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The Role of Behavioural Factors in the Investment Decisions of Household Investors

Arumugam Subramaniam (Corresponding author)

Ph. D Scholar, Faculty of Post Graduate Studies

University of Jaffna, Jaffna, Sri Lanka

E-mail: fmsmani@yahoo.com

Thirunavukkarasu Velnampy

Professor in Accounting, Faculty of Management Studies and Commerce

University of Jaffna, Jaffna, Sri Lanka

E-mail: tvnamby@yahoo.com

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Abstract

The process of investment requires investors to take various types of decisions and the quality of those decisions determines the outcomes of the investment process. Standard finance theories and behavioural finance theories present different views on investment decision making based on the concept of rationality. Behavioural finance theories indicate that investors fail to perform in a completely rational manner when making investment decisions due to various biases. The objective of the study is to identify the behavioural finance based factors influence the investment decisions of household investors in the Northern Province of Sri Lanka. The necessary data for the study were collected from 1810 household investors in the Northern Province of Sri Lanka and the sample respondents were selected under Proportionate stratified random sampling method. The analytical tools of exploratory factor analysis and confirmatory factor analysis were used to analyze the data. The current study concluded that Representativeness bias, Overconfidence bias, Availability Bias, Loss Aversion bias, Regret Aversion bias and Herding influence the investment decisions of household investors.

Keywords: investment, investment decision, standard finance, behavioural finance, bias

1. Introduction

In the present world the term investment is frequently used one. Savings are generated when people abstain from current consumption for a future use and it provides the base for investment. Investment means the commitment of money in purchasing financial or other assets with the objective of obtaining return or yield or both of them. Jones (1994) defined the term investment as the commitment of funds to one or more assets which will be held over some future time period. Thus investment is a productive purposeful flow of capital.

Investment decision making is the important and integral part of the investment process. An investment involves the choice by an investor to place money in various categories of investment options. At present a large number of investment options or opportunities are available to investors and these options carry various types of characteristics. It is a big challenge to investors to select the one or more investment options from this endless list in order to invest their money. In addition, investors need to decide their investment mix and time horizon also. However, investors should provide more attention on their investment decision making since a wrong investment decision may lead to severe losses.

Standard or Traditional finance theories assume that investors are rational and they make optimum investment decisions rationally so as to maximise their wealth. However, Behavioural finance theories present an oppose view to traditional finance and assume that investors are not completely rational when making investment decisions and their investment decisions are subject to several cognitive and psychological biases. According to the behavioural finance theorists, psychology influences on the investment decisions of investors (Tverskey, 1990) and due to this reason investor's investment decisions become as acceptable one but not optimal one.

Behavioural finance is a combination of individual behavior and market phenomena based on the knowledge gained from the fields of psychology and finance (Fromlet, 2001). Behavioural finance theories attempt to explain investor irrationality and the decision making process based on cognitive psychology and biases related with people's beliefs and preferences. Several behavioral finance theories have been proposed and the most popular theories are Prospect Theory, Heuristic Theory, and Herding.

Prospect theory illustrates some states of mind that place impacts on an investment decision making processes, which include: Regret aversion, Loss aversion and Mental accounting (Waweru, Munyoki &Uliana, 2008). According to the theory of regret aversion, when evaluating investment alternatives, investors anticipate the possibility of regrets which may arise from a incorrect selection and the fear of regret persuade them to change their decisions. Particularly, by refusing to sell decreasing shares and willing to sell increasing shares investors try to avoid regrets (Forgel & Berry, 2006; Lehenkari & Perttunen, 2004; Shiller, 1998). Loss aversion theory indicates that losses are weighted about twice as heavily as gains(Kahneman and Tversky, 1991) and investors are willing to take more risks to avoid loss than to realize gains (Tversky and Kahneman, 1979).Mental accounting is a process by which investors think about and evaluate their financial transactions. Particularly investors organize their investments into separate accounts (Ritter, 2003).

Heuristics are the rules of thumb, which supports investors to make decisions simply in a complex and uncertain situation (Ritter, 2003). Different kinds of methods which are adopted by investors to reduce the efforts related to their tasks are called as heuristics. Representativeness, availability bias, anchoring, and overconfidence bias are some importance forms of heuristics. Kahneman and Tversky (1974) indicated that people tend to categorize the events as representative of a well-known class and this type of bias is called as representativeness bias. Availability bias takes place when investors evaluate the frequency of a class or the probability of an event by the ease with which instances or occurrences can be brought to mind (Tversky & Kahneman, 1974). Anchoring is the propensity of investors to depend too heavily or anchor on one trait or piece of information when making investment decisions (Lord, Ross and Lepper, 1979). The overconfidence bias indicates that investors are overconfident in their own abilities and skills to make investment decisions (Odean, 1998).

