



Is There a Relationship between Financial literacy and Investment Decisions in the Kingdom of Bahrain?

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ABSTRACT

Financial literacy has ever increasing importance in our day. Whether people are financially knowledgeable, helps greatly in making rational investment decisions. Numerous studies have been undertaken to explore, investigate and measure financial literacy in several developed countries. However, very few of them have been conducted in the Arab World and Gulf Countries. Therefore, the purpose of this study is to measure the level of financial literacy of the Bahraini individual investors. In addition to, examine the relationship between financial literacy and investment decisions in the Kingdom of Bahrain. The study draws on 228 questionnaire surveys of investors in Bahrain. In order to measure the level of financial literacy of the Bahraini investors, the approach of Lusardi and Mitchell (2006) was utilized in this research effort. The data were analyzed using Pearson Correlation, t-test and Chi-square test. The results reveal that the financial literacy level of the Bahraini investors is found to be low (38.6%) and far from the needed level. When we analyzed the level of financial literacy based on the demographic variables, we found that women are generally less financially literate than are men; respondents of age 41-50 are more knowledgeable than all other age groups, and financial literacy is highly correlated with education. Moreover, participants in high financial literacy group (HFLG) have higher awareness level for all financial products except for certificate of deposit and post office savings. Further, participants in low financial literacy group (LFLG) mainly prefer to invest in traditional and safe financial products and do not invest much in complex financial products which are comparatively more risky and can give higher return

Keyword:

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INTRODUCTION

Financial literacy defines as the ability to use knowledge and skills to manage financial resources effectively for a life time of financial wellbeing. (The President Advisory Council of Financial Literacy, 2008)

Financial literacy can also be defined as the combination of investors' understanding of financial products and concepts and their capability and dependability to consider financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being (OECD, 2011)

Furthermore, financial Literacy is the ability to understand how money works in our day today functions and how people manage it, how they invest it and how they offer it to each other's. Precisely, it means the set of knowledge and skills that enable people to make rational decisions with all of their financial resources. Moreover, financial literacy and financial inclusion can be considered as twin stilts. While financial Inclusion represents the supply side and providing the financial market what people demand, financial literacy encourages the demand side i.e. making people aware of what they can demand.

Financial literacy is mostly important nowadays for various reasons. The financial crisis will reduce access to credit and increase its cost in many developing-country markets, similar to what already has happened in the United States and Europe. Financial literacy can help to prepare people for tough financial times, by introducing strategies that alleviate risk such as diversifying assets, accumulating savings and purchasing insurance. Financial literacy can also reinforce behaviors such as timely payment of bills and avoidance of over-indebtedness that help consumers to maintain their access to loans in tight credit markets.

Despite the various differences in definitions, the solidarity are notable. Hogarth and Marianne (2002) explained the consistencies in behavioral terms, reporting that individuals who are financially literate are: 1) able to understand the basic concepts underlying the management of money and assets; 2) knowledgeable, educated, and informed on the issues of managing money and assets, investments, banking, credit, insurance, and taxes and 3) use that knowledge and understanding to plan and implement financial decisions.

Concerning decision making, it can be defined as an art to tackle complex situations. It is a cognitive process to choose an alternate among several possible alternative scenarios. Individuals cannot make a decision by simply depending on their personal resources. Hence, the difficult part to play while making decision is to select the particular area of investment. Considerable attention is given to the best investment decision. Investors while making their investment decision need to consider their market conditions, risk tolerance, rate of return, and other criteria. Behavioral Finance explains how different investors realize and respond to the information available in the market (Abdeldayem and Assran, 2013). It is not necessary that all the investors always behave rationally or they predict quantitative models in same and unbiased way (Abdeldayem and Reda, 2013). That is why Behavioral Finance gives significance to the behavior of investors leading to several market anomalies. (Jahanzeb, Muneer, and Rehman, 2012; and Abdeldayem, 2015 c)

As far as financial products are concerned, Boakye and Amankwah (2012) report that financial products are simply services or instruments that are provided by financial institutions such as banks, depository institutions, pension authorities and insurance companies. In developing countries, financial products may either be formal or informal. Formal financial products include: savings accounts, checking accounts, credit and debit cards, insurance products, loans, mobile banking, mutual funds, pension schemes, stocks, bonds, and mortgages. More recently, products offered by microfinance institutions have also been classified as formal financial products since the providers are also regulated (Bendig et al, 2009).

Informal financial products, on the other hand are provided by friends, families, community groups and individuals. These are typically in the form of plain vanilla loans or savings programs with no extra services. Such services are characterized by irregularities and often replete with huge losses resulting from theft, mismanagement or instances of fraud. These products also lack standardization and do not allow for easy classification.

The Kingdom of Bahrain is situated in the heart of the Gulf. Its strategic geographical position and open market economy, coupled with the government's dynamic economic policy and a well-trained national workforce have all helped Bahrain to achieve this status. The Kingdom of Bahrain also has the advantage of a modern and well-planned infrastructure, together with excellent air, sea and road links. A tax-free environment and the ability to freely remit funds abroad gives Bahrain its unique appeal and considerable advantage in attracting investors from different parties of the world to the country (Abdeldayem, 2015 a).

