



FINANCIAL STRUCTURE AND GROWTH OF PENSION FUNDS IN KENYA

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ABSTRACT

Financial structure choice and its impact on growth remains a great dilemma to all stakeholders. Whereas several studies have been done on this subject, more is yet to be established so as to ascertain the validity of the relationship between the financial structure and growth while factoring in an appropriate moderating variable like firm size in Kenya. The main objective of the study therefore was to investigate the confluence of financial structure and growth of pension funds management organizations in Kenya while considering confounding studies supporting, disagreeing and undecided views of other scholars. Specific Objectives were to establish the effect of short term debt structure on growth of pension funds in Kenya, to establish the effect of long term debt structure on growth of pension funds in Kenya. To ascertain the effect of external equity structure on growth of pension funds in Kenya. To determine the effect of internal equity structure on growth of pension funds in Kenya. To evaluate the moderating effect of firm size on growth of pension funds in Kenya. Notable gaps this study addressed included the slow growth of Individual pension funds as a result of lack of awareness, lack of transparency in public pension schemes, insufficient empirical studies on pension funds in Kenya

This study highlighted several empirical evidence, literature review, objectives and the research hypotheses. The study employed causal research design with secondary panel data from the financial statements of 49 pension firm organizations carefully identified according to Krejcie and Morgan (1970) table retrieved from a population of 68 registered pension scheme managers in Kenya as at December 31st 2018. Data was retrieved from the retirement benefit authority records for the period December 2009-2018. Model specifications linking both the Independent, dependent and the error term was applied together with statistical and diagnostic tests. The effect of financial structure on pension funds is not significant across all firms. It is also concluded that highly geared firms have significant relationship with equity returns and insignificant relationship with asset returns. In addition, highly geared firms tend to have high profitability and that the nature of the industry also determines the effect of financial structure on their growth.

KEY TERMS

Capital Structure, Financial Performance, Financial Structure, Speed of Adjustment
Working Capital Management, Short Term Debt, Long Term Debts ,External Equity
Internal Equity.

1 Introduction

Kenyan pension subsector is estimated to cover 15% of the labour force and to have accumulated assets of 18% of the GDP (RBA, 2010). So far the pension fund system covers an estimated 2 million workers leaving an estimated 5 million workers uninsured under the retirement schemes, of which at least 10% are at or near the retirement age. (Hannah, 2010). Currently, the coverage of the workforce under Individual Retirement Benefits Schemes is disappointingly low (RBA,2011). The total number of members in individual pension schemes is a dismal 88000 individual's majority 70 percent of whom are company employed. Despite the critical role played by private pension schemes, the growth of pension scheme in Kenya is inundated by multiple and diverse problems (Hannah, 2013) with no financial structures to address inclusivity,optimal solutions and desired investment mix for the needs above which the study will therefore address.

Pension funds management institutions are unique type of organizations because they hold long term liabilities which belong to beneficiaries and so their growth is very critical in maintaining the desired funding levels, improved equity market returns, achieving sustainable short and long term debts, defined financial structure and high interest rates (Kirkendall,2014).However, confluence of financial structure (which is inclusive of Long term and short term debts, Internal and external equity) and growth is not clearly redefined in the Kenyan context forming part of information asymmetry according to), the information asymmetry and the signal theory (Brealey et al.,1977).Shareholders and creditors may therefore find it difficult to make informed decisions

in the absence of such critical study outcome which will help them understand how financial structure affect the growth of pension funds in Kenya in particular.

Consequently, despite the relationship between these variables, it's not yet clear how financial structure affect the growth of pension funds. Several studies done indicates that growth in pension schemes has no focus on the effect of financial structure for instance, Muli (2016) carried out a study on challenges faced by insurance firms in the management of pension funds in Kenya and it only outlined the challenges while not addressing the effect of financial structure on growth of pension funds. Makori (2017) on the other hand did a survey on asset liability management among defined benefits pension schemes but failed to address financial structures and growth which this study is focusing on. Several studies mainly focused on strategies put by pension schemes to minimize risks and maximize the returns but not on financial structures and growth of pension funds Chirchir (2017). This study will cut across several theories to establish possible effect on financial structure and growth of pension funds in Kenya.

