Financial literacy and investment decisions of UAE investors

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Abstract

Purpose – The purpose of this paper is to assess the financial literacy of the UAE individual investors who invest in the local financial markets. In addition, it examines the relationship between financial literacy and the influence of the factors that affect the investment decision.

Design/methodology/approach – A modified questionnaire has been developed divided into three parts. The first part covers demographic variables. The second part identifies 37 factors affecting the investment decision of the UAE investors. The third part is devoted to financial literacy using exam-type questions of true or false and includes 18 questions. A convenient sample of 290 of UAE national investors is used.

Findings – The results indicate that the financial literacy of UAE investors is far from the needed level. The financial literacy level is found to be affected by income level, education level, and workplace activity. High-income respondents hold high educational degrees, and those who work in the field of finance/banking or investment had as expected a higher financial literacy level than others. Whereas, financial illiteracy exists regardless of the age of the respondents. A significant difference in the level of financial literacy was found as well between the respondents according to their gender. Specifically, women have a lower level of financial literacy than men. Finally, the results indicate that there is a significant relationship between financial literacy and investment decisions. The most influencing factor that affects the investment decision is religious reasons and the least affecting factor is rumors.

Originality/value – The current study is considered the first of its kind conducted on the UAE. To the best of our knowledge, no such studies have been conducted regarding measuring financial literacy in the UAE or the relation between financial literacy level and the factors that influence the investment decisions.

Keywords Financial information, Literacy, Investments, Investors, United Arab Emirates

Paper type Research paper

1. Introduction

Financial literacy has in recent years gained the interest of various groups including governments, bankers, employers, community interest groups, financial markets, and other organizations, especially in developed countries. The importance of improving financial literacy has increased due to factors including the development of new financial products, the complexity of financial markets, and the changes in political, demographic, and economic factors.

As a result of the increase in oil prices, the real gross domestic product per capita of the UAE has rapidly increased: for example, it was AED 72,878 (about US $19,847) in

2001 and AED 148,944 (about US $40,562) in 2006. Therefore, many locals now have extra money to save or invest, and look for investment opportunities. Moreover, with the highly competitive banking industry in the UAE, obtaining credit has been relatively easy. All the above factors make providing financial education an urgent issue. It should be noted here that individual investors represent a large proportion of the trading value, for example in 2006 they represented 81.3 percent of the total trading value in Abu Dhabi Securities Market (ADSM 2006) and 85.3 percent in Dubai Financial Market (DFM, www.dfm.ae).

This study assesses the financial literacy of the individual UAE investors who invest in the local financial markets. It also examines the effect of demographic factors on financial literacy, specifically age, gender, education, monthly income, employment status, and work activity. In addition, it examines the relationship between financial literacy and the influence of the factors that affect the investment decision.

2. Literature review
Financial literacy has been studied from different aspects. Government entities and private organizations in developed nations have conducted surveys to measure the financial literacy level of their population. A study by the OECD (2005) reviewed financial literacy in 12 countries including the USA, the UK, European countries, Australia, and Japan. The study found that all of the surveys conducted in those countries concluded that financial literacy is very low for most respondents.

Having an interest to extend their previous work in this field, Chen and Volpe (1998) examined the personal financial literacy of 924 college students from 13 campuses located in the USA. In addition, they investigated the relationship between the financial literacy level and gender, age, nationality, race, income, work experience, academic discipline, and class rank. The results of the study indicated that subgroups of academic discipline, class rank, and years of work experience were significantly different in terms of financial literacy level. Non-business majors, students in the lower class ranks, and those with little work experience had lower levels of financial literacy. In addition, women were far less literate than men, and foreign students were less knowledgeable than the US citizens.

Volpe *et al.* (2002) argued that online investors should have more knowledge than normal investors to succeed in the securities markets, because they are more likely to be surrounded by financial misinformation and manipulation. Therefore, the authors examined investment literacy of 530 online investors and the difference in the literacy level among various groups of participants using age, income, gender, education, and previous online trading experience as variables. The study demonstrated that the level of financial literacy varied with people's education, experience, age, income, and gender. Particularly, women had much lower financial literacy than men and older participants performed better than younger participants. As well, online traders had higher knowledge than others. Moreover, investors with higher income had more knowledge in investment than those with lower income, and investors with college or higher degree performed better than those with low education.