Furthermore, the Kingdom of Bahrain has an open economy. The Bahraini currency (BHD) is the second-highest-valued currency unit in the world (1 BHD = 2.56 \$). Since the late 20th century, Bahrain has heavily invested in the banking and tourism sectors. The country's capital, Manama is home to many large financial institutions. Bahrain's finance industry is very successful. In 2008, Bahrain was named the world's fastest growing financial center by the City of London's Global Financial Centers Index. Bahrain's banking and financial services sector, particularly Islamic banking, have benefited from the regional boom driven by demand for oil. Petroleum production is Bahrain's most exported product, accounting for 60% of export receipts, 70% of government revenues, and 11% of GDP (CIA World Fact book, Bahrain, 2010). Also, Aluminum production is the second most exported product, followed by finance and construction materials. According to the 2011 Index of Economic Freedom, Bahrain has the freest economy in the Middle East and North Africa region (The Bahrain Stock Exchange 2015; and The Arab Market Analysis, 2015) and is the tenth freest economy in the world. An alternative index, published by the Fraser Institute, puts Bahrain in 44th place tied with other countries. Bahrain was recognized by the World Bank as a high income economy (See also Abdeldayem 2015 a, 2015 b)

Therefore, the overriding purpose of this study is to measure the level of financial literacy of the Bahraini individual investors. In addition, to examine the relationship between

financial literacy and investment decisions in the Kingdom of Bahrain. In this study, investment decisions of individuals have been taken as a dependent variable; while financial literacy level, is taken as independent variable. The present study can have significant contribution in the area of behavioral finance through exploring the relationship between financial literacy and investment decisions. Moreover, if the proposed theoretical model of the study is validated, it would enable researchers to use the instrument with increased confidence, perhaps in some other Gulf countries such as Saudi Arabia, UAE, Kuwait, Qatar or Oman, especially for examining the relationship between financial literacy and investment decisions.

The rest of the paper is organized as follows: Section (2) includes the literature review to show the relation between financial literacy and investment decisions. The research methodology, data sources and measures of main variables are in section (3). Section (4) presents the empirical analysis and test results of the relation between financial literacy and investment decisions. Section (5) provides summary and concluding remarks.

2. Literature Review

Financial literacy has been discussed by many researchers from different aspects. Different research organizations have conducted research to identify the level of financial literacy of investment decision makers (Aren and Aydemir, 2014). A research conducted by the OECD (2005) examined the level of financial literacy in 12 major countries of the world including UK, USA, European countries, Japan and Australia. The research concluded that the level of financial literacy for most of the respondents is very low. Financial literacy has wide-reaching implications for household savings and investment behavior. For instance, Bernheim, (1995) identifies that in households which lack basic financial knowledge, saving behaviors are dominated by basic rules of thumb. In more recent work, Bernheim and Garrett (2003) show that those individuals who are exposed to financial education in high school or in the workplace save more than individuals who are not exposed to such education. Similarly, Lusardi and Mitchell (2007) indicate that those who display low financial literacy are less likely to plan for retirement and as a result accumulate much less wealth.

Furthermore, Lusardi and Mitchell (2006) report that only few of American households feels certain about retirement saving sufficiency but little is known about why individuals fail to plan for retirement and whether planning and information costs might affect retirement saving styles. Hence, they devised and fielded a purpose-built module on planning and financial literacy for the 2004 Health and Retirement Study (HRS). This module measures how individuals make their saving decisions, how they collect the information for making these decisions, and whether they have the financial literacy needed to make such decisions. The results reveal that financial illiteracy is prevalent among older Americans: only 50% of the age 50+ respondents could correctly answer two simple questions concerning interest compounding and inflation, and only 33% correctly answered these two questions along with a third question about risk diversification. The study also concludes that women, minorities, and those without a college degree were mainly at risk of having low financial knowledge. Moreover, those who display higher financial

literacy are more likely to save and invest in complex assets, such as stocks and bonds.

Rooij, Lusardi, and Alessie (2007) claim that in order to better understand financial literacy and its relation to financial decision-making, they have devised two special modules for the DNB Household Survey. They find that the measurement of financial literacy is very sensitive to the wording of survey questions. This provides additional evidence for limited financial knowledge. Further, they report evidence of an independent impact of financial literacy on stock market participation: Those who have low financial literacy are significantly less likely to invest in complex financial products such as stocks.

Cole, Sampson and Zia (2011) raise the question of why the demand for formal financial services is low in emerging markets? They claim that there are two views in this respect. The first view argues that limited cognitive ability and financial literacy choke demand. The second view argues that demand is logically low, because formal financial products are expensive and of relatively low value to the poor. The study uses questionnaire surveys and a field experiment to differentiate between two competing answers to this question. Using survey data from India and Indonesia, they first show that financial literacy is a robust predictor of demand for financial products. Furthermore, they perform a field experiment, providing some unbanked households financial literacy education, along with small incentive (ranging from US \$3 to \$14) to open bank savings account. They find that the financial literacy program has no effect on the probability of opening a bank savings account in the whole sample, but do find small impact for uneducated and financially illiterate households. On the other hand, small subsidy payments have a great impact on the probability of opening a savings account. These payments are more than two times more cost-effective than the financial literacy training, although this calculation does not take into consideration any additional benefits of financial education.

In the Gulf countries, the study of Al-Tamimi and Bin Kalli (2009) is the only one that examined the relationship between financial literacy and investment decisions in The UAE. In this study, they assessed the financial literacy of the UAE individual investors who invest in the local financial markets. Hence, they examined the relationship between financial literacy and the influence of the factors that affect the investment decision. The study concludes that the financial literacy of UAE investors is far from the needed level. The financial literacy level is found to be affected by several factors such as income level, education level, and workplace activity. High-income respondents hold high educational degrees, and those who work in the field of finance or investment had a higher financial literacy level than others. Despite, financial illiteracy exists regardless of the age of the respondents. A significant difference in the level of financial literacy was found also between the respondents according to their gender. In particular, women have a lower level of financial literacy than men. In addition, the findings reveal that there is a strong relationship between financial literacy and investment decisions.

