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Relationship between Financial Returns of Investable Capital and Financial Portfolio Diversification of Commercial Sugarcane Farmers in Kenya

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Abstract
The main purpose of this study was to establish the relationship between financial return on investable capital and financial portfolio diversification among sugarcane farmers in Bungoma and Kakamega Counties in Kenya. The study's specific objective was to assess the relationship between financial returns of investable capital and financial portfolio diversification among commercial sugarcane farmers in Kenya. Descriptive correlation was then used to describe and establish the relationships among the study variables. The target population for this study comprised of all sugarcane farmers around Kakamega and Bungoma Counties. Both primary and secondary data will be used in this study and the positivistic approach to research guided data analysis will be used for the study. Primary data was collected through the use self- administered questionnaire. Secondary data on the other hand, was used to obtain information from already existing literature. The study variables were measured using both the ordinal scale and summated scale (likert-type scale).The questionnaire was pre-tested on pilot respondents who were not be part of the study respondents but knowledgeable in the study aspects in order to ensure their validity and relevance. Cronbach's alpha coefficient was used to measure the reliability of the scale. The study focused on farmers of two counties: Bungoma and Kakamega. The regression results also showed that ROI of investable capital had explanatory power on financial portfolio diversification among commercial sugarcane farmers in that it accounted for 15.7 percent of its variability (R square = 0.157). The study results revealed that there was a statistically significant positive linear relationship between financial return on investment of investable capital and financial portfolio diversification among commercial sugarcane farmers (β= .238, p-value = 0.000). Based on these results, the study concludes that commercial sugarcane farmers in Kenya need to pay more attention on financial return on investment of investable capital because it has been found by this study to have a statistically significant and positive effect on commercial sugarcane farmers in Kenya. The study recommends that the commercial sugarcane farmers in Kenya should therefore strive to improve on their financial return on investable capital because it has been found to have a significant and positive effect on their financial portfolio diversification.

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Keywords: Financial Returns, Investable Capital, Financial Portfolio Diversification, Kenya

1.1 Background of the study

A wave of capital investment has spread throughout the country in the recent years. With shrinking profits farm enterprises have tapped their wealth to smooth and continue financing their investment spending. Studies of farm capital investment have found that farm wealth is a fundamental driver of farm investments. Past research also clearly indicates that farm enterprises tend to smooth their investments over time. Thus during less profitable times instead of suing current profits to finance their investments, farmers tap their wealth and equity to finance their spending. Lenders are also willing to lend to farm enterprises with high levels of equity that can be used as collateral for loans (Henderson & Kauffman, 2013)

According to Cheatham (2009), long-term investment and financing decisions give rise to future cash flows which, when discounted by an appropriate cost of capital, determine the market value of a company.

However, such long-term decisions will only result in the expected benefits for a company if attention is also paid to short-term decisions regarding current assets and liabilities. Current assets and liabilities, that is, assets and liabilities with maturities of less than one year, need to be carefully managed. Net working capital is the term given to the difference between current assets and current liabilities: current assets may include inventories of raw materials, work-in-progress and finished goods, trade receivables, short-term investments and cash, while current liabilities may include trade payables, overdrafts and short-term loans. The level of current assets is a key factor in a company's liquidity position. A company must have or be able to generate enough cash to meet its short-term needs if it is to continue in business. Therefore, working capital management is a key factor in the company's long-term success: without the 'oil' of working capital, the 'engine' of non-current assets will not function. The greater the extent to which current assets exceed current liabilities, the more solvent or liquid a company is likely to be, depending on the nature of its current assets.

According to Rossa, (2014), investable capital is the net worth of a business less equity in non-productive investments. Asset financing and operational financing represent two basic categories of investable capital: They only differ in the nature of the expenses and in their respective treatment for tax purposes. Asset financing/ capital financing are the funds that a business uses to purchase major physical goods or services to expand the company's abilities to generate profits. The type of industry a company is involved in largely determines the nature of its capital expenditures. The asset purchased may be a new asset or something that improves the productive life of a previously purchased asset. Asset financing is financing for which assets are converted into working cash in exchange from security interest in those assets. The most common kind of asset financing is to extend loans against accounts receivable but other kinds of asset financing such as lending against inventories is becoming common. An asset financing is an expenditure contributing value to the property and equipment of a business. It is an expenditure towards capital assets as contrasted with spending that covers operating expenses. (Cheatham, 2009).

