Original Research Article

Factors Influencing Real Estate Investment Decisions in Social Security Funds: A Case of Zanzibar Social Security Fund

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Abstract

The goal of this study was to look at the factors that influence real estate investment decisions in Zanzibar social security funds (ZSSF). The unit root test, co-integration, and vector error correction model (VECM) were used for estimation in the linear econometric model equation, which looked at four internal factors: member contribution (MC), benefit payment (BP), return on investment (ROI), and investment in government securities (IGS). The estimated result showed that there was presence of long-run relationship at equilibrium between real estate investment decisions (REID) in ZSSF and all tested factors that influence real estate investment decisions in social security funds. The results revealed that member's contributions (MC), return on investment (ROI) and investment in government securities (IGS) had positive significant long run relationship with real estate investment decisions in ZSSF. But it was further revealed that the benefit payment (BP) had a negative relationship with REID at ZSSF, though they were statistically significant. The study then recommends among others, that management of ZSSF has to consider these factors when they make real estate investment decisions, this including maintaining the share of investment in Government security since it is the only investment avenue which has low risk and it give up predictable and stable return as result it increases real estate investment.

Keywords: Real Estate Investment Decision, Granger Causality, VECM, and ZSSF.

1. BACKGROUND OF THE STUDY

Real estate investment is the one among the investment that generate huge return for investors all around the world (Baum and Crosby, 1998). In Europe, real estate investment contributed approximately 10% to the European economy in 2018 (Eurostat data, 2019). USA is a top leader of real estate investment in the world with almost about 461 real estate companies (UN-HABITAT, 2018). In Africa real estate investment is a new concept especially for East African Countries. Kenya has more than 49 real estate companies (Rajwayi, 2016). The world demand for real estate property increases every day due to increase world population (Knight Frank, 2012).

1.1 Real Estate Development and Investment in Zanzibar

The demand for residential, industrial, and commercial real estate has increased in Zanzibar throughout the years, resulting in a rise in real estate investment (ZIPA, Zanzibar Investment guide 2018-2019). Between 1968 and 1972, the revolutionary government of Zanzibar implemented the strategy of providing the quality accommodation to its citizen; this strategy was championed under the leadership of the first president of Zanzibar who died in 1972. This strategy includes provision of free residential house at Kilimani, Michenzani, Gamba, Makunduchi, Mpapa for Unguja and other area in Pemba like Machomane and Madungu, but after the death of first president of Zanzibar the government strategy of providing houses began to slow down, largely due to economic crisis prevailing at that time.

Before establishment of ZHC the housing sector in Zanzibar was supervised and operated by the Department of Housing, Settlement and Development under the Ministry of Land, Water, Energy and Environment since 2000 up to August 2015. During that period, the sector was weak and had relatively low contribution to GDP. In response to this situation, the Government of Zanzibar decided to establish Zanzibar Housing Corporation (ZHC) in September 2015 to strengthen the sector so as to foster economic growth.

In the recent years, Zanzibar has witnessed to have great number of real estate investors as compared to 54 years since independence, more than ten (10) private companies have been invested in real estate business and 4 government institutions also have been invested in the real estate business.

That private companies includes Corporate Property Solution Live Limited (CPS Live Ltd) invested at Fumba, Tessan Investment Group Limited invested at Mbweni, Livable Home (Volks House Ltd) invested at Fumba, Spot on Warehouse invested at Fumba, Abdul-Aziz Real Estate invested at Magomeni, Mahfoudh Real estate at Kiembe Samaki, Fumba Uptown Living at Fumba and so on. Also in case of governmental parastatals which deal with real estate's includes ZSSF, ZSTC, ZHC and ZIC. According to ZIPA more than ten (10) other real estate projects have been approved and they are waiting for the implementation of the project, this includes Dream Properties at Nyamanzi, Linn House at Mbweni, Donge Investment at Chukwani, Al-Saadi Real Estate Development at Chukwani, Sasa Warehouses Projects at Fumba, etc. Different competing factors, such as rural to urban migration, the urge to own home, increase foreign investment, increase of hotel workers from Tanzania Mainland, increase infrastructure development among others have contributed to the increase in real estate investment. As a result of these factors, property prices in Zanzibar's urban west and surrounding areas have been steadily rising.

1. 2 Overview of the Zanzibar Social Security Fund

The Zanzibar Social Security Fund was created by the Zanzibar Security Fund Act No. 2 of 1998, which was later updated by the Zanzibar Social Security Fund Act No. 9 of 2002 and re-enacted by the Zanzibar Social Security Fund Act No. 2 of 2005. ZSSF began operations in July 1998, with the primary goal of replacing members' income in the case of unforeseen circumstances such as old age, sickness, pregnancy, invalidity, or death (ZSSF Official Website, 2019).

