ASSESSING THE EFFECT OF FINANCIAL LITERACY ON PERSONAL INVESTMENT DECISIONS OF SECONDARY SCHOOL TEACHERS UNDER TEACHERS SERVICE COMMISSION IN MACHAKOS SUB COUNTY, KENYA

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Abstract

The study was assessing the effect of financial literacy on personal investment decisions among secondary teachers in Machakos Sub County. It explored on the reasons as to why teachers in Machakos Sub County fail to invest for their future and investigated on how their financial literacy contributes to the problem. The study was seeking to determine the influence of knowledge on interest rates, inflation, risk diversification and financial education on investment decisions of the TSC teachers in Machakos sub-county. The study used the learning, decision and theory of mental accounting in supporting theoretical review. The population of the study comprised of 513 secondary teachers in Machakos Sub County. The Sub County has three zones with a total of 43 secondary schools. The study used descriptive research design with data being collected from both primary and secondary sources. The study has used purposive sampling to select the most accessible schools in those zones while simple random sampling technique was used to select 103 respondents from the schools in Machakos Sub County. A self-administered questionnaire was pre tested using 21 respondents and was subject to

content validity, then delivered to the respondents and collected after completion. Once the data was collected from the field, it was sorted to identify errors made by the respondents such as spelling errors and un- responded questions. The questionnaire included both closed and open ended questions. The data was then coded and keyed into SPSS for analysis. Regression analysis was done to test correlation between variables, Anova test done as well as coefficients of determination done to establish the model equation. Then discussions of the results and interpretation was done, conclusions and recommendations made. This study will be expected to serve as a guide and reference to the existing body of knowledge for research and academic purposes, provide recommendations to Government, financial institutions as well as individual teachers on how to address financial literacy and hence improve investment decision making process.

Keywords: Interest Rates, Inflation, Risk Diversification, Financial Education, Investment Decisions of Teachers, Machakos County, Kenya

INTRODUCTION

Globally, teachers just like other citizens face complex financial products and are subjected to making very critical decisions on investment. Financial literacy is key to decision making process in matters of analysis, selection and investment in the best investment project. The knowledge helps to boost chances of success on personal investment decisions that looks on one's competitive advantage, investment risks, investment return, sources and cost of capital, financial inclusion and other financial market dynamics.

Financial literacy among the investors have been found low and inadequate to support decision making process towards investment. Amoah (2016), observed that financial literacy of African Americans was relatively low, had the highest debt levels, lower savings, lowest home ownership with more home foreclosure, higher percentage of lending practices and were exposed to a higher cost on consumer loans than any other ethnic group in America.

Owusu (2015), notes that Teachers in Ghana had poor financial planning, budgetary allocations, savings, spending habits and with inadequate knowledge in stocks, bonds and fixed deposits. Their knowledge on investment in financial markets was inadequate pointing to inadequacies towards decision making and investment. The Kenyan situation of financial literacy has been inadequate too to match the needs of decision making process in investment. Wangeci (2017), from Nakuru county observes that financial knowledge of employees is very low on financial products such as mutual funds, mortgages as well as stocks and shares. It is

observed that the employees have low financial skills to negotiate for better rates of return on investment products and that financial decisions have huge influence on individual financial security and standards of living as they boost ability to manage financial affairs prudently.

Machakos County has different financial institutions that offers teachers with saving and borrowing options. Marketing efforts by these financial institutions has subjected teachers to excessive borrowing. This has exposed guarantors to financial liability and obligation sites a report from Teachers service commission, (2016) as some get black listed in credit reference bureau causing challenges when accessing credit from financial institutions (Lusardi& Mitchel, 2014).

Mutuku (2015), Worthington (2005), Musundi (2015), Nye, Pete and Cinnamon (2013) and Lusardi and Mitchell (2014) argues that Financial literacy encompasses knowledge of key financial concepts and products with the ability to; process economic information while making informed decisions, manage personal finances considering changing economic conditions as well as possession of mathematical skills of numeracy for effective financial decision making. Lusardi and Mitchel, (2014) and Taylor (2013) points out that the indicators of financial literacy includes knowledge on interest rate compounding, inflation, risk diversification, mathematical literacy, standard literacy, financial understanding, financial competence and financial responsibility.

Interest rate is the rate which is charged or paid for use of money. Wuhan, Suyuan and Khurshid (2015) observed that the current interest rates affect future investment by adjusting savings. If the interest rate rises, bond prices fall, and if the interest rate falls, bond prices rise. The influence of interest rate on investment is that the rising interest rates increase the cost of investment and cause lower income investors to withdraw from the area of investment, so that the demand for investment is reduced. However, falling interest rates means that investment cost decline, thereby stimulating investment. Irreversible investment under the changing interest rates showed that the change in the rates has a positive or negative effect on the demand of investment (Alvarez & Koskekela, 2004).

Alvarez (2010), observed that the uncertainty of interest rate may limit the best individual investment and enterprise scale of production. This knowledge is useful on investment since it enables teachers to calculate, interpret and compare interest rates offered by different commercial banks, Micro finance institutions including mobile banking and Saccos forming a strong foundation for optimal investment decisions. This knowledge enables teachers to compute the cost of their financing hence enabling them to choose the cheapest option.