An operating financing result from the ongoing costs a company pays to run its basic business. Operational makes up the bulk of a company's regular costs. Operational financing addresses spending on predictable and repeatable costs for items or services that are not registered as capital assets and do not depreciate. This means the company charges the full amount against income during that reporting period and takes all tax consequences for it during that period (Schmidt, 2016). Investable capital used in farming is frequently produced through direct efforts of farmers themselves. Farm capital can be increased through retention of a larger proportion of the field crops. The investable capital can be acquired through special effort of the farm operator as when land is home steadied or rough land already in farms is improved. For farmers the fact at physical capital produced at home does not require any special financing does not mean that it is costless. Building up farm capital good on the farm may even lead indirectly to reduction of accumulated liquid assets or to increase in debt. This will happen if the amount of effort and farm product that is devoted directly to increasing capital is so great that realized net income falls short of family expenditures and the latter are met by drawing down liquid asset or borrowing. (Hamilton, 2000)

Acoording to Rietz (2005), investors are concerned with Risk and Returns. They demand compensation for risk. If investors hold "diversified" portfolios, risk can be defined through the interaction of a single investment with the rest of the portfolios through a concept called "beta" As you increase the number of assets in a portfolio: the variance rapidly approaches a limit, the variance of the individual assets contributes less and less to the portfolio variance, and the interaction terms contribute more and more. Eventually, an asset contributes to the risk of a portfolio not through its standard deviation but through its correlation with other assets in the portfolio. Investors diversify, because you get a better return for a given risk. There is a fully-diversified "market portfolio" that we should all choose. The risk of an individual asset can be measured by how much risk it adds to the "market portfolio."Portfolio return is the weighted average of all assets' returns, but portfolio standard deviation is normally less than the weighted average of all assets' standard deviations! The reason: asset returns are imperfectly correlated.

The study on the other hand expects ROI of investable capital assets to have an effect on financial portfolio diversification among commercial sugarcane farmers in Kenya. These include asset financing and operational financing. The study perceives that as the ROI on investable capital increase the level of financial portfolio diversification among the sugarcane farmers and vice versa.

1.2 Statement of the problem

Farm diversification is common to rural landowners across the developing world. In Kenya, diversification is being promoted as a system to build economic resilience for farming families. Diversification is an addition of another stream of farm-based income to supplement the existing source/s. Over time, the diversification enterprise may overtake and replace the original core business (Andrew, 2009). Investable capital has been identified as the main financial component for determining Return on Investment for commercial sugar cane farming. However the relationship between these components and portfolio diversification is not known. This

study seeks to establish the relationship between financial return on investable capital and portfolio diversification among commercial sugarcane farmers in Kenya.

1.3 Objective of the study:
Assess the relationship between financial returns on investable capital and financial portfolio diversification among commercial sugarcane farmers in Kenya.

1.4 Hypotheses
H_{01}: ROI of investable capital does not have a significant relationship with financial portfolio diversification among commercial sugarcane farmers in Kenya.

2.1 Theoretical Review
2.2 Portfolio diversification theory
Portfolio diversification is a widely embraced investment strategy that helps mitigate the unpredictability of markets for investors. It has the key benefits of reducing portfolio loss and volatility and is especially important during times of increased uncertainty. Modern portfolio theory, for which Harry Markowitz was jointly awarded the Nobel Prize in 1990, provides the academic bedrock for diversifying portfolios. Simply stated by combining assets that are not perfectly correlated, that is do not move in perfect lock step together, the risks embedded in a portfolio are lowered and higher risk adjusted returns can be achieved. One of the most important and influential economic theories dealing with finance and investment, MPT was developed by Harry Markowitz and published under the title "Portfolio Selection" in the 1952 Journal of Finance. MPT says that it is not enough to look at the expected risk and return of one particular stock. By investing in more than one stock, an investor can reap the benefits of diversification - chief among them, a reduction in the riskiness of the portfolio. MPT quantifies the benefits of diversification, also known as not putting all of your eggs in one basket. For most investors, the risk they take when they buy a stock is that the return will be lower than expected. In other words, it is the deviation from the average return. Each stock has its own standard deviation from the mean, which MPT calls "risk".

