FINAL REPORT

RESEARCH REPORT

FOR

IMPACT OF MONETARY AND FISCAL POLICIES ON PENSION SCHEMES INVESTMENTS IN KENYA

By

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1.0 INTRODUCTION AND BACKGROUND

1.1 BACKGROUND

The Retirement Benefits Authority (RBA) is a statutory body established in 1997 under the Retirement Benefits Act. Its establishment filled a regulatory vacuum that existed in the country. Before its enactment, retirement benefits schemes in Kenya were regulated by fragmented legislations, mostly the trust and income tax laws. Establishment of the Authority, therefore, was to facilitate industry reform and, most importantly, ensure that members' and sponsors' interests are protected. Its mandate as specified in the legislation include:

1) Regulation and supervision of the establishment and management of retirement benefits schemes.
2) Protection of the interest of members and sponsors of retirement benefits sector.
3) Promotion of the development of the retirement benefits sector.
4) Giving advice to the Minister for Finance on the national policy to be followed with regard to the retirement benefits industry.
5) Implementation of all government policies relating to the retirement benefits industry.

The retirement benefits sector in Kenya has grown tremendously both in membership and assets. Currently, there are over 1200 registered schemes with over 1.7 million members. In terms of assets, the industry has grown both in absolute terms and as a ratio of GDP. Total industry assets has increased more than tenfold from about Kshs. 50 billion in the year 2000 to stand at Kshs.696.68 billion in December 2013. In 2012, the industry assets grew by 27 percent to reach at Kshs 548.7. As a share of GDP, the ratio improved from 11.5 percent in 2002 to approximately 16 percent in 2013. As at December 2015, the assets of the industry stood at Kshs.814.11 billion. This was a 3.3 percent growth from 788.15 Billion reported in December 2014 (RBA 2016). The improved performance of the industry is largely attributable to improved regulatory environment and prudent management of the scheme funds. The Authority, in addition, has also over the period initiated various reforms and initiatives geared towards the promotion and development of the sector. These include publicity and awareness campaigns

aimed at enhancing pension coverage still at a low of 15 percent of the working population and implementation of service delivery charter and the quality management system (QMS) to enhance service delivery to the industry.

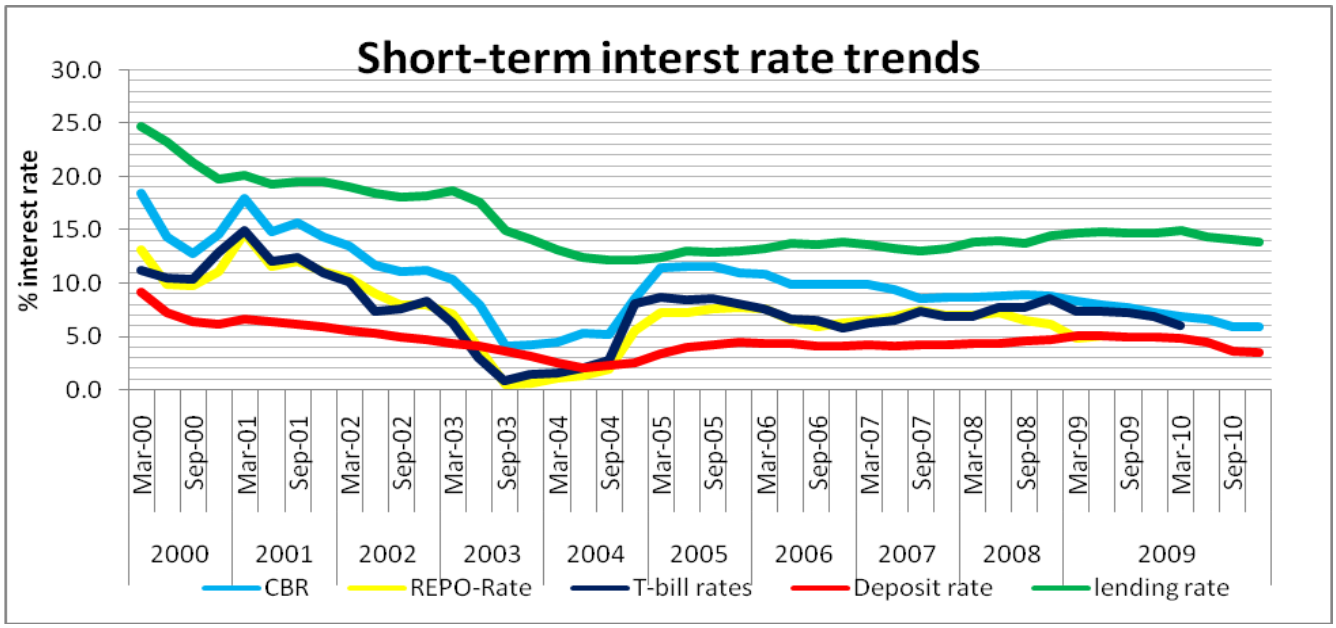
However, the RBA is aware that the industry does not operate in isolation. The economic environment that the industry finds itself in is primarily defined by both monetary and fiscal policies that definitely impact on its performance. The schemes provide investment policies/strategies to RBA as guided by the investment guidelines in terms of providing limits to the varying assets classes. It is nonetheless important to clearly understand the macroeconomic environment in which the retirement benefits schemes operate. It is desirable to understand how the two macroeconomic policies, namely monetary and fiscal, impact the performance of the investments of the pension schemes.

Monetary and fiscal policy stance can be captured by various indicators. The monetary policy indicators include short term interest rates e.g repo rates, T-bill rates, T-bond rate and Central Bank rates. They also include changes in reserve ratio and monetary aggregates in the domestic economy. Fiscal policy stance indicators include fiscal deficit, total revenue, total expenditure and public debt.

Monetary policy in Kenya is based on stabilizing prices that includes inflation to a single digit level. The major instruments used by the central Bank of Kenya are repo rate (open market operations) and Central Bank rate. Short term interest rates changes are supposed to be reflected on the long term interest rates .e.g. the lending rate and the deposit rate. Figure 1.0 below highlights the trend of short term and long term interest rates in Kenya. A keen analysis reveals that between 2000 and 2004, short term interest rates tend to have taken a downward trend which suggests a loose monetary policy stance. Subsequently, the long term interest rates seem to follow a similar path.

However, in the subsequent period, long term interest rates remain relatively stationary irrespective of the changing short term rates. This suggest that returns on financial assets like government securities and bank deposits may not have been much affected by monetary policy stance; however, the study analyzed specific monetary policy incidents and relate to investment decisions by the pension schemes.