ZSSF is a member of International Social Security Association (ISSA) and East and Central African Social Security Association (ECASSA). ZSSF has its headquarters at Kilimani-Mnara wa Mbao, Zanzibar and one branch at Tibirinzi-Chakechake, Pemba, currently ZSSF own real estate investment at Mbweni apartment, Kariakoo Uhuru Amusement park, Mwanakwerekwe shopping centre, Mapinduzi Square park (memorial Tower) and Chawal Building shop, all are allocated at Zanzibar. ZSSF has become a good investor in real estate sector in Zanzibar owning the mentioned investment.

1.3 Investment Decisions in Zanzibar Social Security Fund (ZSSF)

Social Security Funds are one among the big investors in real estate business especially in East African countries, large percentage of major real estate project conducted in Tanzania are owned by Social Security Funds, such as NSSF, ZSSF, LAPF, PSPF, NHIF etc and small percentage owned by private individuals and Real Estate Investment Trusts (REITs) such as Watumishi Housing Company (WHC-REITs). ZSSF is the only social security fund operates in Zanzibar and has invested a lot of money in real estate business.

1.4 ZSSF Investment Portfolio Trend

The ZSSF has maintained its investment strategy, which mandates it to set aside at least 70% of its yearly revenue for investment determinations. All of the investible funds available during the period were invested in the traditional investment avenues namely Government Securities, Fixed Deposits/Calls Account, Corporate Bonds, Loans, Equities and Real Estate. Investment Portfolio of ZSSF also contains Work in Progress for real estate project. The work in progress projects are not categorized as real estate until completed (Thomsett, 1998).

Table 1.1: ZSSF Investment Portfolio 2010/11-2017/18 (Amount in million, Tshs)

Investment Type/Years	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Real Estate (RE)	8,879.62	9,148.85	9,669.68	9,591.07	9,385.39	55,057.46	96,695.50	100,899.25
Equity	6,700.27	6,054.36	6,983.69	11,613.45	8,277.45	7,409.24	8,294.89	14,801.35
Government Securities	28,045.23	45,103.09	50,823.03	53,963.72	88,162.71	91,304.73	95,764.21	157,760.48
Fixed Deposit/Call Account	34,742.53	38,600.93	51,226.54	65,974.25	49,782.21	71,008.50	98,462.24	58,365.42
Loan	3,999.15	6,855.90	12,088.88	9,679.29	10,941.78	7,574.32	4,274.80	8,627.95
Corporate Bond	-	-	-	-	5,346.47	5,290.27	5,290.23	5,872.29
Work in Progress on (RE)	-	-	3,420.08	18,925.82	34,922.97	8,640.84	17,354.74	31,153.74
Total	**82,366.80**	**105,763.13**	**134,211.90**	**169,747.60**	**206,818.98**	**246,285.36**	**326,136.61**	**377,480.48**

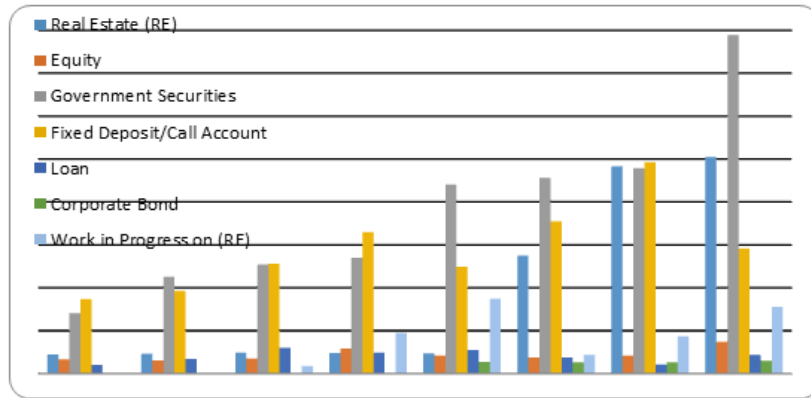**Source:** ZSSF Audited Financial Reports

Figure 1.1: ZSSF Investment Portfolio 2010/11-2017/18 (Amount in million, Tshs)

1.5 Statement of the Problem

Zanzibar where there is existence of only one SSF, namely Zanzibar Social Security Fund (ZSSF) faces different challenges like other social security fund. It has been noticed that despite of good investment strategy some of real estate property constructed by ZSSF fails to generate expected returns. Example ZSSF lose a lot of return from Mwanakwerekwe Shopping Centre simply because of the nature of retail shops constructed does not meet the preference and habits of most retail traders in Zanzibar (ZSSF Financial Reports, 2010/11-2017/18). Mugweru (2001) suggested that SSF's investment sector be made up of experts who follow correct investment rules and processes and, as a result, make sound investment judgments.

