EFFECT OF GOVERNMENT REGULATIONS ON THE RELATIONSHIP BETWEEN RETURN ON INVESTMENTS AND FINANCING OF WATER INVESTMENTS IN NAIROBI PERI-URBAN MARKETS IN KENYA

Kimani E. Maina

Jomo Kenyatta University of Agriculture and Technology, Kenya

Nahashon Ngugi

Jomo Kenyatta University of Agriculture and Technology, Kenya

Gabriel Matumo

Jomo Kenyatta University of Agriculture and Technology, Kenya

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ABSTRACT

For any economic development it is important to finance infrastructure such as water and sanitation. Water has historically been viewed as public good not as a market commodity and thus water utilities have not been able to generate sufficient internal revenue to ensure sustainable financial investment. There is a low level of investment in the sector by both public and private players especially in peri-urban areas in Kenya. Many people in these areas still do not have access to basic water resulting to millions of illnesses and death every year from water related issues. Scarcity of water in peri-urban areas has created investment opportunity yet there is little participation of private players. The study explored effect of government regulations on the relationship between return on investments and financing of water investments in Kenya. The study adopted cross-sectional survey research design. The accessible population for this study was 1500 small scale water providers registered by Water Service Regulatory Board. A two stage sampling technique was used to obtain a sample population of 150 small scale water service providers. The study utilized self administered semi-structured questionnaire and content analysis for collecting data. Structure Equation Modelling (SEM) was used to measures the relationship between return on investments and financing of water investments. The findings of the study indicated government regulations influences financing of water investments, low return on investments, among small scale water service providers limits supply of water in peri-urban markets. It was therefore recommended that the government should enhance tariff reviews, performance monitoring and efficient metering and billing. This would lead to high return on water investments. Water utilities will thus be able to generate sufficient internal revenue to ensure sustainable financial investment. The results of the study will be of great importance to both public and private water utilities. This will contribute to greater understanding of various challenges that the utilities go through in trying to make water accessible to peri-urban population.

Key Words: *Financing, Return on Investment and Peri-urban*

INTRODUCTION

World Health Organization (2003), states that water is one of the most basic requirements for human existence, yet over a billion people in the world lack access to it. Scarcity of water is one of the world's leading problems affecting more than 1.1 billion people globally [World Health Organization (WHO), 2010)]. As a result, 33 percent of the world population suffer from preventable diseases, while millions of people die every year due to water related issues (United Nation Development Programme, 2006). Historically, water has been viewed as a public good, not a market commodity (Finger and Allouche, 2002). Over the last 200 years, most water

utilities have been publicly owned and managed. However public water utilities in most parts of the world have been unable to provide universal access to water services (Daniel and Karina, 2003).

Due to poor financial and investment condition that characterise most public utilities, many governments are exploring increased private investment (Maslyukivska and Sohail, 2003). They are trying to expand their access to new financial resources, technical and managerial skills (World Bank, 2004). There is also need for public private partnership although private players are reluctant (Burki and Perry, 2008).

Kenyan Perspective

In Kenya, the responsibility for water service provision is in the hands of public utilities, private firm and small water service providers (WASREB, 2009). Water supply in Kenya is characterized by low levels of access, particularly in urban slums and in rural areas. Although urban water tariffs are high by regional standards of US$ 0.46 per m3 on average the level of cost recovery is low (WASREB, 2009).

Water Provision in Nairobi

Water services in Nairobi are provided by the Nairobi City Water and Sewerage Company Ltd (NCWSC) (WASREB, 2009). NCWSC mainly serve the city's CBD and high income residential zones (Wambua, 2004). The private sector plays a limited, but not negligible role in operating water supply systems in Nairobi. Small service providers are the main providers of water in the low income settlements (peri-urban) areas of Nairobi.

STATEMENT OF THE PROBLEM

Finance is one of the most important aspects of water investment (Burki and Perry, 2008). Most water utilities in Kenya have been publicly owned and managed [Republic of Kenya (RoK), 2010)]. These utilities have thus been getting financial support from the government in form of subsidies in addition to the revenue they generate internally (Karanja, 2011). However the current level of investment in water sector in Nairobi peri-urban markets is very low [Nairobi City Water and Sewerage Company (NCWSC), 2011)]. Water utilities hardly generate enough revenue for investments. Out of the 1500 registered water service providers, only 37 percent are considered to be financially viable and on average, internally generated fund that is invested is only 11 percent (World Bank, 2011). This is attributed to low return on investment.