Mirshekary and Saudagaran (2005) assessed how different users of financial statements use the information items disclosed in the annual reports, as well as the importance of different sources of information in making investment decisions. They distributed a questionnaire to seven different groups of users of financial

statements in Tehran including stockbrokers, bank investment officers, and institutional investors. In general, respondents ranked the annual reports as the main influential source of information. The second most influential source of information was oral information and the third was published daily share price. On the other hand, the respondents ranked the least influential factors in sequence of importance: advice of friends and acquaintances, tips and rumors, and stockbrokers' advice. Mirshekary and Saudagaran concluded that the annual reports are used regularly in Iran as a basis for making investment decisions.

ACNielsen Research (2005) conducted a national survey of adult financial literacy in Australia. The main results of this survey indicated that the lowest levels of financial literacy were associated with people who have lower education, unemployed or unskilled workers, and people with low income, single people, and those at both extremes of the age profile. On the other hand, the 2005 results showed an overall improvement in the financial literacy of Australians.

The first research on the financial literacy level of the Singapore population was carried out in 2005 by the Money SENSE Financial Education Steering Committee, established by the government. The survey measured whether Singaporeans are knowledgeable about common financial products and services and whether they have been making effective decisions in managing their finances. The research revealed that Singaporeans have a healthy attitude toward basic money management, financial planning, and investment matters. Most Singaporeans save, monitor their spending, and have done some basic financial planning.

Volpe and Chen (2006) surveyed 212 benefit administrators in charge of personal finance programs in the US-based companies in order to specify important personal finance issues for working adults and assess their level of knowledge. The results revealed that the least important areas were estate planning and investment. Specifically, the least important topics were having knowledge of mutual fund prospectuses, mutual fund fees, and expense ratios. The participants also indicated that working adults were actually least knowledgeable about the same topics that they viewed as least important. In general, the benefit administrators indicated that the level of knowledge of working adults was relatively low.

Al-Tamimi (2006) investigated the most and least influencing factors on the UAE investor's behavior by surveying 343 individual investor. The most influencing factors were, in order of importance: corporate earnings, get rich quickly, stock marketability, past performance of the firm's stock, government holdings, and the creation of the organized financial markets. In addition, two factors had unexpectedly the least influence, namely religious reasons and family member opinions. However, the author did not consider the relationship between financial literacy and investment decision, which will be dealt with in the current study.

Maditinos *et al.* (2007) examined the techniques and methods used by six different groups of Greek investors: official members of the Athens Stock Exchange, mutual fund management companies, portfolio investment companies, listed companies, brokers, and individual investors. The results revealed that on average the participants ranked their instinct/experience as the most important factor followed by fundamental analysis and the movement of foreign financial markets. Noise in the market and portfolio analysis were considered the least important.

Five sets of general conclusions emerge from this literature review. The first refers to the low level of financial literacy regardless of the stage of economic development of the country.

The second refers to the relationship between financial literacy and demographic variables. The researchers discovered a strong relation between financial literacy level and gender, education, income level, and experience. There is evidence provided by researchers that women are less literate than men in financial matters. Besides, that, less educated individuals and those at the lower end of the income distribution are less literate about financial matters.

The third refers to the relation between the financial literacy level and investment decisions. It has been proven that highly literate investors prefer and use different criteria when making an investment decision than low-literacy investors. Highly literate investors prefer to use financial publications, whereas low-literacy investors relay more on advice from family, friends, and stockbrokers.

The fourth refers to the relationship between the factors that determine the investment decision and the investor type, portfolio size, and investment strategy. Individual investors rely on advice from friends, stockbrokers, rumors, their instinct/experience, and newspapers/media.

The last conclusion refers to the gap which exists in previous work, on the relationship between financial literacy and investment decisions. In the current study, there is an attempt to examine the relationship between financial literacy and investment decisions.

3. Research questions and hypotheses
This study attempts to answer the following questions:

RQ1. Is the financial literacy of UAE-national investors within the acceptable level?

RQ2. What are the most influential factors that affect the investment decisions made by UAE-national investors?

It is assumed that answering the first question will help to explore the level of financial literacy of UAE investors. It is also assumed that answering the second question will help to find out the most influencing factors in the decision-making process of UAE investors.

Based on the stated purpose of the study and on the research questions, the following hypotheses are formulated:

H1. The UAE-national investors' knowledge is well below the needed level.

H2. There is a positive significant relationship between financial literacy and age, gender, employment status, workplace activity, income, and education level.

H3. There is a significant difference between the level of financial literacy of UAE-national investors based on their gender.

H4. There is a significant difference between the level of financial literacy of UAE-national investors based on their age.

H5. There is a significant difference between the level of financial literacy of UAE-national investors based on their monthly income.