Practical investing of Social Security funds is critical in order to protect the interests of pension fund members. Many studies has been done on the factors that determine investment performance in other countries like Oluoch, (2013) and in Tanzania a similar study done by Shola (2013) however little is known about Zanzibar, therefore the finding cannot be generalized. ZSSF is growing and according to Figure 1.1 real estate investments has been increasing since 2010 to 2018. Also based on the empirical literature and the researcher knowledge, there is no study on factors influencing the real estate investment decisions done specifically on Social Security Funds, More importantly, this study will be unique as most of the studies conducted in the developed countries. It is these substantial evidences that trigger the researcher to conduct a research on that area to fill that gap. The question is which factors specifically influencing real estate investment decisions in Zanzibar. As a result, the focus of this research was on the aspects that guidance real estate investing decisions at Social Security Funds in Zanzibar specifically at ZSSF. And this study is reliable to be conducted in Zanzibar because there is great number of real estate project implemented by ZSSF but there is limited number of studies conducted.

Study Objective

The central goal of this research was to look into the factors that influence real estate investment decisions in ZSSF's social security fund. But specifically on the internal factors.

Research Questions

i. How do internal factors influencing real estate investment decisions in Zanzibar Social Security Fund?

1.6 SIGNIFICANCE OF THE STUDY

This research study is of great benefit to Zanzibar Social Security Fund and other Social Security Funds since it may provide information on factors influencing real estate investment decisions in social security funds. The findings of this study provides information on the influences of real estate investment decisions and provide information of how those factors can enhance real estate investment decisions. The findings of this study will also be used by other real estate investment companies and agents, as they will help them be aware on factors influencing real estate property.

The findings act as a source of knowledge to academicians. The findings also are important to researchers to form a basis for further researches on real estate field. The study creates awareness to the government and understanding how government affects the real estate industry. This will aid in formulating appropriate policies.

2. LITERATURE REVIEW

2. 1 Theoretical Literature Review

This area the theoretical aspects of the study is discussed. There are several theories which describe the concept of real estate investment, but the simplest theories includes the Principal and Agent Theory, Greater Fool Theory, Capital Asset Pricing Model and the liquidity Preference Theory which they are discussed below.

The Principal and Agent Theory

Agency Theory emerged in the 1970s from the combined disciplines of economics and institutional theory of Stephen Ross and Barry Mitnick respectively, agency theory is a principle that is used to explain and resolve issues in the relationship between business principals and their agents. Most commonly, that relationship is the one between shareholders, as principals, and company executive, as agents. In relation to real estate investment decision in social security fund, members can be termed as principal while fund/management/government can be referred to as an agent.

In social security fund, sometime happens agent which is fund/government/or management may undertake project which is not incapacity to benefit principal which are the members of the fund, the project or investment decision can be made by fund for the government interest and not for maximization of fund value. This may cause conflict of interest.

Greater Fool Theory

The greater fool theory is a bedrock principle of investing. In finance and economics, the greater fool theory states that "it is possible to make profits by purchasing assets (which may be over-priced) and selling it to another person (a bigger or greater fool) who is willing to pay even a higher price for that asset". In real estate investment, the greater fool theory can drive investment through the expectation that prices always rise. It applies during the real estate market bubbles. Real estate market bubbles are an economic event in which the price of specific real estate property such as housing rise dramatically and increase beyond their fundamental value (Roberts, 2008).

The Liquidity Preference Theory

This theory states that investors prefer liquidity as opposed to investing in capital items. In practice liquidity preference theory describes the premium offered in advance in relation to expected future rates of return. This theory suggests that an investor is interested in an investment with a higher return and premium. In addition, investors also prefer cash or highly liquid investments.

2.2 Factors Influencing Real Estate Investment Decisions in Social Security Funds

Factors that influence real estate investments decisions in social security funds includes rate of interest, Urbanization, inflation rate, member's contributions, benefit payment, return on investment (ROI), investment in Government securities etc. These factors can classified into Internal and external causes.

Internal Factors

These are factors within ZSSF that can influence real estate investment decisions in social security fund by which the funds management have control over them. These factors are member contributions, investment in Government securities, return on investment (ROI) and benefit payment.

External Factors

These are factors that can have either negative or positive influence to the real estate investment decisions made by Social Security Fund. They represent events outside of the Fund which can influence the investment decisions.

2.3 Empirical Literature Review

There are several studies that have been done in attempt to determine the factors influencing real estate investment decisions. These studies relate in one way or another to the studied topic which is factor influencing real estate investment decisions in social security funds.

Rono (2009) studied on "An Evaluation of Factors Influencing Pension Managers Investment Decisions in Kenya". Three representatives from each of the twelve registered fund managers completed the study questionnaire. The questionnaire was administered through the drop and pick later method. Data was analyzed using SPSS (Statistical Package for Social Sciences) and summarized using descriptive statistics such as mean, standard deviation, frequencies, percentages. The study found out that returns, investment risks and trends in interest rates were the most important factors affecting pension managers' investment decisions. Decision-making preferences, investment portfolio, past performance and legal framework were rated as less important. Consistency and sustainable long term returns, prevailing economic, inflation and political situations were also important qualitative factors in decision making for pension fund investment.

