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Financial Risk Tolerance of Women Investors

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Abstract

Financial risk tolerance plays a vital role in shaping investor behaviour, influencing various personal financial decisions. Over the past decades, the study of how a person's risk perceptions affect actions has grown in significance as consumers, financial advisors, academics, and policymakers have been confronted with new and increasingly complex changes in the economic environment. The individual investor's financial risk tolerance (FRT) is the most important parameter for predicting investor behaviour. However, considering the task's reliance on multiple demographic variables, it is a tough job. This paper aims to determine the FRT of Kerala-based women investors and classify them based on their FRT. The present study has used several demographic variables to identify its association with FRT of Kerala -based women investors. The study used the 13-item FRT scale of Grable & Lytton 1999 to ascertain the FRT of women investors in Kerala. The women investors were classified into three categories based on their risk-taking abilities: aggressive investors, moderate investors, and conservative investors.

Keywords: Financial risk tolerance, women investors, investor behaviour, personal financial decisions, demographics.

Introduction

Exploration in financial risk tolerance is not recent, and it has been the epicentre of curiosity for hundreds of years to investors and researchers alike. The modern definition of risk is "rooted in the Hindu-Arabic numbering system that reached the West seven to eight hundred years ago". "Rational assessment of risk emerged during the Renaissance when people broke free from the restraints of the past and exposed long-held convictions to open challenge" (Bernstein 1996, p. 3). Risk is a crucial factor that determines how a person makes decisions, affecting their perception of everyday courses of action (Ricciardi, 2010).

Risk is the likelihood of a negative result. The term "risk" is interpreted in traditional finance in quantitative aspects such as standard deviation, beta, and variance; however, it is viewed as a subjective (qualitative) variable in behavioural finance. Behavioural finance integrates the concept of risk as exclusive to each individual and a multi-dimensional decision-making mechanism (Swisher & Kasten, 2005) and (Ricciardi, 2008). Individual decisions, primarily financial and investment, are influenced by risk (Yang & Qiu, 2005). According to Ritter (2003), investment decisions are influenced by investors' characteristics and psychological bias. The study aims to assess women investors' financial risk tolerance levels and examine the relationship between socio-economic factors and investors' risk tolerance levels.

Review of Literature

Definition of Risk:

In the securities market, the risk is expressed in outcome variance or volatility (Trone *et al*., 1996).

Investment risk is a concept that refers to the uncertainty or instability of returns. There are six main components of investment risk:

a) Liquidity risk,
b) Purchasing power risk,
c) Funding risk,
d) Risk/return tradeoff risk,
e) Ass*et al*location risk, and
f) Opportunity cost risk.

Definition of Risk Tolerance:

According to Grable (2008), Risk tolerance is defined as the "Maximum amount of uncertainty someone is willing to accept when marking a financial decision".

Investor risk tolerance applies to an investor's comfort level with investment uncertainty or variability (Schaefer, 1978).

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"The degree of risk to which an individual is willing to accept a less favourable investment result in order to pursue a more favourable investment outcome" (International Organization for Standardization, 2005)
Roszkowski (2010) defines risk tolerance as "the amount of risk that an individual is willing to accept in pursuing a goal".
People with a low-risk tolerance are likely to behave differently regarding uncertainty than those with a high-risk tolerance. A person with a high-risk tolerance is expected to "accept a higher risk exposure in the sense of taking sole responsibility, behaving with less information, and requiring less supervision than someone with a low-risk tolerance." (MacCrimmon & Wehrung, 1986, p. 34).
Individuals with low-risk tolerance:

a) Have fewer risks of losing capital,
b) Avoid working in unknown circumstances,
c) Accept less volatility, and
d) Seek more knowledge about an investment's outcomes (MacCrimmon & Wehrung, 1986).