Yoong (2010) argues that financially naive consumers, who usually make irrational financial decisions may suffer lasting consequences for long-term wealth accumulation and

welfare. The study emphasizes on a well-documented area of potentially suboptimal financial decision making: the lack of stock market participation. Using a comprehensive assessment of financial literacy directed to a sample of older American respondents in the RAND American Life Panel (ALP), the study uses a strategy for finding causation between stock market related financial literacy and stock market participation. The study finds that ignorance of stock market investment knowledge significantly reduces tendency to hold stocks. In particular, a decrease of 1 standard deviation in the relevant measure proposes a decrease on the order of 10% in stock market participation. In addition, the research of Cavezzali, Gardenal, and Rigoni (2012) investigates whether the financial literacy of people affects risk taking decisions and diversification behavior. Previous studies reveal that people are unable to perform an intricate portfolio diversification: what they do is to split equally their money among the different available financial assets, in a naïve way. Hence, the study attempts to detect if the financial literacy is a driver for this type of decisions. Using a questionnaire that directed to 200 American individuals, the study indicates that financial literacy plays a vital role in risk taking decisions, positively influencing the amount of risk individuals are willing to take. In addition, the study reveal that only those who are literate in terms of diversification select less risky portfolios; the others only increase their risk frontage, without managing it..

Bhushan (2014) examines the relationship between financial literacy of salaried individuals and their awareness regarding financial products. In addition, the study investigated the relationship between financial literacy and investment behavior of salaried individuals. The findings of the study indicate that financial literacy level of individuals affects the awareness and the investment preferences of salaried individuals towards financial products.

Musundi(2014)investigates the financial literacy of the real estate investors in Nairobi County. The study also examined the relationship between financial literacy and the impact of the factors that influence the investment decision. The results show that the financial literacy of the real estate investors in Nairobi is far from the needed level. The financial literacy level was found to have a significant impact on investment decision making by real estate investors.

Jagongo and Mutswenje (2014)intend to determine the factors influencing investment decisions at the Nairobi Stock Exchange. The study showed that the most important factors that affect individual investment decisions were: the company's reputation, company's status in industry, expected earnings per share (EPS), profit and condition of statement and the past performance of the company's stock.

Debbich (2015) examines the ability of financial advice provided by sellers of financial products to replace for financial literacy of consumers. The study introduces a simple theoretical model in which an informed financial advisor communicates with a less informed consumer of financial products. Considering the conflict of interest from the advisor's point of view, the model reveals that only well financially advanced consumers get pertinent information from the advisor. Generally, the model predicts a monotonic relationship between financial literacy and the demand for

financial advice. The study also uses a sample of French households (PATER 2011) to examine the predictions of the model. Hence, it finds that financial literacy is significantly associated to the likelihood to ask a financial advisor. In addition, the study reveals that the relationship is weakly monotonic which gives support to the fact that financial advice cannot replace for financial literacy.

To conclude, there is a large body of literature that has examined how financial literacy of people would play a role on financial decision making (seeAren and Aydemir, 2014). These studies concluded that financial literacy among individuals indeed made an impact on financial behavior. For example, financial illiteracy has been considered as the reason forpoor financial practice behavior (Robb and Woodyard, 2011), inability to make informed financial decisions (Chen and Volpe, 1998), being unable to make personal contributions (Van Rooij, Kool, Prast, 2007), inadequate stock participation (Van Rooij, Lusardi and Alessi, 2011), irresponsible financial management behavior (Perry and Morris, 2005, Ludlum et al., 2012), unpreparedness for post-retirement times (Lusardi and Mitchell, 2007), portfolio under diversification (Guiso and Jappelli, 2008), wealth accumulation (Van Rooij, Alessi and Lusardi, 2012), poor investment decisions (Al-Tamimiand Bin Kalli, 2009),financial dissatisfaction (Yoong, See and Baronovich, 2012), no intention to control personal budget (Sharahbani, 2012), unimproved household financial management behavior (Hilgerth, Hogarth, and Beverly, 2003).

While aiming to explain financial decision making or behavior and finding strong evidence of the relationship between financial literacy and financial decision making or behavior, many studies have not provide a comprehensive and clear explanation how this relation existed. Therefore, this study is aiming to shed some light on this relationship in the Kingdom of Bahrain.

Research Hypotheses

Based on the above mentioned literature review; and the research question, the study aims to test two main hypotheses:

H01- There is no relationship between financial literacy level of investors in Bahrain and their awareness level for different financial products.

H02- There is no relationship between financial literacy level of investors in Bahrain and their investment preferences for different financial products

3. Methodology

The main purpose of this section is to provide an outline of the research methods used and procedures employed to collect and analyze data. Hence, it includes pilot study, sample structure, reliability of the study and the statistical analysis.

3.1 Pilot study

The research instrument in this study is a questionnaire that was directed to a random sample of 250 person from the kingdom of Bahrain. The questionnaire was structured into three sections. Section 1 includes personal and demographic data about the investors. Section 2 contains data on measuring financial literacy level of participants, while section 3 involves data on the relationship between financial

literacy and investment decisions in the Kingdom of Bahrain. Respondents were asked to indicate their degree of how they were influenced by each of the items on five point Likert Scale.