Inflation is an economy wide trend of increasing prices from one year to the next. Berceanu (2014) notes that determination of net present value of investment project when estimating cash flows should take into account inflation in the costs and revenues. Since the investment decisions are based on anticipated future cash flows, the anticipated inflation should be reflected in the expected profitability of the project or the cost related to the capital project. Failure to take it into account, the effects of inflation can result to a wrong analysis on capital budgeting leading to a lower return of capital below the cost of capital. The knowledge of inflation is useful in analyzing the trend in prices, determining and comparing present and future real value of an investment and hence help teachers in arriving at the expected return since changes in price affects profitability.

Risk diversification consists of spreading *risk* out into numerous areas to ensure that the potential negative effects of exposure to any one variable are limited. Shiroka, Berisha and Ahmeti (2012), on her study from china found out that diversification decreases nonsystematic risk while asset correlation helps reduce portfolio risk in an investment. The lack of diversification may be due to lack of individual control and their financial literacy level (Demsetz & Lehn, 2015). This knowledge of risk diversification will enable teachers in risk identification, Calculation of expected risks, management of risk through diversification and measurement of best investment portfolio to invest in.

Financial education is an organized program where content relating to financial concepts or topics is taught through a curriculum, seminars, workshops or even newsletters. People with high financial education have been found to hold more stock than their counterpart (Calvet & Sodini, 2014). Deuflhard, Georgarkos and Inderst (2014), On their Dutch survey concluded that financial education is associated with higher returns on saving accounts. In the Netherlands, Gaudecker (2015), pointed out that more knowledgeable individuals were observed to hold more diversified funds.

Grinblatt, Keloharju and Juhani (2011), pointed out that investors with business education did pay lower fund fees. Choi, Laibson and Madrian (2010) reported that people who were more financially knowledgeable selected cheaper investment options than their counterparts and that mistakes driven by financial illiteracy are the primary source of the high fee index funds. Lusardi (2014) notes that the same way it was not possible to live in an industrialised society without print literacy so it is not possible to live in today's world without being financially literate. There is need for increased financial education at early stages of life in today's world (Sloan ,2012).

Financial education therefore creates financial awareness in financial statements, budgeting, financial modelling, financial inclusion, taxation, auditing, marketing and enhances understanding of business law. It therefore raises confidence level enabling teachers to optimally venture in both risky and non-risky areas. A study by Wagner (2015), indicates that people with financial education and high income have more financial literacy than their counterparts. Monticone (2010), finds that people with higher incomes are more likely to be financially knowledgeable.

The knowledge on financial education is geared towards optimal decision making by investors. Ayieko (2004) argues that investment planning is an important area of retirement and financial planning that assumes that a fully rational and well informed individual will consume less than his/her income in times of high earnings, thus saving to support consumption when income falls after retirement. Modiglian and Brumberg, (2012) argues that an investor is supposed to organise his savings and wealth accumulation for smooth marginal utility over his lifetime.

Obamuyi (2013), on his study in Nigeria noted that the socio-economic characteristics of investors such as age, gender, educational qualifications and marital status have significantly influenced investment decisions of investors while on the other hand Jagongo and Mutswenje (2014) from Kenya observes that factors that influence individual investment decisions were based on reputation of the firm, firm's status in industry, expected corporate earnings, profit and condition of financial statements, past performance of the firm's stock, price per share, feeling on the economy and expected dividend by investors.

Hastings and Mitchel (2010), indicated that consumers undersave for retirement, take too much debt, make poor mortgage decisions, and experience other problems in the modern financial environment. Lusardi and Mitchel (2007), noted that consumers suffer from financial illiteracy and are impatient as they choose immediate satisfaction over future higher pay offs.

Teachers of Machakos County

The teachers of Kenya are under the ministry of education. Teachers service commission (TSC) is an autonomous body mandated with selection, recruitment, paying, promotion, discipline of teachers among other roles. This study focused on secondary school teachers currently employed by TSC from Machakos Sub County. The government has organised a pension scheme for teachers through national social and security fund (NSSF) to enhance savings for teachers towards retirement. A number of SACCOs such as Mwalimu SACCO have been established sorely for teacher voluntary saving plan. In the recent past teachers through their Unions have been agitating for better pay and improved terms. Data from County director office

revealed that Machakos Sub County has 513 secondary school teachers employed by Teachers service commission in 43 schools as at November 2018.

Statement of the Problem

Globally, financial market is getting complex as investment opportunities increase and become readily available in the market (Lusardi & Mitchel, 2014). Teachers therefore need to have financial understanding and competence in the products and services available in the market. Owusu (2015), observed that teachers in Ghana had low financial literacy, poor financial planning, budgetary allocation and inadequate investment awareness with a high exposure to risk on portfolio. Githui (2012), from Kenya noted that teachers from Nairobi County had serious concerns of financial constraints, low financial management skills and unpreparedness towards retirement which evoked stress leading to dire consequences. Majority of the teachers were noted to avoid investment in stocks, bonds and mutual funds in the financial markets. A survey done by Teachers service commission (2016) indicates that Machakos County has different financial institutions that offers teachers with savings and borrowing options. Marketing efforts by these institutions has subjected teachers to excessive borrowing leading to their failure to promptly pay their debts when they fall due thus creating unnecessary financial obligation to their guarantors. However, there is no previous study on financial literacy and personal investment decisions that has ever been conducted in Machakos County. This study is therefore focussing on the link between financial literacy and investment decisions undertaken by TSC teachers in Machakos Sub County, seeking to explain why they seem to take on too much debt, under invest for retirement, make poor mortgage decisions and avoid investing in financial markets.