GENERAL OBJECTIVES

The overall objective of the study was to determine the effect of government regulations on the relationship between return on investments and financing of water investments in Nairobi peri-urban markets in Kenya.

LITERATURE REVIEW

Empirical studies on water financing

Most governments are experiencing budget constraints and cannot be able to finance water investments needs (Burki and Perry, 2008). They usually report negative incomes as users' fee are set below full cost recovery level (Finger and Alluche, 2002, Burki and Perry, 2008, Steven et al., 2007). Water investmentare by their nature, capital intensive and yet commercially fragile (World Bank, 2010). Though there is a lot of liquidity within the financial sector, the risk of investing in most countries is too high (Hall, Lobina and Motte, 2003). Private sector at present plays a negligible role in financing water investment (WASREB, 2010, World Bank, 2010). Volatility of the investment makes most investor fear the risks involved (Finger and Alluche, 2002; Burki and Perry, 2008).

Capital investment in water is almost entirely financed from public funds (World Bank, 2011, RoK, 2010). The Kenya annual sector development budget of Kes 32 billion has contributed significantly towards new investment and the rehabilitation of dilapidated infrastructure (RoK, 2010). Kes 12 billion comes from the government budget and Kes 20 billion from appropriations in aid, either in the form of soft loans guaranteed by the Treasury or grants (RoK, 2010). Private players are not willing to borrow due to the predating interest rate, high cost of capital and poor quality laws, regulations and policies (Gleick, 2004).

World Bank (2010) noted that one way to increase revenue generated by water utilities is to separate the policy-makers from the providers and to make providers more responsive to clients (Gleick, 2004). This would lead to increased focus on customers, improved customer relations, increased billing and collection rates, decline in leakages and improved quality of water. This would increase revenue for the company (Maslyukivska and Sohail, 2003). However the rate of return is very little or no profit is made due to low water prices as governments are unwilling to raise water prices to market levels (Gleick, 2004).

Research Gaps

From survey of relevant literature, it has been found that there are no studies specific to Kenya peri-urban areas on effect of government regulations on the relationship between return on investments and financing of water investment in peri-urban markets in Kenya. This study was therefore conducted in order to fill these pertinent gap.

RESEARCH METHODOLOGY

Research Design

The study used cross-sectional survey research design. It is a method of research involving collection of data from a population or a sample thereof at a particular time and describes the phenomena as it is (Crewell, 2003).

Target Population

The target population for this study was 12,000 water service providers in Kenya including public utilities, private and small scale service providers (RoK, 2010). The accessible population for this study was 1500 registered small scale water service providers in Nairobi (WASREB, 2010).

Sampling Technique and Sample Size

A two stage sampling technique was used; purposive sampling and simple random sampling technique (Miller and Yang, 2008). Purposive sampling technique was used to identify three constituencies from where small scale water provider for inclusion in the study was drawn (Kombo and Tromp, 2009). Langata, Kasarani and Dagoreti constituencies were thus selected for the study. Cohen, Manion and Morrison (2000) all agree that 10 percent of the accessible population is large enough so long as it allow for reliable data analysis and testing of significance. Since accessible population for this study was 1500 registered small scale water providers in Nairobi, a proportionate sample size of 150 respondents was selected (WASREB, 2010). Simple random sampling technique was therefore used to identify 50 small scale water providers from each constituency for inclusion in the study.

Data Collecting Instruments

Primary data was collected from owners of small scale water service providers in Nairobi using self-administered questionnaire (Creswell, 2003). This technique involves interviewer meeting the respondents physically and asking questions face to face as either the respondents or the interviewer fills in the questionnaire (Creswell, 2003). Self-administered questionnaire has a higher response rate (Creswell, 2003). The secondary data was obtained from various finance journals, internet, published financial statements and finance text books (Cooper and Schindler, 2011).