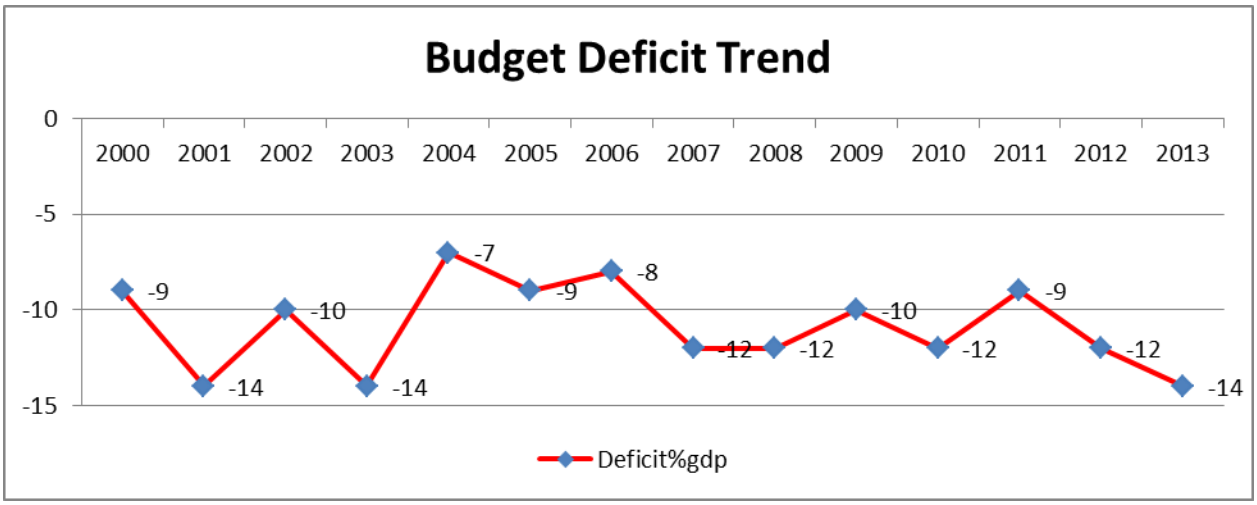
Figure 1.0: Short term interest rate trends



Source: CBK data, Authors computation

Fiscal policy, specifically tax revenue and expenditure have evolved over time in Kenya. Generally, expenditure of the government exceeds the revenue generated leading to episodes of persistent fiscal deficit. The trend is captured in figure 2.0 below where the fiscal deficit has been widening reaching 14% of the GDP by 2013.

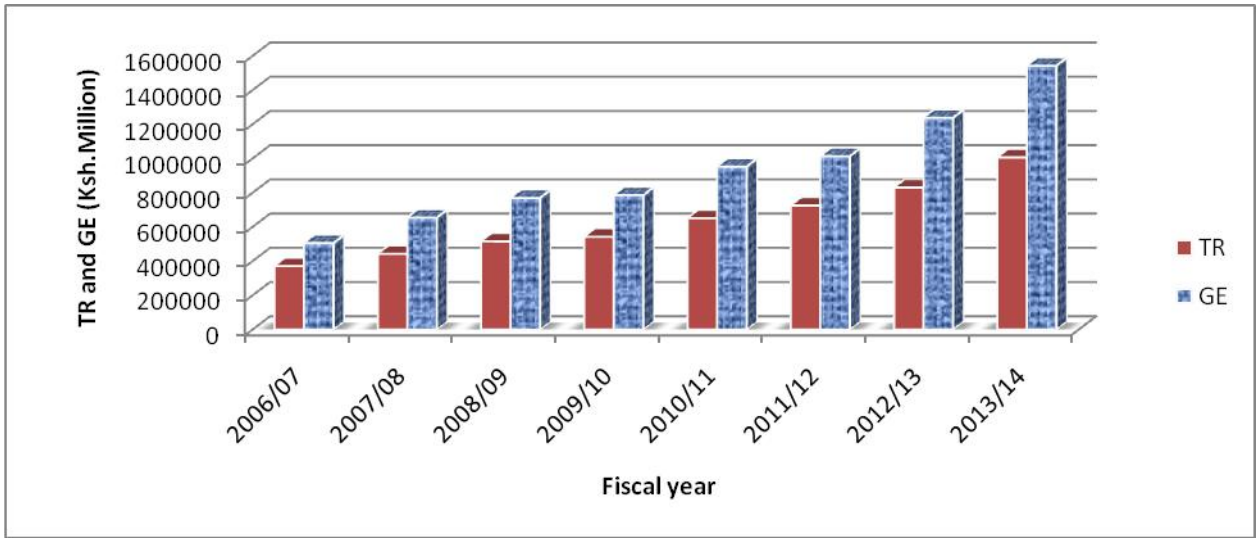
Figure 2.0: Fiscal deficit



Source: Data from KNBS. Author's computation

Over time several tax reforms have been undertaken leading to increase in tax revenue. Figure 3.0 shows that tax revenue has sharply increased from Ksh 371,989.1 million in 2006/07 to Kshs 1,006,862 million in 2013/14.

Figure 3.0 Nominal total revenue and government expenditure (Ksh Million)



Source: Economic suvey (2012, 2013,2014)

The increase in tax revenue is attributed to significant increase in income revenue, trade tax revenue, VAT and excise tax revenue over the same period. Substantial growth in exercise duty growth is in the wake of tax amnesty and a waiver of interest on all tax arrears in 2004.The tax reforms coupled with the revenue evolution process in Kenya have assisted greatly in improving tax revenue collection and administration.

This study is organised such that the chapter one covers the introduction, terms of reference and their interpretation. Chapter two follows with the policy episodes and the performance in the investments for pension schemes. Literature review is covered in chapter three while the analytical framework and the empirical model are in chapter four. The research findings are in chapter five while chapter six ends with conclusion and policy recommendations.

1.2 TERMS OF REFERENCE

The contract between KIPPRA and RBA has clearly stipulated the terms of reference for this assignment. However, the scope of work may not be limited to the specified terms of reference, stated here below.

1. To establish the different episodes of Monetary and fiscal policies implemented since 2000.
2. Determine how the different monetary and fiscal policy regimes have impacted pension schemes' Investment plans and strategies over the period.
3. Provide recommendations as to whether the Investment Guidelines need revision in line with changes in monetary and fiscal policies to ensure their positive impacts on schemes investment plans.
4. Provide policy recommendations on how schemes investments can be improved in the future under different monetary and fiscal policy regimes that are foreseeable in the future.

1.3 INTERPRETATION OF THE TERMS OF REFERENCE

In view of the above TORs, KIPPRA has conducted an empirical enquiry on impact of fiscal and monetary policies on pension scheme investment performance. Therefore this final report by KIPPRA has the following.

i. Monetary and fiscal policy episodes as reviewed from various budget policy statements, Central Bank of Kenya monthly, quarterly and annual reports. The research team identified various monetary policy and fiscal policy specific episodes implemented since year 2000 from these reports.
ii. The analysis of pension scheme investment performance. The study relied on data provided by RBA on the trends and volume of various investments by the schemes, their proportions and returns for the period 2000 to 2015. The various assets invested in are government securities, quoted equities, immovable property, guaranteed funds, fixed

income, fixed deposits, off shores, cash and unquoted equities. The study used an econometric model to assess the effect of monetary and fiscal policy indicators on the existing investments schemes.

iii. The investment guidelines. The study benefited from the survey conducted on pension schemes that revealed decision patterns on investment and suggestions on changes of the investment guidelines.

iv. Policy recommendations have been provided on how to improve the investment decision with the changes in policy environment in the future.

