Exploring Determinants to Explain Aspects of Individual Investors' Financial Behaviour

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Abstract

This study uses exploratory factor analysis and structural modelling to determine individual determinants that are likely to influence financial trading behaviour. A questionnaire was collected form 179 individual investors who traded in the United Arab Emirates. The study has determined three likely independent variables; namely, investors' perception of information asymmetry, market perceptions and overconfidence, that may predict investor's risk attitude. The findings are congruent with existing literature in this field, and add knowledge to the relatively new field of financial behaviour. These findings may provide valuable guidance for researchers and practitioners in understanding what may influence the risk attitude of investors and to explain possible reasons for inefficiencies of markets. Additionally, the study demonstrates the relevance of using structural modelling for understanding relationships between factors influencing financial behaviours, and in developing a behavioural framework.

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Introduction

As an attempt to explain the rationality behind financial decisions and the potential causes of market inefficiencies, Behavioural Finance is a relatively emerging field (Sewell, 2010). Understanding individual Behaviour is critical for soliciting determinants that may affect an individual's decision making process (East, 1993). The purpose of this study is to identify such determinants, while particularly focusing on the attitude of investors towards risk; which the literature classifies into three types: risk aversion, risk neutrality and risk inclination.

The literature on financial Behaviour that concentrates on the Middle East is limited, while that specifically using structural equation modelling to model investors' Behaviour is rare. Structural Equation Modelling (SEM) makes it easier to model complex relationships between a set of variables in a more flexible way than ANOVA or regression (Biza-Khupe, 2012). Also, Structural equation modelling caters for scale validity measures, the ability to select among competing models, and the ability to handle multiple depended and independent variables (Chau, 1997; Cheng, 2001). Our study contributes to the emerging literature on financial Behaviour by determining the relationship between four factors; perception of information asymmetry, market perception, overconfidence and risk attitude. Using SEM, our results suggests that there is good relationship between these four factors. Our research results have practical implications for both market regulators and researchers to assist them in understanding the different psychologies of individual investors.

The reminder of the article covers the literature on factors influencing investors' Behaviour, which is followed by a description of the research design and results. We conclude the paper with a discussion of major findings and areas for future research.

Literature Review

Xiao (2008) argues financial Behaviour research has evolved around a) describing financial Behaviour, b) understanding financial Behaviour, c) predicting financial Behaviour, d) changing financial Behaviour, and e) developing new financial Behaviour. Previous studies have also shown that attitudes towards risk can be associated with investment Behaviour (Wood & Zaichkowsky, 2004; Funfgeld & Wang, 2009). Demographic factors such as age, education, income and wealth have also been confirmed to have an impact on investor's attitude (Schooley & Worden, 1999; Barber & Odean, 1999; Riley & Chow, 1992;). Schooley and Worden (1999) found that investors with higher education levels possess higher percentage of equity securities in their portfolios.

Some investors are sensitive to risk and have fear of loss. MacCrimmon and Whrung (1995, p.1) define risk propensity as "willingness of people to take risks". Another important factor influencing the financial Behaviour of investors is cognitive bias; where the investor makes their decision based on previous performance (Oslen, 1997). De Bondt (1998) argues that

investor decisions are biased towards the success or failure with previous experience. Cognitive bias, is somewhat related to overconfidence, a feeling that investors develop implying that good things will happen to themselves more than others (Weinstein, 1980; Kunda, 1987); it is mere overestimation of their ability to perform better than others.

Other authors in an attempt to understand the financial Behaviour of traders, such as Gopi et al. (2007) have used theory of planned Behaviour (TPB) in predicting intention to trade online. Similarly, Alleye et al. (2011) have introduced the risk propensity to measure the investment intention among future investor using TPB. The results of their study indicated that risk propensity is one of the predictors of investment intentions.

Researchers have also examined the importance of financial literacy, which has a positive effect on financial Behaviour (Bernheim, Garret & Maki, 2001). Hussein et al. (2009) for example have assessed the financial literacy of the UAE investors who invest in their local market. Their study indicated a significant relationship between financial literacy and investment decisions, and concluded that "financial literacy is far from the needed level".

Financial knowledge may be categorized as objective and subjective knowledge (Friestad, 1995). Objective knowledge is tangible, unbiased and measurable, while subjective knowledge is about one's belief and perceptions of knowledge. In other words, "subjective knowledge" can be thought of as including an individuals' degree of confidence over his/her knowledge, whereas objective knowledge refers only to what an individual actually knows" (Brucks, 1995, p.5). Campbel and Kirmani (2000) simplify that Subjective knowledge reflects the self-confidence in making decisions, while objective knowledge assists in processing information analytically by applying knowledge from memory (Bettman & Sujan, 1987).

Daniel et al. (1998) have examined the investor's overconfidence in terms of their under and overreaction. Investors are susceptible to overreaction in response to news about economy, politics companies, etc., which in turn affects their decision making process (Daniel, 1998). Other researchers have shed light on the herding Behaviour, which is based on the belief that many people tend to mimic, by following actions of others, rather than acting on their own information (Graham, 1999; Devenow & Welch, 1996). In addition to these, there are many other theories and concepts that attempt to explain financial Behaviour, for example see the works of Barberis (2003) with reference to a survey of Behavioural finance. This study contributes to this growing body of knowledge to understand Behavioural finance.