Theory of herding states the tendency of individual investors to follow the investment decisions of the majority. Hirshleifer and Teoh (2003) illustrated herding as mutual imitation leading to a convergence of action.

2. Research Problem

Khorsandi and Taleghani (2014), Abrar, Hassan, Ahmad, & Iqbal (2014), Rekik and Boujelbene (2013), Wamae (2013) and Grinblatt and Keloharju (2001) found that loss aversion bias influences investment decisions of investors. Similarly, Waweru, Mwangi & Parkinson (2014) observed that regret aversion bias has an effect on investment decisions. Waweru, Mwangi & Parkinson (2014), Rekik and Boujelbene (2013) and Rockenbach (2004) concluded mental accounting bias affects the investment decisions. However, Bashir, Javed, Ali, Meer & Naseem (2013) found that loss aversion and mental accounting biases have no effect on investment decision making.

Onsomu (2014), Waweru, Mwangi & Parkinson (2014), Rekik and Boujelbene (2013) and Chen, Kim, Nofsinger & Rui (2007) found that representativeness bias influences investment decision making. Similarly, Tekce & Yılmaz (2015), Cuong and Jian (2014), Waweru, Mwangi & Parkinson (2014), Kartasova (2013), Glaser and Weber (2007), Chen, Kim, Nofsinger & Rui (2007), Kim and Nofsinger (2003), Gervais and Odean (2001) and Odean (1999) observed evidences for the existence of influence of overconfidence bias on investment decision making. However, Onsomu (2014) and Rekik and Boujelbene (2013) indicated that overconfidence bias has no influence on investment decisions. In addition, Chang, Chao, & Yeh (2016), Waweru, Mwangi & Parkinson (2014), Wamae (2013) and Chang, Yeh & Chao (2012) concluded that anchoring bias has an effect on the investment decisions of investors. Bakar & Yi (2016), Waweru, Mwangi & Parkinson (2014), Seasholes and Zhub (2013), Liao, Li, Zhang & Zhu (2011), Davar and Gill (2009), Feng & Seasholes (2008) and Massa and Simonov (2006) found the evidences for the role of availability bias in investment decision making.

Chang & Lin (2015), Ton & Dao (2014), Wamae (2013), Kartasova (2013), Brahmana, Hooy & Ahmad (2012), Aduda, Odera & Onwonga (2012), Lao and Singh (2011), Demirer, Kutan & Chen (2010) and Dhar & Zhu (2006) concluded that herding influences the investment

decisions made by investors. However, Bakar & Yi (2016) found that herding has no influence on investment decisions.

3. Objective of the Study

The objective of the study is to identify the behavioural finance based factors influence the investment decisions of household investors in the Northern Province of Sri Lanka.

4. Review of Literature

Onsomu (2014) concluded that investors in the Nairobi Securities Exchange are influenced by availability bias, representativeness bias and disposition effect, whereas, overconfidence bias has no significant influence on investment decisions.

Abrar, Hassan, Ahmad, & Iqbal (2014) investigated the behaviour of individual investors and found that majority of individual investors believe that they have full knowledge of market and they show higher level of confidence on their specific skills.

Pourbijan, Setayesh & Janani (2014) surveyed 302 individual investors in the Tehran Stock Exchange, and found that there is an association between overconfidence bias of investors and their investment decisions.

Waweru, Mwangi & Parkinson (2014) carried out a survey on, Behavioural Factors Influencing Investment Decisions in The Kenyan Property Market, and found evidences for the existence of anchoring, representativeness, availability, overconfidence, regret aversion and mental accounting biases in investment decision making.

Bashir, Javed, Ali, Meer & Naseem,(2013) concluded that the overconfidence bias has a direct influence on the investor's decision making, however, loss aversion and mental accounting biases have no influence.

Rekik and Boujelbene (2013) conducted a study among 300 investors in Tunisian Stock Market and found that herding, representativeness, anchoring, loss aversion, and mental accounting influence the decisions of investors. However, overconfidence bias has no influence.

Zaiane (2013) examined the existence of the overconfidence bias in the Tunisian stock market and found that Tunisian investors tend to be overconfident.

Wamae (2013) found that herding, risk aversion and anchoring biases have an impact on the investment decisions of investors in the Nairobi Stock Exchange.

