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Influence of Subjective Investment Knowledge on Investment Intention: An Individual Investor's Perspective from Nairobi Securities Exchange

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Abstract:

The number on individual investors who are actively involved in stock markets globally has been fluctuating over time. This can be attributed to factors such as subjective investment knowledge. The purpose of this study was to assess the determinants of investment intentions of individual stock market investors in Nairobi Securities Exchange. This paper is based on findings of a PhD study that was conducted in Nairobi County, Kenya between 2015 and 2016. The specific objective was to investigate the effect of subjective investment knowledge on investment intention of individual investors in Kenya. In addition, the study sought to build a theoretical model to explain investment intentions in financial securities by individual investors by examining the relationships between subjective investment knowledge and investment intentions. A cross sectional survey, multi-stage sampling technique involving 423 randomly selected individual investors participated. Validity and reliability of research instruments was ascertained through a pre-test and pilot survey. Data was collected using structured questionnaires and interview guides. A 74.0% response rate was attained on the basis of 313 duly filled questionnaires and the resulting data was analyzed using statistical package for social sciences (SPSS) software Version 23.0. Using hierarchical regression analysis, empirical results showed that subjective investment knowledge had a positive and statistically significant effect on investment intentions of individual investors. The study recommends increased investor education to build self-assessed knowledge and investor confidence since according to the findings, subjective investment knowledge had the highest effect on investment intention. Additionally, to stimulate investments in financial securities, empowering individual investors with financial knowledge and demonstrating economic value would yield an increase in investments by individual investors.

Keywords: *Subjective investment knowledge, Investment intention*

1. Introduction

Economic and financial theories presume that individuals act rationally and would consider all available information in the investment decision-making process. Behavioral finance therefore has been used to throw more light on why people buy or sell stocks and even why they do not buy stocks at all (Thaler, 2003). Investment behaviors of investor are defined as how the investors judge, predict, analyze and review the procedures for decision making, which includes investment psychology, information gathering, defining and understanding, research and analysis (Alfredo & Vicente, 2010).

Standard finance is built on rules on how investors should behave rather than trying to observe how they actually behave (Pompian, 2011) and the traditional finance theories derived from neo-classical economic theory assumes investors to be rational and competent (Popescu, 2008). The market actor makes decisions according to the axioms of expected utility theory. In this equilibrium securities are priced according to the efficient market hypothesis (EMH). Whereas traditional financial and economic theories assume that investors are rational problem solvers, the decision-making theories in behavioral finance and economics study the limitations of one's decision making (bounded rationality) that affect the investment behavior (Puustinen, 2012). Particularly the works of Kahneman and Tversky in the 1970s played an important role in the development of behavioral finance theory (Pompian, 2011).

Majority of investors tend to utilize a limited subset of information in the markets hence having uninformed competing investors (Glosten & Milgrom, 1985). In reality, investors do not receive all information freely; they have to decide whether and which information to gather prior to trading. Investors end up staying afloat in a sea of uncertainty (Gary & Uri, 2003) which in turn affects

their level of awareness. According to Luigi, Sapienza and Zingales (2005), individuals who are knowledgeable are significantly more likely to buy stocks and risky assets and also invest in stock. Most individual investors hold undiversified portfolios.

The investors' limited knowledge of the investment process can compromise the risk management mechanisms available today. Better decisions are made by knowing the mechanism for making investment decision and it does constitute an important step to risk control management. Harbaugh (2003) affirms that simple economic models are often poor predictors of human behavior. The need for more detailed studies of human behavior in the process of making investment decisions cannot be underscored in order to improve theory.

Existing studies carried out in Kenya seem to have a mixed view with Waweru, Munyoki, and Uliana (2008) in support of market rationality and use of market fundamentals to make investment decisions. Werah (2006) suggested that the behavior of investors at the NSE is to some extent irrational in regard to fundamental estimations as a result of anomalies such as herd behavior, regret aversion, overconfidence and anchoring. Werah (2006) proved irrationality at NSE while Aduda and Muimi (2011) tested overreaction hypothesis at the NSE as an anomaly in the stock market and the conclusion was in support of overreaction as an anomaly. Investigations into the IPO market in Kenya by Fredrick (2012) showed that, on average, IPOs provided abnormal return in the immediate aftermarket to investors who purchased at the initial offering. Olweny, Namusonge and Onyango (2012) contend that investors who have invested in the securities market before are more risk tolerant when compared to those who had never ventured into the market due to their previous exposure to market.