H6. There is a significant difference between the level of financial literacy of UAE-national investors based on their employment status.

H7. There is a significant difference between the level of financial literacy of UAE-national investors based on their workplace activity.

H8. There is a significant difference between the level of financial literacy of UAE-national investors based on their education level.

H9. There is a positive significant relationship between financial literacy and investment decisions of UAE-national inventors.

H1 will be tested rather informally, whereas the other eight hypotheses will be tested via a formal regression model.

These hypotheses have been formulated to examine whether or not the financial literacy level of UAE investors is at an acceptable level. If it is not, how may it be improved? For financial literacy improvement, what is the educational program most needed, and at whom should it be directed? For example, do women need more financial education than men and in what age group or at what income level? For financial literacy improvement, it is also might be important to consider the effect of education level, the type of work, and employment status. Finally, the relationship between individual investment decisions and financial literacy will be also considered, and this is reflected in *H9*.

4. Research methodology
4.1 Questionnaire design
The researchers employed a questionnaire modified from that used by Al-Tamimi (2006) and by the Monetary Authority of Singapore (2005) to assess or measure the financial literacy and the factors that determine investment decisions. Some researchers have used exam-type questions, whereas others have used self-assessment questions. In the current study, objective measures were used to assess the financial literacy level, while subjective measures were used to assess the effect of different factors on the investment decision.

The questionnaire consists of 62 questions of which six elicit demographic and socioeconomic information, 37 measure the influence of 37 different factors on determining the investment decision, and 18 measure the respondents' understanding of investment and finance.

The questionnaire is divided into three parts. The first part covers demographic and socioeconomic variables of age, gender, employment status, workplace activity, monthly income, and education level.

The second part identifies 37 factors affecting investment decisions of UAE investors using a five-point Likert scale ranking from 1 (strongly disagree) to 5 (strongly agree) the influence of each specified factor. The factors, or items, were categorized into eight items corresponding to self-image/firm image coincidence, 11 items corresponding to accounting information, six items corresponding to neutral information, five items to advocate recommendations, and seven items to personal financial needs.

The third part, which is devoted to financial literacy level, uses 18 exam-type true-or-false questions.

The questionnaire draft was piloted by three academicians and three practitioners. Accordingly, the researchers made changes and reformulated some questions.

4.2 Sampling and data collection
The population from which a convenient sample was selected consists of the UAE-national investors of ADSM and DFM. The Arabic version of the questionnaire was distributed because the native language of the UAE-national investors is Arabic.

Questionnaires were distributed in different ways: some of the questionnaires were handed to the investors who visited DFM and ADSM trading floors. Besides, that, the managers of brokerage companies, Abu Dhabi Chamber of Commerce, Abu Dhabi Business Women Council and Ras Al-Khaimah Chamber of Commerce were requested to distribute the questionnaire among UAE nationals. The total number of the distributed questionnaires was 600.

From the 600 questionnaires distributed to UAE-national investors, we received 304 responses, of which 14 were excluded because of incomplete data or response bias of extreme values. The remaining 290 usable questionnaires represent an effective response rate of around 48.3 percent of the total sample.

5. Data analysis and results
5.1 The profile of the study's respondents
The questionnaire asked each respondent to provide demographic data that included age, gender, income, education, employment status, and workplace activity. Table I provides descriptive statistics for the respondents' characteristics.

About 20.3 percent of the respondents were 18-25 years old, 56.2 percent were 26-35 years old, 15.9 percent were 36-45 years old, 4.5 percent were 46-55, and the remaining 3.1 percent were 56-65. None of the respondents were 66 years old or above.

With respect to gender, 58.3 percent were males and 41.7 percent were females. About 87.1 percent of the respondents were full-time employees, 4.9 percent were self-employed, 3.5 percent were part-time employees and 4.5 percent were either unemployed, students, or retired. In terms of work activity, it was finance, banking, or investment for 51.7 percent of the respondents, whereas the employment activity of the remaining 48.3 percent was in other fields. Also, about 60 percent received a monthly income from AED 5,000 to 20,000 (about US $1,360 to US $5,447) and 40 percent received more than AED 20,000 each month. As for education, 1.4 percent of the respondents had a certificate less than high school, 14.4 percent were high school graduates, about 27.1 percent of them were diploma or higher diploma holders, 46.5 percent had a bachelor's degree, and the remaining 10.6 percent had postgraduate degrees.