Liao, Li, Zhang & Zhu (2012) indicated that individual investors in China have a inclination to invest in stocks listed at the stock exchange that is geographically closer to them due to home bias.

Demirer, Kutan & Chen (2010) investigated the firms level data set of 689 firms from 18 different sectors in Taiwan Stock Exchange and observed strong evidences for herding bias in all sectors.

Chen, Kim, Nofsinger & Rui (2007) carried out a study by examining the data of 50,000 Chinese investors and found that representativeness bias and overconfidence bias influence the investment decisions.

5. Data Collection

The data for the study were collected through a structured questionnaire from 1810 individual household investors in the Northern Province of Sri Lanka under Proportionate stratified random sampling method. Proportionate stratified random sampling method based selection of sample respondent involves a process of stratification followed by random selection of samples from each stratum. Population is stratified on the basis of monthly income of the household investors. Table 1 shows the profiles of the respondents.

Table 1. Profile of respondents

Demographic Factors		Number of Respondents	Percentage
Gender	Male	1192	65.9
	Female	618	34.1
Age	<30	212	11.7
	31-40	419	23.1
	41-50	557	30.8
	51-60	451	24.9
	>60	171	9.4
Marital Status	Single	1513	83.6
	Married	297	16.4
Educational Qualification	Below G.C.E.O/L	137	7.6
	G.C.E.O/L	266	14.7
	G.C.E. A/L	829	45.8
	Diploma	194	10.7
	Graduate	300	16.6
	Post Graduate	84	4.6
Monthly Income	<25000	242	13.4
	25000-35000	542	29.9
	35001-45000	551	30.4
	45001-55000	297	16.4
	>55000	178	9.8
Occupation	Self Employed	591	32.7
	Private Sector Employee	487	26.9
	State Sector Employee	638	35.2
	Retired	94	5.2

6. Results and Analysis

6.1 Exploratory Factor Analysis

At the beginning, an exploratory factor analysis was carried out on the 19 items, to improve the reliability of the scale by identifying unsuitable items which can be eliminated and the dimensionality of constructs by examining the existence of relationships between items.

6.1.1 Analysis of Communalities

Communality is a measurement for the extent to which an item correlates with all other items and higher communalities are preferable.

Table 2. Communalities of the construct of behavioural finance based decisions

Item	Initial	Extraction
Representativeness		
Predicting future performance based on Past experience	1.000	0.837
Small sample size effect	1.000	0.827
Overconfidence		
Over precision	1.000	0.823
Over placement	1.000	0.830
Overestimation	1.000	0.736
Anchoring		
Anchoring on historical perception	1.000	0.799
Anchoring on purchase or initial value	1.000	0.817
Availability Bias		
Weights for familiarity	1.000	0.842
Use of easily available information	1.000	0.826
Loss aversion		
Risk preference based on prior gain or loss	1.000	0.882
Weights for loss and return	1.000	0.883
Risk Aversion		
Willingness to recognize losses	1.000	0.776
Willingness to recognize gains	1.000	0.788
Weights for pain of loss and joy of gain	1.000	0.714
Mental accounting		
Use of separate mental accounts	1.000	0.735
Considering the connections between mental accounts	1.000	0.791
Herding		
Imitating the choice of investment options of others	1.000	0.785
Imitating the buying and selling decisions of others	1.000	0.823
Speed of herding	1.000	0.805

Extraction Method: Principal Component Analysis

Table 2 indicates that the commonalties for the entire items under behavioural finance based decisions are greater than 0.6 and thus the data set of the study can be deemed to be suitable for further analysis (Taherdoost, Sahibuddin, & Jalaliyoon, 2014).

6.1.2 Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity for Behavioural Finance Based Decisions

The appropriateness of the factor analysis was investigated by using the Kaiser-Meyer Olkin (KMO) and Bartlett's Test and Table 3 shows the Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity statistics.

Table 3. Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity Measures for Behavioural Finance Based Decision Making

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.867
Bartlett's Test of Sphericity	Approx. Chi-Square	17491.488
	df	171
	Sig.	.000

Table 3 reveals that the Kaiser-Meyer-Olkin measure of sampling adequacy is 0.867 which is higher than the threshold of 0.6 as recommended by Field (2006). Further, Bartlett's test of sphericity shows an approximate Chi square of 17491.488 with 171 df and significance value of 0.000. Thus, the Bartlett's test of sphericity is significant and it supports the factorability of the data set and implies the existence of non-zero correlation among the items (Field, 2006). As a whole, the data set satisfies the basic requirements for factor analysis.