Research Objectives

i) To examine the influence of knowledge on interest rates on investment decisions of TSC teachers.

ii) To evaluate the effect of knowledge on inflation on investment decisions undertaken by TSC teachers.

iii) To find out the impact of knowledge on risk diversification on investment decisions undertaken by TSC teachers.

iv) To determine the influence of financial education on investment decisions of TSC teachers.

LITERATURE REVIEW

Theoretical review

This study was based on learning theory, decision theory and theory of mental accounting.

Learning Theory

Zhou and Brown (2017), Observed that when an action is linked to a consequence of either reinforcement or punishment, its continuity changes. They argued that positive reinforcement brings more permanent results, while negative reinforcement or punishment leads to negative consequences supporting the findings of (Skinner,1990), hence the TSC can help Teachers with training in financial matters to enhance their decision making towards investment. Breger and Gaugh (1965), investigates the scientific perspective of behaviorism over social theory and its ability to explain complex people actions by only factoring the observable while ignoring the importance of cognitions and emotions.

According to Bandura (1977), behavioral experiments occurs in the laboratory and thus critiques the theory of learning as a basis of describing people's behavior that occurs in a natural social setting. Goldhaber (2000), acknowledged the influence of prerequisite factors and the anticipated consequences, whether positive or negative, in determining people's actions. It therefore focuses on the possibility of continuous learning during which the stimulus for or the impacts of actions can be amended. Teachers therefore can pool their business ideas together and benefit from learning from good practices and share experiences likely to halt their investment endeavors.

Decision Theory

According to Warner (1968), this theory is about people's actions. It argues that a person such as a teacher should choose an action that optimizes expected utility. Financial decisions are made by teachers pursuing a broad range of investment objectives. These teachers face critical financial risk in deciding on source of financing, investment portfolio, appraisal and project valuation. This calls for decision support system model in order to minimize the risk of potential losses due to poor decisions.

According to Roberts and Henneberry (2007), in their study investigated the decision making processes of investors such as teachers. Their study covered a many countries across European markets. Respondents of the research were individuals likely to engage directly in investment decision process. The study encompassed a model of ten normative stages. The study observed that the actual decision-making process is much easier than the normative model predicted, with the teachers establishing a strategy, looking for investment projects,

undertaking a feasibility study of market conditions and buying investment products that best suit that strategy (Roberts & Henneberry, 2007). This theory recognizes decision making as an important step in investment analysis that teachers have to carefully and critically consider to enhance viability and success rates of their investments.

Theory of Mental Accounting

According to Thaler and shefrin (1985), the way an individual subjectively frames a transaction in their mind influences the utility or value they will get or anticipate. According to Jordan and Miller (2008), individual investors keep an independent mental account for each asset and unconsiuosly relate with each asset account. As a result, it tends to be difficult to sell one of them. According to Shefrin and Statman (1985), the main thing behind mental accounting is that decision makers mostly keep the various types of gambles encountered into independent accounts. When you buy a new asset, instead of examining the entire investment, a new mental account is created. The asset purchase price remains to be the reference point. The operations relating to this account are maintained indicating gains or losses in relation to the purchase price.

Teachers find it difficult to close mental accounts at a loss, a situation termed as the breakeven effect. Teachers may resist the realization of a loss because it stands as proof that their first judgment was wrong. While closing an asset account at a loss provokes regret, closing at a gain provokes pride (Shefrin & Statman, 2005). The desire for pride and the avoidance of regret directs an attempt to realize gains and defer losses. Regret is superior to pride. As a result, Teachers may be prone to inaction than action due to the strong desire to avoid regret. Thus some Teachers would prefer not selling at all (inaction) whether prices rise or fall. Thus the importance of this theory to Teachers is that it provokes them to move from their comfort zones and try business ventures that will enhance their future income.

Review of empirical Studies

Key focus in this review was on the four variables that discuss on knowledge of interest rates, inflation, risk diversification and financial education effects on personal investment decisions.

Knowledge of interest rate on personal investment decisions

According to Wuhan, Suyuan and Khurshid (2015), Who carried a survey on the effect of interest rate on investment, from China, found out that the interest rates runs as the opportunity cost of investment on entire investment. When the investment income is constant, rise in interest rates raises the cost of investment thus making investors with low income to pull out

from those investments thus decreasing demand for investment. However, when there is decline in interest rates the investment costs reduce encouraging investment of individual investors. It was observed that in the long run, interest rate and investment have a positive correlation and hence decreasing the rate will stimulate investment.

The results showed that the impact of interest rates on investment depends on the industry. They recommended that the individual investors in businesses should make correct and informed decisions according to the changes in interest rate, the government should make dynamic investment policies and focus on interest sensitive industries by increasing interest rate liberalization, enhancing investment procedures and environment and improving the sensitivity of investment to interest rate in individual investors as well as firms (Wuhan et al, 2015).