Method and Participants

As mentioned earlier, the purpose of the study is to explore prevalent constructs that have the highest tendency to influence investor's risk attitude, with a specific focus on the United Arab Emirates. A closed ended questionnaire was developed, with aid from existing literature and prior experience of the researchers, as the mode for data collection. The questionnaire was directed to measure investors' perceptions using six variables:

1. Trading Behaviour in the market
2. Sources of information
3. Financial literacy
4. Risk Propensity
5. Confidence in trading
6. Perception of the trading environment

The questionnaire items were worded to capture investors' attitudes, perceptions, and actual Behaviour, and were measured using Likert Scale. Additionally, we collected demographics details. The questionnaire was initially tested for clarity in both Arabic and English languages. We used a purposive sample; the questionnaire was distributed to individual investors while they attended securities market in four major cities in the UAE. The data collection was carried out over a period of approximately six months. To ensure accuracy, the data was collected by a research assistant.

A total of 179 investors participated in this study and responded to the questionnaires. After data cleansing, 166 of these were usable for analysis. The individual investors belonged to different age groups, with 48.4% being ranging between 20-30 years and 51.6% being over 30 years of age. Other demographic details are indicated in Table (1):

Table (1): Participants' Demographics

	Freq.	%		Freq.	%
Age			**Salary**		
20-30	76	48.4%	< AED5000	33	20.9%
31-50	60	38.2%	AED 5,000 to AED 10,000	39	24.7%
>50	21	13.4%	AED 10,001 to AED 20,000	31	19.6%
Gender			AED 20,001 to AED 40,000	34	21.5%
Male	139	86.9%	>AED 40,000	21	13.3%
Female	21	13.1%	**Education Level**		
Marital Status			Less than high school	7	4.4%
Married	96	60.8%	High school	35	22.0%
Single	62	39.2%	Post diploma	13	8.2%
Employment Type			University degree	80	50.3%
Permanent full-time	77	58.8%	Post graduate	24	15.1%
Permanent part-time	7	5.3%	**Trading Frequency**		
Temporary / Seasonal	6	4.6%	1 or more transaction per day	48	31.0%
Self-employed	26	19.8%	1 or more transactions a week	53	34.2%
Full-time stock trader	15	11.5%	1 or more transactions a month	54	34.8%

Job Title			Years in the stock market		
Manager	27	23.9%	< 2 years	84	52.2%
Professional	20	17.7%	> 2 years	77	47.8%
Sales / Customer service	12	10.6%	**Investment Amount**		
Technicians	9	8.0%	Less than 50,000 AED	45	29.2%
Clerical	39	34.5%	50,000 to 30000 AED	54	35.1%
Production / Operations	6	5.3%	300,001 to 1,000,000 AED	32	20.8%
Nationality			1,000,001 to 5,000,000 AED	18	11.7%
UAE Nationals	73	45.6%	More than 5,000,000 AED	5	3.2%
GCC Nationals	15	9.4%			
Arab nationals - non GCC	45	28.1%			
Others	27	16.9%			

As indicated in the table, only 11.5 % of the surveyed investors were full time stock traders. Of the remaining, participants, they either held a full-time job (58.8%) or were self-employed (19.8%). The respondents' trading Behaviour also varied across the sample. 52.2% had less than two years of experience in trading while 47.8 % had experience of more than two years.

In terms of frequency of trading, 31% of the investors had one or more transaction per day, 34.2% had one or more transactions a week, and 34.8% had one or more transactions per month. Overall, the investment amounts were fairly large. 35.1% of investors traded between 50,000 to 300000 AED. While 32.5% had invested more than 300,000 AED and 29.2% had invested less than 50,000 AED.

Analysis

At the outset of the analysis, we started with 36 constructs measuring the above-mentioned six variables. Exploratory analysis was carried out to identify the latent variables from the original set of variables (Harrington, 2009). Table (2) lists all the variables and items that were considered for the analysis:

Table (2): Questionnaire items

Market Perception - factors influencing trading of stock and direction of the market.

      E1-Poor and/or unethical management practices

      E2-Growing competition in the business

      E3-General decline in the industry

      E4-Trust in the ESCA(Emirates Securities and Commodities Authority)

      E5-General decline in the economy

      E-6-Decline in oil prices

      E-7-Geo-political factors

Overconfidence

      C1-I am an experienced investor

      C2-I feel that on average my investments perform better than the stock market

      C3-When I make a winning investment, I feel that my actions and knowledge affected the result

C4-I expect my investments to perform better than the stock market

C5-I feel more confident in my own investment opinions over opinions of financial analysts

C6-I feel more confident in my own investment opinions over opinions of friends and colleagues

C7-I feel more confident in my own investment opinions over opinions of friends and colleagues

Information asymmetry Perception

S1-Sufficient data is provided to investors

S2-Reliable data is provided

S3-Information is provided in a timely manner

Financial Literacy

D1- To what extent do you use fundamental analysis in making your buying/selling decisions?

D2- To what extent do you use technical analysis in making your buying/selling decisions?

Risk Attitude

R1-I am prepared to take greater risks in order to earn greater future returns.

R2-When a large portion of my portfolio is invested in risky stocks, it usually makes me very worried, and stressed out.

Bartlett's test is used to verify whether a sample qualifies for a multivariate normal distribution. While the Kaiser-Mayer Olkin test (KMO) confirms the sufficiency of the data obtained from a sample. Exploratory analysis was carried out using SPSS version 18. The KMO value of the data was found to be 0.79, which is acceptable when above 0.50 (Marshall et al., 2007). The Bartlett's Test of Sphericity was also significant ($x2 = 727.972$; df =153; p=.000<.05).