6.1.3 Results of Exploratory Factor Analysis

In the next step, exploratory factor analysis was conducted under principal component analysis method of extraction and varimax method of rotation. Table 4 shows the matrix of factor loadings structure.

Table 4. Matrix of factor loadings structure

Items	Components							
	Factor 1 OVC	Factor 2 HDG	Factor 3 RAV	Factor 4 REP	Factor 5 LAV	Factor 6 ANC	Factor 7 AVB	Factor 8 MAC
IN33	.865							
IN34	.855							
IN35	.759							
IN48		.884						
IN49		.872						
IN47		.860						
IN43			.821					
IN42			.795					
IN44			.763					
IN31				.864				
IN32				.852				
IN41					.824			
IN40					.817			
IN37						.841		
IN36						.804		
IN38							.792	
IN39							.776	
IN46								.834
IN45								.761

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization

Table 5. Matrix of variance explained

Description	**Factor 1 OVC**	**Factor 2 HDG**	**Factor 3 RAV**	**Factor 4 REP**	**Factor 5 LAV**	**Factor 6 ANC**	**Factor 7 AVB**	**Factor 8 MAC**
Eigenvalue	4.815	3.005	1.588	1.352	1.241	1.202	1.104	1.012
Percentage of explained variance	25.341	15.815	8.357	7.115	6.531	6.326	5.810	5.325
Cumulative percentage of explained variance	25.341	41.156	49.513	56.628	63.159	69.485	75.295	80.620
Number of items	03	03	03	02	02	02	02	02

Notes: OVC: Overconfidence, HDG: Herding, RAV: Risk Aversion, REP: Representativeness, LAV: Loss Aversion, ANC: Anchoring, AVB: Availability Bias, and MAC: Mental Accounting.

Table 5 shows the eigenvalues of factors, percentage of explained variance and cumulative percentage of explained variance. Based on Varimax rotation with Kaiser normalisation, eight factors have been extracted and they are Factor 1: Overconfidence, Factor 2: Herding, Factor 3: Risk Aversion, Factor 4: Representativeness, Factor 5: Loss Aversion, Factor 6: Anchoring, Factor 7: Availability Bias and Factor 8: Mental Accounting. Each factor is constituted of all those items that have factor loadings greater than 0.5. Altogether, 19 items were grouped into 8 factors and these 8 factors contribute to approximately 81% of the variance in the eigenvalues. Particularly, Factor 1 (Overconfidence) accounts for 25.34% of the variance with an eigenvalue of 4.815; Factor 2 (Herding) accounts for 15.81% of the variance with an eigenvalue of 3.005; Factor 3 (Risk Aversion)accounts for 8.36% of the variance with an eigenvalue of 1.588; Factor 4 (Representativeness) accounts for 7.12% of the variance with an eigenvalue of 1.352; Factor 5 (Loss Aversion) accounts for 6.53% of the variance with an eigenvalue of 1.241; Factor 6 (Anchoring) accounts for 6.33% of the variance with an eigenvalue of 1.202; Factor 7 (Availability Bias) accounts for 5.81% of the variance with an eigenvalue of 1.104 and finally Factor 8 (Mental Accounting) accounts for 5.33% of the variance with an eigenvalue of 1.012.