Lieser and Groh, (2011), undertaken the study to identify the determinants of commercial real estate investments using particular set of panel data series for 47 countries from 2007 to 2009. The study examined the effect of demographic, social-economic and institutional characteristics on commercial real estate investment activities by looking at cross-sectional and time series analysis methods. The result of this study concluded that the growth of economic, increased urbanization, and related demographics characteristics stimulate real estate investments. It was also tinted that lack of transparency in legal structures, social-cultural challenges, administrative barriers, and political instabilities of countries diminish desire of real estate investors.

Lowies (2012), conducted study on the role of behavioral aspects in investment decision-making by listed property fund Managers in South Africa. The aim of this study was to determine whether behavioral aspects influence listed property fund managers in

South Africa when they make decisions on property investment. Questionnaires were sent to 29 listed property fund Managers in South Africa. The 17 responses represented 80% of the total market capitalization of listed property funds in South Africa. The data were analysed using non-parametric statistical measures. The study finding indicates that listed property fund managers in South Africa are influenced by behavioral aspects in the form of frame dependence. The study also found that South African fund manager's shows loss averse in their investment decisions.

Adeoti, Gunu, and Tsado (2012) conducted study on Determinants of Pension Fund Investment in Nigeria: The Critical Factors. This study was carried out to evaluate the factors that determine investment of Pension Funds. The study used primary data, which were generated by the use of questionnaire. Respondents were selected from a sample of five Pension Fund Administrators (PFAs) in Nigeria using simple random sampling technique. A total of 125 questionnaires were administered on 18 items using likert scales. Data collected were analyzed using factor analysis by principal component. The final result of this study showed that Economic, Risk and Security of real estate factors were the major determinants of pension fund investment. The study concludes that variables such as interest rate and internal control system were not critical in determining investment of pension funds in Nigeria.

Muli (2013) did a research on Assessment of the Factors Affecting the Growth in Real Estate Investment in Kenya. The study investigated factors such as GDP Growth, the influence of interest rate, inflation rates and population growth. The study used both quantitative and descriptive research design. The population in this study was real estate investors while the target population included private and public property investors. Data for analysis was based on the real estate and renting businesses from the various Economic Surveys and Kenya Statistical Abstracts Issues. The data was analyzed using (SPSS). The results of the investigation as measured by Pearson correlation coefficients showed that GDP took the highest share with a value of 83% followed by inflation growth at 78% while interest rate came third with 75%. Population growth contributed the least to the growth in real estate investment with a value of 29 %.

Benjamin (2014) on Factors influencing Land Ownership and Real Estate Investment Decisions in Ile-Ife (Ife Central as a case study), This paper examines factors influencing land ownership and real estate investment decisions in Ile-Ife, Nigeria. This research was conducted to find out the factors that contribute to the decision making in land ownership and real estate investment in Ife. Information gathered was through the use of questionnaire in the study area. The use of

frequency tables, charts and ANOVA was adopted in analyzing the questionnaire. The study findings established that investment decisions of investors in the study area are influenced by certain identified factors. The most important principal factors are Land affordability, land accessibility, ease to land acquisition, land security, profit motive and political stability in the study area.

Moreover, Sirya (2017) studied Factors Influencing Real Estate Companies Investment Decisions in Commercial Properties in Nairobi County. The study focused on determining what specific factors controlled investment in real estate in Nairobi County. The study used secondary method with the aid of questionnaires, descriptive Statistics and regression model to give result. Analysis of data collected from forty nine real estate companies operating in Nairobi County and Kenya Central Bank was done using SPSS version 20. Research result showed that increasing in interest rate affected investment decisions in commercial properties in Nairobi. Inflation factor was found to be associated with real estate companies' investment decision in Nairobi County, however, coefficient result showed that it was not significant factor. Foreign investment, entry of multinationals companies in Nairobi, infrastructure development was found to be influencing decisions by real estate companies in Nairobi.

2.4 Research Gap
With the help of literature reviews, it showed that there are different researches that were done on, factors influencing real estate investment decisions in Real Estate Companies and pension funds. Most of these researches done in developed countries some of them focus only on external factors, some internal factors and others combine internal and external factors influencing real estate investment decision in real estate companies and pension funds but to the best of researcher knowledge, few comprehensive researches have been done in developing countries to ascertain factors influencing real estate investment decisions in social security funds, most of these few research conducted in developing countries their result are not consistent. To fill this gap this study will specifically focus on the factors influencing real estate investment decisions in Social Security Funds, a case of ZSSF. This study used internal factors to get new specific evidence on factors influencing real estate investment decisions in social security funds.