The anti-image matrix was generated, and removed all items that were below 0.5 (Marshall et al., 2007). This was followed by using different rotational methods. The best result concerning the factors items was achieved with Varimax technique of orthogonal rotation, resulting in four factors with eigenvalue higher than 1 and also suppressing all loading values below 0.5. Table (3) shows the items and item loadings, which varied from .501 to .822. The accumulated explained variance for the four factors was calculated at 55.294 and its eigenvalue was 10.90. Further examination of the items revealed them to be meaningful and coherent among the aligned factor items. Consequently, they were named "Market Perception", "Overconfidence", "Information Asymmetry" and "Financial Literacy".

Following the factor analysis, reliability or internal consistency measures was carried out for each factor using Cronbach's alpha. We also checked for the possibility of removing any other additional factors in order to improve the reliability. The Cronbach's alpha, as highlighted in Table (3), for the four factors were: 0.85, 0.70, 0.78, and 0.68 respectively. The Cronbach's alpha for the fourth component was slightly below the recommended minimum of 0.7 of acceptable reliability (DeVellis, 1991, Spooren et al., 2007); however the component was retained since the study at this stage is exploratory (Hair et al., 1998). The other three factors have good reliability, indicating that the survey items appropriately measured the underlying constructs.

A Measurement Model was then constructed based on the four derived factors. The software AMOS version 18 was used to construct the measurement model and to carry out confirmatory factor analysis. Moreover, p-values for the regression weights and fit indexes were calculated. To account for missing data during the analyses, maximum likelihood estimates were used and the Full Information Maximum Likelihood algorithm.

After inspecting, the p-values for D01 and D02 (financial literacy) were removed from the model since they are not significantly different from zero, at the 0.05 level (two-tailed). Another analysis was carried out using only three factors and suggestions for modification of indices was used to improve the model fit (Harrington, 2009). Modification was only carried out within the same factor. Error covariance between item e1 and e2, e5 and e6, and between e8 and e12 were added.

Overall goodness of fit was measured using different types of fit measures (Hair et al., 1998; Hoyle, 1995; Kline, 1998); namely χ2/ degree of freedom ratio (CMIN/DF), RMR the root mean square residual, Comparative Fit Index (CFI), the Bentler–Bonnett Fit Index (NFI), the Tucker–Lewis Fit Index (TLI), the adjusted goodness of fit index (AGFI), and root mean square error of approximation (RMSEA).

The recommended values for CFI, NFI and TLI should be higher than 0.9 and close to 1.00 (Kline, 1998; Bentler, 1990; Byrne, 2001). RMSEA values for good model fit should be less than or equal to 0.06 (Hu and Bentler, 1999). A value of 0.05 or less is considered low and indicates a close fit of the model in relation to the degrees of freedom (Brown, 1993 and Hu and Bentler, 1999). For CMIN/DF, a ratio of less than 1.5 is considered to be very good, while a ratio of less than 2.00 is good (Kline, 1998).

The analysis resulted in CMIN/DF = 1.286, RMR = .084, GFI=.917, AGFI=.885, NFI=.848, TLI= .952, CFI=.960, and RMSEA =.042. This implies that the model offers a good model fit and the three factors provide good structure.

Figure (1) depicts the path diagram concerning the standardized results from the analysis, and Table (4) shows the regression weights for the final measurement model.

Table (3): Rotated Component Matrix

Constructs	Component				Cronbach's alpha
	1	2	3	4	
E01	.804				
E02	.752				
E03	.728				
E04	.714				.85
E05	.704				
E06	.616				
E07	.602				
C01		.653			
C02		.646			
C03		.643			.7
C04		.628			
C05		.590			
C06		.501			
S01			.779		
S02			.763		.78
S03			.747		
D01				.822	
D02				.742	.68

Table (4): Regression Weights

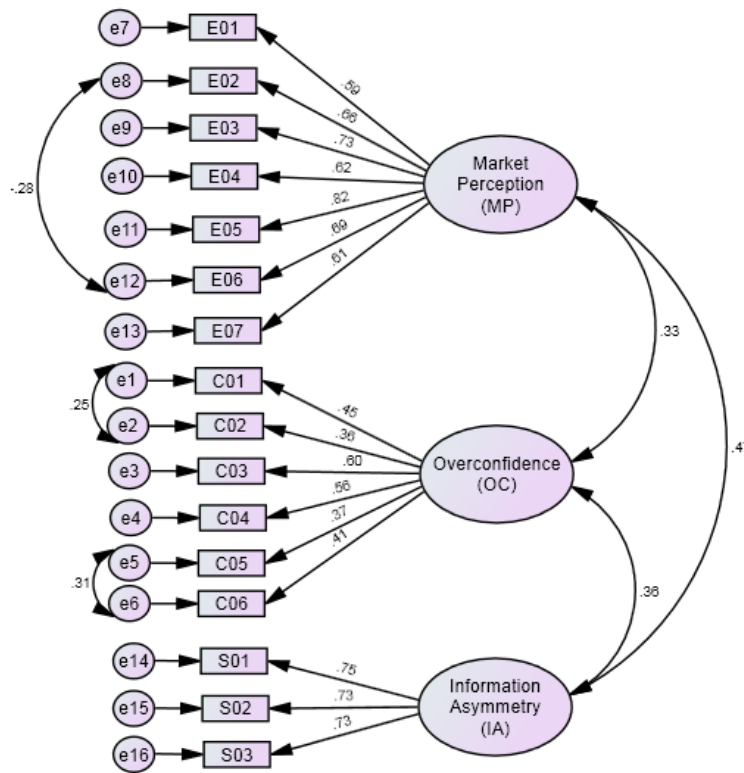| Paths			Estimate	S.E.	C.R.	P
C01	<---	OC	1			
C02	<---	OC	0.812	0.21	3.857	***
C03	<---	OC	1.088	0.255	4.26	***
C04	<---	OC	0.965	0.231	4.172	***
C05	<---	OC	0.776	0.233	3.329	***
C06	<---	OC	0.808	0.238	3.395	***
E01	<---	MP	1.114	0.167	6.686	***
E02	<---	MP	1			
E03	<---	MP	1.261	0.159	7.942	***
E04	<---	MP	1.046	0.152	6.899	***
E05	<---	MP	1.444	0.167	8.627	***
E06	<---	MP	1.119	0.166	6.752	***
E07	<---	MP	1.028	0.15	6.842	***
S01	<---	IA	1.061	0.138	7.691	***
S02	<---	IA	0.899	0.117	7.676	***
S03	<---	IA	1			