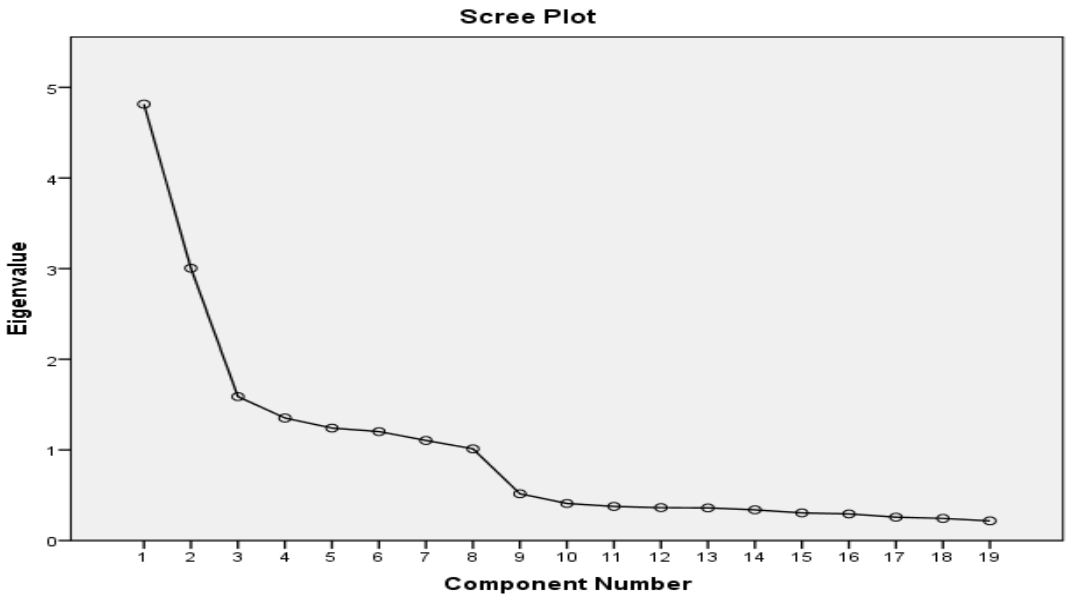

Figure 1. Scree Plot

Figure 1 shows the scree plot which reveals that there are 8 factors with an eigenvalue greater than 1.

Table 6. Summary of EFA results with factor loading and reliability

Items	Item No.	Factor Loading	Cronbach's alpha
Representativeness			0.812
Predicting future performance based on Past experience	IN31	0.864	
Small sample size effect	IN32	0.852	
Overconfidence			0.828
Over precision	IN33	0.865	
Over placement	IN34	0.855	
Overestimation	IN35	0.759	
Anchoring			0.809
Anchoring on historical perception	IN36	0.804	
Anchoring on purchase or initial value	IN37	0.841	
Availability Bias			0.823
Weights for familiarity	IN38	0.792	
Use of easily available information	IN39	0.776	
Loss aversion			0.836
Risk preference based on prior gain or loss	IN40	0.817	
Weights for loss and return	IN41	0.824	
Risk Aversion			0.820
Willingness to recognize losses	IN42	0.795	
Willingness to recognize gains	IN43	0.821	
Weights for pain of loss and joy of gain	IN44	0.763	
Mental accounting			0.820
Use of separate mental accounts	IN45	0.761	
Considering the connections between mental accounts	IN46	0.834	
Herding			0.832
Imitating the choice of investment options of others	IN47	0.860	
Imitating the buying and selling decisions of others	IN48	0.884	
Speed of herding	IN49	0.872	

Table 6 summarizes the EFA results with factor loadings of each item.

6.1.4 Construct Reliability and Validity

Reliability of a measure indicates the extent to which the measurements are repeatable. Cronbach Alpha coefficient was used to examine the reliability of the items in the construct.

Convergent validity specifies that items of a construct should share a high proportion of variance. Discriminant validity states the extent to which the measure is unique and not simply a reflection of other variables (Peter and Churchill 1986). Standardized factor loading values of items were applied to assess the convergent validity and the entire items should have a factor loading value greater than 0.5 (Fornell & Larcker, 1981). According to Table 6 the entire items have factor loading values which are greater than 0.5 and thus convergent validity is the validated one. Further, the discriminant validity was examined by using factor correlation matrix and correlation between factors should not exceed 0.7.

Table 7. Correlation matrix for the construct of behavioural finance based decision making

	REP	OVC	ANC	AVB	LAV	RAV	MAC	HDG
REP	1							
OVC	.169**	1						
ANC	.580**	.156**	1					
AVB	.174**	.551**	.175**	1				
LAV	.094**	.534**	.098**	.569**	1			
RAV	.240**	.532**	.307**	.586**	.548**	1		
MAC	.319**	.109**	.339**	.112**	-.033	.126**	1	
HDG	.165**	-.052*	.195**	-.100**	-.262**	-.086**	0.428**	1

Notes:

Correlation is significant at the 0.01 level

REP: Representativeness, OVC: Overconfidence, ANC: Anchoring, AVB: Availability Bias, LAV: Loss Aversion, RAV: Risk Aversion, MAC: Mental Accounting and HDG: Herding.

Table 7 shows that the entire correlation values between the behavioural finance based decisions factors were below 0.7 and indicated the existence of discriminant validity.

6.2 Results of Confirmatory Factor Analysis

The initial model for the construct of Behavioural Finance Based Investment Decisions had eight factors namely, Representativeness, Overconfidence, Anchoring, Availability Bias, Loss Aversion, Risk Aversion, Mental Accounting and Herding; with nineteen items. The initial confirmatory factor analysis for the construct of Behavioural Finance Based Investment Decisions provided a result of an insignificant regression weight for the factor of Mental Accounting and thus the Mental Accounting factor was removed.