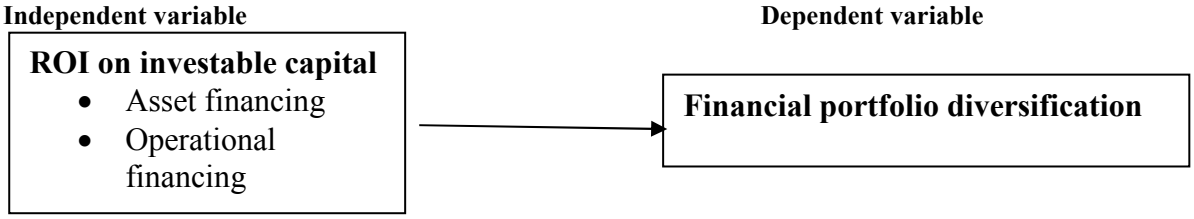
The risk in a portfolio of diverse individual stocks will be less than the risk inherent in holding any one of the individual stocks (provided the risks of the various stocks are not directly related). Consider a portfolio that holds two risky stocks: one that pays off when it rains and another that pays off when it doesn't rain. A portfolio that contains both assets will always pay off, regardless of whether it rains or shines. Adding one risky asset to another can reduce the overall risk of an all-weather portfolio. In other words, Markowitz showed that investment is not just about picking stocks, but about choosing the right combination of stocks among which to distribute one's nest egg.(West, 2012)

2.3 Theory of investment
John M. Keynes and Irving Fisher, both argued that investment are made until the present value of expected future revenues, at the margin, is equal to the opportunity cost of capital. This means that investments are made until the net present value is equal to zero. An investment is expected to generate a stream of future cash flows, C (t), since investment (I) represents an outlay at time 0. This can be expressed as a negative cash flow, $-C_0$. The present value can then be written as:

$$NPV = -C_0 + \int_0^{\infty} C(t)e^{(g-r)t}dt \qquad (1)$$

Where g denotes growth rate and r the opportunity cost of capital (discount rate) As long as the expected return on investment , I, is above the opportunity cost of capital, r , investment will be worthwhile. Fisher referred to the discount rate as the rate of return over costs or the internal rate of return. Keynes on the other hand called it marginal efficiency of capital. Keynes (1936) argued that investments are made until there is no longer any class of capital assets of which the marginal efficiency exceeds the current rate of interest regarding investment as an optimal adjustment path towards an optimal capital stock. (Baddeley, 2003)

The conceptual Framework



3.1 Methodology and Design

A research design refers to the overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data (Sakaran, 2003).This study was a survey research design as the research involved collecting data as reported by individuals. The data was then described and further correlated to create a snap shot of the current state of affairs and to establish and describe the relationships among two or more study variables. Descriptive research design allows the researcher to evaluate and describe the relationship between the study variables which are associated with the problem. Correlational design also allows a researcher to measure the research variables by asking questions to the respondents and then examining their relationship (O'Connor, 2011). Therefore the study was descriptive correlational study. Descriptive was chosen because it provides a relatively complete picture of what is occurring at a given time and allowed the development of questions for further study while correlational research design allowed testing of expected relationships between and among variables, making predictions and can assess these relationships in everyday life events.

3.2 Population

The target population for this study comprised of all sugarcane farmers around Kakamega and Bungoma Counties. The farmers were preferred because they are likely to exhibit elaborate relationships between the study variables since they are highly knowledgeable about the farming activities related with the crop and the environment in which the crop is grown.
The population of the study was 2,039,645. *KNBS (2012)*

3.3 Sampling techniques and sample size

The study will focus on sugarcane growing farmers of the two counties where the farmers who grow sugar cane and the sugar factories are concentrated. The researcher will use multi stage sampling techniques to get the sample size. The first stage sampling include selection of the two counties using purposive sampling technique, the second stage of sampling will include identification of sugarcane farmers in the two counties: Nzoia factory for Bungoma county and Mumias and West Kenya limited for Kakamega county and the third stage is sampling of sugarcane growing households using random sampling techniques to pick a representative number of sugarcane growing farmers from each of the identified companies (Table 3.2). The sampling technique is as follows.