2.0 POLICY EPISODES AND INVESTMENT PERFORMANCE

2.1 MONETARY POLICY

In Kenya, the mandate of monetary policy is vested in the Central Bank of Kenya under the overall guidance of the National treasury. The main objective of monetary policy has remained to be the achievement of low and stable inflation to foster economic growth. Currently, the CBK's Monetary Policy Committee (MPC) has been contributing a lot in the monetary policy decision making. The MPC performs its advisory functions through holding regular meetings, typically, at least once every two months. Since its establishment in 1966, the CBK has essentially used a monetary-targeting framework to pursue the inflation objective. The use of this monetary policy strategy is based on the presumption that the behavior of monetary aggregates has a major bearing on the performance of the economy, particularly on inflation (Kinyua, 2000). The performance of the monetary policy has been aimed at promoting economic growth and therefore different policy action has been implemented every year to contain inflation at a single digit level. The key instruments in the monetary policy are interest rate, Central Bank rate (CBR), repo rate, cash ratio, OMO and money supply.

2.1.1 Expansionary Monetary policy (2000 – 2004)

The monetary program in 2000 and 2001 aimed at supporting a 2.6 per cent economic growth and containing inflation within the 5 per cent target. The CBK utilized prudent liquidity management and maintained the underlying inflation within the target. Consequently, the underlying month-on-month inflation declined from 6.6% in July 2001 to 2.9% in June 2002. Stability was also observed in the shilling exchange rate and in the key nominal interest rates. The 91-days Treasury bill rate increased in the three months to September 2001 but resumed the declining trend thereafter through to June 2002. The decline reflected excess liquidity in the banking system. The Government, on the other hand, reduced its weekly borrowing from the domestic economy progressively.

In 2003 the monetary stance continued to aim at containing inflation within 5 per cent and therefore adopted a loose monetary policy stance. The monetary expansion was implemented using a reserve money program. This was largely driven by bank credit growth, an overly large

broad money growth, M3X, which led to a revision of the reserve money program. Reserve money growth accelerated by 11.2 per cent as compared to the 6.6 per cent target. Broad money supply (M3X) expanded by 10.9 per cent. CBK successfully contained the underlying inflation below 5 per cent as the rate stood at 3.2 per cent. The overall inflation, however, picked up to 14.9 per cent in May 2003 from 6. 5 per cent in January 2003, with upsurge attributed to increases in both food and fuel prices.

During the FY 2003/04, monetary policy was formulated within the context of economic recovery from stagnation in 2002 and 2003, under the poverty reduction growth facility (PRGF) program. The monetary program focused on recovery in GDP growth from 1.9 per cent in 2003 to 2.9 per cent in the fiscal year 2003/04. CBK lowered the cash ratio to 6 per cent from 10 per cent to allow more credit extension in support of the expected recovery. This resulted to economic growth of 1.9 per cent in 2003 and 2.6 per cent in 2004. Broad money supply (M3X), increased rapidly by 12.9 per cent while reserve money decelerated to an annual growth of 5.5 per cent. Inflation was higher during the year ending June 2004 compared to same period in 2003. There was a general decline in short-term interest rates largely due to reduced government domestic borrowing.

2.1.2 Recovery period (2005 – 2008)

CBK pursued stabilizing inflation at 5 per cent and therefore targeted money supply (M3X), to gradually fall to 7.5 per cent and reserve money to 3.8 per cent. In line with these growths, credit to the private sector was expected to grow by 8.9 per cent by the end of June 2005. Open market operation (OMO) was used as the main monetary policy instrument in pursuit of the inflation objective. The cash ratio requirement was maintained at 6 per cent throughout the period. However, broad money supply grew by 11.3 per cent which missed the target of 7.5 per cent.

The drought relief operation by the Government in 2006 resulted in accumulation of foreign exchange and liquidity leakages which occasioned the revision of the monetary policy program. Money supply was programmed to expand by 10 percent, while reserve money was to increase by 7.6 percent. OMO was used as the main monetary policy instrument complemented by cash ratio requirement which was maintained at 6 percent. The Central Bank Rate (CBR) that became

effective on 2nd June 2006 was initially set at 9.75 percent and reviewed upwards to 10 percent effective August 2, 2006. The CBR remained unchanged at 10 percent until June 2007 when the Monetary Policy Advisory Committee (MPAC) advised that it be adjusted downwards to 8.5 percent to bring it in line with other short term interest rates. Reserve money increased by 13.9 percent in 2006 thereby missing the target. Overall inflation peaked at 19.1 percent in March 2006 due to food shortages but eased shortly thereafter to 10.9 percent in June 2006. The banking system credit to the domestic economy grew by 12.8 percent in 2006.

There was a marked improved performance in all the key sectors of the economy for 2006 and 2007 with an economic growth of 6.1 per cent and 7.1 per cent respectively. However, overall inflation was negatively affected by high international oil prices and unstable food prices. Accordingly, the CBK set out the path for both reserve money and money supply (M3) to grow by 14.3 percent and 13.1 percent, respectively. Open market operation (OMO) was the main monetary policy instrument, complemented by cash ratio requirement which was maintained at 6 percent throughout the year. In addition, CBK used the Central Bank Rate (CBR) to signal the direction and stance of monetary policy. The average interest rate on the 91-day Treasury bill declined marginally from 6.6 percent in 2006 to 6.5 percent in 2007. The average interest rate on the 182-day Treasury bill declined from 7.3 percent to 7.2 percent over the same period.

In 2008, money supply (M3) and reserve money were targeted to grow by 16.9 percent and 18.2 percent respectively. Money supply growth in 2008 was 19.3 percent while banking system credit to the domestic economy grew by 17.5 percent. Credit to government, however, declined by 15.1 percent while credit to the private sector accelerated to 28.9 percent. The reserve money grew by 19.3 percent in 2008 which was higher than the 18.2 percent target. Average annual overall inflation was 18.5 percent. In June 2008 the MPC adjusted CBR to 9.00 percent. As a result the 91–day Treasury bill rate was 7.73 percent, average interbank rate was 7.79 percent, Repo rate was 7.61 percent, and the average 182-day Treasury bill rate was 8.84 percent. The increase in short term interest rates during the year reflected tight liquidity in the money market. The commercial banks' overall weighted average lending rate was 14.1 percent and the overall weighted average deposit rate was 4.48 percent.