Pilot Study

A pilot test was done before embarking on actual data collection activity (Eriksson and Kovalainen, 2008. The purpose of a pilot test was to enable validity and reliability of research instruments to be determined (Cooper and Schilder, 2011).

Data Processing and Analysis

The data that were obtained from the questionnaires were both qualitative and quantitative. Before processing the responses, every filled questionnaire was tallied for every response per question. The responses were first edited, coded, and cleaned for analysis.Qualitative data were analysed using descriptive statistics (Mugenda, 2011). SPSS was used to conduct descriptive data analysis of each variable and the same was presented in form of percentages, tables and graphs. Quantitative approach involved collecting numerical data through counting of attributes or quantities. The counts were used to report the findings as numbers.

After descriptive statistics for all variables were run, data analysis was further conducted using two phase process consisting of confirmatory measurement model and structural model (Bryne, 2005). The first step involved estimation of the measurement model which assesses the relationship between the observable variables and the theoretical constructs they represent(Bryne, 2005). However prior to CFA, exploratory factor analysis (EFA) that involved computation of factor loading matrix, communality and principle component analysis (PCA) was conducted.To assess the factorability of items, two indicators were examined (i.e. Kaiser Meyer-Olin Measure of Sampling Adequacy and Barletts Test of Sphericity (Pallant, 2010).

CFA was used to shows the extent to which the observed variables (indicators) represented the underlying latent construct (Hair et al. 2010, Hooper et al., 2008). This was done to assess whether proposed variable indicators had significant factor loadings.There were four criteria that were used to validate the model fit. These were convergent validity, discriminant validity, construct reliability, and construct validity (Hair et al., 2011). Different fit statistical tests were used to determine whether the model provided adequate fit for the data. The fit indices were used to assess whether overall models were acceptable and if acceptable researcher establish whether specific paths were significant (Hu &Bentler, 1999). The most basic test, chi-square goodness of fit test was used (Hair et al., 2010). In order to ascertain thatthe model provided adequate fit for the data, the study also considered the two types of fit statistics commonly used i.e. absolute fit indices and incremental fit indices (Hair et al., 2010).

Latent variables structural equation modeling was used to test the hypothesized relationship and to fit the structural model. SEM assumes linear relationships, or unidirectional causal relationships, between the research indicators and latent variables, as well as between latent variables (Bryne, 2005). This was conducted by use of Analysis of Moment Structures (AMOS) software (Byrne, 2006). Regression weights were used to test the contribution of each indicator to their relevant constructs (convergent validity). Regression weights were also used to explain the nature of the relationship since all the variables were in the same measurement scale. Path coefficients were used to determine the direction and strength of the factor. R2 was used to show the proportion of variation in dependent variable explained by the SEM models. T=statistics

provided information on the significance of the relationship. T-statistics value (C.R) was used to test whether the models were significant by comparing the model output (t-calc) with the conventional critical value of -1.96 0r 1.96 at 0.05 significance level (i.e. $p<0.05$). This made the null hypothesis to be accepted or rejected.

Descriptive statistics for Return on Investment

The study focused particularly on the following aspects of return on investments; investment level, price charged on water and alternative water sources.

Investment Level: The results of return on investments are presented in Table 1The Table shows that majority (56%) of the respondents agreed with the statement that return on investment from water selling business in peri-urban areas is very low as they operate in small scale. A few (11%) of the respondents strongly agreed with the statement. Thus a total of 58% agreed with the statement. A lesser proportion of 19% of the respondents disagreed with the statement while 3% of the respondents strongly disagreed with the statement. Therefore a total of 22% of the respondents disagreed with the statement while 6 of the respondents neither agreed nor disagreed with the statement. These findings concur with those of World Bank (2004) that states thatthere is a low level of investment in the water sector, and as a result little demands for finance. Gleick (2002) asserts that most water utilities find it difficult to generate sufficient internal revenues to ensure basic financial sustainability owing to their small scale operations. This implies that most small scale water service providers have low return on investments owing to their scale of operation. Low return on investments inhibits financing of water investments (Gleick, 2002).