In the pilot study, 12 questionnaires were used, they were filled by the respondents chosen from the non-sampled population but within the target population in Bahrain, It was evident that all the measurement scale of the three variables had a Cronbach’s coefficient more than 0.70 as follows: Personal Investment Decision 0.791, Financial Literacy 0.723, Relation between Financial Literacy and Investment Decisions 0.822.(the results are shown in table (1) below). All values were above the acceptable level of reliability of 0.70. (Liu and Guo, 2008; Nunnally and Bernstein, 1994). In addition, the results of the pilot study with their components) (Refer to figure (1))

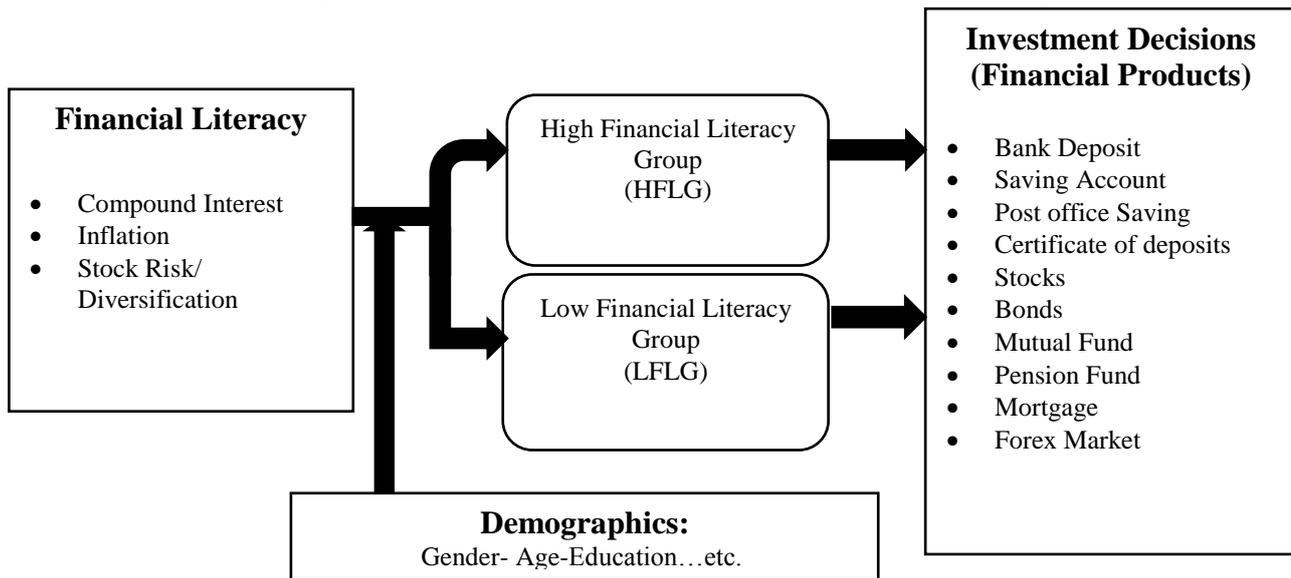
were used to re-design the questionnaire of this research effort.

Table (1) Summary of the Measurement Reliability (Cronbach’s Alpha):

| Measurement Scale | Cronbach’s Alpha |
|--|------------------|
| Personal Investment Decision | 0.791 |
| Financial Literacy | 0.723 |
| Relationship between Financial Literacy and investment decisions | 0.822 |

Therefore, a proposed model was formed which includes the main variables of the study (i.e. financial literacy and investment decisions along

Figure (1) A Proposed model of the variables included in the study



3.2 Procedure and sample

In this research effort, participants were contacted via online mailing lists and announcements on several homepages, and invited and motivated to take part in an internet based survey on financial literacy and investment decisions. Worth mentioning that we made sure that none of the participants in the final survey had taken part in the pilot study. 250 individuals, from the kingdom of Bahrain, participated in this study. 22 of them were excluded from analysis due to incomplete answers or time deviations according to the rule of Sachsea, Jungermann and Beltingb

(2012): Participants were excluded who completed the survey obviously fast or slow. “Fast” was defined by more than one standard deviation (SD) below the mean handling time. “Slow” was defined by more than two SD2 above mean. This procedure should ensure that only participants who perseveringly answered the questions were included in the final sample, while those who rushed through the questionnaire, or possibly were distracted by other activities, were excluded (Abdeldayem, 2015 a). The resulting sample consisted of 228 participants, ranging in age from 20 to 65 (mean = 35, SD = 14.61) with 67% males and 33% females. Table (2) below displays the sample structure.

Table (2): Sample Structure: Details of the Respondents

| | | Frequency | % |
|-----------------------|--------------|-----------|------|
| Gender | Male | 153 | 67 |
| | Female | 75 | 33 |
| Age (Years) | 20-30 | 36 | 15.8 |
| | 31-40 | 71 | 31.1 |
| | 41-50 | 73 | 32.1 |
| | 51-60 | 40 | 17.5 |
| | More than 60 | 8 | 3.5 |
| Marital Status | Unmarried | 81 | 35.5 |
| | Married | 147 | 64.5 |

| | | | |
|--------------------------------------|-------------------------|-----|------|
| Education | No formal Education | 23 | 10 |
| | High School | 102 | 44.7 |
| | Undergraduate | 92 | 40.3 |
| | Postgraduate | 11 | 5 |
| Income per Annum (In BHD.) | Less than 10000 | 127 | 55.7 |
| | From 10000 to 14999 | 77 | 33.7 |
| | 15000 and more | 24 | 10.6 |
| Job | Professional/ Technical | 18 | 7.9 |
| | Employee | 74 | 32.4 |
| | Manager | 56 | 24.5 |
| | Self employed | 29 | 12.7 |
| | Retired | 28 | 12.3 |
| | Others | 23 | 10 |
| Formal Training in Investment | Yes | 66 | 29 |
| | No | 162 | 71 |
| Investment Experience | Less than 6 months | 41 | 18 |
| | 6 months to 2 years | 74 | 32.5 |
| | More than 2 to 5 years | 23 | 10 |
| | More than 5 years | 90 | 39.5 |

The questionnaire consisted of three main parts. The first part, contained items covering general information about the participants in this research effort such as their gender, age, job, marital status, education, income, stock market experience and their formal training in investment. The second part included items measuring financial literacy level of participants. The third part involved items examining the relationship between financial literacy and investment decisions in Bahrain. Responses for financial literacy and investment decisions were described in a five-point Likert-type scale as self-reported agreement towards a statement, in which 5 was 'Strongly Agree' (SA) and 1 was 'Strongly Disagree' (SD).