2 Literature Review

Through analysis of several financial theories, like the pecking order theory as popularized by Myers and Majluf (1984) there was sharp contrast with the theories that attempt to find an optimal capital structure by studying the trade-off between the advantages and disadvantages of debt finance. In this approach, there is no optimal capital structure. Companies simply follow an established pecking order which enables them to raise finance in the simplest and most efficient manner, the order is as follows; - use all retained earnings available then issue debt, and issue equity, as a last resort. In this regard, a company may decide to finance its operations through 100 percent debt, equity or a mixture of both. Such combination may or may not have direct effect on growth of pension fund portfolio and a lot of variables must be ascertained for this

proposition on financial structure to affect growth. Related variables forms part of the finance structure under study. Appropriate order is very subjective which may influence growth.

The Miller (1950) model and its theoretical extensions have inspired several time series studies which provide evidence on the existence of leverage-related costs. Fairfield and Teri (2013). These compounded facts affect the growth and financial structures of pension fund schemes in the long run since capital structure indeed matter in determining the value of a firm.

According to the information asymmetry and the signal theory (Brealey et al. 1977), managers are likely to be better informed about the profitability and cash-flow prospects of their firm than outside investors (Ross, 2017). Such propositions may predict the future of pension funds both in the short term through capital structure models and in the long run influence financial structures. However such predictions may not be accurate because combination of several portfolios both in the short and long run may cushion firms against adverse effect of risk. Combined portfolio of both debt and equity forms part of the proxies in the study.

3 Data and Methodology

The research study adopted quantitative research design to analyse the effect of financial structure on growth of pension funds in Kenya during. Using a probability sampling techniques sample combination and equal representation was chosen, sample size of 49 schemes based on Krejesie and Morgan 1970 population sample criterion table was eshtablished of which the target population was between 50 and 75. The study used secondary data of pension fund organizations from published financial statements for a period of 10 years covering year 2009- 2018. Financial statements provided quantitative data that was used in the analysis of dependent and independent variables under the study. Data was collected from published financial statements to specifically outline key variables of the study. A time-series asset-pricing tests based on individual pension

funds financial structure returns was run. Regression model on growth was used which comprised of both independent and dependent variables based on analysis with moderating variables and without moderating variables.

Model Specification

Growth Model

1. Without moderating Variable

$$\text{LnG} = \beta_0 + \beta_1 \text{LnSDAR}_{it} + \beta_2 \text{LnLDAR}_{it} + \beta_3 \text{LnIER}_{it} + \beta_4 \text{LnEER}_{it} + e$$

2. With moderating Variable

$$\text{LnG} = \beta_0 + Z(\beta_1 \text{LnSDAR}_{it} + \beta_2 \text{LnLDAR}_{it} + \beta_3 \text{LnIER}_{it} + \beta_4 \text{LnEER}_{it} + e)$$

LnG = Growth in fund (Long term growth)

Ln = Growth

β_0 = Beta sign ($\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$)

SDAR_{it} is short-term debt divided by total finance for firm i in time t

LDAR_{it} is long-term debt divided by total finance for firm i in time t

IER_{it} is Internal equity divided by total finance for firm i in time t

EER_{it} is external equity divided by total finance for firm i in time t

e_i is the error term

Table 3.1 Operationalization of Variables

Variable	Nature	Data Source	Measure
Long Term Debt Structure	Independent	Balance sheet	Long-term Debt/Total Finance
Short term Debt Structure	Independent	Balance sheet,	Short Term Debt /Total Finance

External Equity Structure	Independent	External market analysis reports	External Capital /Total Finance
Internal Equity Structure	Independent	Balance Sheet	Internal Equity Structure/Total Finance
Firm Size	Moderating	Balance Sheet	use weighted averages formula and standard deviation
Growth	Dependent	Balance sheet	% change in Total fund