2.1.3 First Medium Term Plan period (2009 – 2012): Loose to Tight policy episode

CBK targeted Money supply, M3, to grow by 17.1 per cent while reserve money to grow by 16.2 percent in 2009. Cash reserve ratio was reduced from 6 percent to 5 percent to enhance commercial banks capacity to lend to the private sector. The CBR was reduced to 8 per cent to encourage banks to lower lending rates. During the year, money supply, M3, declined below the target largely due to economic slowdown as a result of the lagged effect of the 2008 post election violence on production. The short term interest rates (that is the repo rate, the interbank rate and the 91 days and 182 days treasury bill rates) positively reflected the monetary policy conditions and trended downwards during the period. However, commercial bank lending rates trended upwards mainly due to perceived risks in the economy. Credit to the domestic economy grew by 21.7 percent in 2009 due to increased credit to the government which more than offset decline in the credit to private and other public sector. The 12 month overall inflation declined largely attributed to the fading effects of the post election crisis and falling prices of seasonal food items and petroleum products. Average annual inflation, however, increased reflecting effects of high international crude oil prices and drought experienced in the first quarter of 2009. Consequently, the monetary policy objective of maintaining inflation at 5.0 percent was not realized.

A number of monetary policy actions were undertaken in 2010 to support economic recovery. This included allowing money supply M3 and reserve money to grow by 16.5 and 13.4 percent, respectively, reduction of CBR by 125 basis points to signal banks to lower lending rates to the private sector, reduction of CRR on deposits held with commercial banks to 4.5 percent and lowering of the reserve requirements down to 4.5 percent to enhance capacity of commercial banks in providing credit to the private sector. During the period, money supply, M3, grew by 26.2 per cent exceeding the target for the year. Domestic credit expanded by 26 percent with credit to government increasing while uptake by the private sector decelerating. Reserve money increased following growth in bank reserves and currency outside banks. The short-term rates trended downwards following the reduction of the CBR. Average lending rates also declined marginally.

In 2011 inflation was projected to decline to 6.4 percent and the real GDP was projected to grow by 5.4 percent. To achieve these, money supply, M3, and reserve money were targeted to grow

by 16.8 percent and 2.4 percent, respectively. During the first half of the year, CBK adopted a loose monetary policy stance that encouraged lowering of interest rates in order to support economic growth through provision of adequate credit to the domestic economy particularly the private sector. Money supply, M3, grew at 15.1 per cent falling short of the target. The reserve money however, experienced an expansion of 4.3 per cent. Following the tightening of monetary policy the interbank rate trended upwards resulting into increased cost of accessing funds. The deposit rates for all maturities declined.

The year 2012 was characterized by inflationary pressures and turbulence in the foreign exchange market due to the impact of prolonged drought experienced in 2011 and the political crises in the Middle East and North Africa. The Kenyan shilling weakened gradually due to the pressured in the global financial market and the changes in the fundamentals with respect to the Balance of Payments (BoP) particularly the increase in the current account deficit. CBK adopted tighter monetary policy stance and regulatory measures in the exchange market. The Kenya Shilling appreciated by 1.8 percent to the US dollar to an exchange rate of Ksh 84.8. Overall inflation eased to 13.06 per cent while the exchange rate stabilized. Growth of M3 was within the target and reserve money grew by 17.6 percent.

2.1.4 Second Medium Term Plan period (2013 – 2015): Tight monetary policy episode

In 2013 money supply, M3, and reserve money were targeted to grow by 15.8 percent and 9.8 percent, respectively. Growth in M3, decreased to 14.2 percent while domestic credit grew by 14.9 per cent. Government net credit increased by 27.4 per cent and private sector credit increased by 12.7 per cent. The reserve money also increased by 11.7 per cent. The movements in the short-term interest rates generally tracked the CBR downwards as expected. Average commercial banks' lending rate declined from 20.30 per cent to 16.97 while average commercial banks' deposit rate dropped from 7.88 per cent to 6.65 per cent.

Money supply, M3, and reserve money were targeted to grow by 15.0 percent and 12.3 percent, respectively in 2014. The Central Bank Rate (CBR) was the main instrument used to signal the direction of monetary policy stance. The MPC held the CBR at 8.5 per cent in order to continue anchoring inflationary expectations and price stability. M3, increased to 18.2 per cent well above

the projected target of 15.0 per cent whereas reserve money increased by 12.6 per cent. Domestic credit grew by 14.6 per cent, net credit to the Government decreased by 25.4 percent while private sector credit increased by 25.8 per cent. The average interbank rate and repo rate decreased during the year indicating improved market liquidity. The 91-day T-Bill rate and 182-day T-Bill rate increased reflecting governments increased borrowing requirements. Lending rates remained fairly stable while average commercial banks' deposit rate decreased marginally. Twelve month overall inflation remained within the target bound largely on account of food and fuel inflation.

In 2015 the annual average inflation was 6.58 percent which was within the target for the year. The 91 day Treasury Bill rate stabilized at 9.81 per cent which was in line with the CBR at 11.5 percent. It is notable that money supply, M3, increased by 14.1 percent which was within the target for the year. Private sector credit also increased by 18.1 percent while exchange rate of Kshs to the US dollar stabilized at Kshs 98.26. The increase in the lending rate, the 91 day Treasury bill rate, Repo rate and the interbank rate was as a result of tight monetary policy.

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2.2 FISCAL POLICY

The function of fiscal policy is domiciled in the Ministry of Finance currently referred to as The National Treasury. The main objective is to have prudent expenditure management and adherence to fiscal policy principles vested in the Public Finance Management Act of 2012 (PFM 2012). The budget is the main tool of analysis and the main objective is to support economic growth and overall economic development for Kenya.

2.2.1 Tight fiscal policy episode (2000 – 2004)

The Kenyan economy resumed a positive growth in midst of considerable adversity in 2001. Real GDP was recorded at 1.2 percent in 2001 compared to a negative 0.2 percent in the previous year. The economy's resilience and dynamism was demonstrated by the fact that the marginal economic upturn occurred at a time of freeze on aid flows by development partners, on which the 2001 budget had heavily depended on. This was coupled with low commodity prices and at the same time the country had suffered a decline in both savings and credit and there was also political uncertainty about the pending national elections that had continued to stifle investor confidence. However, revenues were below target by Ksh. 5.3 billion due to lower level of activity than originally anticipated, while expenditures declined as a result of stringent expenditure controls. Kenya's growth performance was characterized by low and downward trends in savings, which lead to decline in private and public investments and high consumption, both public and private.