According to Lane and Rosewall (2015), who conducted a survey on Firms' Investment Decisions and Interest Rates in Australia firms, found out that investment decision process during the global financial crisis lowered growth of investment. Firms lowered their payback period with rise in discount rates for investment decision even as long-range interest rates reduced. It was observed that finding investment opportunities with returns beyond the normal hurdle rate of around fifteen per cent was difficult for many industries due to their expectations for growth in sales.

Interest rates changes do not have a direct impact on investment decisions for many industries though they have a big indirect influence on industries' investment decisions. For instance, a decline in interest rates may enhance firms' cash liquidity position through reductions in interest costs, making cash to be available for other uses. Ideally, interest rates impact economic operations through many channels, such as the saving and spending behavior of households, borrowing, stock prices and the exchange rate, which generally influence the aggregate demand (lane & Rosewall, 2015).

According to Bader and Ahmed (2015), in their study whose key objective was to evaluate the impact of interest rate on investment in Jordan, observed that a high interest rate increases the cost of capital, endangering private investment level. The study noted that in developing countries such as Kenya, which have poorly developed financial markets with poor access to foreign financing are limited by domestic savings and thus responds positively to a higher real interest rates. The results further showed that the impact of real interest rate is greater than the effect of the income on investment. If discount rate was substituted by stochastic interest rate, the result turned out that the uncertainty of interest rate had obvious uncertain effects on investment points (Ingersoll and Ross, 2012). The analysis of irreversible investment under the changing interest rates showed that the change in the rate had positive or

negative consequence on the demand of investment argues (Alvarez and Koskekela, 2004). The diffusion model of short-term rates pointed that the uncertainty of interest rate may constrain the best individual and enterprise investment scale as noticed by (Alvarez, 2010).

Risk diversification and its effects on personal investment decisions

According to Shiroka, Berisha and Ahmeti(2012), in their study on the impact of portfolio diversification on the performance and the risk of investments of Kosovo pension savings trust, in Jiangsu Province, China, noted that there is a limit to the assets required for portfolio diversification, and thus its surplus would only bring negative requires. The manner of combination of assets in portfolio may help in reduction of the risks. Diversification helps in decreasing of non-systematic risk or diversiafiable risk.

They noted that the more the assets in a portfolio, the better the return and the lower the risk of the investment. Portfolio risk is considerably reduced through diversification; individual investment's risk is engaged in a portfolio risk with a lower percentage than their contribution in portfolio returns (Shirokaetal, 2012). They proposed that Trust should continue with the policy of diversification as the only way to ensure the sustainability of returns vis a vis continuous changes in the performance of investment. A study by Shyan, Gow and Hui (2010) among Taiwanese investors to determine their past experiences and their outcomes when exposed to the economic signals, found no difference by gender for investor propensity to take risk. However, great or small perceptions of risk were shown by investors based on their personal investment experience. Investors with little experience and structured notes were discovered to have significant perception on risk. Furthermore, the married investors were of the opinion that they had adequate knowledge on financial management and could make better investment decision.

Imperfect diversification of an individual as well as firm's decision maker's portfolio, negatively affects one's propensity to take risks. It was noted that a channel through which decision makers can impact their individual and firms' risk taking and the resulting variability of both individual or firms' cash flows is investment strategy (Kothari, Laguerre & Leone, 2002) and (Anderson, Duru & Reeb, 2012). Consequently, a business led by a well-diversified investor would undertake positive NPV projects, as well as relatively risky ones. However, a venture led by a less diversified investor may reject positive NPV and consider risky projects.

Financial limitations impact the correlation between owner's portfolio diversification and investment ventures. An unconstrained investor can easily raise their investment in response to a higher owner's portfolio diversification. Consequently, a relatively constrained person may not operate at their best investment level and may be unable to change their capital investment in

response to rise in the owner's portfolio diversification. It was found that a positive relation exist between investor's capital investment and the owners' portfolio diversification for individual facing relatively low financial constraints (Pierce, 2010).

Effect of financial education on investment decisions

According to Wagne (2015), who conducted a study on the effects of financial education on financial literacy and financial behaviours from University of Nebraska in Lincoln. The study on secondary students indicated enhancement in use of time, resources, better consumption decisions, increased income creation, more saving and investing, borrowing and budgeting. The study on college students showed a positive correlation between financial education and saving, investing and budgeting.

When financial education was offered by employer through subsidized masters programs, newsletters, investment seminars for all employees, workshops and other financial education programs it improved individual saving rates as well as satisfaction at work place. Financial education towards mature citizens on topics of investment, borrowing, insurance and financial advice improved their confidence and preparedness towards retirement planning. The main shortcoming was absence of evaluation of financial education on financial literacy and financial behavior (Wagner, 2015).

According to Fernandes, Lynch and Netemeyer (2013), Who conducted a study on the effect of financial literacy and financial education on downstream financial behaviors in Netherlands, Boulder and Charlottesville, found out that financial education intervention affected financial literacy and financial behavior in individual saving, planning for retirement, debt management, stock ownership and investment decisions, cash flow management and financial inertia such as choice of default options and elimination of payment of unnecessary fees.