Figure (1) Measurement Model

As we have mentioned earlier, this study is exploratory and has no hypotheses to test. Therefore, in the next stage of the analysis, we proceeded with converting the measurement model to a structural equation model (SEM) to infer any causal relationships among the three factors; overconfidence (OC), information asymmetry (IA) and market perception (MP). The risk attitude factor at this stage is introduced to the structural model to see if these three factors can be predictors to risk attitude as the depended variable. The risk attitude factor was measured using 2-item scale, see Table (2). Table (5) shows the descriptive statistics and the correlations among the scales before constructing the structural model. As shown in the table all correlations are significant beyond the 0.01 level.

Different models were then constructed by either adding or removing paths and by changing the direction of direct effects (Kline, 1998). A search for alternative competing models was carried out using specification search provided by AMOS, which resulted in seven different models. Model seven shown in Table (6) is the most plausible model based on the calculated results.

Table (5) Correlations among scales

Items	Mean	Std. Deviation	C01	C02	C03	C04	C05	C06	E01	E02	E03	E04	E05	E06	E07	S01	S02	S03	R01
C02	2.7169	.75355	.371**																
C03	2.3735	.83428	.300**	.179*															
C04	2.5109	.77586	.188*	.251**	.346**														
C05	2.4471	.88440	.230**	.181*	.158*	.268**													
C06	2.4640	.89711	.156*	.110	.265**	.215**	.414**												
E01	3.2043	1.66739	.046	-.043	.036	.178*	.158*	.160*											
E02	3.1793	1.33722	.094	.010	.154*	.136	.058	.091	.382**										
E03	3.1394	1.53504	.185*	.065	.117	.127	.013	.183*	.390**	.508**									
E04	3.3122	1.50991	.181*	.092	.137	.100	.115	.198*	.433**	.311**	.437**								
E05	3.3041	1.56888	.177*	.000	.198*	.120	.012	.141	.461**	.561**	.612**	.536**							
E06	3.3909	1.44265	.042	.015	.135	.181*	-.068	.085	.431**	.307**	.471**	.464**	.553**						
E07	3.1223	1.49874	.109	.034	.070	.059	.139	.232**	.439**	.402**	.487**	.284**	.471**	.449**					
S01	3.6516	1.31469	.120	.178*	.135	.136	.056	.163*	.238**	.321**	.247**	.329**	.265**	.172*	.167*				
S02	3.7217	1.21987	.159*	.117	.145	.076	.007	.125	.049	.320**	.270**	.238**	.199*	.244**	.208**	.555**			
S03	3.7582	1.43258	.171*	.140	.186*	.196*	.023	.108	.174*	.233**	.196*	.326**	.309**	.293**	.123	.540**	.533**		
R01	3.5157	1.37447	.219**	.308**	.159*	.180*	.213**	.189*	.111	.137	.140	.143	.137	.006	.062	.334**	.120	.181*	
R02	3.1417	1.33729	-.013	-.041	.197*	.085	.086	.193*	.348**	.303**	.231**	.243**	.334**	.164*	.224**	.289**	.124	.236**	.262**