2. Literature Review

During the past decades the complexity of financial instruments has increased and forced individuals to cope with new and more sophisticated investment products (Lusardi & Mitchell, 2006). Consequently, investors are now facing difficulties in understanding investments, and within the European markets, only one third of investors feels themselves capable of understanding which investment would give the best return (Chater *et al.*, 2010). One in five claimed that they were really confused with the investment alternatives and were unable to understand the jargon that was used in the description and therefore did not know which option to choose. Only two in five felt that they understood the information regarding their investment options (*ibid*).

According to behavioral economics, the amount, source, and nature of the information individuals receive about saving and investing are likely to influence their financial decisions. After all, to be able to make a decision between investment products, an investor is expected to possess a clear understanding of the characteristics of the alternatives as well as their own preferences (Costanzo & Ashton, 2006). Lusardi and Mitchell (2006) detected that investors with higher perceived financial knowledge were more likely to engage in financial planning and financial preparations for retirement. Thus, their findings highlight the connection between knowledge, intentions, and behavior. Their results are consistent with the familiarity heuristic, according to which people are more likely to involve in a behavior if they feel more competent (Ackert & Deaves, 2010).

Whereas the ambiguity aversion heuristic refers to a situation where people prefer risk to uncertainty, Heath and Tversky (1991) found that individuals do not prefer an option with known risk to an option with unknown risks when the choice options are familiar. According to Fox and Tversky (1995), this is due to comparative ignorance. The comparative ignorance hypothesis proposes that people's confidence is weakened as individuals compare their limited knowledge in the relevant domain with their superior knowledge about another domain, or when they compare themselves with more informed individuals (Fox & Tversky 1995). This causes the feeling of ignorance, which makes people judge the situation ambiguous and to avoid it. Therefore, investors who are aware of their limited investment skills are less likely to participate in risky asset markets, (Campbell *et al.*, 2011), and might even avoid investment/savings decisions altogether (Lusardi & Mitchell 2006).

This was also confirmed in the research of Lusardi and Mitchell (2006), where it was found that objective financial knowledge and confidence had a positive impact on the investor's financial planning intentions. However, their results suggested that confidence played a greater role. In 2007, Lusardi and Mitchell examined the influence of self-assessed, i.e., subjective financial literacy on financial planning and on objective knowledge. According to their findings, objective and subjective measures were positively related and both had a great influence on financial planning behavior. Accordingly, investors with higher level of investment knowledge are more likely to invest than investors with lower level of knowledge. However, in this study knowledge is not expected to impact investment intentions directly, but rather indirectly through the investors' evaluations of the investment.

After all, several studies within the field of investor behavior have concluded that the investors with higher product knowledge use different evaluative strategies and decision processes than investors with less knowledge (Bettman & Park 1980; Brucks, 1985). Moreover, Rao and Monroe (1988) found out that those investors with high product knowledge used extrinsic cues when evaluating a product whereas investors with less knowledge relied on intrinsic attributes. Biswas and Sherrell (1993) studied the influence of product knowledge on investor internal price standards, and their findings suggested that investors estimated prices and acceptable prices differently according to their degree of product knowledge. Moreover, recent research has shown that product knowledge reduces investor's perception of risk (Nepomuceno *et al.*, 2013). Thus, it has been suggested that product knowledge is an important factor affecting the evaluation of a product, and subsequently influencing investor's purchase intentions.

3. Research Methodology

3.1. Research Design

The research design for this study was both explanatory and descriptive. The explanatory design was used as the researcher wanted to establish relationships between the subjective investment knowledge and its dimensions and the investments by individual investors. Further, a descriptive design was used as the research objective was to describe the state of affairs as it existed. The variables of

interest can be quantified, thus justifying the use of quantitative approach. However, given that the underlying motives of human behavior was a matter of interest of the study, a qualitative research approach was also considered. This multi-method approach was applied, so that the limitation of one method are compensated for by the counter balancing strengths of another (Saunders et al., 2003; Kothari, 2009). It was a cross-sectional study and the object and unit of analysis are the individual investors that have either invested or are potential investors in stocks in NSE.