4 Empirical Results

Descriptive Statistics of the variables

The descriptive statistics of the variables is indicated in Table 4.2. Total Finance had a mean of 14.31123, Long term debt had a mean of 1.9648, Short term debt had a mean of 0.681138, External equity had a mean of 1.97715, Firm size had a mean of 3.410266, growth had a mean of 1.235002 and internal equity had a mean of 3.267323. Mean is perhaps the most important statistic in data because it forms the basis of conducting and understanding all other complex statistics. The mean is the “center of gravity” of data, and is meant to carry a piece of information from every member of the sample. It is the most basic statistic that carries something from every respondent, and suggests the middle ground or the generally acceptable response. Regression analyses, validity issues, representativeness of sample, variance, etc, are pegged around the mean. It may be simplistic, but it founds the complicated stuff you see in statistics all over. Beck (2000).

Table 4.2: Descriptive Statistics of the variables.

Statistic	LN_EE	LN_FS	LN_GR	LN_IE	LN_STD	LN_TF	LN_LTD
Mean	1.97715	3.41026	1.23500	3.26732	0.68113	14.3112	1.9648
Median	2.21996	3.68087	1.12339	3.32551	0.79743	15.1395	1.1002
Maximum	4.48595	4.48189	4.45758	4.54812	3.22516	18.0879	4.58
Minimum	-1.45128	-0.44952	-1.65172	2.12634	-3.21888	8.54394	-2.80
Std. Dev.	1.63086	1.15706	1.75187	0.66160	1.79131	2.24817	1.690
Skewness	-0.765	-1.73507	-0.08849	0.04292	-0.15289	-1.0164	-0.662
Kurtosis	2.86618	5.31926	2.26063	2.05694	2.20832	3.20937	-0.080

Jarque-Bera	4.22622	31.2122	1.03556	1.60664	1.29044	7.48225	4.22232
Probability	0.12086	0.00000	0.59584	0.44783	0.52454	0.02372	0.5632
Sum Sq	85.0174	146.641	53.1051	140.494	29.2889	615.383	96.28
Dev.	111.708	56.2298	128.901	18.3843	134.770	212.279	130.22

Where;-

LN_EE is Log of External Equity

LN_FS is Log of Firm Size

LN_GR is Log of Growth

LN_IE is Log of Internal Equity

LN_STD is Log of Short Term Debt

LN_TF is Log of Total Finance

LN_LTD is Log of Long Term Debt

From the above statistics, Firm Size has the highest mean of 3.41026 followed by the mean of internal equity 3.267343, external equity of 1.97715, then growth as mediating variable with 1.235002 and short term debt with 0.681138 mean averages indicating how different variables are affected by growth. Using ordinary least squares method for a normally distributed variable, skewness coefficient = 0 and K = kurtosis coefficient = 3. Therefore, the JB test of normality is a test of the joint hypothesis that S and K are 0 and 3, respectively. In that case the value of the JB statistic is expected to be 0. Under the null hypothesis that the residuals are normally distributed, Jarque and Bera showed that asymptotically (i.e., in large samples) the JB statistic which should follow the chi-square distribution with 2 df. If the computed P value of the JB statistic in an application is sufficiently low, which will happen if the value of the statistic is very different from 0, one can reject the hypothesis that the residuals are normally distributed. But if the P

value is reasonably high, which will happen if the value of the statistic is close to zero, we do not reject the normality assumption.

In our case above, internal equity and short term debts are slightly close to zero with 1.606644 and 1.290444 respectively and so we do not reject the normality assumption. The joint hypothesis between skewness and kurtosis has helped us to establish the P value of Jarque Bera. In all the variables, internal equity has indicated strong acceptance or normality compared to other variables of which the skewness is 0.04292 and kurtosis is 2.05694. In Kenya, pension funds contribute to an estimated 68% of the total income of retirees Kakwani *et al*, and RBA report, (2017) indicates that these funds control wealth estimated at Kshs. 397 billion, the equivalent of 30% of the country's GDP and so these residual values are a strong acceptance or normality for the study. In maximum statistic, the maximum likelihood (ML) estimators and the OLS estimators of the regression coefficients of the three variable model are identical and they must be similar for them to be (BLUE) this observation is perfectly reflected in the analysis. An average of 4 was observed across all the variables apart from short term debt. The maximum power of a test is 1 and the minimum is 0. The closer of the power of a test is to zero, the worse is that test, and the closer it is to 1, the more powerful is that test. What these mean essentially is that there is no single most powerful test of autocorrelation even in this study.