In conclusion, people with a high-risk tolerance can tolerate unpredictable situations, while people with a low-risk tolerance demand assurance.
According to the literature, a person's demographic and socio-economic profile are essential variables to consider when deciding on risk tolerance (Suganya & Parvathi, 2014); (Bashir *et al*., 2013); (Mayfield *et al*., 2008). According to Roszkowski *et al*. (1993), at least 12 demographics can be used to distinguish between degrees of investor risk tolerance. Some traits, such as birth order, are empirically weak, while financial managers or academics do not consistently use others. The study explores the association between various socio-economic variables (age, education, occupation, number of dependents, marital status, source of investment, annual income) and financial risk tolerance.
Wallach and Kogan (1961) are widely credited as being the first to explore the connection between risk tolerance and age. Their early studies used choice dilemmas to prove that older people were more risk-tolerant than younger people. Other researchers like Faff *et al*. (2008), Wang & Hanna (2007), and Grable (2008) also discovered the significant role of age in deciding financial risk tolerance. Investment managers believe that marital status significantly impacts. In some instances, researchers have discovered that non-married people prefer higher investment risk than married people. Single people are considered risk-tolerant than married people because they have fewer commitments, especially concerning dependents and faceless social risk (Yao & Hanna, 2005). The risk tolerance level is influenced by factors such as income and wealth. According to Cohn *et al*. (1975), Friedman (1974), Schooley and Worden (1996); & Watson & McNaughton (2007), relative investor risk tolerance improves as wealth and income grow. Another aspect that affects a person's ability to take financial risks is their level of education. Higher levels of education are believed to be related to higher risk tolerance since education plays an essential role in the degree of awareness of the risks associated with financial investments. Therefore higher education promotes taking more financial risks (Al-Ajmi, 2008).

Objectives of the Study

The study's primary aim is to determine women investors' financial risk tolerance in Kerala. The study also has the additional objectives:

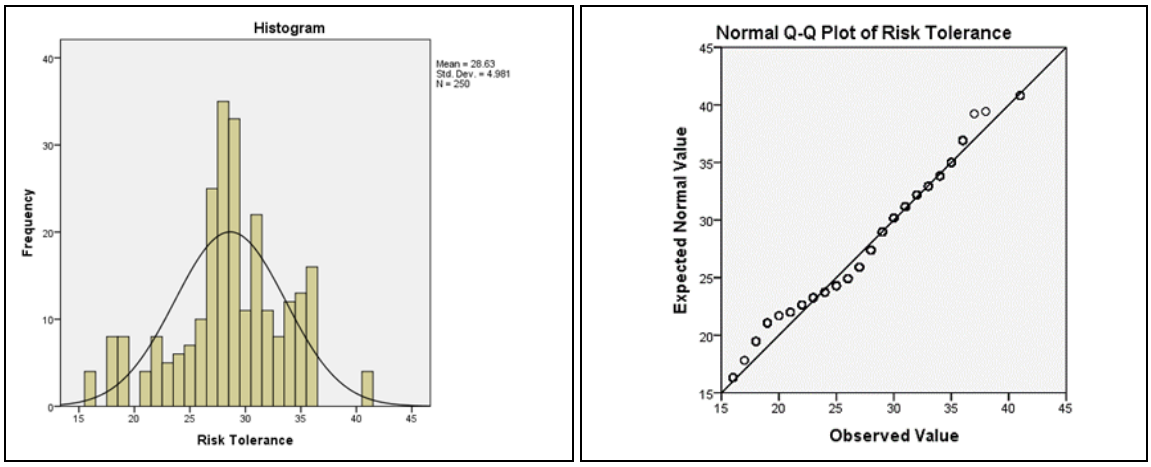
i). To assess the level of financial risk tolerance of women investors.
ii). To classify women investors based on their level of financial risk tolerance.
iii). To identify the association between various socio-economic variables and financial risk tolerance of women investors.

Hypotheses of the Study

The hypotheses have been formulated based on the objectives of the study. The hypotheses are as follows:
H_1: Age has a significant relationship with the financial risk tolerance of women investors.
H_2: Marital status has a significant relationship with the financial risk tolerance of women investors.
H_3: Education has a significant relationship with the financial risk tolerance of women investors.
H_4: Occupation has a significant relationship with the financial risk tolerance of women investors.
H_5: Number of dependents has a significant relationship with the financial risk tolerance of women investors.
H_6: Annual income has a significant relationship with the financial risk tolerance of women investors.