The results of the confirmatory factor analysis carried out after removing the Mental Accounting factor also indicated a poor model fit situation. The CMIN/DF value was 12.363 as against the recommended level of 5.0 and Root Mean Square Residual (SRMR) was 0.122 as against the cut off value of below 0.08. Hence, in order to obtain a model with acceptable fit modifications in the model was carried out by investigating relevant modification indices (Byrne, 2010). The modification process resulted in removal of the factor of Anchoring. Thus, the modified current model for the construct of behavioural finance based decisions include the factors of Representativeness, Overconfidence, Availability Bias, Loss Aversion, Risk Aversion, and Herding.

The Figure 2 shows the results for the modified measurement model for the construct of behavioural finance based decisions and the model fit indices are summarized in Table 8.

Table 8. Summary results of model fit: Measurement model for behavioural finance based investment decisions

Model Fit Indices	Description	Threshold Values	Values of the Study	Acceptable / Unacceptable
CMIN/df	X^2 / Degree of freedom ratio	Below5.0	6.123	Close Fit
GFI	Goodness-of-Fit Index	>0.90	0.963	Acceptable
AGFI	Adjusted Goodness-of-Fit Index	>0.90	0.947	Acceptable
SRMR	Standardized Root Mean Square Residual	<0.05	0.073	Close Fit
RMSEA	Root Mean Square Error of Approximation	<0.08	0.053	Acceptable
CFI	Comparative Fit Index	>0.90	0.970	Acceptable
TLI	Tucker-Lewis Index	>0.90	0.963	Acceptable

CMIN/df value for the model is 6.123 which is slightly higher than the recommended value of 5.0. However, Goodness of Fit index (GFI) and Adjusted Goodness-of-Fit Index (AGFI) values of the Measurement Model For Behavioural Finance Based Investment Decisions are 0.963 and 0.947 respectively, which exceed the cut-off value of 0.9. Similarly, the Comparative Fit index (CFI), Tucker Lewis Index (TLI) are 0.970 and 0.963 respectively as against the recommended level of above 0.90. Root Mean Square Error of Approximation (RMSEA) value is 0.053 which is below the established cut-off value of 0.08. Root Mean Square Residual (SRMR) value is 0.073 as against the threshold value of below 0.05. However, Hu and Bentler, (1999) recommended that Root Mean Square Residual (SRMR) values as high as 0.08 are deemed acceptable. As a whole, the goodness of fit measures indicate that the current measurement model for Behavioural Finance Based Investment Decisions fits the data reasonably.