Since standard deviation does not have specific number but it must measure the deviations between the residual values and the best line of fit. Variables are also negatively skewed to the left apart from the internal equity. The kurtosis value of internal equity with 2.866185 is also near 3, while long term debt is more than 3 with 5.319263 which is not normal distribution and Internal equity, growth and short term debt are not so close to 3.

Test for assumption of parametric tests

This section conducts tests for the assumptions made by parametric tests. They include: linearity, normality, homogeneity of variance and no multicollinearity.

Correlation

The assumption for linearity was to explore the relationship between the predictors and the outcome variable. For this assumption to hold, the relationship should be linear. As indicated in Table 4.3, the relationship is linear between the growth of the firms and the various predictors examined. There was a positive relationship between external equity and growth in pension fund, a negative relationship was exhibited between firm size and growth in pension funds, internal equity had a positive relationship with growth in pension, short term debt exhibited a positive relationship with growth in pension funds, total finance had a positive relationship with growth in pension funds.

Correlation Matrix

	<i>LN_STD</i>	<i>LN_LTD</i>	<i>LN_EE</i>	<i>LN_IE</i>	<i>LN_GROWTH</i>	<i>LN_FS</i>	<i>LN_TF</i>
<i>LN_STD</i>	1						
<i>LN_LTD</i>	0.639383	1					
<i>LN_EE</i>	0.040237	0.165939	1				
<i>LN_IE</i>	0.085929	0.117069	-0.12354	1			
<i>LN_GROWTH</i>	-0.3324	-0.45989	0.072351	0.109484	1		
<i>LN_FS</i>	0.020659	-0.09984	-0.08038	-0.5452	-0.17248	1	
<i>LN_TF</i>	-0.48399	-0.28672	0.069942	0.121331	0.389236	-0.3419	1

Tests for Normality

For a linear regression, it is assumed that the error terms (residuals) has to be normally distributed. To check this assumption, the null hypothesis was that the errors are normally distributed and the alternative hypothesis is that the errors are not normally distributed. As indicated the p-value is 0.066 which is greater than 0.05 and hence we fail to reject the null hypothesis. Therefore, the normality assumption was not violated. For a linear regression, it is

assumed that the error terms (residuals) has to be normally distributed. The findings revealed that the error terms were normally distributed as indicated by the points lying on the straight diagonal line. This was a manifestation that there is strong correlation between the identified independent and dependent variables hence there is high degree of financial structure affecting the growth of pension funds as alluded by the study conducted by Catalan, Impavido, and Musalem (2010) who argued that with their stake in illiquid pension funds, households will increase their liquidity by holding deposits in the banking sector, open end mutual funds, and traded securities, at the expense of other illiquid assets such as real estate or non-traded financial instruments. Such behavior will also stimulate financial market development.

Correlation Matrix

	Statistic	df	Sig.
Standardized Residual	.130	43	.066

Pension fund activities may induce capital and financial market development through their substituting and complementary roles with other financial institutions, specifically commercial and investment banks. As competing intermediaries for household savings and corporate financing as noted by Impavido, Musalem, and Tressel, (2012). Pension funds foster competition and may improve the efficiency of the loan and primary securities markets. Some studies have sought to quantify the impacts of pension funds on capital markets, but the literature is still relatively sparse.

Catalan, Impavido, and Musalem (2012) conducted Granger causality tests on 14 OECD countries and 5 developing countries, separately, to see the causal relationship between stock market development and contractual savings institutions including pension funds. They conclude that contractual savings predominantly Granger cause stock market development. To a lesser extent, the causality happens simultaneously between them, and very slightly, the causality runs

the other direction. Even though they find such causal evidence, their estimation might suffer from the small number of time period observations.