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

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

Figure (2) – Structural model with risk attitude included
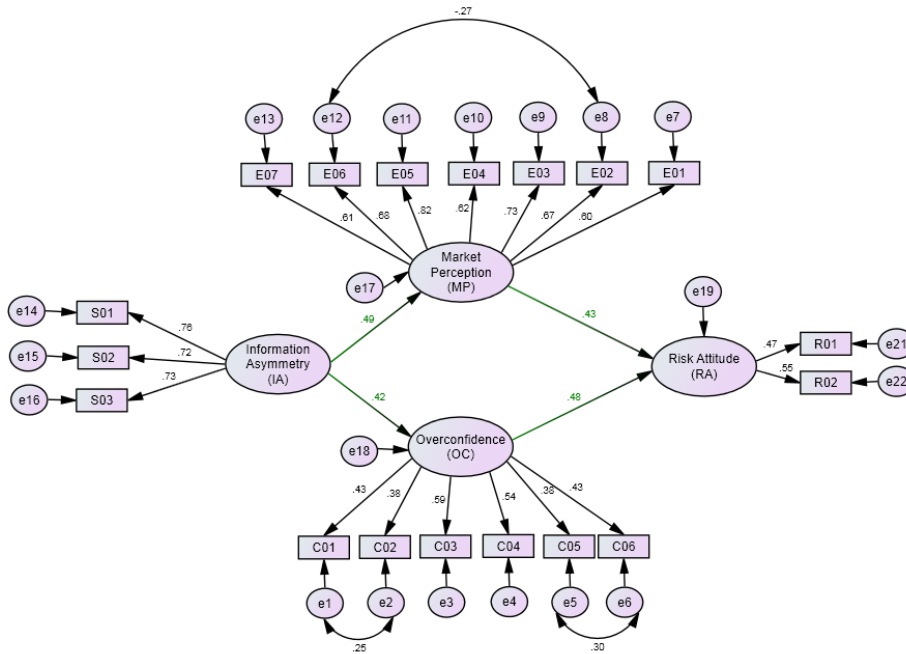
Model seven had the lowest AIC and BCC (equal to zero). According to the guidelines of Burnham and Anderson (1998), values ranging between 0-2, are an indication that there is no credible evidence that the model should be ruled out as being the best model for the population of possible samples (p.128). RMSEA also had the lowest value of .051. Additionally, we examined the regression weights, table (1), where all paths were found to be significant. All in all, the model can be complied as a good model fit, and the three factors can be considered as good predictors for determining risk attitude.

Overall goodness of fit for structure model number 7 was calculated and resulted in CMIN/DF = 1.432, RMR = .104, GFI=.893, AGFI=.857, NFI=.802, CFI=.928, RMSEA =.051. Figure 2 depicts the path diagram concerning the standardized results from the analysis. Table (7) shows the regression weights for the final measurement model, all paths are significant.

Table (7) Regression Weights for structural model

	Path		Estimate	S.E.	C.R.	P
OC	<---	IA	0.145	0.048	2.988	0.003
C01	<---	OC	1			
C02	<---	OC	0.828	0.231	3.585	***
C03	<---	OC	1.42	0.382	3.717	***
C04	<---	OC	1.215	0.334	3.632	***
C05	<---	OC	0.98	0.322	3.042	0.002
C06	<---	OC	1.106	0.341	3.244	0.001
E01	<---	MP	1.119	0.165	6.77	***
E02	<---	MP	1			

E03	<---	MP	1.252	0.157	7.975	***
E04	<---	MP	1.042	0.15	6.935	***
E05	<---	MP	1.441	0.166	8.709	***
E06	<---	MP	1.101	0.163	6.739	***
E07	<---	MP	1.021	0.149	6.855	***
MP	<---	IA	0.438	0.093	4.688	***
R01	<---	RA	1			
R02	<---	RA	1.144	0.344	3.329	***
RA	<---	OC	0.89	0.366	2.432	0.015
RA	<---	MP	0.311	0.109	2.862	0.004
S01	<---	IA	1			
S02	<---	IA	0.881	0.115	7.691	***
S03	<---	IA	1.053	0.136	7.762	***

Discussion

The purpose of this study is to explore determinates that may influence the Behaviour of financial investors. Through exploratory factors analysis and SEM, we were able to determine three factors that exhibit an influence on investors' Behaviour. The final model is depicted in Figure 2 and plausibly explains the constructs impacting investors' risk attitude. The model indicates that risk attitude relates with investors' perception in terms of three factors; availability of trading information (information asymmetry), how investors perceive market situations, and their level of self-confidence or overconfidence. These set of factors tends to explain the inefficiencies of markets (Shleifer, 2000).

The proposed model may be justified and explained using previous studies on cognitive bias. Investors are usually grouped according to their risk attitudes i.e. risk averse, risk inclined or risk neutral. Assessment of the risk attitude of investors is of importance in the domain of financial and economic activities to understand their beliefs, emotions and decision making processes.

This study makes several contributions, firstly, the study indicates that the financial literacy of UAE investors, rely less on technical analysis (16.77%) or fundamentals (12.4%) to aid their decision making process. Thus, most of the investors are not guided by quantitative methods.

Secondly, in our developed model, investors' risk attitudes are influenced predominantly by their level of overconfidence, or how they view their own abilities (Shefrin, 2007). The level of overconfidence rests on investors' perception of their own knowledge, and rises with the belief of knowing more than others (Hilton, et al., 2011). Individuals perceptions are prone to errors due to various biases such excessive optimism, overconfidence, confirmation bias, and the illusion of control (Shefrin, 2007; Trivers, 1991). According to Shefrin (2007),

overconfidence may result in overestimation, which may further lead to either favourable or unfavourable outcomes and can also underestimates risk or to perceive risk correctly (Mueller & Brettel, 2012).

As mentioned earlier, overconfidence in the model is a criterion that influences the risk attitude of individuals. Previous studies have indicated that overconfidence also leads to exposure to higher risk. Therefore, higher exposure may be used as a proxy for overconfidence (Barber & Odean, 2000, 2001; Odean, 1999). The present study indicates that excessive trading by investors was possibly caused by overconfidence. When the respondents were asked about the frequency of trading, it was noted that 31% of investors traded more than once per day, while another third traded once per week. According to the theoretical models developed by Odean (1998) and Gervais and Odean (2001), overconfident investors will frequently engage in more costly trading more than rational investors, thus leading to overestimating their expected profits. Odean (1998) argue that overconfident investors may deceivably believe that they have more information, thus will trade more, resulting in reduced returns.