Research Design

The present study is descriptive and is based on the primary data collected from women demat account holders residing in Kerala using a well-structured questionnaire. The population consists of women investors in Kerala. Since the population for the present study was not quantifiable and definite, an appropriate sample size of 250 was used. Snowballing sampling method was used for the collection of data.
The questionnaire for the study has two parts- Part A consists of the demographics of women investors, and Part B measures the financial risk tolerance of women investors residing in Kerala. Grable & Lytton's (1999) financial risk tolerance scale was adapted for assessing the financial risk tolerance level of women investors in Kerala. Several researchers in their studies have checked the questionnaire's content validity over the years. Still, it was revalidated for the present study by a panel of financial experts, and the criteria validity and construct validity were also tested. The questionnaire's reliability was tested using Cronbach Alpha.
The Cronbach's alpha value is 0.680, Cronbach's alpha value based on standardised items is 0.681(Cronbach, 1951), Hotilins T Squared value is 459.546, F value is 36.604, and the significant value is 0.00. This means that the statements used in the questionnaire and the sample size are reliable and adequate at more than 99%. The financial risk tolerance data revealed a kurtosis of 0.229 and skewness of -0.341, which are well within the commonly accepted standards of ±1.96 (Cramer, 1998). The histogram and normal Q-Q plots also indicate that the data is normal.



Source: *Primary data*

Fig 1: Normality of Financial Risk Tolerance data.

The present study considers financial risk tolerance an essential element influencing investor behaviour. To assess the financial risk tolerance of women investors, the 13-item multi-dimensional risk assessment scale of Grable & Lytton (1999) was adopted, as it was the most cited and widely used risk assessment scale noted by Google Scholar Analytics (Google, 2014) and exhibits solid psychometric characteristics. The data collected is analysed using cross-tabulation and chi-square.

Findings & Discussions

Socio-Economic Profile of Women Investors

Socio-economic factors are vital in determining an investor's financial risk tolerance level. As a result, the current section describes the socio-economic profile of women investors in Kerala.

Table 1: Socio-Economic profile of women investors.

		Percentage			Percentage
Age	Young (<30 years)	72	Marital status	Single	41
	Old (≥30 years)	28		Married	59
Education	Intermediate	13	Occupation	Government sector	10
	Graduate	41		Private sector	52
	Postgraduate	46		Homemaker	16
				Others	22
Number of dependents	0	26	Work experience	< 10 years	81
	1-2	47		≥ 10 years	19
	>3	27			
			Annual income	< 25000	43
				25000-50000	5
Source of investment	Own Savings	91		50000-75000	5
	Borrowings	3		75000-100000	10
	Both	6		>100000	37
Annual savings	<25,000/-	68	Annual investment	<25,000/-	65
	25,000 – 50,000/-	21		25,000–50,000/-	22
	50,000 – 75,000/-	8		50,000-75,000/-	9
	75,000 – 1,00,000/-	2		75,000-1,00,000/-	1
	>1,00,000/-	1		>1,00,000/-	3

Source: *Primary data*

Table 1 describes the socio-economic profile of women investors in Kerala. It was seen that 72% of women investors belonged to the young category, whereas 28% belonged to the old, i.e., above 30 years. Among the women investors, 41% were single, and 59% were married. 46% of women investors were postgraduates, 41% were graduates, and 13% had acquired only intermediate education. Most women investors (52%) belonged to the private sector. 47% of the women investors had 1 to 2 dependents, whereas 26% had no dependents. Most of the women investors had a work experience of fewer than 10 years. Their primary source of investment was their own savings; only 3% resorted to borrowing. Most women investors had an annual income of less than 75,000/-. Their annual savings and investment were also below 25,000/-.