Homoscedasticity test

Homoscedasticity test refers to constancy of variance. For any linear regression analysis, the error terms are assumed to be the same across all values of the independent variables. This was achieved through plotting a residual scatter plot for predicted scores and standardized residual values also known as errors of prediction. This assumption is met if the scores are randomly scattered about a horizontal line. This indicated that the homoscedasticity assumption test was not violated. This has been confirmed from the findings by the fact that there is positive relationships between the independent and the dependant variables leading to the effect of financial structure on the growth of pension funds in Kenya.

DISCUSSIONS AND CONCLUSIONS

The study recommends that RBA should ensure all schemes, particularly those with segregated investments, have up to date investment policies and that the strategic financial structure is included within the investment policy. This ensures that funds are invested wisely and profitably as per the laid policies. Further the study recommends compulsory savings for all in employment. Though compulsory, the accounts should be treated as individual accounts, where the individual makes the decision on where he would want to save in. To include individuals in the informal sector, there is a need to introduce flexible schemes that would allow members to make periodic payments other than the continued monthly payments in formal employment and to identify new investment options with higher returns.

Finally the study recommends undertaking of a comprehensive reform of the type required to achieve the proposed objectives, that requires a co-ordinated strategy and significant amount of ground work in terms of evaluation of policy and implementation choices extending to enactment of enabling legislation, building of institutional capacity and sensitization of approved reform programmes. It will also be critical to prioritize the reform objectives in implementing the reforms and the pension fund managers must also be in a position to identify other variables besides the ones this study has identified so as to improve its significance.

CONCLUSION

As a result of pension system reform, pension fund assets are growing rapidly and are increasingly providing a source of investment funds to their domestic financial markets. Pension fund investments are expected to increase the availability of long-term funds, enhance competition, induce financial innovation, and improve corporate governance. To the extent that such financial market improvements are related to financial market size and activity, our study confirms only to an extent the existence of positive impacts from pension funds on the development of stock markets and private bond markets. Overall, we find that the impact of pension funds on capital market development differs significantly according to country's level of financial development. In the short run dynamics of capital markets, the countries with well-developed financial systems generally can expect to enjoy significant benefits from the growth of their pension funds, while the evidence of such benefits is much less clear for countries with 'low' financial development.

These findings suggest that as a whole, Pension funds fulfill an important role in the economy by channeling the current retirement savings into investments in financial assets, and subsequently transforming these assets into a predictable post-employment income. Since it is the pension

schemes that happen to be the majorly available structures for saving for retirement, it is important that we evaluate its role in an economy. According to the research findings there is impulse response tests similar to the one derived from the Vector-Error-Correction Model underlying the Johansen results. The underlying rationale behind impulse responses is that a shock to one variable not only directly affects the variable itself, but also is transmitted to all of other endogenous variables through the dynamic structure of the VECM. In our example, it implies that pension fund assets can directly impact on firm size, but it might also affect debts and equity, which in turn induces effects on growth. Results are based on the Pesaran and Shin (2018) generalised response approach. Technically, it constructs an orthogonal set of innovations that does not depend on the VAR ordering.

Consequently the financial structure of Kenyan economy is yet to be established so that it can accommodate the desired growth in the pension fund domain. This has been necessitated by lack of sufficient studies and empirical evidence which can beef studies related to the financial structures. Such studies and findings may provide investment options both to the retirees and the pension fund management. The study further concludes that Pension funds with more members are expected to have a higher value in contributions and assets compared with smaller ones. The funds therefore receive sizable contributions that may result in inefficiency in investments.

Thus the larger pension funds have large sums of money at their disposal that they tend to invest in less profitable ventures as opposed to smaller pension funds with smaller financial resources that force them to allocate the money judiciously to the most profitable opportunities. Finally the study concludes that smaller pension funds are more financially efficient than larger ones since the bigger have large sums of money which they may end up inefficiently investing. Smaller pension funds have smaller financial resources which they have to invest more judiciously.

Furthermore, larger pension funds with huge investments in the stock market are exposed to more risk and volatility compared with smaller funds. Baskin and Feldman, (2011).

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