5.2 Reliability
Reliability of the five categories of factors affecting the investor decision was investigated with Cronbach's alpha to measure how strong the scale of internal Consistency is. As a general rule, a coefficient greater than or equal to 0.7 is considered acceptable and a good indication of construct reliability (Nunnally, 1978). The results of reliability coefficients (alpha) as shown in Table II indicate that the five categories strongly meet the acceptable level of 0.7 or higher.

Characteristics	No.	Percentage
Age		
18-25	59	20.3
26-35	163	56.2
36-45	46	15.9
46-55	13	4.5
56-65	9	3.1
Gender		
Female	121	41.7
Male	169	58.3
Employment status		
Full time	250	87.1
Part time	10	3.5
Own business (self-employed)	14	4.9
Unemployed/student/retired	13	4.5
Workplace activity		
Finance/banking/investment	134	51.7
Other	125	48.3
Monthly income (*AED*)		
5,000 or less	17	6.0
More than 5,000-10,000	70	24.7
More than 10,000-20,000	112	39.6
More than 20,000-30,000	38	13.4
More than 30,000-40,000	21	7.4
More than 40,000-50,000	4	1.4
More than 50,000-60,000	7	2.5
More than 60,000	14	4.9
Education		
Below high school	4	1.4
High school or equivalent	41	14.4
Diploma/higher diploma	77	27.1
Bachelor's or equivalent degree	132	46.5
Postgraduate degree	30	10.6

Table I.
Respondents'
characteristics

Category	Cronbach's alpha
Self-image/firm image coincidence	0.723
Accounting information	0.737
Neutral information	0.754
Advocate recommendation	0.790
Personal financial needs	0.703

Table II.
Reliability of the
categories that influence
the investment decision

5.3 Financial literacy level

The measures of financial literacy used in the studies that cover financial literacy are often basic. Many of the studies used self-assessment questions or 5-10 exam-type questions. For example, Byrne (2007) relies on only four questions to measure investment knowledge, Alexander *et al.* (1997) depend on nine questions related to mutual funds, Volpe *et al.* (1996) rely on ten questions, and the Australia & New Zealand Bank study uses a self-assessment survey. These limitations have made the validity

and reliability of those surveys questionable. The current study overcomes this problem by using a comprehensive exam-type questionnaire of financial literacy that covers the main aspects of investment management.

Table III presents the overall participants' scores on the financial literacy test. The results demonstrate that on average participants answered 40.65 percent of questions correctly, suggesting that the investor's knowledge about investments is inadequate.

Considering the questions are fundamental, answering less than half of them correctly indicates a low financial literacy level among the participants. The median percentage of correct scores is 38.8 percent. The results confirm *H1* of this study, which is that the UAE investors' knowledge is far from the needed level.

Table IV presents the percentage of participants who answered each question correctly, sorted according to the highest score. The participants earned the highest score on question 2, which was about the benefit of diversification, suggesting that investors know this concept very well. Nine other subjects had scores higher than the median: shares closing price, transaction costs, the relation between technical analysis and market efficiency, compound interest, relation between return on assets and return on equities, mutual fund returns, earning from investments, stock split, and settlement period. On the other hand, the respondents were least knowledgeable about the type of ADSM and DFM

Central tendency	Value	Percentage	
Mean	7.317	40.65	
Median	7.00	38.88	
Minimum	0.00	0.00	**Table III.**
Maximum	16.00	88.89	Overall financial
SD	3.335		literacy level

Rank	Question	Question subject	Percent of correct answer	
1	2	Benefits of diversification	80.3	
2	15	Shares closing price	59	
3	16	Transaction costs	55.4	
4	3	Technical analysis and market efficiency	52.5	
5	7	Compound interest	52.3	
6	13	Return on assets and return on equities	48.8	
7	9	Mutual fund returns	46.9	
8	5	Earning from investment	45.1	
9	4	Stock split	44.4	
10	17	Settlement period	42.9	
11	8	Bonds	36.2	
12	6	Relation between interest rate and bond prices	34	
13	10	Common stocks returns	33.6	
14	12	Beta	30.9	
15	11	P/E ratio and earning per share	29.1	
16	14	Mutual fund and market risks	22.4	**Table IV.**
17	18	Submission period of financial reports	17.2	Percentage of the correct
18	1	Index type	13.7	answer for each question

indices, with a correct percent of only 13.7 percent. Unexpectedly, the second lowest score was for the financial statements submission period, with a correct answer from 17.2 percent of the total. The reason could be that the regulation about the submission period was changed from 30 to 45 days in the first half of 2007, which suggests that the participants do not closely follow the changes that take place in the financial market industry. Another possible reason could be that the participants do not place high interest on the financial statements when they make their investment decisions.