3.2. Target Population, Sampling Technique and Sample Size

This is the population from which a sample was obtained and conclusions based on it. The target population for this study was the average household investors and stock market brokers in Nairobi Securities Exchange. To provide a desirable degree of homogeneity among the respondents, the study only considered investors who were within a radius of 50 km from Nairobi.

The sampling frame was drawn from individual investor's directory as captured in the Kingdom securities limited investor directory with a clientele base was 189,063 investors as at close of year 2015. Additionally, the sample frame also consisted of the individuals who had never invested in Nairobi Securities exchange. These individuals have a potential to invest in stocks but they had not.

The sample was decided on by use of a multi-stage sampling technique where in the first stage, stratified sampling technique was used. The individual investors were stratified based on whether they have ever invested in the stock market or not and from each stratum, using proportional allocation the proportion of the size for each stratum were computed. In the second stage, simple random sampling technique using random numbers (Cooper and Emory, 2000) was used to select the individual investors from each of the stratum to be involved in the study. A sample size of 423 participants was used for this study.

3.3. Research Instruments, Data Collection and Analysis

The study used questionnaire, interviewing and secondary data review methods to collect data. The questionnaire was structured and the measurement was done using a five item Likert scale. The second method of collecting data was by the use of interview guide that was used to gather in-depth information from individual investors and finally the secondary data was collected by the use of published data. To ascertain the validity and reliability of questionnaire, the questionnaire was pretested with 31 individuals' investors. All the variables had an alpha score of above 0.8.

4. Results and Discussions

4.1. Description of Individual Investors and Their Characteristics

Table 1 presents a summary description of characteristics of the 313 individual investors who responded to the questionnaire. A significant majority of the respondents were male (61.3%) while the female was 38.7%. About 32.6% of the respondents were single, 63.3% were married, 2.3% widows and widowers, 0.3% divorced while 1.6% had separated. A significant majority of the respondents (57.5%) were aged between 30 and 40 years, 30% of the respondent were aged below 30 years, 9.3% were aged between 40 and 50 years, 2.6% were aged between 50 and 60years while 0.6% were aged above 60 years. About 4.2% had gross an income below 20,000 Kenya shillings per month and 14.1% an income between 20,000 and 50,000 Kenya shillings, 19.5% were in the 50,000 – 80,000 Kenya shilling income category, 17.3% had an income between 80,000 and 100,000 Kenya shilling while 45% of the respondents had an income of above 100,000 Kenya shillings a month.

As for education, 0.3% had primary education, 3.5 % had secondary education, 9.6% had tertiary education, and 53.7% had a bachelor's degree while 32.9% had a postgraduate level degree. On investment experience, the respondents were also asked whether they had previously invested in securities such as stocks. 82.7% of the respondents had the experience while 17.3% had never invested in stocks. Of those respondents with experience, 8.9% of them had less than a years' experience, 39.3% had an investment experience of between a year and five years and 26.5% of the respondents had an experience of between five to ten years while 8% of the respondents had an investment experience of over ten years. As regards to whether the respondents are currently investor in the stock market, only 60.1% of the responds indicated that they had current investments in the stock market. Additional descriptive information can be found in Table 2, which presents the descriptive analysis for all research items.

Variable		Frequency	Percentage (%)
Respondent's Gender	Male	192	61.3
	Female	121	38.70
Marital Status	Single	102	32.6
	Married	198	63.3
	Widow	3	1.0
	Divorced	1	.3
	Widower	4	1.3
	Separated	5	1.6
Respondents' age	Below 30 Years	94	30.0
	31 -40 Years	180	57.5
	41-50 years	29	9.3
	51-60 years	8	2.6
	Over 60 years	2	.6
Gross Monthly Income	Below KSh 20,000	13	4.2
	Btwn Ksh 20,000 to 50,000	44	14.1
	Btwn Ksh 50,001 to 80,000	61	19.5
	Btwn Ksh 80,001 to 100,000	54	17.3
	Above Ksh 100,000	141	45.0
Education level	Primary	1	.3
	Secondary	11	3.5
	Tertiary	30	9.6
	Undergraduate	168	53.7
	Post Graduate	103	32.9
Experience of Investing in stock	Less than 1 year	28	8.9
	1-5 years	123	39.3
	5-10 years	83	26.5
	Over 10 years	25	8.0
	I have never invested in NSE	54	17.3
Current investor	No	125	39.9
	Yes	188	60.1