Price Charged to Water Consumers: Table 1 indicate that majority (45%) of the respondents agreed with the statement that price charged to consumers for water service is too low leading to low return on investment for the investors. A few (12%) of the respondents strongly agreed with the statement. Thus a total of 57% of respondents who agreed with the statement. It was found that 15% of the respondents disagreed with the statement. A lessor proportion of 12% of the respondents strongly disagreed with the statement. A total of 27% of the respondents disagreed with the statement while 3% of the respondents neither agreed nor disagreed.

These finding concurs with those of Bond (2004)who maintained that there was little or no profit to be made by small scale water service providers due to low water prices as governments are unwilling to raise prices to market levels. This implies that price charged to water consumer is too low to generate sufficient return to water investors as price charged is far below the market rate. Water users should be charged the market rate in order to recover the full costs of service provision instead of subsidizing delivery through general public taxes to make water utilities generate sufficient return (World Bank, 2004).

Alternative Water Sources: The results of alternative water sources are presented in Table 1. The table shows that majority (54%) of the respondents agree with the statement that the many alternative water sources in Nairobi including boreholes and bottled water has led to competition among service providers which have negatively affected return on water investments in peri-urban areas. A few (14%) of the respondents strongly agree with the statement. This gave a total of 68% of those respondents who agreed with the statement. It was found that those who disagreed with the statement accounted for 16% of the respondents while 10% strongly disagreed with the statement. Thus a total of 26% of the respondents disagreed with the statement while 6% neither agreed nor disagreed with the statement.

These findings are in collaboration with those of Carlo (2008) who observed that there exist alternative sources of water that can be used creating a commodity risk – water price volatility which may affect investor's return on investment. This implies that the many alternative water sources in Nairobi including boreholes and bottled water has led to competition among water service providers which have negatively affected their return on investments in peri-urban areas. This has been a challenge to investors who would wish to finance and expand their water businesses. Private provision of water services is only guaranteed where investor's return on investment is beneficial to companies (Paw, 2003).

Consumer Income Levels: Table 1 indicate that majority (61%) of the respondents agreed with the statement that the low level of income among the peri-urban population greatly affects the return on investment of water selling businesses. A few (13%) strongly agreed with the statement. Thus a total of 74% of the respondents agreed with the statement. It was found that 16% of the respondents disagreed with the statement while 7% strongly disagreed with the statement. Thus a total of 23% of the respondents disagreed with the statement while 3 percent (4) neither agreed nor disagreed with the statement.

These findings are in line with those of Hall (2003) who asserted that low income water users cannot pay the full costs for the service required for the company to maximize its returns. This implies that the low level of income among the peri-urban population greatly affects the return on investment of water selling businesses. This makes private players and small scale water service providers to be reluctant in committing their funds in water businesses. Low income levels among urban poor results in amarked lack of incentive for private companies to invest in the least wealthy areas because they are unprofitable (Gleick, 2002).

Table 1: Returns on Investment

Return on Investment Statements N = 147	Strongly agree %	Agree %	Neither agree or disagree %	Disagree %	Strongly Disagree %
1. Investment level: The return on investment from water selling business in peri-urban areas is very low as they operate in small scale.	11	56	6	19	3
2. Price charged: The price charged to consumers for water service is too low leading to low return on investment for the investors.	12	45	3	15	12
3. Alternative water sources: The many alternative water sources in Nairobi including boreholes and bottled water has led to competition among service providers which have negatively affected return on water investments in peri-urban areas.	14	54	6	16	10
4. Consumer income levels: The low level of income among the peri-urban population greatly affects the return on investment of water selling businesses.	13	61	3	16	7

RESEARCH FINDINGS AND DISCUSSION

Influence of Return on Investments on Financing of Water Investments

The objective of the study was to find out the effect of government regulations on the relationship between return on investment and financing of water investments in Nairobi Peri-urban markets in Kenya A two-step method; measurement model and structural model in structural equation modeling (SEM) were applied (Hair et al., 2010). Prior to the two steps, exploratory factor analysis was conducted to determine whether return on investment indicators had significant factor loadings (Zikmundet al., 2010).Factors with loadings of 0.4 and above are considered appropriate (Hair et al., 2010).