The year 2001/02, changes in budgetary, execution and monitoring were undertaken in order to maximize returns from public expenditure. The national treasury introduced a new format of the vote book to strengthen cash-flow planning and management. The government also created separate bank accounts for each line ministry (vote) in each district to improve budget implementation the district level. Measures were taken in several areas to improve fiscal transparency including strengthening the office of the Auditor-General and the office of the Controller of budget. Although the government maintained a tight fiscal stance and implemented both expenditure control and revenue-enhancing measures, the budget outcome deteriorated sharply. Revenue performance remained poor, with the total revenue as a percentage of GDP

dropping from 26.8 percent in 2000/01 to 22.6 percent in 2001/02. This was attributed to slow economic growth partly due to continued suspension of the international assistance to Kenya.

Kenya's political developments in the year 2002 significantly impacted on the Government fiscal operations over the 2002/03 financial year following the peaceful political transition to the new NARC Government. It resulted to expansionary fiscal position which worsened fiscal deficit as high domestic debt accounting for 11.4 percent of GDP remained a major challenge for fiscal stability. This reflected an under performance in tax revenue associated with low than expected growth. The introduction of free primary school education program, review of the constitution, general elections and adjustments in emoluments in parts of the public sector by the new Government were the major changes in the structure of spending. The government sought to enhance revenue through tax administration measures, through personal income tax by taxing housing allowances on the upper income tax bracket. The VAT regulations were also amended in order to expand the VAT base, by making it compulsory for taxpayers to keep stock records. This led to increased tax collection, accounting for 78.4 percent of total Government receipts.

Budgetary operations improved in 2003/04 reflected in a smaller deficit as a result of improved tax administration. Also, the Government restrained increases in expenditure and was able to mobilize more external grants as a result of resumption of IMF and World Bank programme support. However, total expenditure increase was reflected only in the recurrent expenditure, which rose by Ksh. 12.6 billion. This was as a result of increases in salaries and wages following adjustment of emoluments to various cadres of central Government employees.

In 2004, the government revised the macroeconomic policy framework initially envisaged in Economic Recovery Strategy (ERS). The revision was called for by the slumping external development assistance, deteriorating terms of trade and the capacity constraints. The then revised framework underscored consolidation and strengthening of macroeconomic performance via a strong emphasis on boosting national savings to increase national investments.

2.2.2 Recovery policy episode (2005 – 2008)

The government's medium-term fiscal strategy was built around three pillars. The first was a revenue policy framework that was aimed at maintaining the domestic revenue beyond 21 percent of the GDP. The second pillar was the expenditure strategy which gradually reduced the level of expenditure to GDP, allowing for expansion in poverty reduction programmes and capital expenditure. The third pillar was reducing budget deficits to less than 3 percent of the GDP. The authorities were heavily relying on increasing revenue collection by improving the quality of tax administration as opposed to raising tax rates in order to attain the revenue objective. The government faced several challenges during the implementation of the fiscal strategy which included reducing the mismatch between budgeted allocations and the actual expenditures, reduction of high civil service wage bill which had risen to 8 percent of GDP and enhancing the low absorptive capacity in the development part of the budget and cutting down on the recurrent expenditures in the development budget. Other challenges were reducing the level of transfer to public enterprises, providing for the adequate financial resources for key programs and reducing the high levels of expenditure arrears and the number of stagnated projects.

In 2004/05 there was progress towards fiscal objectives that included that included computerizing operations in Kenya Revenue Authority (KRA), integration of the Income Tax and VAT Department and simplified customs processing procedures for imports and exports. Other progress included KRA administrative reforms that included curtailing tax exemptions and the introduction of Electronic Tax Registers.

Following the introduction of these reforms, the domestic revenue to GDP increased and this tightened the fiscal stance which enabled net repayment of the domestic debt to the banking sector. The government continued to pursue prudent fiscal policies over the medium term, focusing strongly on revenue collection underpinned by deepening tax administration reforms and modernization. There were plans to contain the growth of total expenditures to create fiscal space to shift resource from recurrent to capital expenditures which was achieved in 2006/07. This was consistent with the Government fiscal policy objective of shifting resources towards development outlays in order to promote public investment to sustain economic recovery.

There was a budget deficit in operations in 2007/08 as a result of increased expenditure on road infrastructure development, outlays for improved terms of service for civil servants, free secondary school education, domestic debt service and resettlement of internally displaced people following the post poll crisis in December 2007. More resources were allocated to infrastructure development that created an environment conducive for doing business and promote investment to achieve and sustain high economic growth rates. Also, there was improved revenue performance due to improved economic growth, implementation of tax administration reforms which increases efficiency and compliance.

2.2.3 First Medium Term Plan Period (2009 -2012): Tight Policy Period

The Government shifted resources significantly towards the implementation of the Kenya's Vision 2030 priority being economic and social sectors and to contain the growth of domestic debt to sustainable levels. In 2008/09 Kenya's fiscal policy had adhered to country's first Medium Plan which linked policy, planning and budgetary framework and was intended to strengthen macroeconomic management. It also aimed at reducing the growth of the wage bill to about 6.7 percent of GDP in the medium term through public-management reforms.

In 2011/12, the share of total revenue and grants in GDP decreased to 22.3 percent, and overall target missed by 13.3 percent with the shortfall attributed to decline in virtually all the sources, following underperformance in the economy. The year 2012/13 the government faced challenges in implementation of fiscal policy, as revenue underperformed as a result of slow economic activity largely due to the general election in 2013 and delayed enactment of the VAT bill. Also, there was increased pressure for increased personnel expenditures through higher wages, new constitutional offices and implementation of the devolution process.

2.2.4 Second Medium Term Plan Period (2013 -2015) Expansionary Policy episode

The year 2013/14 saw the Kenya budget aligned fully to the second Medium Term Plan (2013-17) and program budgeting was made compulsory by the new PFM Act 2012 and the government ministries were expected to prepare a program based budget henceforth. Since March 2013, budgeting was also devolved to the 47 County governments where they were to consolidate and share the individual budgets with the National Treasury. The constitution

provides that at least 15% of the national revenue which shall be shared amongst the 47 Counties. Government also implemented an Integrated Finance Management System (IFMIS) that initiated the process of out-based expenditure program to complement the MTEF process.

In 2015/16, total revenue collection was 18.6% of GDP against total expenditure of 27.4% of GDP. This led to a fiscal deficit, including grants on a cash basis of 7.19% of GDP. This deficit was attributed to expenditure side, which saw massive investment in infrastructure projects, large public wage bill, and implementation of the devolution process. This deficit was largely financed from foreign sources.

The county governments spent Ksh295.30 billion, consisting of Ksh 191.85 billion for recurrent (65%) and Ksh 103.45 billion (35%) for development. This compares to Ksh 258 billion of which recurrent was Ksh 167.56 billion (64.9%) and development Ksh90.44 billion (35%) in 2014/15. Overall utilization of funds, recurrent absorption rate was 91.9 percent of annual recurrent budget in 2015/16, and development absorption rate was 65.2 percent of annual development budget (OCB, Various issues). Though expenditure on development improved in 2015/16, recurrent costs need to be substantially reduced to free resources to other areas. However, counties complied with the requirement in the PFM Act2012 that at least 30 percent of budgets be allocated to development expenditure.