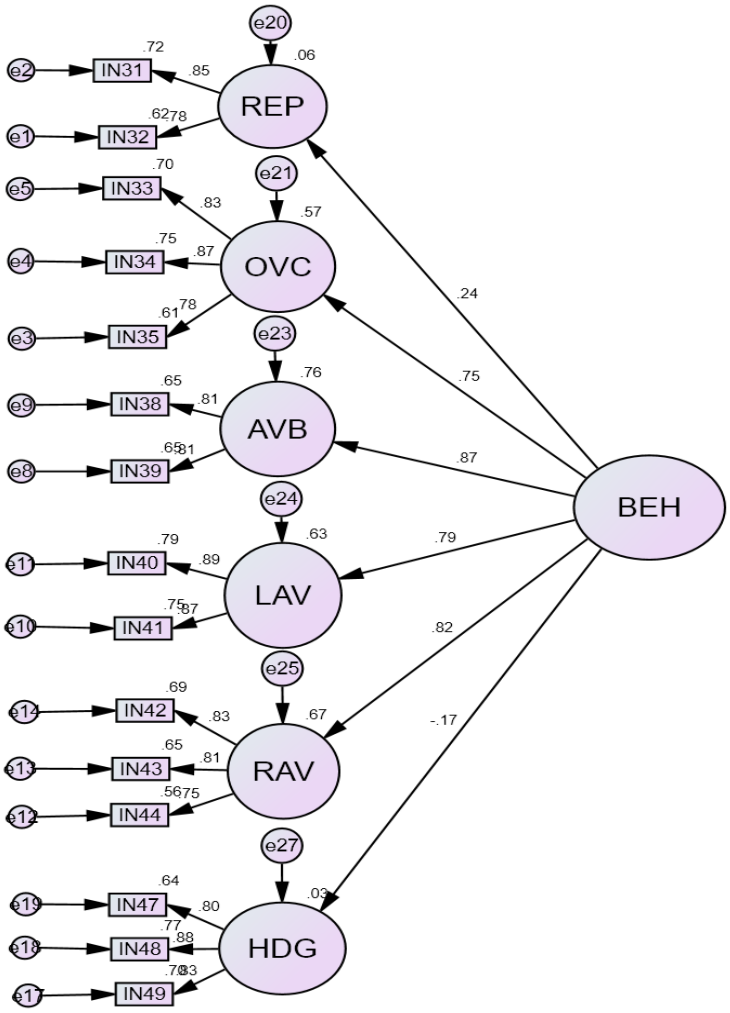

Figure 2. Measurement model: Behavioural finance based investment decisions

Note: Factor Loadings are significant at 0.001factor loadings are in the standardized regression weights.

Table 9. Factor loading of measurement model: Behavioural finance based investment decisions

Items	Item No.	Factor Loading	Composite Reliability	AVE
Representativeness			0.799	0.667
Predicting future performance based on Past experience	IN31	0.847		
Small sample size effect	IN32	0.785		
Overconfidence			0.868	0.687
Over precision	IN33	0.835		
Over placement	IN34	0.869		

Overestimation	IN35	0.780		
Availability Bias			0.789	0.651
Weights for familiarity	IN38	0.807		
Use of easily available information	IN39	0.807		
Loss aversion			0.869	0.769
Risk preference based on prior gain or loss	IN40	0.889		
Weights for loss and return	IN41	0.865		
Risk Aversion			0.840	0.636
Willingness to recognize losses	IN42	0.833		
Willingness to recognize gains	IN43	0.809		
Weights for pain of loss and joy of gain	IN44	0.749		
Herding			0.875	0.701
Imitating the choice of investment options of others	IN47	0.799		
Imitating the buying and selling decisions of others	IN48	0.877		
Speed of herding	IN49	0.834		

Note: Factor Loadings are significant at 0.001factor loadings are in the standardized regression weights.

The factor loading values of items, composite reliability (CR) and average variance extracted (AVE) for the constructs under Behavioural Finance Based Investment Decisions are shown in Table 9.

Trustworthiness and consistency of the data are investigated by using reliability measures. The minimum threshold value of 0.7 for composite reliability (CR) was used to investigate the reliability of the constructs. Since the composite reliability (CR) value for the whole constructs under Behavioural Finance Based Investment Decisions are greater than 0.7, the existence of reliability was evidenced.

Validity of measurement model for Behavioural Finance Based Investment Decisions was investigated in terms of convergent validity and Discriminant Validity. This study used the criterion of factor loading values of items and average variance extracted (AVE) should be greater than 0.5 and composite reliability (CR) should be higher than 0.7, to confirm the existence of convergent validity. According to the Table 9 the entire factor loading values are greater than 0.7 and average variance extracted (AVE) values for the entire constructs are higher than 0.6. Further, the criterion condition for the composite reliability (CR) value also fulfilled. Therefore, the existence of convergent validity was concluded.

Table 10 shows the Factor Matrix Showing Discriminant Validity, which was used to assess the Discriminant Validity by comparing the square root of the average variance extracted

(AVE) of each construct with correlation between each pair of constructs under Behavioural Finance Based Investment Decisions. Table 10 reveals that the square root of the average variance extracted (AVE) of each construct were higher than the correlation of the specific construct with the other constructs in the model and hence the existence of the discriminant validity was proved.

Table 10. Factor matrix showing discriminant validity for the constructs under behavioural finance based investment decisions

	Representativeness	Overconfidence	Availability Bias	Loss Aversion	Risk Aversion	Herding
Representativeness	**0.817**					
Overconfidence	0.169**	**0.829**				
Availability Bias	0.174**	0.551**	**0.807**			
Loss Aversion	0.094**	0.534**	0.569**	**0.877**		
Risk Aversion	0.240**	0.532**	0.586**	0.548**	**0.797**	
Herding	0.165**	-0.052**	-0.100**	-0.262**	-0.086**	**0.837**

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

Diagonal are square root of AVE and others correlation

Therefore based on the above results it can be concluded that behavioural finance based factors of Representativeness, Overconfidence, Availability Bias, Loss Aversion, Risk Aversion, and Herding play a significant role in investment decisions.