3. RESEARCH METHODOLOGY
3.1 Research Design
The study used time series based on quantitative research approach; in quarterly bases spanning from 2010 to 2018. Quarterly data employed was easily available and more meaningful in this case as compared to annually or monthly data. The time series data was better for this study because, the data

exhibit several behaviors that if they are not taken into account, they may affect the parameter estimation and particularly may cause the problem of spurious regression. Thus, the choice of this approach was recommended for this type of research.

3.2 Data Collection Method
Base on that argument in order to get the required information for this study only secondary data was used. These secondary data were gathered from ZSSF audited financial reports.

3.3 Model Specification
To examine the factors influence real estate investment decisions in social security fund, the basic model of this study was designed as follows:-

$Real\ Estate\ Investment\ Decision = f(Influence\ Factors)$

The study aimed to examine the internal factors that influence the Real Estate Investment

$$\log REID_t = \beta_0 + \beta_1 \log MC_t + \beta_2 \log BP_t + \beta_3 \log ROI_t + \beta_4 \log IGS + \varepsilon_t$$

Whereby,
REID= Real Estate Investment Decisions
MC= member's contribution
BP=Benefit payments
ROI=Return on Investment
IGS=Investment in Government Security
β_0 is the constant term, β_1, β_2, β_3 and β_4, are the parameters estimated, t = 1, 2… is the time index for the time from July 2010 to June 2018 in quarterly basis and ε is the stochastic error term.

3.5 Variables Description
Dependent Variable
Real Estate Investment Decisions (REID), this dependent variable was measured by amount of fund that has been invested in real estate investment per each quarter in a year from 2010/11 to 2017/18 in (TZS).

Decisions, therefore two models was designed to make the analysis easier and the results more clear. The model was categorized as follows:

3.4 Model for specific objective
$Real\ Estate\ Investment\ Decision = f(Internal\ Influence\ factors)$

Then the basic model to answer the objective of this study transformed into the regression of the following form:

$$y_t = \beta_0 + \beta_1 T_t + \varepsilon_t$$

Where y represents the Real estate investment decision in which REID used as a stand-in for (Real estate investment decision) and T internal influence of Real estate investment decisions. Hence, the linear regression model is represented as follows:

Independent Variables
a) **Benefits payments (BP):** Is the total monetary amount of benefits paid to members per each quarter in a year from 2010/11 to 2017/18in (TZS).
b) **Members' contributions:** Total monetary amount of members' contributions in Social Security Fund per each year quarter from 2010/11 to 2017/18 in (TZS).
c) **Return on Investment:** Is the measure of gain or loss generated on an investment relative to the amount of money invested. It is usually expressed as a percentage and is typically used for corporate financial decisions.
d) **Investment in Government securities:** This variable was expected to have positive influence on real estate investment decisions because it increases amount of fund to be invested in real estate through return obtained from Government securities.

Table 3.1: Variables Description and Their Measures

Dependent Variable	Independent Variable	Measure	Expected sign
Real estate investment Decision	Members' contribution	Quarterly contribution in T.sh	+ve
Real estate investment Decision	Benefit payments	Quarterly benefit payment in T.sh	-ve
Real estate investment Decision	Return on Investment	Quarterly net income from investment after tax	+ve
Real estate investment Decision	Investment in Government securities	Quarterly fund invested in Government securities	+ve

Source: Author's

3.6 Estimation Techniques
According to above statement, the estimation technique was based on the time series approach. This

technique was used because of the nature of the dependent variable. Since this study is a time series in nature from 2010 to 2018.

Unit Root Test

The way to testing for a unit root in this study was Augmented Dickey-Fuller (ADF). ADF was reliable and valid because of the frequently used in testing the unit root in the different studies. According to Dickey and Fuller (1981) the ADF test involves both the level and first differenced observations by estimating three models.

Co-integration Analysis

This stage was determined the level of co-integration between the examined variables. For simplicity, this step investigates whether the stochastic trends in the examined variable, which is supposed to contain unit roots, have a long term relationship. For the co-integration test, two maximum likelihood tests of Engle and Granger (1987), Johansen (1988) and

Johansen and Juselius (1990) method was used to test for co-integration. According to Granger (1988) standard tests for causality are valid only if there is co-integration between the variables. Therefore, in the presence of integrated variables, a necessary pre-condition to test for causality is to check whether the variables are co-integrated.