The study focused on financial educational interventions through introduction of finance units in high school, counseling, seminar or workshop, multiple sources of education, and exposure to information such as newsletter or a fair all of which improve knowledge on investment decisions. They also found out that the impact of financial education erodes over time hence producing weak consequences on financial knowledge which influences financial behavior towards investment (Fernandes et al, 2013). They recommended teaching of soft skills like propensity to plan, confidence and ability to take investment risks more than content knowledge. In third world countries, financial education when offered together with business oriented programs such as entrepreneurship enhance financial services such as saving, borrowing, insurance, enhanced participation in money generating activities as well as accumulation of wealth. Sayinzoga, Bulte and lensink (2013), in their study of financial

education programme in rural Rwanda indicated that improved financial knowledge and behaviour translates to increased saving, loan accessibility and business start-up which lead to income generation and welfare improvement. Mahdzan and Tahiani (2013) and Suwananaphon (2013), explored the impact of financial literacy on individual saving in Malaysia, and showed that government should promote financial education to enhance saving in the population as low financial literacy negatively affects saving behaviour and may lead to overspending.

According to Bayer (2008), noted that the right education may improve the quality of personal financial decision making. Other studies showed that there is correlations between an individual's general level of educational attainment and his or her rate of saving (Dynan, Skinner and Zeldes, 2004). Lusardi and Mitchell (2009) indicated that financial planning and education have an influence on individual's wealth and that women had lower skills in their financial planning and literacy proficiency. Further findings indicated that individuals with higher level of financial literacy are those who took finance and economics related courses in their educational lives. However, individual participation in the stock markets creates a positive development about their financial literacy levels. Thus, there is a positive relationship between participation in the stock market and financial literacy. It is found that financial knowledge among individuals who do not participate in the stock markets is very low. Inadequate and lack of compulsory financial courses is reported to be the major cause of the situation at universities points Chen and Volpe (2012).

Financial education improves general financial decision making, participation in stock market, pension fund management, portfolio diversification and examination of the self-financial literacy (Lusardi and Mitchel, 2012). Recent findings indicate that even the developed countries have low level of financial literacy. Furthermore, respondents in these researches were identified as being overconfident about financial issues. It is known that individuals with low level of financial literacy and overconfidence in financial matters are more prone to making wrong financial decisions which may lead to high risks.

Effect of inflation on investment decisions

The rate of inflation is important as it represents the rate at which the real value of an investment is eroded and the loss in spending power over time. Inflation also tells investors exactly how much of a return (%) their investments need to make for them to maintain their standards of living. There are several regularly reported measures of inflation that investors can use to track inflation. The most widely monitored indicator is the Consumer Price Index (CPI). According to Berceanu, (2014), the knowledge of inflation is useful in computing, interpreting

and comparing present and future real value of an investment and hence help investors in arriving at the expected return.

According to Fischer (2013), A study made in London school of economics on Investment choice and inflation uncertainty, the study observed that periods of high inflation volatility are associated with substantial reductions in total investment. A one percent increase in inflation changes is linked with a ten percent decline in total investment. It notes that times of high inflation are associated with a shift in the mix of investment away from fixed assets and towards working capital. Fixed asset investment reduces by fifteen percent to thirty seven percent, when the proportional change in working capital investment is below ten percent. The decline in fixed asset investment is driven primarily by a decrease in the likelihood of any fixed asset investment, which falls by twenty six to forty six percent for a one percent increase in inflation volatility. The observed dynamics in business investment are magnified to consideration of other macro variables (Fisher, 2013).

According to Njogo, Ohiaeri and Inim (2018), in their study on relationship between stock returns and inflation rates in Nigeria from 1995 to 2014, noted that the inflationary forces get rid of the worth of money, thus subjecting a given unit of money to purchase fewer goods. Inflation creates artificial capital gain which is subject to capital gains tax thus introducing a tax liability. Rising inflation endanger investors as well as corporate growth. The study showed that there was negative impact of inflation rates on stock markets in Nigeria. They recommended economic reforms to target macroeconomic stability in the country as inflation rates have negative effects on stock returns and removal of structural twist and creation of business-friendly environment that ensures price stability, anti- inflationary policy like non- expansionary monetary and fiscal policies as well as inflation-adjusted interest rate policy should be pursued to attract investment in stocks and lastly, efforts should be made in Strengthening of supervisory and regulatory bodies in the financial system (Njogoetal, 2018).

RESEARCH METHODS

Research design

Burns and Grove (2003), defines a research design as a blueprint for conducting a study with maximum control over factors that may interpret with the validity of the findings. The study will use the descriptive research design. According to Ngechu (2004), descriptive studies are more formalized and clearly structured with well stated research questions. This research is descriptive because it is concerned with discussing financial literacy and its influence on personal investment decisions of TSC teachers. It ensures complete description of the state as it is with minimum bias in the collection of data to reduce errors in interpreting the data

collected. According to Mugenda and Mugenda, (2003), a population is a complete set of individuals, events or objects of elements about which the study wants to draw information. The target population of this study is the secondary school teachers of Machakos Sub County. Statistics from Machakos TSC Sub County director indicate that the number of secondary school teachers employed by the TSC as at November 2018 in the entire Sub County was 513 working in 43 schools.

EMPIRICAL FINDINGS

Interest rate and investment decisions

The first objective sought to examine the influence of Knowledge on interest rates on investment decisions of TSC Teachers in Machakos Sub County. All the respondents were subjected to the same type of questions calibrated on a five point categorical scale whereby 1 represented Totally disagree, 2 = Disagree, 3 = Not sure, 4 = Agree and 5 = Totally agree. The analysis of the study was as shown in table 1.