The demographics of the respondents are shown in Table (2). It can be seen that 33% of the respondents were females, and 67% were male. The majority (32.1%) of the respondents were above 40 and under 50 years old, whereas 15.8% were under 30 and 21% were 50 years old and above. Further, 44.7% of respondents were having only high school, 40.3% having bachelor degree and only 5% were having postgraduate degree. As for annual income of respondents, the majority (55.7%) was less than BHD 10000, 33.7% were ranging from BHD 10000 to less than 15000. In terms of formal training in investment, only 29 % of respondents attended formal training in investment, while a significant number of respondents (71%) did not participate in this type of training. In addition, almost half of respondents (49.5%) considered themselves to be experienced in the investment, whereas only 18% did not consider themselves to be experienced.

3.3 Measuring Financial Literacy of the Bahraini Investors

Moreover, in order to measure the level of financial literacy of respondents, the three questions of Lusardi and Mitchell (2006, 2007) and Lusardi (2008) were adopted in this study and they are as follows:

1- Suppose you had BHD100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow: more than BHD102, exactly BHD102, less than BHD102?

2- Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, would you be able to buy more than, exactly the same as, or less than today with the money in this account?

3- Do you think that the following statement is true or false? "Buying a single company stock usually provides a safer return than a stock mutual fund."

The first two questions, are referred to as **Compound Interest** and **Inflation**. These questions should help us evaluate whether respondents display knowledge of fundamental economic concepts for saving decisions as well as possess competence with basic financial numeracy. The third question, which we call **Stock Risk/ Diversification**, evaluates respondents' knowledge of risk diversification, a vital element of an informed investment decision (see Lusardi and Mitchell (2006, 2007). Lusardi (2008) and Cole, Sampson and Zia (2011).

3. Analysis and Empirical Findings

As mentioned earlier, in order to measure the level of financial literacy of the Bahraini investors, the approach of Lusardi and Mitchell (2006, 2007) and Lusardi (2008) was utilized in this study. This approach is widely used in many empirical studies and it attempts to measure the level of financial literacy by using the most probable dimensions of financial literacy I.e. compound interest, inflation and stock risk. The financial literacy score was obtained by adding the individual scores of the three different dimensions of financial literacy. SPSS was used for analyzing the data and testing the hypotheses. Hypothesis 1 was tested using the t-test, while hypothesis 2 was tested using Chi-Square test. Both hypotheses were tested at 5% level of significance.

Table (3) presents the financial literacy results and reveals that the compound interest question has a 56.2% correct response rate; this is an easy question and it is rather surprising that 43.8% of the sample cannot respond correctly, particularly because the sample includes some

respondents who considered themselves that they have investment experience, and had therefore presumably dealt already with interest rate calculations. The inflation question has a higher correct response rate, with almost two thirds (62.3%) answering correctly that they would be able to buy less after a year if the interest rate were 1% and inflation were 2%. On the other hand, only 44.5% of the respondents understand correctly that holding a single company stock means a riskier return than a diversified stock.

Furthermore, we distinguish between those offering correct answers and those giving an incorrect answer or responding “don’t know” (DK). The percentage of incorrect or DK answer differs based on the question. For instance, as for interest compounding, only 10% did not know but over one third (32.1%) gave a wrong answer. On the inflation question, 15.4% did not know, while 21.3% gave an incorrect answer. The question about stock risk emerged the most DKs: 35.5% of respondents did not know, while a smaller portion (18.7%) gave a wrong answer. Since the first two questions are crucial to respondent financial numeracy, it is upsetting that only 48.5% of the sample get both questions right. This is a noticeable low number if we consider the complex financial calculations that respondents have most likely involved in during their work, study or

dealing with banks throughout their lifetimes. Also upsetting is the fact that only 38.6% of respondents correctly answer all three questions. Another interesting finding is that the “DK” responses are highly correlated: that is, financial illiteracy is systematic across areas examined in the Kingdom of Bahrain. For example, there is a 62% correlation between those who cannot answer both the interest compounding question and the inflation question. Wrong answers are more scattered, with mistakes having a correlation of only 8%. These results support survey findings about financial literacy from Lusardi and Mitchell (2006), Hogarth and Hilgerth (2002), Bernheim (1995), and Moore (2003), who report that most respondents do not understand basic financial concepts, especially those pertaining to stocks, bonds, mutual funds, and the concept of compound interest. They also reveal that people often fail to understand loans and, particularly, mortgages. In addition, Calvert, Campbell, and Sodini (2006) show that households with greater financial sophistication are more likely to participate in risky assets markets and invest more efficiently. Hilgerth, Hogarth, and Beverly (2003) also demonstrate a strong link between financial knowledge and financial decisions.