2.3 INVESTMENT PERFORMANCE

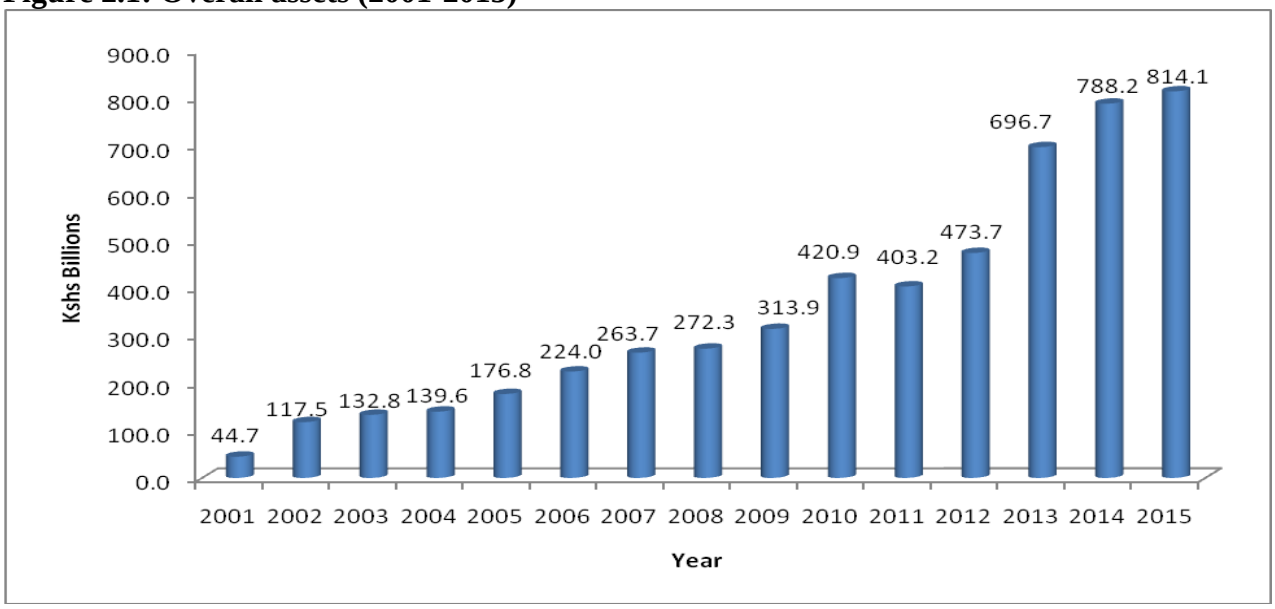
The RBA Act (2014) allows the pension schemes to invest funds of the schemes. However, a prudent investment policy is mandatory for every scheme to guide on the investments in order to maintain the capital funds of the scheme and secure market rates of returns on such investment. The scheme's investment policy is implemented subject to regulations made by the Cabinet Secretary for The National Treasury. The Retirement Benefits (Forms and Fees) (Amendment) Regulations, 2016 (Annex 1) lists the different categories of assets that the schemes are allowed to invest in, and the maximum allowed. The regulations allows for 14 categories of assets, with only 6 categories allowed a maximum of 30% and above of aggregate market value of total assets of scheme.

These 6 categories of assets are guaranteed funds (100%), East African Community Government Securities and infrastructure bonds (90 or 100%), preference shares and ordinary shares of companies listed in East African community security exchanges (70%), all listed real estate investment trusts (30%), immovable property in Kenya (30%) and fixed deposits, time deposits and certificate of deposits (30%). The other 8 categories of assets are allowed a maximum of between 20% and 5%. RBA, formed in the year 2000 as the regulator of the pension industry, is however allowed by law to issue guidelines, and practice notes to codes of conduct of the schemes.

2.3.1 OVERALL ASSETS PERFORMANCE

The overall assets have been growing consistently over the years. In the 2001-2015 period, the assets have grown by 1,721% from Kshs 44.7 billion to Kshs 814.1 billion (Figure 2.1). Notably the growth of overall assets accelerated as from 2013 to 2015. This was largely attributed to improved economic performance and expansive fiscal policy episode.

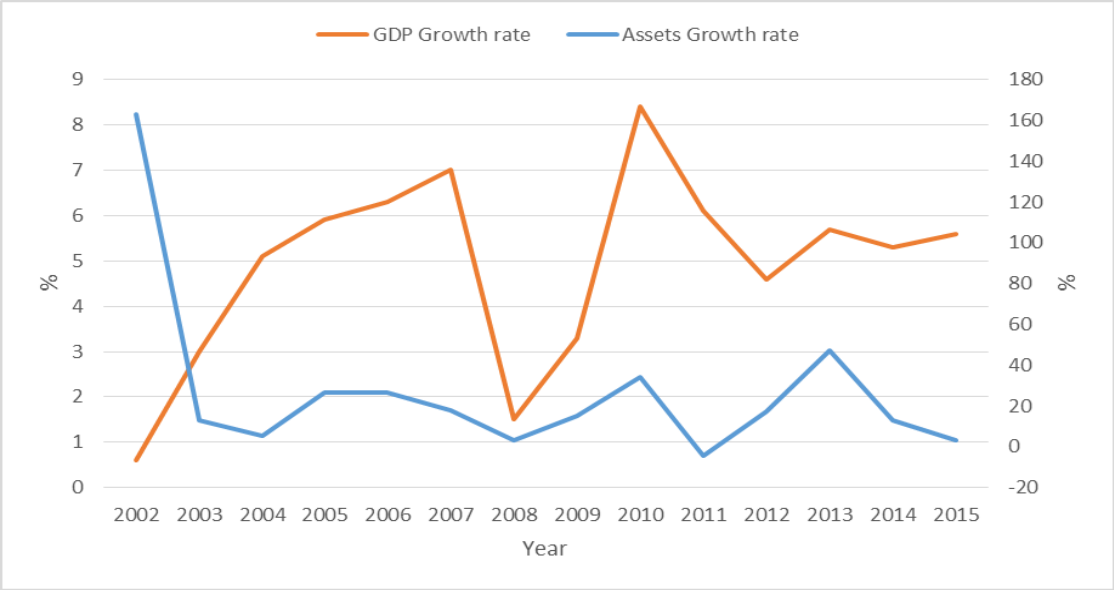
Figure 2.1: Overall assets (2001-2015)



Data source: RBA (2016)

The overall annual assets growth rate and GDP growth rate are shown in Figure 2.2. In 2002, the growth rate was the highest at 163% after which it went down to 13% in 2003. This was as a result of reduced GDP growth. In 2002, the GDP growth rate dipped to 0.6% from 4.5% in 2001 due to uncertainties from the general elections. During this period the CBK pursued a loose monetary policy stance coupled with tight fiscal stance where the government reduced its weekly borrowing from the domestic economy progressively.