7. Discussion on Findings

Behavioural finance based investment decision making implies that investors fail to exhibit complete rationality when making investment decisions and mainly they follow various mental shortcuts in order to simplify their investment decisions. This study found that the behavioural factors that influence the investment decisions of individual household investors in the Northern Province of Sri Lanka are grouped into six dimensions such as Representativeness, Overconfidence, Availability Bias, Loss Aversion, Regret Aversion and Herding. The people in the study region believe that their professions are the only way to consolidate money and wealth and they fail to provide proper attention for investing their saved money in appropriate investment options. Particularly, due to this reason people fail to allocate adequate time and efforts to make investment decisions. In addition, investors face the problem of lack of knowledge and skills in making investment decision.

The results of the study provide the evidence for the effect of representativeness bias in the investment decisions of household investors and it is consistent with the findings of Onsomu (2014) and Waweru, Mwangi & Parkinson (2014). Since investors are not ready to spend

adequate effort and time in making investment decisions, they tend to make quick investment decisions based on the small number of past experiences. In addition, lack of necessary information and lack of knowledge in data analyze tools and techniques which are essential for assessing various investment options also force people to rely on recent past experiences heavily to make investment decisions.

According to the results of the study, overconfidence bias influence the investment decisions of investors and it is in agreement with the findings of Waweru, Mwangi & Parkinson (2014), Kim & Nofsinger (2003), Gervais & Odean (2001) and Odean (1999). The overconfidence bias relates with the general characteristics and believes of people and they allow these characteristics and believes to influence on the investment decisions taken by them.

The analyses of data of the study reveals that availability bias play a role in the investment decisions of the household investors and it is consistent with the findings of Onsomu (2014), Seasholes and Zhub (2013), Liao, Li, Zhang & Zhu (2012), Feng & Seasholes (2008) and French and Poterba (1991). As mentioned above, since the people in the study area fail to allocate adequate time and efforts in searching and collecting necessary information for making investment decisions, they rely on the easily available information and their main sources of information are their friends and relatives. In addition, they select familiar investments for investing their money in order to avoid the problem of searching information about the new investment options.

The results of the study confirms the role of regret aversion bias in investment decision making and it is in agreement with the findings of Waweru, Mwangi & Parkinson (2014). Generally, the people in the study region save and invest money for the purpose of satisfying certain long term and life based sensitive goals such as meeting the higher education and marriage expenses of their sons and daughters. Further, they provide more attention in protecting their hardly earned money. In this background, the negative outcomes which may arise from their wrong investment decisions would be very sensitive one for them.

The study found the evidences for the influence of loss aversion bias on investment decision making and it is supported by the findings of Abrar, Hassan, Ahmad, & Iqbal (2014), Wamae (2013), Grinblatt and Keloharju (2001) and Genesove & Mayer (2001). The reasons behind the regret aversion bias are applicable in the case of loss aversion bias also. Since the most of the people in the study region provide more attention on the safety of their money rather than earning return, they tend to take more risk in order to avoid losses than to earn more return.

The results of the study also indicates that herd behavior plays a role in investment decision making and it is consistent with the findings of Chang & Lin (2015), Cuong and Jian (2014), Wamae (2013), Aduda, Odera & Onwonga (2012), Demirer, Kutan & Chen (2010), Zoghalami and Matoussi (2009), Tan, Chiang, Mason & Nelling (2008)and Dhar & Zhu (2006). Lack of knowledge and awareness on investment and investment decision making, lack of adequate information which are essential for making investment decisions and lack of self confidence force household investors to follow the investment decisions of others.

8. Recommendations

Based on the findings of the study the following recommendations are suggested to improve the quality of the investment decisions of the household investors. Investors should not provide too much weights for previous losses in subsequent decision making and they should consider current information carefully. In addition, investors should find a real understanding of their own skills and abilities and in necessary situations they can consult with financial experts. Investors may form forums to assist each other in finding reliable information and they should learn and adopt quantitative investment decision making techniques and tools when making investment decisions. Further Governmental authorities should conduct investment training and awareness programmes to household investors in the region and should develop information network to facilitate the information needs of investors.

9. Conclusion

This study has made an attempt to identify the behavioural factors influencing the investment decisions of household investors and concluded that Representativeness bias, Overconfidence bias, Availability Bias, Loss Aversion bias, Regret Aversion bias and Herding influence the investment decisions of household investors. The findings of the study support household investors to improve the quality of their investment decisions and to increase the performance of their investments. In addition, the study findings provide an overview to the Governmental authorities about the measures to be taken by them to develop an improved investment culture.

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