Table 1 interest rate and investment decisions

Interest rate	Mean	Std. deviation	Variance
I take loans based on prevailing interest rates.	3.32	1.365	1.864
I am able to calculate the trends in interest rates of any credit facility.	3.08	1.118	1.25
I consider product cost before making an investment decision.	3.13	1.087	1.182
I base my investment decisions on past performance of organisation product cost.	3.68	1.031	1.064

From the table, It can be observed that majority of the teachers agreed on basing their investment decisions on past performance of organization product cost (Mean = 3.68). However, they were not sure on whether they can calculate the trends in interest rates or consider product cost before making an investment decision or take loans based on prevailing interest rate with Means of 3.08, 3.13 and 3.32 respectively.

The findings above show that the spread of data set is low meaning that the data points are close to the mean hence the data on Interest rates and investment decisions collected from the sample distribution represents the population. This is indicated from the means which

range from 3.08 to 3.68 as measures of central tendency while standard deviation and variance as measures of variability range from 1.031 to 1.365 and from 1.25 to 1.84 respectively.

Inflation and investment decisions

The second objective sought to evaluate the effect of knowledge on risk diversification on investment decisions undertaken by TSC teachers in Machakos Sub County. The measurement scale adopted was a five point scale in which a score of 1 represented totally disagree, disagree(2), unsure(3), agree(4) and totally agree(5). The analysis from the teachers was as per table 2.

Table 2 Inflation and investment decision

Inflation characteristics	Mean	Std. deviation	Variance
I am aware of the prevailing inflation rates when making investment decisions.	3.2	1.18	1.4
I consider time value of money when making an investment decision.	3.5	0.96	0.92
I am able to factor inflation when calculating the expected return for my investments.	3.2	1.14	1.31

These results indicated that majority of the respondents agreed that they made consideration to time value of money when making an investment decision (mean = 3.5). However, they were un sure of the prevailing inflation rates and also whether they factored inflation when calculating the expected return for their investment (mean = 3.2). The findings above show that the spread of data set is low meaning that the data points are close to the mean hence the data on Inflation and investment decision used from the sample distribution represents the population. This is indicated from the means which range from 3.2 to 3.5 as measures of central tendency while standard deviation and variance as measures of variability range from .96 to 1.18 and from 0.92 to 1.4 respectively.

Risk diversification and investment decisions

The third objective of the study was to find out the impact of knowledge on risk diversification on investment decisions undertaken by TSC teachers. All the respondents were subjected to the same type of questions calibrated on a five point categorical scale whereby 1 represented

Totally disagree, 2 = Disagree, 3 = Not sure, 4 = Agree and 5 = Totally agree. The analysis of the study was as shown in table 3.

Table 3 Risk diversification and investment decisions

Risk diversification	Mean	Std deviation	Variance
I am able to calculate the expected risks on my investments	3.1	1.022	1.044
I am able to measure the best investment portfolio to invest in	3.18	1.010	1.018
I have diversified my assets as a way of managing risks	3.15	1.005	1.01
I can assess the performance of a fund or managed investment.	3.33	1.042	1.086
I have a decision-making strategy on purchasing stocks.	3.34	1.023	1.046
I have a retirement benefits plan for my future.	3.52	1.003	1.006
Effectively balancing credit and debt helps me achieve some short term and long-term goals.	3.55	1.002	1.004

From the findings, majority agreed that balancing credit and debt helped them achieve short and long term goals, and also agreed to having retirement benefits plan for their future. This was indicated from the means of 3.55 and 3.52 respectively. However, rest of the respondents were not sure of their ability to calculate expected risks, measurement of investment portfolio, diversification of assets, assessment of a fund and whether they had a strategy on purchasing stocks.

The study findings in the table above show that the spread of data set is low meaning that the data points are close to the mean hence the data on risk diversification and investment decisions obtained from the sample distribution is a true reflection of the population. This is indicated from the means which range from 3.1 to 3.55 as measures of central tendency while standard deviation and variance as measures of variability range from 1.002 to 1.042 and from 1.004 to 1.086 respectively.

Financial education and investment decisions

The fourth objective was based on influence of financial education on investment decisions of TSC teachers. Out of 91 respondents it was found that 46.2% had financial academic knowledge attained by either attending a seminar, workshop or enrolling in an academic institution while 53.8% lacked such academic knowledge and this points to the reasons behind

financial illiteracy of teachers in matters of investment. The report on their level of academic knowledge indicated that 48.8% were at certificate level, 25.6% had a diploma, 14% had undergraduate degree while 11.6% had a post graduate degree in financial education. The respondents were asked whether they understand financial statements, have a personal budget and whether they trust financial professionals and trust their recommendations. The responses were then awarded cumulative scores as follows; totally disagree(1), disagree(2), not sure (3), agree(4) and totally agree(5). The findings were represented in table 4.