Investor Risk Segmentation

Investor segmentation is the mechanism of categorising individual investors into various subgroups focusing on their personality characteristics. Several studies in this area have classified investors into different subgroups based on their level of experience, allocation strategies, and behaviour (Bailard *et al*., 1986; Harrison, 1994; Gunnarsson and Wahlund, 1997; Waneryd, 2001; Wood and Zaichkowsky, 2004; Pompian, 2012). The current study tries to segment investors based on their risk tolerance level. Risk tolerance varies from individual to individual and is based on their circumstances. This segmentation is crucial for assessing the behavioural determinant and estimating risk tolerance. Many financial decisions are taken in unpredictable circumstances, and as a result, the risk is always present. Risk tolerance varies from person to person. A person's tolerance towards risk is the amount of risk he or she is willing to bear. The current study segments investors into three groups: Conservative investors, moderate investors and growth investors.

Table 2: Investor Risk Segmentation.

Categories	Frequency	Percentage
Conservative investor (low-risk tolerance)	43	17
Moderate investor (average risk tolerance)	187	75
Growth investor (high risk tolerance)	20	8
Total	250	100

Source: *Primary data*

Table 2. profile the investors into three categories. Most (75%) of investors had average risk tolerance levels and were moderates. In contrast, only 8% of investors showed high-risk tolerance, i.e., growth investors and 17% were considered conservative investors.

Association between Socio-economic Variables and Financial Risk Tolerance

Financial risk tolerance bears a significant impact on financial investment decisions. Several empirical studies in financial planning and financial consultation have been conducted to determine individual financial risk tolerance determinants. Various researchers (Irwin, 1993; Duasa & Yusof, 2013; Mishra & Mishra, 2014; Weber, 2014; Rahmawati *et al*., 2015; Fisher & Yao, 2017) over the centuries have analysed the effect of personal attributes, behavioural factors, and demographic variables (age, gender, marital status, educational level, income level, and wealth level) and cultural background on the financial risk tolerance levels of investors. To analyse the relationship between the various socio-economic variables and financial risk tolerance, chi-square and fisher's exact test is used in the present study.

Table 3: Chi-square & Fisher's Exact Test: Socio-economic variables and financial risk tolerance.

		Chi-square value	df	Fisher's Exact Test	Sig.	Comment
H_1	Age * Risk Tolerance [a]	59.958	2	57.069	0.000	Significant
H_2	Marital status * Risk Tolerance [a]	10.021	2	9.784	0.007	Significant
H_3	Education * Risk Tolerance [b]	11.884	4	11.120	0.018	Significant
H_4	Occupation * Risk Tolerance [b]	52.046	6	43.740	0.000	Significant
H_5	Number of dependents * Risk Tolerance [a]	95.522	4	82.806	0.000	Significant
H_6	Annual income * Risk Tolerance [b]	45.770	8	40.898	0.000	Significant

Source: *Primary data*

a) Chi-square – square test is used to determine the significance of the association between the variables.
b) Fisher's Exact Test determines the significance of association between the variables.

It can be generally noted from table 3. that all the demographic variables which were used in the study showed significant association with financial risk tolerance. As a result, this supports the findings of the earlier studies (Grable, 2000; Rajarajan, 2003; Grable & Joo, 2004; and Chattopadhyay & Dasgupta, 2015) conducted in this same line.

Age: Age is used by investment managers as a metric for a time and an indicator of someone's ability to recover financial losses. It is believed that elderly people have less time to recover losses than younger people. Probably the first analysis of the relationship between risk tolerance and age was done by Wallach and Kogan (1961). They found that older people were less risk-prone than younger people in their experiment with choice dilemmas. This discovery inspired people's interest in the topic, resulting in two decades of research using choice-dilemma methods (Botwinick, 1984; Vroom & Pahl, 1971). According to the life cycle hypothesis, risk tolerance decreases with age. However, there is evidence that risk tolerance rises with age (Wang & Hanna, 1997). The following hypothesis was formulated to assess the relationship between age and the degree of risk tolerance of women investors:

H1: *Age has a significant relationship with the financial risk tolerance of women investors.*

Table 3. indicates the association between age and financial risk tolerance of women investors. The Chi-square value for the age – risk tolerance relationship was 59.958 with a degree of freedom of 2 and was significant at a 5% significance level. As a result, H1 is accepted, i.e., it can be concluded that age has a significant relationship with the financial risk tolerance of women investors.