Figure 2.2: Overall assets growth rate and GDP growth rate



Data source: RBA (2016) & KNBS(various isues)

The overall assets rate went down further in 2004 but recovered in 2005 to record a growth of 27%, with upward trend being sustained up to the year 2006. This was attributed to the recovery episodes under the newly elected Narc government which instituted a recovery plan for the economy. This saw the GDP growth rate increasing from 0.6% in 2002 to 7.1% in 2007. These efforts were coupled with resumption of donor funding. During this period, the CBK pursued an expansionary monetary policy to support the expected economic recovery.

The outcomes of post-election violence combined with global recession, unfavorable weather, high cost of production and high international crude oil prices saw a reversed economic growth in 2008. Similarly, the assets growth rate dropped to 3% from 18% in 2007. However in 2010, the assets growth rate shot to 34% from 15% in 2009. During this period, the GDP growth rate also recovered. The monetary policy focus during this period was achieving and maintaining low inflation, at the same time supporting economic growth. In 2011 however, the assets growth rate was at its lowest of -4% with the recovery achieved again in 2012. In this period the economy experienced inflationary pressures and a volatile foreign exchange market as due to prolonged drought and the political crises in the Middle East and North Africa. Further, the sovereign debt crisis in Greece and US debt crisis distorted the global financial market. To normalize the

situation CBK adopted a tight monetary policy. In 2015, the assets growth rate again dropped to 3% from 13% in 2014. This was as a result of the continued 2013 general elections effects which slowed the GDP growth rate.

2.3.2 MAIN DIFFERENT CLASSES OF ASSETS UNDER MANAGEMENT

The pension schemes assets can be categorized into nine (9) main classes where schemes invest over 97% of their funds. These are; Cash & Demand Deposits, Fixed Deposits, Guaranteed Funds, Government Securities, Fixed Income, Quoted Equity, Unquoted Equity, Immovable Property and Offshore.

Figure 2.3: Main different assets (2001-2015)

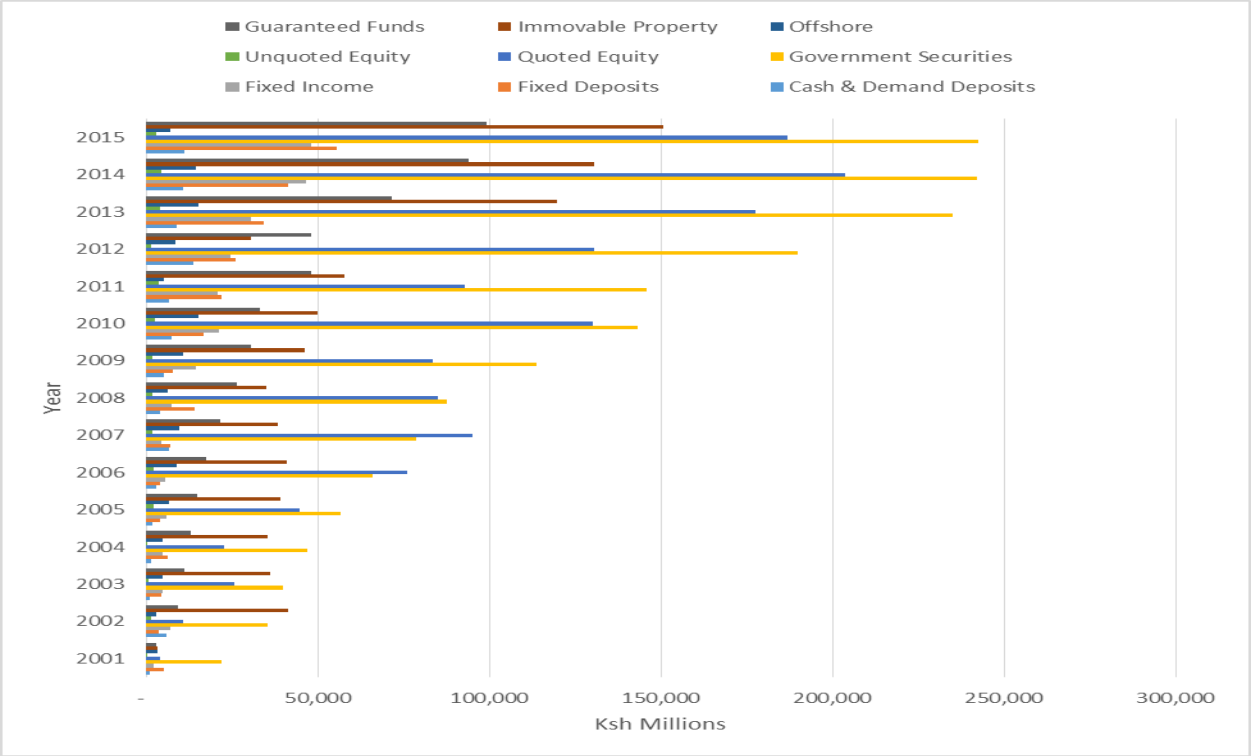
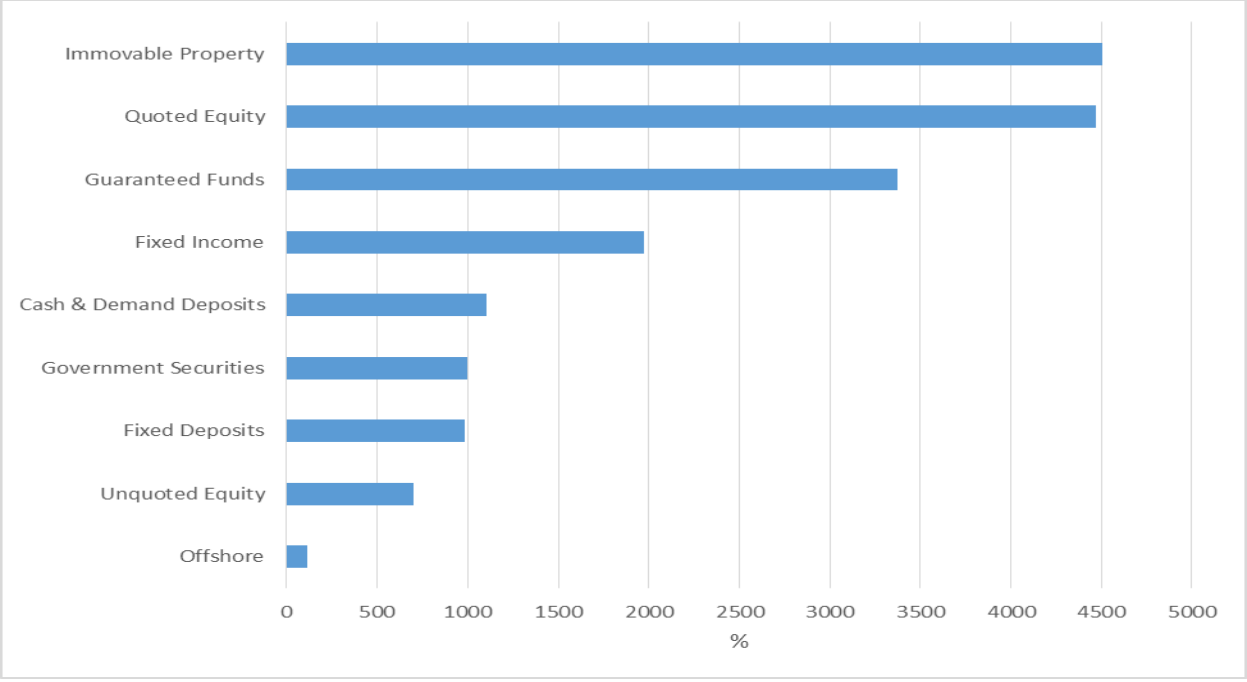