Yamane (1967:886) provides a simplified formula to calculate sample sizes. A 95% confidence level and P = .5 are assumed for the Equation. Where n is the sample size, N is the population size, and e is the level of precision. The formula is as follows:

$$n = \frac{N}{1 + N(e)^2}$$

.

Sample size= $\frac{599,447}{1+599,447(0.05)^2}$

With a total population of 599,447 households in both Bungoma and Kakamega counties region, the sample size is thus: 399 Households.

Table 3.2 Sample size

NAME OF COUNTY	No. OF SUGARCANE FARMERS	%AGE POPULATION	SAMPLE SIZE
Bungoma	923,465	923,465/1,839,649*100=52%	52%*399=207
Kakamega	916,184	916,184/1,839,649*100=48%	48%*399=192
TOTAL	**1,839,649**	**100%**	**399**

3.4 Data Collection

The study used both qualitative and quantitative methods of data collection. The likert scale of 1-5 comprising of self-administered closed and open ended questionnaires were used to evaluate the effects of various variables of employee talent management strategies which were believed to impact on the retention of doctors and nurses at Kenyatta national hospital. The questionnaire was tested before a refined one was administered to the respondents.

3.5 Data Analysis

The positivistic approach to research guided data analysis was used for the study. Positivism advocates for hypothesis testing using quantitative techniques (Stiles, 2003). The data followed Sekaran, (2003) four step process of data analysis; getting data ready for analysis which involves getting a feel of the data, testing the goodness of the data and testing the hypothesis. The data was subjected into factor analysis in order to determine the suitability of the data for regression analysis. According to Kothari (2010), factor analysis is a useful tool for investigating variable relationships for complex concepts such as socioeconomic status, dietary patterns, or psychological scales. It allows researchers to investigate concepts that are not easily measured directly by collapsing a large number of variables into a few interpretable underlying factors. Descriptive statistics was used to obtain a general understanding of the respondents' characteristics. Both parametric and non-parametric tests were done depending on measurement scale. In an effort to establish the suitability of the data for regression analysis by ensuring that the dependent and independent variables have a statistically significant relationship while at the same time controlling for multicollinearity problem which occurs if any two independent variables are highly correlated (Cooper & Schindler, 2005), correlation analysis was used to measure the strength of the relationship between financial returns on investment and financial portfolio diversification.

4.1 Study Findings

The return on investment of investable capital was assessed by six measures. Table 4.3 presents the relevant result which shows that on the scale of 1 to 5 (where 5= the greatest extent and 1is the lowest extent). Farm assets always make me reasonable profit (Mean 3.65) and Expenditure on farm inputs makes me reasonable profits (mean 3.600). However, In sugarcane farming farm inputs makes me reasonable profits (mean 3.34) and My farm assets makes me profits (3.35) had moderate though lowest intensity. Overall, the intensity of return on investment of investable capital is considerably high (mean 3.470).

Table 4.1 Intensity of Financial Return on Investment of Investable Capital

ROI Investable Capital Measures	N	Mean	Std. Deviation	t-value	Significance (P-value)
In sugarcane farming farm inputs makes me reasonable profits	320	3.340	.900	48.814	0.000
My farm assets makes me profits	320	3.550	.804	43.452	0.000
In sugarcane farming labour always enables me to earn reasonable profits	320	3.400	1.010	36.291	0.000
My farm assets always makes me reasonable profit	320	3.650	1.013	34.891	0.000
My labour costs is a key aspect to my profitability	320	3.350	.963	27.372	0.000
Expenditure on farm inputs makes me reasonable profits	320	3.600	.916	38.380	0.000
My labour costs are covered with ease from sugarcane growing profits	320	3.400	.860	27.972	0.000

The results reveal that at one-sample t-test comparison of the return on investment of investable capital mean score indicates differences that were all statistically significant. The extent of return on investment of investable capital varied from one household to another. In sugarcane farming farm inputs makes me reasonable profits (t-test = 48.914, p-value < 0.05) and it was followed by farm assets makes me profits (t-value=43.452, p-value < 0.05). On the other hand, the lowest difference was reported in My labour costs is a key aspect to my profitability (t-value=27.372, p-value < 0.05) followed by My labour costs are covered with ease from sugarcane growing profits (t-value=27.972, p-value < 0.05).