Self-attribution is considered as an important source for overconfidence, as confirmed by Yenshan and Cheng-Yi (2010). In their empirical study, they provide evidence that overconfidence, augmented by self-attribution bias, plays an important role in differentiating Behaviour in investment performance between infrequent bidders and frequent bidders. Kuo and Lin (2013), also argue in their study that excessive trading can by hazardous to the wealth of individual investors, but only to the overconfident losers, but not to informed or skilful winners.

Market perception is another factor that has direct relationship with the risk attitude of investors. Perception is how we view our world; what we see or fail to see in it, and what we may see that isn't there (Herrmann-Keelin, n.d). It is the framework through which we see our personal world. Under this variable a number of concepts may affect how investors perceive the market and the factors impacting their perceptions. For example, the concept of confirmation bias, i.e. giving high importance to only that information which supports a trader's views and beliefs. Traders may spend a lot of time seeking information to reason and confirm their views. The amount of information investors hold, combined with their reasoning, will form their mind-sets towards risk attitudes (Edwards 1954, 1992, Hogarth 1987, Kahneman & Tversky 1979, Weber & Camerer 1987).

Our model also depicts that information asymmetry may have indirect relationship in influencing the risk attitude of investors. Information asymmetry is the existence of a trade-off between the desire to learn and the desire to prevent an opponent from learning private information. The concept gives advantage only to those who have access to that information.

Kun Chang et al. (2008) in their study have argued for the importance of the quality of the financial information provided to individual investors through companies' web sites since it affects the investors' decision quality. The study by Lawrence (2013) revealed that higher quality financial disclosures by firms encourage individuals to risk and invest more. The importance of information access has also been confirmed by examining insiders who have access to relevant information about the firm's performance, in a study by Van Geyt et al (2013), shows that insiders benefit from inside information during financial crisis trading, and which resulted in higher profits.

Furthermore, investors do not like situations where they are uncertain about the probability of outcomes (Ellsberg, 1961), and such situations leads to ambiguity aversion. Heath and Tversky (1991) argue that ambiguity aversion signifies the confidence individuals have about accessing given information. Therefore, investors' access to information may also influence their perceptions towards markets Behaviour, and may lead to overconfidence of the investor.

The three determinates overconfidence, information asymmetry and market perception, may in total contribute to the affective altitudes of the individual investor, which may affect their risk inclination. The importance of affective attitudes for financial decisions making is well supported in the literature (Goetzmann & Zhu, 2005; Subrahmanyam, 2008). For example the study by Kempf et al. (2013) supports that affective attitude is an important factor in the estimation of a stock's risk and return. Kempf et al. (2013) argue that investor's positive affective attitude overweight stocks, because they believe stocks to be more profitable and less risky as an investment. Also, Grable and Roszkowski (2008) in their study revealed clients in happy modes are susceptible to projection bias and lead to overestimation of an investor's risk tolerance level.

Finally, another important contribution of this study is the use of structural equation modelling to explain financial Behaviour, since, most of the previous studies on investors' financial Behaviour are more based on bivariate and multivariate modelling approaches.

In summary, the results of this study provide strong empirical support for the proposed model in identifying determinants that are closely associated with the risk attitudes of individual investors. These findings may provide valuable guidance for researchers and practitioners in understanding what may influence the risk attitudes' of investors. Access to information, market perception and overconfidence showed predictive capacity with respect to risk attitudes of individuals. However, the model is preliminary and requires further validation. Future studies should test the model on a larger sample, in a variety of settings, and also account for possible moderating effects of risk attitude on the relationship between the independent variables (Market perceptions, overconfidence and Information asymmetry).

Future studies could also examine the results across demographics variables, and assess them with respect to factors that determine financial Behaviour.

References

Alleyne, Philmore and Broome, Tracey. (2011). Using the theory of planned behaviour and risk propensity to measure investment intentions among future investors. Journal of Eastern Caribbean Studies, 36 (1), 1-20.

Barber, B.M and Odean, T. (2000). Trading is hazardous to your wealth: The common stock investment performance of individual investors. Journal of Finance, 55(2), 773-806. http://dx.doi.org/10.1162/003355301556400

Barber, B.M and Odean, T. (2001). Boys Will Be Boys: Gender, overconfidence, and common stock investment. Quarterly Journal of Economics 116(1), 261-292.

Barberis, Nicholas C., and Richard H. Thaler, (2003). A survey of Behavioural finance. In: George M. Constantindies, Milton Harris, and René M. Stulz, eds. Handbook of the Economics

Bentler PM. (1990). Comparative fit indexes in structural models. Psychol Bull. 107(2), 238-246. http://dx.doi.org/10.1037/0033-2909.107.2.238

Bernheim, B. D., D. M. Garrett and D. M. Maki. (2001). Education and saving: The long-term effects of high school financial curriculum mandates. Journal of Public Economics, 80(3), 435-465. http://dx.doi.org/10.1016/S0047-2727(00)00120-1

Bettman, J. R. and M. Sujan. (1987). Effects of framing on evaluation of comparable and noncomparable alternatives by expert and novice consumers. Journal of Consumer Research, 14(2), 141-154. http://dx.doi.org/10.1086/209102

Biza-Khupe. (2012). An Exploration of new frontiers in personal finance using structural equation modelling (SEM) - Towards improved research. The Review of Financial and Accounting Studies. 2, 17-27.