Exploratory Factor Analysis for Return on Investments

Exploratory factor analysis was conducted prior to SEM to ensure that the most appropriate model was selected for analysis. The results of factor analysis are presented in Table 2. The results show that the factor loading was more than 0.5 for the three indicators measuring return on investments. These results indicate three indicators converged on one common construct (return on investments). The factor loadings of the items ranged from 0.728 to 0.921 suggesting high convergent validity. Hence, in further analysis the study employed the three indicators. Normality test on the factors produced Skewness values between -1 and +1. Mann and Mikesell (2006) used factor analysis in their study on ownership and water system operations between governments and privately owned water firms in USA based on cost.

Table 2: Factor loadings for Return on Investments

Indicators	Component/Loadings
Investment level: The return on investment from water selling business in peri-urban areas is affected by the size of the business operates by an investor.	.905
Price charged: The price charged to consumers for water service determines return on investment for the investors.	.921
Alternative water sources: The many alternative water sources in Nairobi including boreholes and bottled water has led to competition among service providers affects return on water investments in peri-urban areas	Cost Recovery .728

Model Fit Tests Results of Return on Investments

In order to assess whetherthe model provided adequate fit for the data, the study considered both absolute fit indices and incremental fit indices (Hair *et al.*, 2010). For absolute fit indices the study used root mean square error of approximation (RMSEA), goodness of fit index (GFI) andadjusted goodness of fit index (AGFI) (Hair *et al.*, 2010). For incremental fit indices, Comparative Fit Index was used (Hair *et al.*, 2010).These fit indexes were used to verify that the model was adequate (Browne and Cudeck, 2003). This was generated using AMOS software. RMSEA values range from 0 to 1 with a smaller RMSEA value indicating better model fit (Marsh, *et al.*, 2011). Good model fit is typically indicated by an RMSEA value of 0.05 or less (Hu & Bentler, 1999), but a value of 0.08 or less is often considered acceptable (Browne & Cudeck, 2003). RMSEA value of less than 0.05 is considered excellent, 0.05 to 0.08 is good while 0.08 to 0.10 is acceptable (Hu & Bentler, 1999).Table 3 shows RMSEA of 0.101. This shows an acceptable model fit (Hu & Bentler, 1999).

Table 3: Root Mean Square Error of Approximation Statistics

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.101	.000	.187	.130
Independence model	.397	.352	.444	.000

The goodness of fit index (GFI) is a measure of fit between the hypothesized model and the observed covariance matrix (McDonald & Ho, 2002). The adjusted goodness of fit index (AGFI) corrects the GFI, which is affected by the number of indicators of each latent variable (McDonald & Ho, 2002). The GFI, AGFI and CFI fit indexes should begreater or equal to 0.8 (McDonald & Ho, 2002).Table 4.48 shows GFI of .973, AGFI of .898 and CFI index of .974 generally indicating acceptable model fit (Baumgartner &Hombur, 2006).

Table 4: GFI, AGFI, and CFI Model Fit Statistics Results

Model	GFI	AGFI	CFI
Default model	.973	.898	.974
Saturated model	1.000		1.000
Independence model	.541	.312	0.000

Similar model fit statistical tests were conducted by Teeples and David (2010) who studied cost of water delivery systems in Spain. Kjellen and McGranahan (2006) used similar tests in their study on informal water vendors and the urban poor in London. Goldblatt (2009) used similar tests in assessing the effective demand for improved water supplies in informal settlements in Johannesburg South Africa.

Convergent Validity of Return on Investments

Regression weights were used to test the contribution of each return on investment indicators to construct variable (return on investment). Regression weights were also used to explain the nature of the relationship since all the variables were in the same measurement scale. Table 5 shows that all the regression weights were higher than the acceptable level at 0.5. The t-calc values (critical ratio; C.R) for all the return on investment indicators were higher than 1.96 (Critical Ratio >1.96 at 0.05 significance level ($p<0.05$). This implies that the indicators were significantly related to return on investment and the results verified the convergent validity of return on investment construct. Overall the results shows that relationship between return on investment and financing of water investment is positive and significant (Estimate = .778, CR=

5.238, p-value =0.000. This implies that an increase in return on investment lead to an increase in financing by .778.