4.2 Factor analysis for Investable Capital

From the study results in Table 4.4, the Bartlett's Test of Sphericity has p-value of 0.000 which is less than the stated $\alpha = 0.05$, implying that the test is highly significant; hence the factor analysis is appropriate. The study results shows that KMO has an index of 0.692 implying that factor analysis is appropriate for these data since its above the minimum index of 0.5 which is acceptable (Field, 2003).

Table 4.2 Results of Factor Analysis for Investable Capital

Component Matrix(a)

	Component
	Investable capital
In sugarcane farming farm inputs makes me reasonable profits	.851
My farm assets makes me profits	.744
In sugarcane farming labour always enables me to earn reasonable profits	.897
My farm assets always makes me reasonable profit	.816
My labour costs is a key aspect to my profitability	.797
Expenditure on farm inputs makes me reasonable profits	.884
My labour costs are covered with ease from sugarcane growing profits	.700
Overall Mean	**3.470**
Cronbach's Alpa	**0.776**

Extraction Method: Principal Component Analysis.
a 1 components extracted.

From the study results, the system has identified one important factors to be loaded in the analysis. The rest are dropped from the analysis. From the rotated matrix, investable capital has is highly and positively correlated with sugarcane farming labour always enables me to earn reasonable profits (0.897) while My labour costs are covered with ease from sugarcane growing profits (0.884) . The overall correlation between the measures of investable capital was 0.813. This shows that they were highly and positively correlated with investable capital. The reliability test results of investable capital show that the investable capital constructs were highly reliable in that they had Cronbach's Alpha coefficient of 0.776 which is greater than the minimum accepted Alpha coefficient of 0.7.

Table 4.3 Regression Result of Investable Capital with Age

	Sum of Squares	Degree of Freedom	Mean Square	F	Sign. p-value
Regression	1.248	3	12.248	1.2712	0.006
Residual	1.086	317	0.342		
Total	2.334	320			

Predictors: (Constant), Age

The regression results reveal that age of the farmer had overall significant positive effect with investable capital since the p-value is less than 0.05 (p-value = 0.006).

4.3 Correlation for Investable Capital and Financial Portfolio Diversification

The strength of the relationship between return on investment of investable capital measures which was the dependent variable of the study and financial portfolio diversification was assessed using Pearson product moment correlation. As shown in Table 4.6, there is was a positive and statistically significant correlation between investable capital which was the independent variable of the study and financial portfolio diversification (dependent) (β=0.238).

Table 4.4 Correlations Financial Return on Investment of Investable Capital

Scale	Portfolio diversification	ROI on investable capital
1. Portfolio diversification	1	
2. ROI on investable capital	.238*	1

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

4.4 Regression Analysis of Investable Capital

The first objective of the study was to assess the relationship between financial return on investment of investable capital and financial portfolio diversification among commercial sugarcane farmers in Kenya. The study predicted that the relationship between financial return on investment of investable capital and financial portfolio diversification was not statistically significant. Financial return on investment of investable capital comprised of decisions to invest in other businesses, profit from capital assets, Profits from capital, profits from operational finances and profits from capital is invested in other businesses while household portfolio diversification was measured by; indulge in other activities that ensure daily financial inflow, transforming my farm from sugarcane growing to other activities, diversifying my investment risks, long term investment and

own other businesses. This was to test the first null hypothesis shown bellow.

H_{01}: ROI of investable capital does not have a significant relationship with financial portfolio diversification among commercial sugarcane farmers in Kenya.

The aggregate mean score of financial portfolio diversification measures (dependent variable) were regressed on the aggregate mean score of the return on investment of investable capital (Independent variable) and the relevant results presented in Table 4.7. The regression results revealed a statistically significant positive linear relationship between return on investment of investable capital and portfolio diversification among commercial sugarcane farmers (β= .238, p-value = 0.000). The relationship was statistically significant because the p-value is less than the set value of 0.05 (p – value = 0.000). The regression results also showed that ROI of investable capital had explanatory power on financial portfolio diversification among commercial sugarcane farmers in that it accounted for 15.7 percent of its variability (R square = 0.157).