Table 4 Financial education and investment decisions

N =91	Mean	Std. deviation	Variance
I understand financial statements	3.18	1.05	1.1
I have developed spending and saving plan (Personal budget)	3.51	0.822	0.68
I would trust financial professionals and trust what they recommend	3.07	1.153	1.33

From the table, it is clear that majority of the respondents agree that they developed a spending and saving plan with a mean of 3.51. The respondents were not sure on whether they understood financial statements (mean = 3.18) as well as whether they would trust financial professionals and their recommendations (3.07). The finding shows that the spread of data set is low meaning that the data points are close to the mean hence the data on financial education and investment decisions obtained from the sample distribution is a representative of the population. This is indicated from the means which range from 3.07 to 3.51 as measures of central tendency while standard deviation and variance as measures of variability range from 0.822 to 1.153   and from 0.68 to 1.33 respectively.

Model summary

Table 5 Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.839[a]	0.703	0.690	0.626

a. Predictors: (Constant), financial education, risk diversification , inflation , interest rates.

The study results in the table above show the extent to which the predictor variables accounts for the overall variability of personal investment decision by TSC Teachers. In the model, correlation coefficient(R) indicates the relationship between the study variables and from the findings shown in the table, 0.839 shows a strong positive relationship between the variables. R-squared measures the proportion of the variation in your dependent variable (Y) explained by your independent variables (X) for a linear regression model. It gives the percentage of explained variation as if all independent variables in the model affect the dependent variable, whereas the adjusted R-squared gives the percentage of variation explained by only those independent variables that in reality affect the dependent variable. Adjusted R-squared adjusts the statistic based on the number of independent variables in the model. The adjusted R-squared compares the descriptive power of regression models that include diverse numbers of predictors. Every predictor added to a model increases R-squared and never decreases it.

The R Square of 0.703 indicate that the predictor variables; financial education, risk diversification , inflation , interest rates as given in the study affects the personal investment decision of TSC Teachers by 70.3% while other external factors accounts for 29.7 percent.. The adjusted R Square indicate that suppose the whole population was involved in the study rather than a sample, then the response would be 31% (1-0.690) less variant.

Analysis of variance

Table 5 Anova

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	79.908	4	19.977	50.985	.000[b]
1	Residual	33.696	86	.392		
	Total	113.604	90			

a. Dependent variable: Personal investment decision by TSC Teachers

b. Predictors: (Constant), Financial education, risk diversification , inflation , interest rates.

The ANOVA analysis aims at investigating whether the variation in the independent variables give an account on the observed variance in the outcome of this study. The intention of the ANOVA is to test differences in means (for groups or variables) for statistical significance. The completeness is by analyzing the variance, which is by splitting the total variance into the component that is due to true random error and the components that are due to differences between means. The ANOVA results indicate that the independent variables significantly in the F-Statistics produced (F=50.985) was significant at 0 per cent level (Sig. F<.05) thus confirming

the fitness of the model. From the ANOVA statistics in table above, that test the significance of the regression model obtained from the processed data, gives a significance level of 0.05 meaning that the data used is ideal for making conclusions on the population's parameter as the value of significance (p-value) is less than 0.05 hence, the model was statistically significant.

Correlations

Table 6 correlations

		Investment Decision	Interest Rates	Inflation	Risk Diversification	Financial Education
Investment Decision	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	91				
Interest Rates	Pearson Correlation	.501**	1			
	Sig. (2-tailed)	.000				
	N	91	91			
Inflation	Pearson Correlation	.329**	.768**	1		
	Sig. (2-tailed)	.001	.000			
	N	91	91	91		
Risk Diversification	Pearson Correlation	.226*	.893**	.848**	1	
	Sig. (2-tailed)	.031	.000	.000		
	N	91	91	91	91	
Financial Education	Pearson Correlation	.697**	.909**	.783**	.755**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	91	91	91	91	91

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

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

The findings in the above table indicate that there is a positive correlation between personal investment decision by TSC Teachers and interest rates (r=0.501) and that the correlation is significant at the 0.01 level (2-tailed), given that p-value (0.000) is less than alpha (0.01).The findings also indicate that there is a positive correlation between personal investment decision by TSC Teachers and inflation (r=.329**)and that the correlation is significant at the 0.01 level

(2-tailed), given that p-value (0.001) is less than alpha (0.01). The findings also show that correlation is positive at (r=0.226) for risk diversification and that the correlation is significant at the 0.05 level (2-tailed), given that p-value (0.031) is less than alpha (0.05). Lastly, the table shows that there is a positive correlation between personal investment decision by TSC Teachers and financial education (r=0.697) and that the correlation is significant at the 0.01 level (2-tailed), given that p-value (0.000) is less than alpha (0.01).

Coefficients of determination

Table 7 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	2.231	0.146		15.230	0.000
	Interest Rates	0.023	0.232	0.025	0.100	0.0092
1	Inflation	0.137	0.123	0.158	1.117	0.0267
	Risk Diversification	0.557	0.180	0.618	3.090	0.003
	Financial Education	1.161	0.173	1.265	6.722	0.000

a. Dependent variable: Personal investment decision by TSC Teachers

$Y = 2.231 + 0.023 X_1 + 0.137 X_2 + 0.557 X_3 + 1.161 X_4 + 0.146$

Where

Y = The dependent variable (Personal investment decision)

X_1= Interest rate index

X_2= Inflation index

X_3= Risk diversification index

X_4 = Financial education index

e = Error term.