Table 5: Regression Weight and CR Values for Return on Investment

			Estimate	S.E.	C.R.	P-value
F	<---	ROI	.778	.148	5.238	***
ROI1	<---	ROI	1.100	.147	7.483	****
ROI2	<---	ROI	1.263	.146	8.633	***
ROI3	<---	ROI	1.149	.148	7.769	***
F2	<---	F	1.205	.238	5.063	****
F3	<---	F	1.124	.245	4.582	***

Hypothesis Testing of Return on Investment

The objective of the study was to find out whether return on investment influences implementing operational framework for financing of water investments in Nairobi Peri-urban markets in Kenya. The hypothesis used to test this objective was:

H_0 *There is no significant relationship between return on investment and financing of water investments in Nairobi Peri-urban markets in Kenya.*

The study used two structural models. Model 1 represented un-moderated return on investment while model 2 represented moderated return on investment.The structural Equation Modeling (SEM) for the fourth objective for model 1 is as shown in figure 2.Path coefficients were used to determine the direction and strength of the factor. The figure shows a path coefficient beta value of .71 (β= .71).This implies that for every 1 unit increase in return on investment, financing of water investments is predicted to increase by .71 units. R^2 was used to show the proportion of variation in dependent variable explained by the SEM model. The figure also shows that return on investment had a coefficient R^2 mean of .51. The value of R^2 of .51 indicates that 51% of the variations in financing of water investments in peri-urban markets in Kenya can be accounted for by return on investment scores.

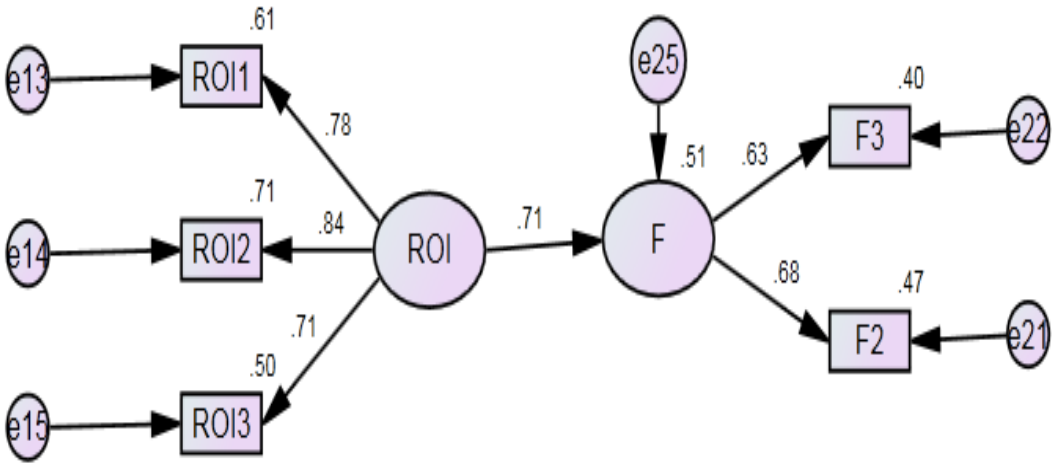

Figure 2: Structural Equation Modeling (SEM) for Return on Investments

T=statistics provided information on the significance to the relationship. T-statistics value (C.R) was used to test whether the relationship between return on investment and financing of water investment was significant. Critical value should be greater than 1.96 at 0.05 significance level. Figure 3 shows a t-calc of 5.238 (CR>1.96). The results show that there was a significant positive relationship between access to capital and financing of water investment since the CR of 5.238 is greater than the conventional critical value of 1.96 at 0.05 significance level (p<0.05)