The hypothesis test criteria was that the null hypothesis H_{01} should be rejected if $\beta \neq 0$ and p-value $\leq$ 0.05 otherwise fail to reject H_{01} if the p-value > 0.05. From the above regression results, $\beta = 0.238 \neq 0$ and p-value = 0.000 $\leq \alpha$, the study therefore rejects the null hypothesis since $\beta \neq 0$ and p-value $< \alpha$ hence concluded that return on investment of investable capital had a statistically significant and positive relationship with financial portfolio diversification among commercial sugarcane farmers in Kenya.

Table 4.5 Regression Results of Financial Portfolio Diversification against ROI of Investable Capital

Goodness of fit analysis: Model Summary

Mode	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.238(a)	.157	.179	1.08606

a Predictors: (constant), Return on investment of investable capital
b Dependent variable: Financial Portfolio diversification

Overall significance ANOVA (F-test)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	13.189	1	13.189	10.241	.000(a)
	Residual	96.140	319	1.785		
	Total	109.329	320			

a Predictors: (Constant), Return on investment of investable capital
b Dependent variable: Financial Portfolio diversification

Individual significance (T-test) Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	1.182	.566		11.124	.000
	Investable Capital	.249	.751	.238	4.491	.002

a Dependent variable: Financial Portfolio diversification
Lever of significance, α = 0.05

Arising from the results in Table 4.8, the resulting simple linear regression model that can be used to predict the level of financial portfolio diversification among commercial sugarcane farmers in Kenya for a one standard deviation improvement in the return on investment of investable capital can be expressed as:

PD =1.182+ 0.238ROI

Where: 1.182= y-intercept constant, PD is the financial portfolio diversification, ROI = Return on investment of investable capital.

The standardized beta coefficient 0.238 represents the expected improvement in portfolio diversification for a unit standard deviation improvement in return on investment of investable capital. This means that, holding other factors constant, a one standard deviation improvement in the return on investment of investable capital would raise the level of portfolio diversification by a factor of approximately 0.238 of a standard deviation.

5.1 Summary of the Findings

The study results revealed that there was a statistically significant positive linear relationship between financial return on investment of investable capital and financial portfolio diversification among commercial sugarcane farmers (β= .238, p-value = 0.000). This is because the p-value is less than the set value of 0.05 (p – value = 0.000). The regression results also showed that financial return on investment of investable capital had explanatory power on household portfolio diversification among commercial sugarcane farmers in that it accounted for 15.7 percent of its variability (R square = 0.157). This means that as commercial sugarcane farmers in Kenya financial return on investment of investable capital increases, the farmers tend to increase their financial portfolio diversification. Among the constructs of financial return on investment of investable capital,

sugarcane farming farm inputs makes me reasonable profits had the greatest positive and statistically significant effect on portfolio diversification (t-test = 48.914, p-value < 0.05). The study results concurs with those of Rietz (2005), in his study on diversification and CAMP the relationship between risks and expected returns, he mentions that investors are concerned with Risk and Returns. From his study with a high risk level the expected returns would be at 5.88% with a standard deviation of 35.29%. This showed a correlation of 1. This showed that the portfolio risk is lower than individual asset risk and because of diversification with a perfect positive correlation between diversification and the CAMP. Inventors demand compensation for risk. If investors hold "diversified" portfolios, risk can be defined through the interaction of a single investment with the rest of the portfolios through a concept called "beta" As you increase the number of assets in a portfolio: the variance rapidly approaches a limit, the variance of the individual assets contributes less and less to the portfolio variance, and the interaction terms contribute more and more. Eventually, an asset contributes to the risk of a portfolio not through its standard deviation but through its correlation with other assets in the portfolio.

5.2 Conclusion

The study results revealed that there was a statistically significant positive linear relationship between financial return on investment of investable capital and financial portfolio diversification among commercial sugarcane farmers (β= .238, p-value = 0.000). Based on these results, the study concludes that commercial sugarcane farmers in Kenya need to take more attention on financial return on investment of investable capital because it has been found by this study to have a statistically significant and positive effect on commercial sugarcane farmers in Kenya.

5.3 Recommendation

Based on the findings and conclusions of the study, the following recommendations were made; The study recommends that the commercial sugarcane farmers in Kenya should therefore strive to improve on their financial return on investment because it has been found to have a significant and positive effect on their financial portfolio diversification.

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