Six more questions scored lower than the median. These questions cover the following subjects ordered from lower to higher score: mutual fund and market risks, the relation between P/E ratio and earning per share, definition of beta, returns on common stocks, relation between interest rate and bonds prices, and bonds characteristics. The presence of two questions about bonds among those with lower scores indicates that the participants do not have adequate knowledge about bonds as securities.

5.4 Effect of demographic variables on financial literacy
The respondents are classified into two subgroups, using the median percentage of correct answers of the sample. Respondents with scores higher than the sample median are classified as those with relatively more financial knowledge. Respondents with scores equal to or below the median are classified as respondents with relatively less financial knowledge. The level of financial knowledge is used in the logistic regression model as the dependent variable, which is explained simultaneously by all the independent variables.

The logistic regression was used to identify the effect on financial literacy of each of the following independent variables: age, gender, employment status, workplace activity, income, and education. The coefficients represent the effect of each subgroup compared with a reference group, which is arbitrarily selected. For example, workplace activity is coded as 1 if a respondent's workplace activity is in the field of finance/banking/investment, and as 0 if other. The reference category is non-finance/banking/investment activities. If the logistic coefficient of the variable is negative, then it indicates that compared with respondents with non-finance/banking/investment activities, those engaged in the field of finance/banking/investment are associated with decreased log odds ratio of being more financial literate. For age variables, the reference group is respondents who are 65 or older. For gender, the reference group is female participants. For the employment status variables, the reference group is the unemployed respondents. For the income variables, the reference group is respondents with monthly income of AED 60,000 or more. For education variables, the reference category is respondents with graduate degrees. The logistic regression model is as follows:

$$\log\left(\frac{p}{1-p}\right)FL = B_0 + B_1(AGE_1) + B_2(AGE_2) + B_3(AGE_3) + B_4(AGE_4)$$
$$+ B_5(AGE_5) + B_6(GEN) + B_7(EMPT_1) + B_8(EMPT_2)$$
$$+ B_9(EMPT_3) + B_9(EMPT_4) + B_{10}(ACTV) + B_{11}(INC_1)$$
$$+ B_{12}(INC_2) + B_{13}(INC_3) + B_{14}(INC_4) + B_{15}(INC_5) + B_{16}(INC_6)$$
$$+ B_{17}(INC_7) + B_{18}(INC_8) + B_{19}(EDU_1) + B_{20}(EDU_2)$$
$$+ B_{21}(EDU_3) + B_{22}(EDU_4) + B_{23}(EDU_5) + e_i$$

where:

FL	=	financial literacy level.
p	=	the probability of a respondent with relatively more financial literacy.
AGE_1	=	1 if a respondent is in the age group of 18-25, 0 otherwise.
AGE_2	=	1 if a respondent is in the age group of 26-35, 0 otherwise.
AGE_3	=	1 if a respondent is in the age group of 36-45, 0 otherwise.
AGE_4	=	1 if a respondent is in the age group of 46-55, 0 otherwise.
AGE_5	=	1 if a respondent is in the age group of 56-65, 0 otherwise.
GEN	=	1 if a respondent is a male, 0 otherwise.
EMPT	=	1 if a respondent is full time, 0 otherwise.
$EMPT_2$	=	1 if a respondent is part time, 0 otherwise.
$EMPT_3$	=	1 if a respondent is self employed, 0 otherwise.
$EMPT_4$	=	1 if a respondent is unemployed, 0 otherwise.
ACTV1	=	if a respondent's workplace activity is in the field of finance/banking/investment, 0 otherwise.
INC_1	=	1 if a respondent earns AED 5,000 or less, 0 otherwise.
INC_2	=	1 if a respondent earns more than AED 5,000-10,000, 0 otherwise.
INC_3	=	1 if a respondent earns more than AED 20,000-30,000, 0 otherwise.
INC_4	=	1 if a respondent earns more than AED 30,000-40,000, 0 otherwise.
INC_5	=	1 if a respondent earns more than AED 30,000-40,000, 0 otherwise.
INC_6	=	1 if a respondent earns more than AED 40,000-50,000, 0 otherwise.
INC_7	=	1 if a respondent earns more than AED 50,000-60,000, 0 otherwise.
INC_8	=	1 if a respondent earns more than AED 60,000, 0 otherwise.
EDU_1	=	1 if a respondent is below high school, 0 otherwise.
EDU_2	=	1 if a respondent has high school education, 0 otherwise.
EDU_3	=	1 if a respondent has diploma/higher diploma, 0 otherwise.
EDU_4	=	1 if a respondent has college education, 0 otherwise.
EDU_5	=	1 if a respondent has postgraduate degree, 0 otherwise.