Vector Error Correction Model (VECM)

If there is evidence of co-integration between the variables, the vector error correction model (VECM) was calculated to determine long-run causality and short-term dynamics. This enables for two types of causation to be determined: short-run causality and long-run causality. The VECM is estimated as shown below:-

Internal Influence

$$\Delta REID_t = T_1 \sum_{i=1}^{k-1} u_{1i}\Delta REID_{t-i} + \sum_{i=1}^{k-1} v_{1i}\Delta BP_{t-i} + \sum_{i=1}^{k-1} w_{1i}\Delta MC_{t-i} + \sum_{i=1}^{k-1} X_{1i}\Delta ROI_{t-i} + \sum_{i=1}^{k-1} Y_{1i}\Delta IGS + Z_1 ECT_{t-i} + e_t$$

$$\Delta BP_t = T_2 \sum_{i=1}^{k-1} u_{2i}\Delta REID_{t-i} + \sum_{i=1}^{k-1} v_{2i}\Delta BP_{t-i} + \sum_{I=1}^{k-1} w_{2i}\Delta MC_{t-i} + \sum_{i=1}^{k-1} X_{2i}\Delta ROI_{t-i} + \sum_{i=1}^{k-1} Y_{2i}\Delta IGS + Z_2 ECT_{t-i} + e_t$$

$$\Delta MC_t = T_3 \sum_{i=1}^{k-1} u_{3i}\Delta REID_{t-i} + \sum_{i=1}^{k-1} v_{3i}\Delta BP_{t-i} + \sum_{I=1}^{k-1} w_{3i}\Delta MC_{t-i} + \sum_{i=1}^{k-1} X_{3i}\Delta ROI_{t-i} + \sum_{i=1}^{k-1} Y_{3i}\Delta IGS + Z_3 ECT_{t-i} + e_t$$

$$\Delta ROI_t = T_4 \sum_{i=1}^{k-1} u_{4i}\Delta REID_{t-i} + \sum_{i=1}^{k-1} v_{4i}\Delta BP_{t-i} + \sum_{I=1}^{k-1} w_{4i}\Delta MC_{t-i} + \sum_{i=1}^{k-1} X_{4i}\Delta ROI_{t-i} + \sum_{i=1}^{k-1} Y_{4i}\Delta IGS + Z_4 ECT_{t-i} + e_t$$

$$\Delta IGS_t = T_5 \sum_{i=1}^{k-1} u_{5i}\Delta REID_{t-i} + \sum_{i=1}^{k-1} v_{5i}\Delta BP_{t-i} + \sum_{I=1}^{k-1} w_{5i}\Delta MC_{t-i} + \sum_{i=1}^{k-1} X_{5i}\Delta ROI_{t-i} + \sum_{i=1}^{k-1} Y_{5i}\Delta IGS + Z_5 ECT_{t-i} + e_t$$

4. FINDINGS AND DISCUSSION
4.1 Descriptive statistics for key variables

Table 4.1 present the descriptive summary of the key variables used in the study. The total number of observations in the analysis was 32. The data showed that, the averages mean scores of REID, MC, BP, ROI and IGS reveals approximate normality in the data distribution of each variable. The standard deviations as presented in the table 4.1 were found to be low when compared to its mean for each variable, which indicates a small coefficient of variation of the series. Furthermore, the range of deviation between the maximum and minimum of each individual series is found to be reasonable in comparison to the mean. The mean over median ratio for each series is seen to be

approximately one, which represents normality of distribution.

Moreover, according to Table 4.1, the mean value of REID was 8.5 with a standard deviation of 1.07. Its median value is 7.78 with maximum and minimum values of 10.1 and 7.7, respectively. While the mean of MC is 8.9, its standard deviation is 0.45, and its median is 8.88 while the maximum and minimum values were 9.9 and 8.0 respectively. The below table 4.1 represent the value of other variable includes ROI, BP and IGS where by each variable mean, medium, maximum, minimum, standard deviation are shown. Based on the results from Table 4.1, it is therefore, confirmed that there is existence of normality of distribution.

Table 4.1: Descriptive Statistics for Key Variables

	LREID	LMC	LBP	ROI	LIGS
Mean	8.569226	8.906164	7.849067	2.937500	9.730934
Median	7.786375	8.888289	8.035881	2.875000	9.755209
Maximum	10.13558	9.932348	9.329071	4.025000	10.58254
Minimum	7.705222	8.062685	6.677826	2.325000	8.855280
Std. Dev.	1.076764	0.458743	0.699041	0.537017	0.516834
Probability	0.077109	0.806415	0.501303	0.217972	0.645972
Observations	32	32	32	32	32

Source: Researchers

4.2 Stationary Test

This test applied so as to check whether the variables has unit root problem, it is better to test unit roots before checking the co-integration of the variables in order to avoid the problems of spurious (Engle and Granger, 1987). The study used the method of Augmented Dickey-Fuller (ADF) to test unit root at both levels and first differences as chapter three above explained. The results of the unit root test are presented in table 4.2 and 4.3 respectively. The critical value statistics are given in response of MacKinnon (1996) values. All the variables are transformed by applying the logarithm. The new variables are denoted with: LREID, LBP, LROI, LIGS and LMC.