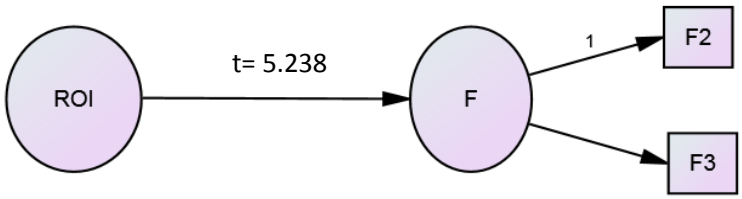

Figure 3: T- Statistics for Return on Investments

The finding of the study indicates that the relationship between return on investments and financing of water investments in peri-urban areas is positive and significant (t= 5.238, p-value = 0.000). This implies that an increase in return on investments leads to an increase in financing of water investments. Therefore the null hypothesis that there is no significant relationship between returns on investments and financing of water investments in peri-urban markets is rejected at 95 percent significant level. The study therefore fails to reject alternative hypothesis that return on investments influences financing of water investments in peri-urban markets. Low return on investments has thus played a significant role in inhibiting financing of water investments in peri-urban areas in Kenya.

The findings agree with those Gleick (2002) that indicate that water utilities find it difficult to generate sufficient internal revenues to ensure basic financial sustainability which leads to low investments. Bond (2004) maintain that the rate of return from water investments is little or no profit to be made due to low water prices as governments are unwilling to raise water prices to market levels. This leads to low revenue generates from water businesses hence low investments. Hall (2003) state that low income users cannot pay the full costs for the service required for the company to maximize its returns which has led to low water investments.

The finding of this study contributes to the literature as it point out the relevance of property right theory which asserts that assets ownership gives the owner control and right to obtain benefits or returns from the actions related to the assets such as profit/returns (Hartz and Moore, 1990). Hartz, Andrei and Robert (1997) suggested that private production incentive exists to reduce costs without regard for quality erosion in order to maximize their returns. Private producers have incentive of cost reduction or return maximization (Guttmann, 2000). The finding of the study concurs with the theory as it indicates that the relationship between return on investments and financing of water investments in peri-urban areas is positive.

Moderating Effect of Government Regulations on the Relationship between Return on Investments and Financing of Water Investments

Moderation occur when variable M alters the relationship between the variables X and Y, by enhancing, strengthening or weakening the relationship (Sauer & Dick, 2003). In order to determine the function of the moderator, difference in R^2 as recommended by Carte and Russell (2003) was used.The structural equation modeling (SEM) for the fourth objective for model 2 is as shown in figure 4. Model 2 shows the results after interaction term (return on investment *government regulation) was introduced in the equation. Path coefficients were used to determine the direction and strength of the factor. The figure shows a path coefficient beta value of .68 (β=.68). This implies that for every 1 unit increase in return on investment, financing of water investments is predicted to decrease by .68 units.

R^2 was used to show the proportion of variation in dependent variable explained by the SEM model. The results shows coefficientR^2 mean = .50 which is lower than that of return on investment of .51. An R^2 of .50 indicate that 50% of the variances in financing of water investments can be accounted for by return on investment*government regulations scores. Inclusion of interaction term resulted in an R^2 change of -1. An R^2 change of -1 indicates that moderating effect explains -1% variances in financing below the variance explained by return on investment. This shows a presence of moderating effect of government regulations on the relationship between return on investment and financing of water investments.