Table V summarises the results of the logistic regression. The table reveals that respondents' financial literacy varies with their demographic characteristics. The table also indicates that the overall average percentage of correctly classified cases was 57.45 percent, which reflects the model's ability to correctly classify observations. It is also a widely used measure of the overall fit of the model. The table shows that chi-square values indicate that the models have high explanatory power.

The coefficient of GEN and AGE is as expected positive and statistically significant at the 5 percent level in the case of GEN and at the 10 percent level in the case of AGE in the age group of 26-35. The findings of the effect of gender and age on financial literacy are consistent with previous studies (Alexander *et al.*, 1997; Chen and Volpe, 1998; Volpe, 1996; Volpe *et al.*, 2002). The coefficient of ACTV is unexpectedly negative

Characteristics	β	Sig.	R^2	$-2\log$ likelihood	χ^2	Correct classification
Age						
18-25	0.821	0.144				
26-35	0.957	0.065				
36-45	0.370	0.469				
46-55	1.023	0.157				
56-65	0.153	0.876				
Constant	−1.034	0.043				
			0.018	393.763	5.153	55.2%
Gender	0.0477	0.049				
Constant	−0.489	0.009				
			0.013	395.001	3.915	55.2%
Employment status						
Full time	0.372	0.259				
Part time	−0.196	0.767				
Own business (self-employed)	0.227	0.725				
Unemployed/student/retired	−1.000	0.156				
Constant	−0.505	0.136				
			0.027	390.995	7.921	55.9
Work place activity	−0.933	0.000				
Constant	0.180	0.301				
			0.051	340.405	13.429	61.0
Monthly income (AED)						
5,000 or less	−0.305	0.618				
More than 5,000-10,000	−0.816	0.062				
More than 10,000-20,000	−0.711	0.083				
More than 20,000-30,000	−0.411	0.391				
More than 30,000-40,000	−0.791	0.166				
More than 40,000-50,000	0.793	0.511				
More than 50,000-60,000	−0.305	0.731				
More than 60,000	0.506	0.468				
Constant	0.305	0.386				
			0.044	389.069	9.827	59.3
Education						
Below high school	−1.298	0.271				
High school or equivalent	−1.647	0.001				
Diploma/higher diploma	−0.345	0.245				
Bachelor's or equivalent	−0.269	0.422				
Postgraduate degree	0.200	0.409				
Constant	−1.298	0.271				
			0.050	384.062	14.854	57.6

Table V.
Logistic regression results of the impact of respondents' age, gender, employment status, workplace activity, income, and education level on financial literacy

and statistically significant at the 1 percent level. The coefficient of INC is also unexpectedly negative and statistically significant at the 1 percent level in six categories, and is as expected positive but statically insignificant in two categories. Regarding the coefficient of EDU, it is unexpectedly negative in four categories and statistically significant at the 1 percent level in one of them, and it is as expected positive in the case of graduate degree but statistically insignificant. Finally, the coefficient of EMPT is positive in two categories and negative in the other two,

but statistically insignificant in both cases. These results partially confirm *H2* of a positive significant relationship between financial literacy and age, gender, employment status, workplace activity, income, and education level.

5.5 Differences of financial literacy level based on demographic variables

One of the objectives of this study is to determine if there is a significant difference in financial literacy level among different groups of respondents according to age, gender, employment status, work activity, monthly income, and education level and in order to test *H3* through *H8*, a one-way ANOVA was ran.

Table VI indicates that there is no significant difference in financial literacy among different groups of respondents according to their age, employment status and monthly income. Thus, *H4*, *H5*, and *H6* are not confirmed. It can be concluded that that there is no significant difference in the level of financial literacy of UAE investors according to their age, employment status, and monthly income. On the other hand, the results reveal significant difference in financial literacy level based on gender, work activity, and education level. Therefore, *H3*, *H7*, and *H8* are confirmed.

To specify which gender has the lowest financial literacy level, we examined the crosstabulations statistics between the financial literacy level and the gender. Table VII shows that women have lower financial literacy than men.

The findings illustrate that there is significant difference between the financial literacy level based on gender, work activity, and education level. This consistent with the findings of Volpe *et al.* (2002). Unexpectedly, the difference in financial literacy level is insignificant based on age, income level, and employment status.