Whereas:

LREID stand for logarithm of Real Estate Investment Decision
LBP stand for logarithm of Benefit Payment
LROI stand for logarithm of Return on Investment
LMC stand for logarithm of Member Contribution
LIGS stand for logarithm of Investment Government Securities

To determine the nature of the time series, unit root test is employed to understand whether the data are at stationary or non- stationary conditions. By stationarity, it means that there exist constant figure among the mean, variance and auto covariance at any point while non-stationary experience changes in mean, variance and auto covariance at any point. Significantly, the stationarity of time series help to achieve correlation among research variables. But if non-stationary time series exist, then the sample size experience what is called spurious or nonsense regression. The rule for decision making under time series unit root test involves the rejection of the null hypothesis at the 1%, 5% and 10% statistical significance level. This implies that time series data set do not contain a unit root; therefore, at least one time series is stationary. This automatically implies the acceptance of the alternative hypothesis.

Table 4.2 shows the result from Unit root test in constant, the result shows that all variables were non-stationary at level (lag 0) but once proceeding to the first difference as shown at Table 4.3 in which all variables became stationary. Generally, the results showed that null hypothesis of unit root were positive at level, nevertheless, upon the first differences of the variables, the null hypothesis was rejected in favor of alternative hypothesis which cited that the series are stationary. Conclusively, all study variables achieved stationarity at order one, I (1). These results provide the indication of the presence of possible long run association in the model. But this can be justified by the test of co-integration to check whether the model has long run association or not.

Table 4.2: Results for Unit Root Test (At Level) for Internal Factors

Variables	T-Statistics	Probability	Results/Remark
LREID	-0.372597	0.9020	Not stationary
LIGS	-0.848378	0.7908	Not stationary
LMC	-0.265305	0.9175	Not stationary
LMP	-1.581802	0.4784	Not stationary
LROI	-1.993025	0.2879	Not stationary

Note: Null Hypothesis (Ho: variables are not stationery (NS) i.e. unit root) was not rejected at level
Significant at 5% significance level
Source: Author

Table 4.3: Results for Unit Root Test (At First Difference) for Internal Factors

Variables	T-Statistics	Probability	Results/Remark
LREID	-5.629921	0.0001	Stationary
LIGS	-6.192304	0.0000	Stationary
LMC	-3.515237	0.0157	Stationary
LMP	-9.742489	0.0000	Stationary
LROI	-5.547442	0.0001	Stationary

Note: All variables became stationary at 5% level of significant after the first difference. The results are obtained from MacKinnon's table by using Eviews7 packet program
Source: Author

4.3 Co-Integration Analysis: Johansen Co-Integration Test

After testing and proved that all variables are integrated at order one I (1), the researcher applied Johansen's maximum probability estimation to test for co-integration so as to check the presence of long-run association among the stationary variables. Null hypothesis Co-integration Result of Internal Factors.

The results from the test of the internal factors which affect Real Estate Investment Decision (REID) namely, Member Contribution (MC), Benefit Payment (BP), Return on Investment (ROI) and Investment in Government Securities (IGS) both test Max Eigen and Trace tests indicated in table (4.4) and table (4.5) respectively, shows there is existence of long run relationship among variables, So it reject null hypothesis at none where the probability is lower than 0.05, in both Max Eigen and Trace test.

Table 4.4: Results for Johansen Co-integration Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigen value	Statistic	Critical Value	Prob.**
None *	0.770158	85.20572	69.81889	0.0018
At most 1	0.520216	44.03552	47.85613	0.1092
At most 2	0.365568	23.47178	29.79707	0.2237
At most 3	0.272351	10.73106	15.49471	0.2286
At most 4	0.063228	1.828839	3.841466	0.1763

Note:* denotes rejection of the hypothesis at the 0.05 level. **MacKinnon-Haug-Michelis (1996) p-values
Source: Author

Table 4.5: Results for Johansen Co-integration Test (Max Eigen)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigen value	Statistic	Critical Value	Prob.**
None *	0.770158	41.17020	33.87687	0.0057
At most 1	0.520216	20.56375	27.58434	0.3035
At most 2	0.365568	12.74071	21.13162	0.4764
At most 3	0.272351	8.902225	14.26460	0.2944
At most 4	0.063228	1.828839	3.841466	0.1763

Note:* denotes rejection of the hypothesis at the 0.05 level. **MacKinnon-Haug-Michelis (1996) p-values
Source: Author

4.4 Vector Error Correction Model

Due to the above result which shows that all the variables were co-integrated in all the models, and that prove that there exists a long run relationship between the variables at equilibrium. According to Granger (1988), if two variables are co-integrated, there is a sign of causality between them at least in one direction. VECM was considered appropriate for the analysis of the objective of this study using two different models. Based on the objective of this study, this section is divided into two main parts. The first part which presents and discusses the estimated results of

effects of internal factors on real estate investment decision.