Table (3) financial Literacy Patterns

Panel A: Distribution of Responses to Financial Literacy Questions

| | Responses | | | |
|--------------------------|-----------|-----------|------------|--------|
| | Correct | Incorrect | Don't know | Refuse |
| Compound Interest | 56.2% | 32.1% | 10.2% | 1.5% |
| Inflation | 62.3% | 21.3% | 15.4% | 1% |
| Stock Risk | 44.5% | 18.7% | 35.5% | 1.3% |

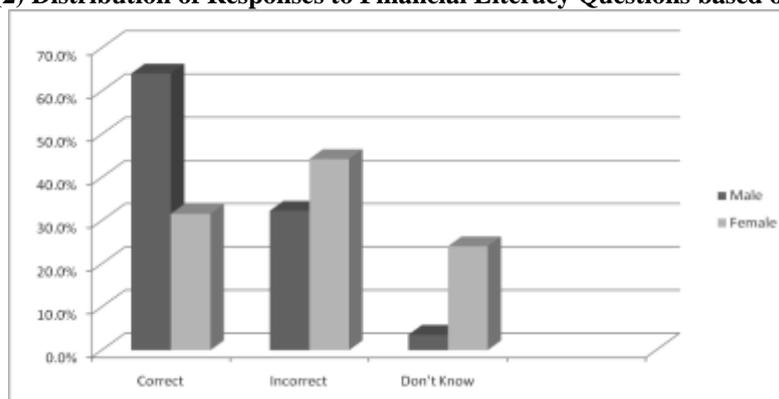
Panel B: Joint probabilities of being correct to financial literacy questions

| | All 3 responses correct | Only 2 responses correct | Only 1 response correct | No responses correct |
|------------|-------------------------|--------------------------|-------------------------|----------------------|
| Proportion | 38.6% | 30.4% | 18.5% | 12.5% |

Furthermore, when we analyzed the level of financial literacy based on the demographic variables, we found important heterogeneity in financial knowledge across demographic groups. For example, the pattern of responses across gender, shows that women are generally less financially literate than are men (Figure 2). For women, the percentage of correct answers is significantly lower across the three questions; as this percentage is 64.1 for men against only 31.6 for women. Consequently, the vast

majority of ladies (68.4%) either gave wrong answer or did not know the correct answer for the three questions of measuring the financial literacy. To give more details, the analysis reveals that females are less likely than males to answer correctly to both the question about interest compounding and inflation. Regarding risk diversification, ladies are less likely to respond correctly to this question compared to men, and are more likely to not know the answer rather than giving wrong answers.

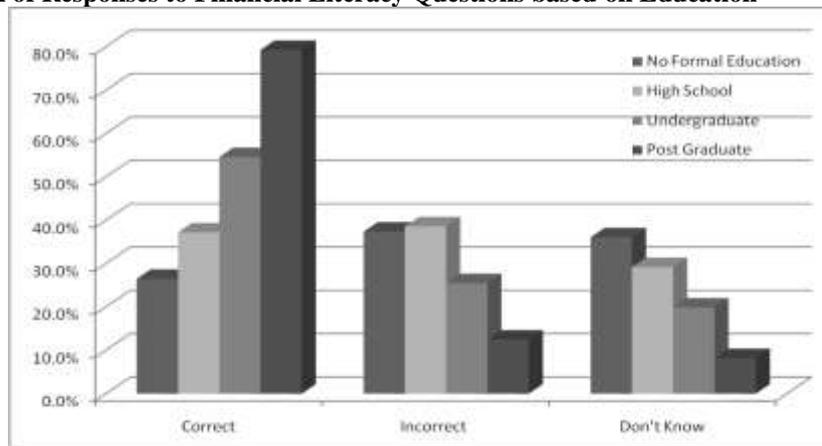
Figure (2) Distribution of Responses to Financial Literacy Questions based on Gender



| | Correct | Incorrect | Don't Know |
|--------|---------|-----------|------------|
| Male | 64.1% | 32.3% | 3.6 % |
| Female | 31.6% | 44.3% | 24.1% |

Figure (3) illustrates the differences in financial knowledge across education groups. It shows that financial literacy is highly correlated with education. More crucially, financial illiteracy is severe among those with no formal education. Only 26.5% of respondents with no formal education correctly answer the three questions of financial literacy. The percentage of correct answers to the three questions increases gradually with the level of education, from only 26.5% for those with no formal education to 79.3% for respondents having postgraduate degree, while the percentage of both incorrect answers and do not know declines. A similar pattern is observed in answers to the interest compounding question and inflation question, where again those without a formal education are much more likely to give wrong answers or not to answer these questions. The question about risk diversification indicates that only those who have a college or postgraduate degree reveal a high percentage of correct answers. None the less, even here, almost half (45%) of those with a college degree do not know the answer or give wrong answer to the three questions. For the less educated, the percentage of do not know, is essentially high; over one third of those (36.1%) with no formal education report they do not know the answer to these questions.

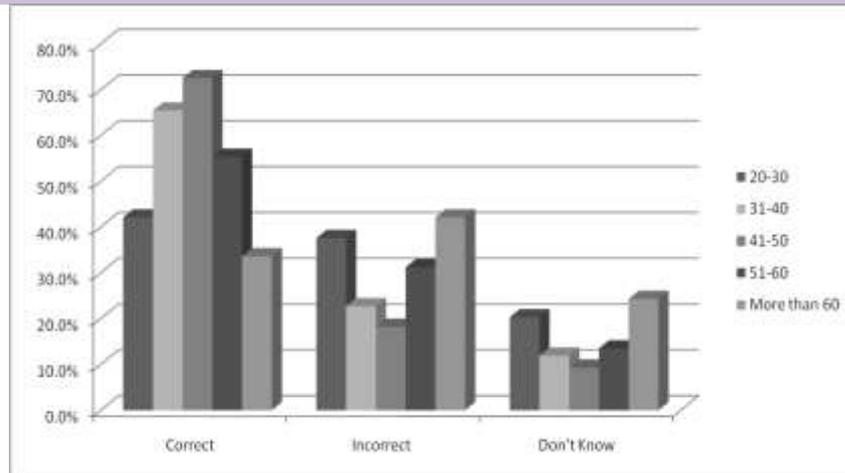
Figure (3) Distribution of Responses to Financial Literacy Questions based on Education



| | Correct | Incorrect | Don't Know |
|---------------------|---------|-----------|------------|
| No Formal Education | 26.5 % | 37.4% | 36.1% |
| High School | 37.2% | 38.6% | 29.2% |
| Undergraduate | 54.6% | 25.5% | 19.5 |
| Postgraduate | 79.3% | 12.5% | 8.2% |