Browne MW, Cudeck R. (1993). Alternative ways of assessing model fit. In: Bollen KA, Bollen JS, editors. Testing structural equation models. Newbury Park, CA: Sage; 136-162.

Brucks, Merrie. (1985). The effects of product class knowledge on information search Behaviour. Journal of Consumer Research. 12, 1-16. http://dx.doi.org/10.1086/209031

Burnham, K. P., and D. R. Anderson. (1998). Model selection and inference: A practical information-theoretic approach. New York: Springer-Verlag. http://dx.doi.org/10.1007/978-1-4757-2917-7

Byrne BM. Structural equation modelling with AMOS. (2001). Mahwah, NJ: Lawrence Erlbaum.

Campbell, M. C. and A. Kirmani. (2000). Consumers' use of persuasion knowledge: The effects of accessibility and cognitive capacity on perceptions of an influence agent. Journal of Consumer Research, 27(1), 69-83. http://dx.doi.org/10.1086/314309

Chau, P. Y. K. (1997). Reexamining a model for evaluating information center success using a structural equation modelling approach. Decision Sciences, 28(2), 309-334. http://dx.doi.org/10.1111/j.1540-5915.1997.tb01313.x

Cheng, E. W. L. (2001). SEM being more effective than multiple regression in parsimonious model testing for management development research. Journal of Management Development, 20(7/8), 650-667. http://dx.doi.org/10.1108/02621710110400564

Daniel, K. D., Hirshleifer, D. A., & Sabrahmanyam, A. (1998). Investor psychology and security market under- and overreactions. Journal of Finance, 53(6), 1839-1885. http://dx.doi.org/10.1111/0022-1082.00077

De Bondt W.F. (1998). The psychology of under and overreaction in world equity markets. IIR Seminar on Behavioural Finance: The Psychology of Investment Decision Making. London.

DeVellis, R.F. (1991). Scale development: theory and applications (Applied Social Research Methods Series, Vol. 26). Newbury Park: Sage.

Devenow, Andrea and Ivo Welch. (1996). Rational herding in financial markets. European Economic Review 40(3), 603-615. http://dx.doi.org/10.1016/0014-2921(95)00073-9

East, R. (1993). Investment decisions and the theory of planned behaviour. Journal of Economic Psychology, 14 (2), 337-375. http://dx.doi.org/10.1016/0167-4870(93)90006-7

Edwards, W. (1954). The theory of decision making. Psychological Bulletin, 51(6), 380-417. http://dx.doi.org/10.1037/h0053870

Edwards, W. (1992). Utility theories: measurements and applications. Dordrecht, The Netherlands: Kluwer Academic Publishers. http://dx.doi.org/10.1007/978-94-011-2952-7

Ellsberg, D. (1961). Risk, ambiguity, and the savage axioms. Quarterly Journal of Economics 75, 643-69. http://dx.doi.org/10.2307/1884324

Friestad, M. and P. Wright. (1995). Persuasion knowledge: Lay people's and researchers' beliefs about the psychology of advertising. Journal of Consumer Research, 22(1), 62-74. http://dx.doi.org/10.1086/209435

Funfgeld, B. and Wang, M. (2009). 'Attitudes and behaviour in everyday finance: Evidence from Switzerland'. International Journal of Bank Marketing, 27 (2): 108-128. http://dx.doi.org/10.1108/02652320910935607

Gervais, S. & Odean, T. (2001). Learning to be Overconfident. Review of Financial Studies, Society for Financial Studies, 14(1), 1-27. http://dx.doi.org/10.1093/rfs/14.1.1

Gopi, M., Ramayah, T, (2007). Applicability of theory of planned Behaviour in predicting intention to trade online: Some evidence from a developing country. International Journal of Emerging Markets, 2(4), 348 – 360. http://dx.doi.org/10.1108/17468800710824509

Grable J. & Roszkowski M. (2008). The influence of mood on the willingness to take financial risks, Journal of Risk Research, 11(7), 905-923 http://dx.doi.org/10.1080/13669870802090390

Graham, John R. (1999). Herding among investment newsletters: Theory and Evidence. Journal of Finance 54(1), 237-268. http://dx.doi.org/10.1111/0022-1082.00103

Hair, J.F., Anderson, R.E., Tatham, R.L., Black, W.C. (1998). Multivariate data analysis. Prentice-Hall International, New Jersey, USA.

Harrington, D. (2009). Confirmatory factor analysis. New York: Oxford, University Press.

Heath, C. and A. Tversky. (1991). Preference and belief: ambiguity and competence in choice under uncertainty, Journal of Risk and Uncertainty 4, 5-28. http://dx.doi.org/10.1007/BF00057884

Herrmann-Keelin R. (n.d). Major concepts of Adlerian psychology. Available, http://www.lifecourseinstitute.com/majorcon.htm, Accessed Oct 2012.

Hilton, D., Régner, I., Cabantous, L., Charalambides, L., & Vautier, S. (2011). Do positive illusions predict overconfidence in judgment? A test using interval production and probability evaluation measures of miscalibration. Journal of Behavioural Decision Making, 24(2), 117–139. http://dx.doi.org/10.1002/bdm.678

Hogarth, R. M. (1987). Judgment and choice: The psychology of decision making. New York: Wiley.