5.5.1 Factors affecting investment decision. Table VIII presents the mean and standard deviation of each of the five categories. The results illustrate that the most influencing group is self-image/firm image coincidence with a mean of 3.8. The order of the other four categories according to their influence on the investment decision is as follows: neutral information with a mean of 3.5, accounting information with a mean of 3.49, personal financial needs with a mean of 3.4, and advocate recommendation with a mean of 3.1.

Between groups	Sum of squares	df	Mean square	F	Sig.
Age	1.733	4	0.433	1.755	0.138
Gender	1.252	1	1.252	5.084	0.025
Employment status	1.127	3	0.376	1.515	0.211
Work activity	3.699	1	3.699	15.728	0.000
Monthly income	1.610	7	0.230	0.920	0.491
Education level	3.915	4	0.979	4.101	0.003

Table VI.
One-way ANOVA test – financial literacy and demographic variables

	Financial literacy level		
Gender	Below median	Above median	Total
Female	70	45	115
Male	74	83	157

Table VII.
Crosstabulations of financial literacy level and gender

Regarding the most and the least influencing factors on investment decision, Table IX reveals the classification of the factors within each category and their mean.

The most influencing factor is religious reasons, with a mean of 4.38. This result is anticipated because the UAE society is a conservative Moslem society and Islam forbids interest (*ribba*). Therefore, a portion of the UAE society has a negative perception of trading on bonds and shares of conventional banks and insurance firms. On the other hand, this result contradicts the findings of Al-Tamimi (2006).

The other top nine factors according to their mean are as follows: reputation of the firm with a mean of 4.27, perceived ethics of the firm with a mean of 4.09, diversification purpose with a mean of 4.02, feelings for the firm's products and services with a mean of 3.98, past performance of the firm's stocks with a mean of 3.96, stock marketability with a mean of 3.91, reputation of the firm's board members with a mean of 3.90, expected corporate earnings with a mean of 3.86, and firm status in industry with a mean of 3.86.

Only four factors were considered the least influencing factors namely rumors with a mean of 2.82, family member opinions with a mean of 2.92, ease of obtaining borrowed funds with a mean of 2.96 and friend recommendations with a mean of 2.96.

This part of the study reveals that religious reasons is the main factor that influences investment decisions of UAE investors, whereas the least influencing factor is rumors. In addition, the main category that affects the investment decision is self-image/firm image coincidence.

Regarding the differences between men and women, Table X shows the results of ANOVA analysis. It can be seen there is a significant difference between men and women in two cases, the self-image/firm image coincidence and advocate information, at the 1 percent and the 10 percent level, respectively. These results were expected as women are more emotionally influenced than men: for example, in the effect of religious factors on their investment decision, or reliance on the advice of family and friends.

5.6 Financial literacy and investment decision

In order to test the last hypothesis, a positive significant relationship between financial literacy and investment decisions of the UAE inventors, a regression model was used. In this model, the sum of the investment factors is considered as the dependant variable and the overall score of the financial literacy as the independent variable. The results presented in Table XI indicate that there is a negative significant effect of financial literacy on the total investment factors. However, only 2.3 percent of the variation in the total investment factors can be explained by the financial literacy level. Accordingly, *H9*, which stated "There is a positive significant relationship between financial literacy and investment decisions of UAE-national inventors," is rejected.

Category	Mean	SD
Self-image/firm image coincidence	3.887	0.609
Neutral information	3.513	0.694
Accounting information	3.499	0.535
Personal financial needs	3.403	0.619
Advocate information	3.153	0.789

Table VIII.
Mean and standard deviation of the five categories

I. Self-image/firm image coincidence

1	Religious reasons	4.3846
2	Feelings for a firm's products and services	3.9827
3	Reputation of the firm's board members	3.9056
4	"Get rich quick"	3.6224
5	Firm status in industry	3.8676
6	Perceived ethics of firm	4.0954
8	Reputation of the firm	4.2743
9	Increase of the firm's involvement in solving community problems	3.3684
Mean		3.8871
SD		0.60951

II. Accounting information

7	Past performance of the firm's stock	3.9652
10	Expected bonus shares	3.6436
11	The results of technical analysis	3.3951
17	Stock marketability	3.9187
18	Expected corporate earnings	3.8693
19	Condition of financial statements	3.8194
21	Affordable share price	3.7825
24	Information obtained from the internet	3.0484
35	Insiders' information	3.1632
36	Rumors	2.8217
37	Expected stock split or capital increase	3.5190
Mean		3.4997
SD		0.53584