The study results in the above table indicate that holding other factors constant, there is a positive relationships between personal investment decision by TSC Teachers and predictor variables i.e. Interest rates, inflation, risk diversification and financial education. The relationship shows that personal investment decision by TSC Teachers will increase by a factor of 0.023 in interest rates, by a factor of 0.137 in inflation, by a factor of 0.557 in risk diversification and by a

factor of 1.161 in financial education. Testing at 5% significant level, the study was significant at p<0.05 using a two-tail test.

CONCLUSION

Financial literacy and demographic information

The study concludes that since there is fairly equal representation in terms of gender in the workforce, both have equal chance of making an investment decision. However, with standardized job group cadres the level of investment can vary with the income of an individual as well as willingness to sacrifice the income for investment. This is in support of Monticone (2010), who noted that people with higher incomes are more likely to be financially knowledgeable. Since they can access information through purchase of journals, attendance to a seminar or enrolment to a formal course in finance.

The study further concludes that education level can significantly influence investment decisions. Lusardi (2014) noted that the same way it was not possible to live in an industrialised society without print literacy so it is not possible to live in today's world without being financially literate. The higher the level of education the better the investment decision, supporting the findings of Lusardi and Mitchel, (2012), who pointed out that the level of education improves financial decision making in general, stock market participation, pension fund management, asset diversification and evaluation of the self-financial literacy.

Knowledge of interest rates and personal investment decisions

The study concludes that there is a positive correlation between Knowledge in interest rates and investment decisions. Teachers thus need to understand how to apply knowledge of interest rates in savings and borrowing since it affects their investment decisions directly. In earlier findings of lane & Rosewall,(2015), It is important that individuals acquaint themselves with knowledge of interest rates since it affects economic activity through saving and spending behavior of investors, borrowing, asset pricing and the exchange rate, all of which affect the level of aggregate demand.

Knowledge of Inflation and Personal Investment decisions

The study concluded that there is a significant correlation between inflation and investment decisions. Therefore, Teachers must have the necessary knowledge about inflation so as to improve the quality of their investment decisions. Njogoetal, (2018), pointed out that the inflationary pressure scrape away the worth of money, thus making a given unit of money to purchase fewer goods. It further generates artificial capital gain which is normally subjected to

capital gains tax thus creating a tax liability and that a rising inflation endanger individual as well as corporate growth.

Knowledge of Risk diversification and Investment decisions

The study concludes that there is a positive correlation between risk diversification and investment decisions. Individual Teachers should be capable of identifying investment risks that endanger their business venture and be equipped with necessary preventive as well as corrective measures. They too ought to have Knowledge on establishment of correct portfolio of assets through organized seminars or relevant trainings. Shiroka, Berisha and Ahmeti, (2012), earlier noted that diversification helps in decreasing of non-systematic risk, which consequently is classified as diversifiable risk. The more the assets in a portfolio, the better the return and the lower the risk of the investment.

Knowledge of financial education and investment decisions

This study concludes that there is a very strong correlation between knowledge in financial education and personal investment decisions made by TSC teachers. Those with financial education were observed to have an upper hand while making investment decisions. Wangeci, (2017), concurs with this study's findings that financial knowledge of employees is very low on financial products such as mutual funds, mortgages as well as stocks and shares. It was observed that the employees had low financial skills to negotiate for better rates of return on investment products and thus financial decisions had huge influence on individual financial security and standards of living as they boosted ability to manage financial affairs prudently.

RECOMMENDATIONS

Recommendations for policy

The study recommends that the government through ministry of education to introduce finance units at both primary and secondary level and be made compulsory to all educational degree courses. The study further recommends for legislative guidelines on interest rates applied in mobile banking and microfinance institutions to encourage uniformity in all lending and borrowing institutions. Furthermore, legislation be made on policies that regulate the prices of key products such as fuel cost, to help curb inflation. More also, the teachers service commission should organize for capacity building initiatives such as providing seminars, workshops and finance journals to equip those Teachers already employed with financial concepts. Finally, teachers service commission should partner with investment agencies in

providing information on saving, investment and borrowing to enhance informed investment decision by teachers.

Recommendations to practitioners

The researcher recommends to the teachers that they should pool their resources and ideas and identify best investment portfolio to mitigate individual impact on risk. The study recommends that sensitization be made on importance of seeking professional expertise from financial advisors, investment analysts and portfolio experts to enhance investment decision making by all secondary school teachers. In addition, Teachers are encouraged to insure their investments against anticipated risks in insurance companies. The researcher recommends that individual Teachers should invest more in real estates which tend to offer constant and certain return, protect their savings from taxation by investing in areas which are tax free or with tax relieves, Negotiate for a cheap loan product with low lending interest rate and avoid top ups of loans to reduce higher cost as new products tend to be with better terms and finally use savings more than borrowing. These efforts will reduce the inflationary effects experienced at individual investors.

Recommendations for further study

The researcher recommends that extensive study be done on impact of risk on personal investment decisions to help those teachers who have the capital but cannot take investment risk. In addition, the study recommends for further study to investigate the relationship between financial education and actual investment undertaken by teachers. The study further recommends that a study be done to find out on the other non financial factors that influence investment decisions among teachers. Finally, the researcher recommends a study on financial literacy among all employees in Kenya to help foster overall growth of GDP.

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