Marital Status: For two factors, investment managers consider marital status to be an active factor in assessing investor risk tolerance levels. To begin with, it is believed that single people have little to lose by taking on more risk than married people, who often have obligations to themselves and

dependents (Lee & Hanna, 1991; Roszkowski *et al*., 1993; Lazzarone, 1996). Secondly, according to Roszkowski *et al*. (1993), married people are thought to be more vulnerable to social risk, which is described as the possible loss of esteem in the eyes of peers and colleagues as a result of a poor investment decision. Studies conducted by Grable (2000), and Yao & Hanna (2005), also highlight that single investors were more risk-tolerant than married investors. The following hypothesis was formulated to assess the relationship between marital status and the degree of risk tolerance of women investors:

H2: *Education has a significant relationship with the financial risk tolerance of women investors.*

Table 3. indicates the association between marital status and financial risk tolerance of women investors. The chi-square value for marital status – risk tolerance relationship was found to be 10.120 with degree of freedom 2 and was significant at a 5% level of significance. As a result, H2 is accepted, i.e., it can be concluded that marital status has a significant association with women investors' financial risk tolerance.

Education: According to some researchers, higher education levels help people evaluate risks and benefits more carefully than someone with less education. According to MacCrimmon & Wehrung (1986), higher education has been shown to promote risk-taking, so financial advisers believe that higher levels of education are linked to higher levels of risk (Hammond, Houston, & Melander, 1967; Baker & Haslem, 1974; Masters, 1989; Lee & Hanna, 1995; Haliassos & Bertaut, 1995; Zhong & Xiao, 1995; Shaw, 1996; Sung & Hanna, 1996a, 1996b;). Grable & Joo (2004) and Gillian *et al*. (2011) discovered that an investor's education is related to risk tolerance. The following hypothesis was formulated and tested the following hypothesis was formulated and tested to assess the association of education.

H3: *Education has a significant relationship with the financial risk tolerance of women investors.*

Table 3. indicates the association between education and financial risk tolerance of women investors. The fisher's exact test value for the education – risk tolerance relationship was 11.120 and was significant. As a result, H3 is accepted, i.e., it can be concluded that education has a significant association with financial risk tolerance of women investors.

Occupation: Various studies (Blume, 1978; Quattlebaum, 1988; Masters, 1989; Roszkowski *et al*., 1993; Haliassos & Bertaut, 1995; Lee & Hanna, 1995; Leonard, 1995; Sung & Hanna, 1996a, 1996b) consider occupation as a screening factor for higher levels of risk tolerance among investors. According to Barnewall (1988), people with fewer risks tend to choose professions with low economic and political risks. The following hypothesis was formulated and tested the following hypothesis was formulated and tested to assess the association of occupation.

H4: *Occupation has a significant relationship with financial risk tolerance of women investors.*

Table 3. indicates the association between occupation and financial risk tolerance of women investors. The fisher's exact test value for the education – risk tolerance relationship was found to be 43.740 and significant at a 5% significance level. As a result, H4 is accepted, i.e., it can be concluded that occupation has a significant association with financial risk tolerance of women investors.

Number of Dependents: According to Hallahan *et al*. (2004), a nonlinear effect exists in the relationship between financial risk tolerance and the number of dependents. Based on the family development theory, various studies have reported a negative relationship between number of dependents and financial risk tolerance (Faff, 2011; Chaulk *et al*., 2003; Grable & Joo, 1999). Van de Venter *et al*. (2012) indicated that a person's financial risk tolerance score decreases as the number of dependents decreases. This is an intriguing finding, as previous academic studies have shown that people with more dependents have lower financial risk tolerance levels. The below hypothesis was formulated and tested to assess the association of the number of dependents with the financial risk tolerance of women investors.

H5: *Number of dependents has a significant relationship with financial risk tolerance of women investors.*

Table 3. indicates the association between the number of dependents and financial risk tolerance of women investors. The chi-square value for the number of dependents – risk tolerance relationship was found to be 95.522 with degree of freedom of 4 and was significant at a 5% significance level. As a result, H5 is accepted, i.e., it can be concluded that the number of dependents has a significant association with financial risk tolerance of women investors.

