelligence. American Psychologist, 1(9), 372–378. https://doi.org/10.1037/h0056380

Gill, P., Phythian, M. (2016), What is intelligence studies? The International Journal of Intelligence, Security, and Public Affairs, 18(1), 5-19.

Gill, S., Kashif Khurshid, M., Mahmood, S., Ali, A. (2018), Factors effecting investment decision making behavior: The mediating role of information searches. European Online Journal of Natural and Social Sciences, 7(4), 758-767.

Gowri, S.B., Ram, V.S. (2019), Influence of news on rational decision making by financial market investors. Investment Management and Financial Innovations, 16(3), 142-156.

Hollander, J.B. (2011), Intelligent participation: Engaging citizens through a framework of multiple intelligences. Community Development, 43(3), 346-360.

Jagongo, A., Mutswenje, V.S. (2014), A survey of the factors influencing investment decisions: The case of individual investors at the NSE. International Journal of Humanities and Social Science, 4(4), 92-102.

Kahneman, D., Tversky, A. (1979), Prospect theory: An analysis of decision under risk. Econometrica, 47(2), 363-391.

Karki, U., Bhatia, V., Sharma, D. (2024), A systematic literature review on overconfidence and related biases influencing investment decision making. Economic and Business Review, 26(2), 130-150.

Kaur, G., Chhikara, S. (2008), Assessment of multiple intelligence among young adolescents (12-14 years). Journal of Human Ecology, 23(1), 7-11.

Kavitha, C. (2013), Determinants of retail investors behaviour and its impact on investment decision. International Journal on Global Business Management and Research, 2(1), 75-85.

Kengatharan, L. (2019), Factors Influencing Investment Decisions in Stock Market: Evidence from Individual Investors in the Northern Province of Sri Lanka. 1st Asia Pacific Symposium on Academic Research (APSAR-2019). Available from: https://apiar.org.au/wp-content/uploads/2019/03/1_apsar_2019_brr717_bus_1-17.pdf [Last accessed on 2021 Sep 20].

Khan, A.A., Waqas, M. (2024), Behavioral finance factors influence on investment decision making of individual investors in PSX and PMEX. Journal of Accounting and Finance in Emerging Economies, 10(2), 63-72.

Loibl, C., Hira, T.K. (2009), Investor information search. Journal of Economic Psychology, 30(1), 24-41.

Mahoney, J.T. (2012), Economic Foundation Strategy. Urbana-Champaign: University of Illinois.

Mak, M. & Ip, W. (2017). An exploratory study of investment behaviour of investors. International Journal of Engineering Business Management, 9, 1-12.

Mitroi, A. (2014), Individual investment decision making process. Biases and remedies. Annals of the Constantin Brâncuşi University of Târgu Jiu, Economy Series. 1, 245-252.

Oliveira, A. (2007), A discussion of rational and psychological decision-making theories and models: The search for a cultural-ethical decision-making model decision-making theories and models. Electronic Journal of Business Ethics and Organization Studies, 12(2), 12-17.

Pandit, A., & Yeoh, K. (2014). Psychological tendencies in an emerging capital market: A study of individual investors in India. Journal of Developing Areas, 48(3), 129-148. https://doi.org/10.1353/jda.2014.0049

Prelec, D., Loewenstein, G. (1998), The red and the black: Mental accounting of savings and debt. Marketing Science, 17(1), 4-28.

Rzeszutek, M., Czerwonka, M., Walczak, M. (2015), Investor expertise and the rationality of decision making. Acta Universitatis Lodziensis Folia Oeconomica, 1(310), 133-140.

Shiv, B. , Lowenstein, G., Beehara, A., Damasio, H, & Damasio, A. R. (2004), Investment Behaviour and negative side of emotion. Psychological science. 16(6), 435-439.

Shunmugathangam, P. (2017), Investment decision making for small individual investors - A study with special reference to Tirunelveli District. International Research Journal of Engineering and Technology, 4(11), 1257-1261.

Simon, H.A. (1993), Decision making: Rational, nonrational, and irrational. Educational Administration Quarterly, 29(3), 392-411.

Sprecher, C.R. (1975), Introduction to Investment Management. United States: Houghton Mifflin.

Sreenivas, T., Dasari, R.B., Rajesh Babu, D. (2020), Impact of rational factors on investors' decision making at Indian stock market. Asia Pacific Journal of Research, 1(CVIV), 5-10.

Stephan, E. (1998), Heuristics and biases in decision making: The role of incentives, ability, and expertise. Acta Universitatis Lodziensis Folia Oeconomica, 1(310), 133-140.

Sternberg, R. J. (1997). The concept of intelligence and its role in lifelong learning and success. American psychologist, 52 (10), 1030.

Sternberg, R. J. (2003). Contemporary theories of intelligence. Handbook of psychology, 21-45.

Thaler, R.H. (1999), Mental accounting matters. Journal of Behavioral Decision Making, 12(3), 183-206.

Thomson, G. (1947). Charles Spearman, 1863-1945.

Uzonwanne, F.C. (2016), Rational model of decision making. In: Global Encyclopaedia of Public Administration, Public Policy, and Governance. Cham: Springer International Publishing. p1-6.

Von Neumann, J., Morgenstern, O. (1947), Theory of Games and Economic Behavior. 2nd ed. Ewing, NJ: Princeton University Press.