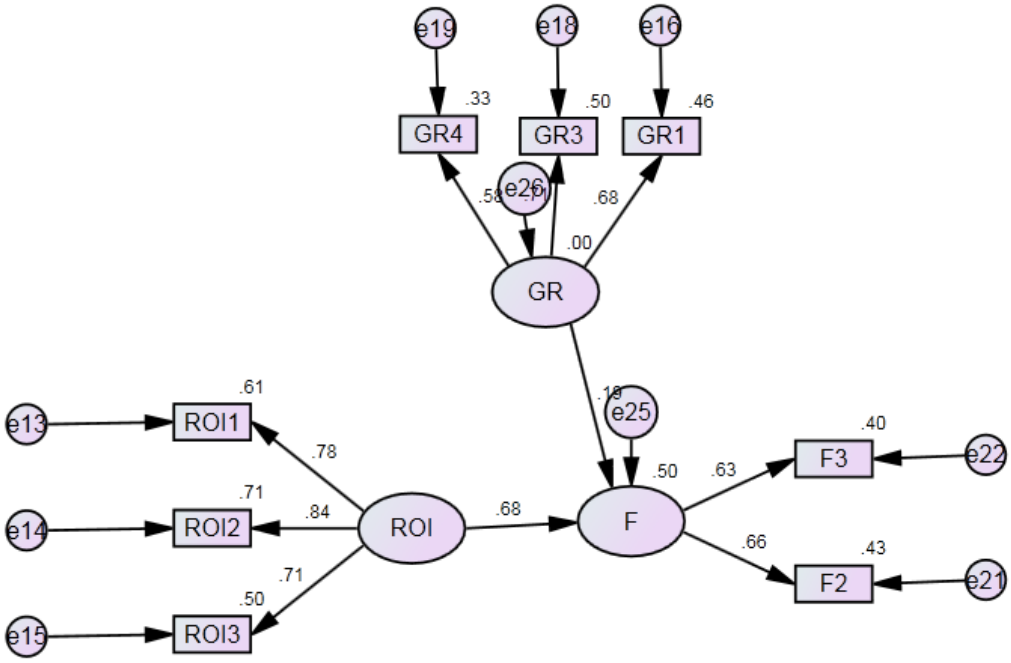

Figure 4: Moderated Structural Equation Modeling (SEM) for Return on Investments

T=statistics provided information on the significance of the relationship between variables. An overall t-statistics value (C.R) was used to test whether the moderating effect of government regulations on the relationship between return on investments and financing of water investments was significant. Critical value should be greater than 1.96 at 0.05 significance level. Model 2 in Table 5 shows that return on investments Estimate = .705, CR = 4.868, p-value = .000. CR of 4.868 and a p-value = .000 show that there was a significant positive relationship between return on investments and financing of water investment since the CR of 4.868 is greater than the conventional critical value of 1.96 at 0.05 significance level ($p<0.05$). Thus null hypothesis was rejected at 95% significance level and therefore conclude that government regulations moderates the relationship between return on investments and financing of water investments.

Table 5: Moderated Regression Weights for Return on Investments

			Estimate	S.E.	C.R.	P-value
F	<---	ROI	.705	.145	4.868	***
F	<---	GR	.177	.113	1.560	.119
ROI1	<---	ROI	1.103	.115	9.591	****
ROI2	<---	ROI	1.263	.147	8.573	***
ROI3	<---	ROI	1.143	.148	7.733	***
GR1	<---	GR	1.170	.119	9.832	.007
GR3	<---	GR	1.125	.245	4.586	***

			Estimate	S.E.	C.R.	P-value
GR4	<---	GR	.850	.185	4.604	***
F2	<---	F	1.030	.132	7.803	****
F3	<---	F	1.176	.267	4.402	***

CONCLUSIONS

From the results, it was established that the low rate of return on investments among businesses operated in peri-urban markets have impeded small scale water service providers from increasing investment in the water sector as peri-urban areas are characterised by low income people. The low return on investments is attributed to small scale operations where most of water service providers in peri urban areas operate small scale firms thus generating low returns. The prices charged to water consumers are too low as the government is unwilling to raise the water price to market price level. There exist alternative water sources including boreholes and bottled water which has created competition in the market hence low return on investments.

RECOMMENDATIONS

In order to improve return on investments, the government should enhancetariff reviews, performance monitoring and efficient metering and billing.Tariff reviews and performance monitoring exercises will provides the basis for sustainability of the water sector institutions, and guarantees the flow of finances needed for the continuous operational and maintenance requirements. The tariffs should be set in a way that is equitable and provides affordable services to the poor. Policies for addressing Non-Revenue Water should be formulated through efficient metering and billing to enhance financial viability of water utilities. This would enable water utilities to increase their returns which would enhance expansion of water infrastructure as well as maintaining the network. Sizeable cash flow can often be generated from users by increasing collection rates and making billing systems more reliable and user friendly. The governments could do more by reforming strategies and water policies to achieve the internationally agreed water targets. Such policies should be integrated into national development strategies and Poverty Reduction Strategy Papers, as appropriate. They should also be reflected in budgetary allocations. Creating accountability is fundamental to good water governance. Policy making, regulation and service provision need. The share of the population with access to an improved source of water supply can be increased through introduction of a policy of free basic water.

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