In addition, figures (4) displays the pattern of responses across different age groups. It shows that respondents of age 41-50 are more knowledgeable than all other age groups: the proportion of correct answers to the three questions is as much as 72.5%, followed by 65.4% for those age 31-40 while, the lowest percentage of correct answer is for those age 60+ (33.6%). There are large differences between different age groups, and particularly those age 60+ are much less likely to correctly answer the question about interest compounding: less than one third of this age group gave a correct answer, and a sizable fraction of the remainder either gave wrong answer or simply stated they did not know the answer. This is a remarkable result in view of the fact that many respondents of old age group do not hold even basic assets, such as saving accounts (Lusardi and Mitchell, 2006). A similar pattern exists with the question about inflation, where again those age 60+ are least likely to answer correctly. As far as risk diversification is concerned, respondents of age 20-30 and those of age 60+ both show difficulty answering this question: only one third (33.6%) of the 60+ age responded correctly while 42.1% of those age 20-30 did not know the answer to this question.

Figure (4) Distribution of Responses to Financial Literacy Questions based on Age



| | Correct | Incorrect | Don't Know |
|--------------|---------|-----------|------------|
| 20-30 | 42.1% | 37.6% | 20.3% |
| 31-40 | 65.4% | 22.7% | 11.9% |
| 41-50 | 72.5% | 18.2% | 9.3% |
| 51-60 | 55.3% | 31.2% | 13.5% |
| 60+ | 33.6% | 42.1% | 24.3% |

Worth mentioning that for brevity, we do not report the distribution of financial literacy results across other demographic factors such as marital status, income, job, training in investment and investment experience.

Testing Hypotheses

In order to test hypothesis 1, i.e. to examine the relationship between the level of financial literacy of Bahraini investors and their awareness of financial products, participants of this research effort were classified into two groups namely

“high financial literacy group” (HFLG), and “low financial literacy group” (LFLG). The participants whose financial literacy score was higher than median were considered as HFLG while, those participants whose financial literacy was either equal to or less than median were considered as LFLG. Further, mean awareness level of participants falling in these two groups were calculated and compared. Table (4) below displays the awareness level of high and low financial literacy groups for different financial products

Table (4) Awareness Level of Financial Products between High and Low Financial Literacy Groups

| Financial Products | High Financial Literacy Group Awareness Level (Mean(| Low Financial Literacy Group Awareness Level (Mean(| t-value | Sig. |
|-------------------------------|---|--|---------|------|
| Bank Deposits | 4,25 | 3.52 | -1.98* | .001 |
| Savings Account | 3.80 | 3.55 | -3.22* | .004 |
| Checking account | 3.40 | 3.12 | -2.74 | .075 |
| Certificate of deposit | 3.34 | 3.72 | .873* | .006 |
| Life insurance | 3.20 | 3.02 | -2.03 | .192 |
| Any investment account | 3.11 | 2.88 | -1.02 | .267 |
| Post Office Savings | 2.84 | 2.91 | 1.12 | .087 |
| Mutual fund | 2,75 | 2.62 | -2.11 | .551 |
| Stocks | 2.56 | 1.90 | -2.08* | .000 |
| Bonds | 2.44 | 1.87 | -1.78* | .008 |
| Pension Funds | 2.31 | 1.81 | -2.31 | .116 |
| Credit product | 2.28 | 1.65 | -3.05 | .432 |
| Credit card | 2.21 | 1.43 | -2.76 | .099 |
| Commodity Market | 1.98 | 1.40 | -1.98 | .644 |
| Mortgage | 1.74 | 1.15 | -2.08* | .005 |
| Forex Market | 1.65 | 1.05 | -1.77 | .123 |

* Significant at 5% level

It can be seen from table (4) that participants in HFLG have higher awareness level for all financial products except for certificate of deposit and post office savings. The mean difference in score of certificate of deposits was statistically

significant, while that of post office savings was not statistically significant. Based on t-test results, the awareness level of Bahraini investors was found statistically significant for some financial products such as bank

deposits, saving account, certificate of deposits, stocks, bonds and mortgage. Hence, we reject the first null hypothesis and accept the alternative one. Consequently, we can conclude that financial literacy level influences investors' awareness of financial products in the Kingdom of Bahrain.

In addition, in order to test hypothesis 2 of the study i.e. how financial literacy level of the Bahraini investors influences their investment decisions, as mentioned before, participants were classified into two groups namely HFLG and LFLG. Table (5) shows the investment preferences of high and low financial literacy groups for different financial products. The results reveal that participants in high financial literacy group expressed higher preferences for life insurance, mutual fund, stocks, bonds, pension funds, credit card, mortgage and forex market as compared to those in low

financial literacy group. Participants in low financial literacy group showed higher preferences for bank deposits, saving account and post office savings. Hence, this obviously indicates that the Bahraini investors having low financial literacy mainly prefer to invest in traditional and safe financial products and do not invest much in those financial products which are comparatively more risky and can give higher return. Chi-square value of 18.86 which is statistically significant at 5% level indicates that investment decisions of Bahraini investors rely on their financial literacy level. Hence, we reject the second null hypothesis and accept the alternative one. Therefore, we can conclude that financial literacy level influences investors' preferences for different financial products in the Kingdom of Bahrain.