Table 1: Individual Investors Demographics

	Subjective Investment Knowledge
Mean	4.1917
Std. Error of Mean	.06716
Median	4.5000
Mode	5.00
Std. Deviation	1.18821
Variance	1.412
Skewness	-.454
Kurtosis	-.270
Range	6.00
Minimum	1.00
Maximum	7.00
Sum	1312.00
Count	313

Table 2: Descriptive statistics

4.2. Correlation of Variables

A Pearson product-moment correlation test was used to measure interrelationships between variables: control variable, independent variables and dependent variables. This test was conducted to examine the presence of multicollinearity (Pallant, 2007). As the model hypotheses were tested using Hierarchical Multiple Regression, correlation tests were first carried out to rule out the presence of multicollinearity. Table 3 shows the correlation coefficients of all the variables.

	Gender	Mstatus	Age	Income	EDUC	EXPE	C_INV	SIK	II
Gender	1								
Mstatus	-.009	1							
Age	.075	.346**	1						
Income	.246**	.075	2.93**	1					
EDUC	.083	-.082	-.066	.485**	1				
EXPE	-.020	.065	.024	-.052	.004	1			
C_INV	-.085	.080	.275**	.330**	.235**	-.316**	1		
SIK	.228**	.034	.111*	.276**	.231**	-.170**	.313**	1	
II	.143*	-.019	.029	.102	.078	-.180**	.258**	.433**	1

Table 3: Correlations Matrices

4.3. Discussions

4.3.1. Characteristics of Individual Stock Market Investors

On the characteristic of the individual stock market investors, majority of respondents were male (192), those that were married were 192 while majority of them were within the age range of 31 -40 years. The findings revealed that most respondents had strong academic qualification, prior investment experience and high monthly income, characteristics previously found to influence intention to invest. Of the 313 respondents, 259 were found to have had an experience of investing in shares. One hundred and eighty-eight (188) of those who had the experience of investing are currently holding investments in the Nairobi Securities Exchange. This mean that 71 of the respondents with experience in stock market investing had divested and are no longer investing in shares.

4.3.2. Reliability Tests

The reliability test was carried out to examine internal consistency of the constructs using Cronbach's Alpha. The constructs demonstrated high reliability as all Alpha coefficients were above the 0.7 threshold suggested by Nunnally (1978). The overall alpha coefficient score for the six items was 0.896

4.3.3. Test of Validity

Factor analysis was used to examine convergent validity and analysis of loadings employed to detect appropriate loading on the predicted construct. All of the construct items were extracted into two factors using the Principal Component Analysis and rotated using the Varimax rotation method with Kaizer normalization. The result of factor analysis for the survey items were generated.

Variable	Item	Loading
Subjective investment knowledge	SKFK1	.732
	SKFK2	.669
	SKFK3	.600
	SKPK1	.753
	SKPK2	.774

Table 4: Factor loading-subjective investment knowledge

Component	Initial Eigen values		
	Total	% of Variance	Cumulative %
1	3.975	66.246	66.5
2	.662	11.032	77.3
3	.519	8.642	85.9
4	.386	6.438	92.4
5	.238	3.974	96.3
6	.220	3.668	100.0

Extraction method: principal component analysis

Table 5: Factor analysis-subjective investment knowledge

Table 4 shows that the items loaded appropriately on the subjective investment knowledge factor using a cut-off score of 0.4 (Anderson & Gerbing, 1982). In terms of the total variance, 66.3% of the cumulative variance is explained by the set of items, and the eigen-value for this item was over the threshold of 1.00 (Table 5). Additionally, the KMO and Bartlett's test strongly support the measure of the sampling adequacy (sig. $p < 0.005$) as shown in Table 6. The KMO value of 0.874 is well above 0.6 which is the minimum threshold and Chi-square value was high and significant.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.874
Bartlett's Test of Sphericity	Approx. Chi-Square	1109.266
	Df	15
	Sig.	.000