Hoyle, R.H. (ed.) (1995). Structural Equation Modelling. SAGE Publications, Inc. Thousand Oaks, CA.

Hu LT, Bentler PM. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. Structural Equation Modelling. 6(1), 1-55. http://dx.doi.org/10.1080/10705519909540118

Hussein A. Hassan Al-Tamimi, Al Anood Bin Kalli. (2009). Financial literacy and investment decisions of UAE investors. Journal of Risk Finance, 10(5), 500 – 516. http://dx.doi.org/10.1108/15265940911001402

Kahneman, D., & Tversky, A. (1979). Prospect theory - An analysis of decision under risk. Econometrica. 47(2). 263-292. http://dx.doi.org/10.2307/1914185

Kempf A., Merkle C., Niessen-Ruenzi A. (2013). Low risk and high return – Affective attitudes and stock market expectations. European Financial Management, 0(0), 1–36.

Kline RB. Principles and practice of structural equation modelling (1998). New York, NY: Guilford Press..

Kun Chang Lee , Namho Chung & Inwon Kang (2008). Understanding individual investor's Behaviour with financial information disclosed on the web sites, Behaviour & Information Technology, 27(3), 219-227. http://dx.doi.org/10.1080/01449290601138146

Kunda, Z. (1987). Motivated inference: Self serving generation and evaluation of causal theories. Journal of Personality and Social Psychology, 53(4), 636-647. http://dx.doi.org/10.1037/0022-3514.53.4.636

Kuo, W.-Y., Lin, T. C. (2013). Overconfident individual day traders: Evidence from the Taiwan futures Market, Journal of Banking & Finance 37 (2013), 3548–3561. http://dx.doi.org/10.1016/j.jbankfin.2013.04.036

Lawrence A. (2013). Individual investors and financial disclosure. Journal of Accounting and Economics, 56 (1), 130–147. http://dx.doi.org/10.1016/j.jacceco.2013.05.001

MacCrimmon, K. R., & Wehrung, D. A. (1986). Assessing risk propensity. In L. Daboni, A. Montesano, & M. Lines (Eds.), Recent developments in the foundations of utility and risk theory (pp. 291-309). Dordrecht: Reidel Press. http://dx.doi.org/10.1007/978-94-009-4616-3_19

Marshall, A.P., Fisher, M.J., Brammer, J., Eustace, P., Grech, C., Jones, B. & Kelly, M. (2007). Assessing psychometric properties of scales: a case study. Journal of Advanced Nursing, 59(4), 398-406. http://dx.doi.org/10.1111/j.1365-2648.2007.04316.x

Mueller A. & Brettel M. (2012) Impact of biased pecking order preferences on firm success in real business cycles, Journal of Behavioural Finance, 13(3), 199-213. http://dx.doi.org/10.1080/15427560.2012.708372

Odean T. (1998). Volume, volatility, price, and profit when all traders are above average. Journal of Finance, American Finance Association, 53(6), 1887-1934.

Odean, T. (1999). 'Do investors trade too much? American Economic Review, 89(5), 1279-1298. http://dx.doi.org/10.1257/aer.89.5.1279

Olsen, R. (1997). Desirability bias among professional investment managers: Some evidence from experts. Journal of Behavioural Decision Making, 10 (1), 65-72. http://dx.doi.org/10.1002/(SICI)1099-0771(199703)10:1<65::AID-BDM246>3.0.CO;2-S

Riley, W. and K. V. Chow. (1992). Asset allocation and individual risk aversion. Financial Analysts Journal, 4896), 32-37. http://dx.doi.org/10.2469/faj.v48.n6.32

Schooley, D. and D. Worden (1999). Investors' asset allocations versus lifecycle funds. Financial Analysts Journal, Oct/Sept, 37-43. http://dx.doi.org/10.2469/faj.v55.n5.2297

Sewell, Martin (2010), Behavioural Finance. Available http://www.behaviouralfinance.net/behavioural-finance.pdf Accessed Oct. 2012

Shefrin, H. (2007). Behavioural corporate finance: decisions that create value. New York: McGraw-Hill/Irwin. 2-16.

Shleifer, A. (2000), Inefficient markets: An introduction to Behavioural finance. Oxford University Press. http://dx.doi.org/10.1093/0198292279.001.0001

Spooren, P., Mortelmans, D. & Denekans, J. (2007). Student evaluation of teaching quality in higher education: development of an instrument based on 10 Likert-scales. Assessment & Evaluation Higher Education, 32(6), 667-679. http://dx.doi.org/10.1080/02602930601117191

Trivers, R. (1991). Deceit and self-deception: the relationship between communication and consciousness. In : Man and Beast Revisited. M. Robinson&L.Tiger, Eds.: 175-191. Smithsonian. Washington, DC.

Van Geyt D., Van Cauwenberge P. & Bauwhede H. (2013). The impact of the financial crisis on insider trading profitability in Belgium, Journal of Business Economics and Management, 14(2), 364-385 http://dx.doi.org/10.3846/16111699.2011.652980

Weber, M., & Camerer, C. (1987). Recent developments in modelling preferences under risk. OR Spektrum, 9(3), 129-151. http://dx.doi.org/10.1007/BF01721094

Yenshan Hsu, Cheng-Yi Shiu (2010). The overconfidence of investors in the primary market. Pacific-Basin Finance Journal, 18. http://dx.doi.org/10.1016/j.pacfin.2009.12.002