Table (5) Investment in Financial products between High and Low Financial Literacy Groups

| Financial Products | High Financial Literacy Group | | Low Financial Literacy Group | | Chi square value |
|----------------------------|-------------------------------|-------|------------------------------|-------|------------------|
| | Frequency | % | Frequency | % | |
| Bank Deposits | 97 | 86.6% | 102 | 87.9% | 18.86* |
| Savings Account | 56 | 50% | 79 | 68.1% | |
| Life insurance | 43 | 38.3% | 35 | 30.1% | |
| Post Office Savings | 39 | 34.8% | 56 | 48.2% | |
| Mutual fund | 77 | 68.7% | 41 | 35.3% | |
| Public stock | 66 | 58.9% | 23 | 19.8% | |
| Bonds | 22 | 19.6% | 9 | 7.75% | |
| Pension Funds | 40 | 35.7% | 32 | 27.5% | |
| Credit Card | 55 | 49.1% | 17 | 14.6% | |
| Mortgage | 25 | 22.3% | 1 | .862% | |
| Forex Market | 42 | 37.5% | - | 0 % | |
| Total Respondents | 112 | | 116 | | |

* Significant at 5% level

5. Conclusion

The current study had some limitations. This study was primarily limited to its small sample size. A larger sample with a greater number of participants would have benefited our results and enhanced the generalizability of the study. Another possible improvement could have been interviewing some investors and professionals from the Kingdom of Bahrain. Personal interviews could elicit greater information regarding financial literacy and investors' behavior in Bahrain. This method could have added important qualitative data and greater insight into the investors' thoughts and opinions, so that better understanding and interpretation of the relation between financial literacy and investment decisions in the Kingdom of Bahrain would have achieved.

Although investors' perception of financial literacy and investment decisions has been established in the finance literature, to the author's knowledge, this paper is the first of its kind to examine this relationship in the Kingdom of Bahrain. The findings of this study are confined to a sample of 228 investors in Bahrain, and this may limit the generalizability of the results. Hence, future research may incorporate the perception and experience of a much larger and diversified sample of investors in some other countries

in the Middle East. A greater understanding could then be obtained of investors' perception of financial literacy and investment decisions in these countries.

The findings of this study demonstrate that the overall level of financial literacy of investors in the Kingdom of Bahrain is low. The compound interest question has a 56.2% correct response rate; this is an easy question and it is rather surprising that 43.8% of the sample cannot respond correctly, particularly because the sample includes some respondents who considered themselves that they have investment experience and had therefore presumably dealt already with interest rate calculations. The inflation question has a higher correct response rate, with almost two thirds (62.3%) answering correctly that they would be able to buy less after a year if the interest rate were 1% and inflation were 2%. On the other hand, only 44.5% of the respondents understand correctly that holding a single company stock means a riskier return than a diversified stock.

In addition, when we analyzed the level of financial literacy based on the demographic variables, we found important heterogeneity in financial knowledge across demographic groups. For example, the pattern of responses across gender, shows that women are generally less financially literate than are men. The differences in financial knowledge across education groups indicate that financial literacy is highly correlated with education. More importantly, financial

illiteracy is severe among those with no formal education. Also, the pattern of responses across different age groups reveal that respondents of age 41-50 are more knowledgeable than all other age groups: the proportion of correct answers to the three questions is as much as 72.5%, followed by 65.4% for those age 31-40 while, the lowest percentage of correct answer is for those age 60+ (33.6%).

The results of the study also reveal that participants in high financial literacy group have higher awareness level for all financial products except for certificate of deposit and post office savings. The mean difference in score of certificate of deposits was statistically significant, while that of post office savings was not statistically significant. Based on t-test results, the awareness level of Bahraini investors was found statistically significant for some financial products such as bank deposits, saving account, certificate of deposits, stocks, bonds and mortgage. Hence, we reject the first null hypothesis and accept the alternative one. Consequently, we can conclude that financial literacy level influences investors' awareness of financial products in the Kingdom of Bahrain.

Moreover, the results demonstrate that participants in high financial literacy group expressed higher preferences for life insurance, mutual fund, stocks, bonds, pension funds, credit card, mortgage and forex market as compared to those in low financial literacy group. Participants in low financial literacy group showed higher preferences for bank deposits, saving account and post office savings. Hence, this obviously indicates that Bahraini investors having low financial literacy mainly prefer to invest in traditional and safe financial products and do not invest much in complex financial products which are comparatively more risky and can give higher return. This indicates that investment decisions of Bahraini investors rely on their financial literacy level. Hence, we reject the second null hypothesis and accept the alternative one. Therefore, we can conclude that financial literacy level influences investors' investment preferences for different financial products in the Kingdom of Bahrain.

These results support empirical findings about financial literacy from Bahushan (2014); Musundi (2014), Jagongo and Mutswenje (2014), Lusardi and Mitchell (2006, 2007), Lusardi (2008), Hogarth and Hilgerth (2002), Bernheim (1995), and Moore (2003). They report in their studies that most respondents do not understand basic financial concepts, especially those pertaining to stocks, bonds, mutual funds, and the concept of compound interest. They also conclude that people often fail to understand loans and, particularly, mortgages. In addition, Calvert, Campbell, and Sodini (2006) show that people with greater financial sophistication are more likely to participate in risky assets markets and invest more efficiently. Hilgerth, Hogarth, and Beverly (2003) also demonstrate a strong link between financial knowledge and financial decisions.

Accordingly, the main recommendations of this research effort are for the Bahraini government, policy makers as well as financial institution and banks in the Kingdom of Bahrain that they should work together to establish a new strategy to improve the level of financial literacy in their country if they want to increase the demand of complex financial products and encourage people to invest their

money in a more effective and efficient manner. Further, policy makers in Bahrain should consider the financial literacy deficiencies which can affect anpeople's day-to-day money management and ability to save for long-term goals such as buying a home, seeking higher education, or financing retirement. Ineffective money management can also result in behaviors that make consumers vulnerable to severe financial crises.

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