Table 6: KMO and Bartlett's test-subjective investment knowledge

4.4. Testing of Hypothesis

To investigate the effect of subjective investment knowledge on investment intention of individual stock market investors in Kenya, data was collected and analyzed based on this objective. Subjective investment knowledge had a mean score of 4.19 and standard deviation of 1.188 while investment intention reflected a mean score of 4.33 and standard deviation of 1.818. Results from Pearson's coefficient of correlation indicated that subjective investment knowledge had a significant relationship with investment intention of individual investors ($r=0.433$, $p<0.01$).

→ H_{01} : Subjective investment knowledge has no significant influence on investment intention of individual stock market investors in Nairobi Stock Exchange.

The null hypothesis was tested using model below.

$$Y_3 = \sigma_0 + \sigma_1 SIK + \sigma_2 EXP + \sigma_3 INCOME + \sigma_4 EDUC + \lambda$$

Under the hierarchical regression analysis approach, the control variables {investor experience (EXP), income and education (EDUC)} were regressed first before subjective investment knowledge – the independent variable to partial out their effects from the relationship of principal interest. The results of the regression analysis indicate that both investor experience (EXP), income and education level (EDUC), explain 3.3 percent ($Ad. R^2 = 0.033$) of the variation in investment intention as shown in Table 7.

Model	R	R Square	Adj. R Square	Std. Error e	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.206 ^a	.042	.033	1.78731	.042	4.557	3	309	.004	1.667
a. Predictors: (Constant), Education Level, Investors experience, Income										
b. Dependent Variable: Investment intention										

Table 7: Model output

In the next step of hierarchical regression analysis, subjective investment knowledge was introduced as the independent variable. The results were as follows:

Variable	Coefficient	std. Error	t-Statistic	Probability
Constant	2.286	0.615	3.714	0.000
SIK	0.422	0.083	7.785	0.000
EXP	-0.109	0.077	-2.102	0.036
INCOME	-0.014	0.086	-0.237	0.813
EDUC	0.012	0.141	-0.211	0.833
Adjusted R ²	0.189			
N	313			

Table 8: Results of subjective investment knowledge regression tests

Table 8 shows that on average, subjective investment knowledge would increase investment intention index by 0.422. The introduction of the subjective investment knowledge variable increased the adjusted coefficient of determination (R^2) by 0.156 to 0.189 suggesting that 15.6 percent of the variation in investment intention is explained by subjective investment knowledge.

The linear regression's F-test has the null hypothesis that there is no linear relationship between the variables subjective investment knowledge and investment intention of individual investor (in other words $R^2=0$). An analysis of variance (ANOVA) was carried out and the F-test yielded a value of $F=19.227$ and was statistically significant, thus there was a linear relationship between the variables in the model. The t-test was used to test the null hypothesis that there is no statistically significant relationship between subjective investment knowledge and investment intention of individual investors, that is, the true slope coefficient $\sigma_1=0$. The results indicate that the standardized regression coefficient ($\alpha_1=0.422$) for subjective investment knowledge had positive sign, pointing to a positive direction and was statistically significant ($t=7.785$, $p<0.010$). Thus the null hypothesis was not accepted and the results confirmed that subjective investment knowledge has a significant effect on investment intention of individual stock market investor. These findings are consistent with the findings by Lounio (2014) that subjective investment knowledge is indeed a critical determinants of investment intention for investors. The results from both multivariate and qualitative data analysis supports the proposition that subjective investment knowledge is a critical factor in determining the investment intention of individual investors in Nairobi securities exchange.

5. Conclusions

From the study, both the results from regression analysis and the interview from stock brokers and investment managers supported the existence of the effect of subjective investment knowledge on investment intention of individual investors. The findings of this study highlight the connection between knowledge, intentions, and behavior and are consistent with the familiarity heuristic, according to which people are more likely to involve in a behavior if they feel more competent. Subjective investment knowledge was found to have a very strong direct effect on investment intentions.

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