Annual Income: According to MacCrimmon and Wehrung (1986), people with higher incomes and millionaires take more chances than people with lower incomes. According to investment managers, increased income levels are correlated with access to more immediate capital (O'Neill, 1996), leading others to believe that increased income levels contribute to increased risk tolerance (Goodfellow & Schieber, 1997; Schooley & Worden, 1996; Shaw, 1996; Xiao & Noring, 1994; Cicchetti & Dubin, 1994; Hawley & Fujii, 1993-1994; Riley & Chow, 1992; Lee & Hanna, 1991; Blume, 1978; Cohn, Lewellen, Lease & Schlarbaum, 1975; Friedman, 1974). According to Grable & Joo (2004), financial risk tolerance positively affects income. The below hypothesis was formulated and tested to assess the association of annual income with the financial risk tolerance of women investors.

H6: *Annual income has a significant relationship with financial risk tolerance of women investors.*

Table 3. indicates the association between annual income and financial risk tolerance of women investors. The fisher's exact test value for the annual income – risk tolerance relationship was 40.898 and significant at 5% significance. As a result, H6 is accepted, i.e., it can be concluded that annual income has a significant association with financial risk tolerance of women investors.

Strength of Association between Socio-economic Variables and Financial Risk Tolerance

The association strength between two categorical variables is calculated by Phi and Cramer's V. Phi is computed by taking the chi-square value, dividing it by the sample size, and then taking its square root. Cramer's V is favoured over phi when one of the two categorical variables has more than two categories because phi fails to meet its minimum value of 0 (indicating no association) in these cases. These tests alter the chi-square statistic to account for sample size and degrees of freedom, and they aim to keep the test statistic's range between 0 and 1 (Field, 2009). The present study tries to analyse the association between the socio-economic variables and financial risk tolerance of women investors by using the above values.

Table 4: Measures of the association strength between variables.

	Phi	Cramer's V	Contingency Coefficient	Sig.	Comments
Age * Risk Tolerance [a]	0.490	0.490	0.440	0.000	Significant – Moderate association
Marital status * Risk Tolerance [a]	0.200	0.200	0.196	0.007	Significant – Low association
Education * Risk Tolerance [b]	0.218	0.154	0.213	0.018	Significant – Low association
Occupation * Risk Tolerance [b]	0.456	0.323	0.415	0.000	Significant – Moderate association
Number of dependents * Risk Tolerance [b]	0.618	0.437	0.526	0.000	Significant – Moderate association
Annual income * Risk Tolerance [b]	0.428	0.303	0.393	0.000	Significant – Moderate association

Source: *Primary data*

Notes:

a) Phi value is used to determine the strength of association between variables.

b) Cramer's V is used to determine the strength of association between variables.

Table 4. indicates a significant association between the various socio-economic variables and financial risk tolerance of women investors; their strength of the association varies from low to moderate. Age, occupation, number of dependents and annual income have moderate strength of association, whereas marital status and education show a low association strength.

Conclusion & Suggestions

Financial risk tolerance is a critical variable in determining the financial performance of an individual. It represents the level of risk that an investor is willing to accept for his/her investment at a given rate of return. The present study segments women investors based on their financial risk tolerance level. The women investors in Kerala were segmented into 3 clusters based on their risk tolerance level: conservative, moderate and growth investors. Moderate investors accounted for the highest proportion of women investors, as women are reluctant to assume high risk. Women investors are comfortable assuming low to medium risk and abstaining from high-risk investments. The socio-economic factors of women investors were analysed to determine their relationship with financial risk tolerance levels. All six variables used in the study showed significant association with financial risk tolerance, with the strength of their association varying from low to medium.

Based on the findings, it may be suggested that since women investors are risk averse, they must be provided with investment products that involve low to medium risk. Moreover, they need to be financially educated, and awareness programs must be conducted targeting this segment so that the women investors can assume higher risk and thus earn a better return on their investment products. Women should be motivated and inculcate the habit of assuming higher risks in their lives.

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