Analysis and discussion of Results from Relationship between Internal Factors and Real Estate Investment Decisions at ZSSF

The results from the estimated equation below showed that, the coefficient of the constant term is 36.76674 implying that at zero performance of the various explanatory variables used, real estate investment decision stands at 36.76674 units. The VECM estimated regression model results which shows the long run relationship between variables are as follows;

$$logREID = 36.76674 + log2.934168\ MC - log2.267092\ BP + log\ 1.338808\ ROI + log3.372492IGS$$

Table 4.6: VECM Coefficient Standard Errors and Statistic

	LMC	LBP	LROI	LIGS
Std. Error	(0.76786)	(0.45212)	(0.27108)	(0.27108)
T-statistics	(-3.82123)	(5.01431)	(-4.93878)	(-4.93878)

Source: Author computation from collected Data (2019)

From the first model, which describes the internal factors namely; members contributions, benefit

payment, return on investment and investment in Government securities that affect the real estate

investment decisions of ZSSF. The estimated result shows that members contributions, return on investment as well as investment in Government securities has significant positive long run relationship with real estate investment decision of ZSSF. On the other hand the benefit payment is negatively related with real estate investment decisions of ZSSF. Below are the detailed elaborations of the internal factors that affect the real estate investment decision of ZSSF as estimated regression result has revealed.

a) Members Contributions

From the estimated regression equation above, it indicates that when other things remain constant one unit increase in members' contributions rises the REID by 2.934168 units at a statistically significant level of 5%, that is $p < 0.05$. That means as the members' contribution increases it makes the investment decisions at ZSSF to increase too. The members' contributions in this study showed a positive long run relationship with the REID and this went along with the theory as it is obvious that members' contributions enable the ZSSF on its investment decision process. This result supported by Tijjani (2014).

Benefit Payment

The coefficient indicate that one unit increase in benefit payment leads to decrease in REID by 2.267092 units at a statistically significant level of 5%, that is $p < 0.05$. The result of this variable shows that size of benefit payment has negative impact on REID in ZSSF. Generally, the large amounts of benefit payment paid to members reduce the capacity of ZSSF to invest in real estate. This result supported by Barros and Garcia (2006).

b) Return on Investment

Also according to the above estimated regression equation indicates that when everything else are kept constant one unit increasing in return on investment (ROI) leads to the increase of the REID by 1.338808 units at a statistically significant level of 5%, The ROI in this study showed to have a positive long run relationship with real estate investment decisions. That means in a long run the return on investment can influence the real estate investment decisions in ZSSF. It is obvious that high returns are preferable from any investment made since they enable the pension fund to maintain appropriate funding levels which can help them to pay benefit to members on time and also enables to invest in various ventures real estate being among them while avoiding much dependence on extra contributions. The results supported by Tonks (2005) who found that ROI is among the factors that influence real estate investment decisions in Nigeria. The result was consistent with our expectation.

c) Investment in Government Securities

The coefficient indicate that one unit increase in Investment on Government Securities leads an increase in REID by 3.3724921 units at significant level of 5%, So that means that Investment in Government Securities has positive relationship with real estate investment decisions in ZSSF, and thus Investment in Government Securities influences the real estate investment decisions. This is because IGS cause the increases of revenue to ZSSF and hence influence the investment on the other side. This result is the same with the result of Shola (2013) and also consistent with our expectation, who argued that investment in Government securities compared to other type of investment, result into rapid capitalization on real estate investment and other investment while retaining certain level of fund for paying benefit to members. They are secured with low or no risk at all.

4.5 Results of Error Correction Term (ECT)

Table 4.6 present the ECT result of objective number one, the result revealed that benefit payment (BP) took the highest performance speed at which to corrects the previous disequilibrium because its value appear with negative -0.14 (14%) and significance, but other variables includes members contributions, return on investment and investment on government securities were all not significance though their coefficient effects were positive as a result tends to increase the disequilibrium in real estate investment decisions. That means in a short run the entire variables has no any significant influence in the real estate investment decisions at ZSSF except benefit payment.

5. CONCLUSION

From the finding of this research, the following conclusions are made:-

Since the real estate investment has a great benefits and advantages among others includes an excellent rate of returns, amazing tax advantages, high tangible asset value, increasing in value over time as well as portfolio diversification, as a result of these benefits this study will enable ZSSF to maximize their liquidity as now they will be aware on the factors that real influence their decisions making on real estate investment. This will trigger an alarm if they were doing wrong or not and realize which factors to concentrate on them much. And now they will be sure in respect of how, where and when to invest.

Hence, the relationship between real estate investment decisions and the internal factors indicate that there were strong relationship, this implies that the management of ZSSF and other social security should consider these factors before making their investment decisions. This is because the findings are in line with what was expected since the test conducted has revealed that all variables are significantly related to the real estate investment decisions. This also implies that, all variables take the correct sign as it was expected.

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