III. Neutral information

23	Government holdings	3.7639
25	Fluctuation/developments in the stock index	3.4913
26	Coverage in the press	3.4530
27	Statements from government officials	3.6119
28	Current economic indicators	3.5868
29	Recent price movement in a firm's stock	3.3951
Mean		3.5138
SD		0.69407

IV. Advocate information

13	Broker recommendation	3.2947
14	Family member opinions	2.9225
15	Friend recommendations	2.9650
16	Opinions of the firm's majority stockholders	3.6076
30	Financial advisors and analysts' recommendation	3.2518
Mean		3.1538
SD		0.78933

V. Personal financial needs

12	Diversification purpose	4.0211
20	Dividends paid	3.7867
22	Expected dividends	3.7887
31	Ease of obtaining borrowed funds	2.9650
32	Minimizing risk	3.3345
33	Expected losses in international financial markets	3.2867
34	Expected losses in other local investments	3.1767
Mean		3.4030
SD		61961

Table IX.
Classification of the
factors within each
category

In addition, the results show significant negative effect of financial literacy on the preference of the self-image/firm image coincidence category's factors. Similarly, financial literacy has significant negative effect on the categories of neutral information, personal financial needs, and advocate information. By contrast, the relationship between financial literacy and accounting information was an insignificant positive relation. The results are unusual and run in the opposite direction from our expectations. One possible explanation for the findings is that highly financially literate investors decrease their dependency on a certain group of factors and take their investment decisions based on different factors from different categories.

The findings of this part of the study show that there is a significant negative effect of financial literacy on investment factors. In addition, when each of the five categories is used as the dependent variable, financial literacy has significant negative effect on self-image/firm image coincidence, advocate information, personal financial needs, and neutral information. However, the increase of the level of financial literacy does not significantly increase the preference for accounting information although the relation is positive.

6. Conclusions and summary of findings
In this study, the financial literacy level of UAE individual investors and the factors that influence their investment decision were examined. The research findings can be summarized as follows:

- The financial literacy is far from the needed level.
- The UAE investors were more knowledgeable about the benefits of diversification while they were least knowledgeable about the type of UAE financial markets indices.
- The financial literacy level was found to be affected by income level, education level, and workplace activity.

Between groups	Sum of squares	df	Mean square	F	Sig.
Self-image/firm image coincidence	1.579	1	1.579	5.563	0.019
Neutral information	0.083	1	0.083	0.190	0.664
Accounting information	0.130	1	0.130	0.473	0.492
Personal financial needs	0.220	1	0.220	0.524	0.470
Advocate information	1.981	1	1.981	3.522	0.062

Table X.
One-way ANOVA test – investment factors and gender

Dependent variable	R^2	Adjusted R^2	SE of the estimate	β	t	Sig.
Sum of investment factors	0.023	0.020	16.869	−0.153	−2.625	0.009
Self-image/firm image coincidence	0.028	0.025	4.815	−0.245	−0.167	0.004
Accounting information	0.000	−0.003	5.904	0.004	0.070	0.945
Neutral information	0.018	0.014	4.134	−0.133	−2.272	0.024
Advocate information	0.035	0.032	3.882	−0.188	−3.256	0.001
Personal financial needs	0.014	0.011	4.313	−0.119	−2.034	0.043

Table XI.
Regression analysis results-financial literacy and total investment factors and each of the five categories

- A significant difference in the level of financial literacy was found as well between the respondents according to their gender. Specifically, women have a lower level of financial literacy than men.
- The top four most influencing factors on investment decision were religious reasons, reputation of the firm, perceived ethics of the firm, and diversification purpose, whereas the least four influencing factors were rumors, family member opinions, ease of obtaining borrowed funds, and friend recommendations.
- Financial literacy affected significantly the investment decisions of the individual investors. Specifically, financial literacy had a negative effect on each of the five categories that affect the investment decision, with the exception of the accounting information category. The effect of financial literacy on the accounting information category was positive but statistically insignificant.

It is worth mentioning here that the reported results were affected by the social, political and economic culture of the UAE. As an example of this, the most influencing factor of investors' behavior was the religious factor. Another example is the high income of investors of which more than 50 percent of the monthly income (i.e. tax free) was higher than $5,000.

Further research can be conducted by extending the scope of the study to cover the banking sector including Islamic banks as some people have no clear idea about the features of each type of bank, the conventional and Islamic banks. Furthermore, the study can be extended to cover financial literacy in the Gulf region.

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