Figure 2.3 show the trend of investments in the 9 different classes of assets overtime. Government securities, quoted equity, immovable property and guaranteed funds dominate other classes of investments. Pension schemes leading investment is in the government securities which are considered risk free. The investment in government securities has overtime received a boost as a results favorable government investment guidelines. In 2003 small pension schemes were allowed to invest 100% in government securities. Further, in 2009, investments funded

schemes for civil servants was restricted to invest only in government securities and infrastructure bonds issued by public institutions. This was to safeguard the funds from suspect investments.

Quoted equities which was the 2nd highest investment class of investment also received a boost in 2006/7, when investment guidelines allowed investment in Uganda and Tanzania equities to be treated as domestic investments. Similarly in 2006/07, pension schemes were allowed to invest in non-listed bonds and other instruments issued by private companies and rated by a registered credit rating agency. Additionally, in 2010/11 pension schemes investing fully in guaranteed funds were exempted from having a fund manager. This then reduced operating cost for such schemes implying higher returns to members. Lastly in 2009/10, external administrators of schemes were required to be independent of fund manager contracted. This was to improve governance of the schemes.

Figure 2.4: Main different assets growth rate (2001 versus 2015)



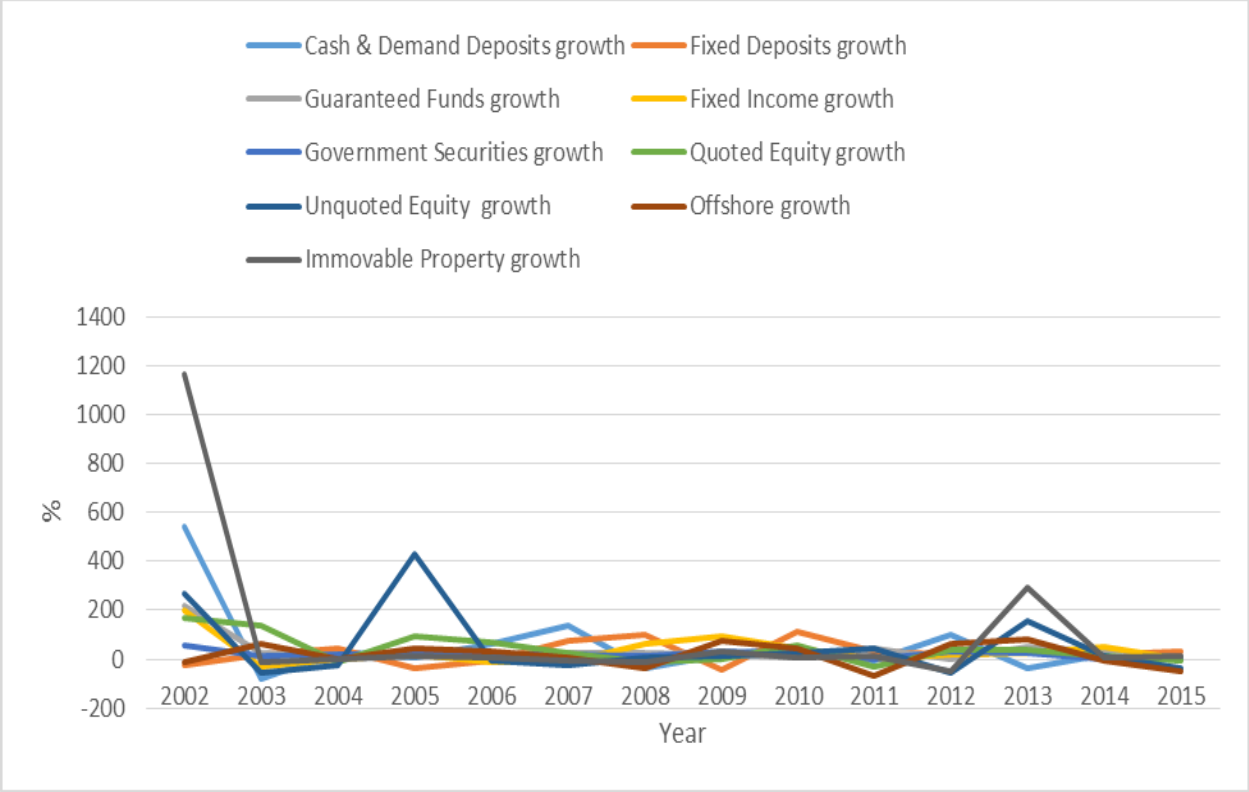
Data source: RBA (2016)

Figure 2.4 shows the growth rate of the main classes of assets. Immovable property, quoted equity and guaranteed funds are the assets with the highest growth. The growth rate of the immovable property asset class is in tandem with the growth of the real estate sector in Kenya.

The real estate sector has seen its growth increasing from 2.8% in 2001 to 7.2% in 2015. This sector has been booming over the years and it has been boosted by high growth of banking credit to the sector.

The continued improvement in the performance of the stock market reflects the growth of the quoted equity asset class. The NSE 20 share index has grown by 198% from 1355 points in 2001 to 4040 points in 2015. The annual growth rate trends for each class of the assets (Figure 2.5) mirrors the annual overall assets growth rate (Figure 2.2) as discussed earlier on.

Figure 2.5: Annual growth of main different asset classes(2002-2015)



Data source: RBA (2016)

3.0 LITERATURE REVIEW

3.1 REVIEW UNDER MONETARY POLICY

The funds held by pension funds are usually put into various investments as a way of ensuring growth of the fund and the ability to provide for the future needs of the beneficiaries. Some of the most common type of investments made by pension funds include: corporate equities, government bonds, real estate, corporate debt in the form of loans or bonds, secured loans, foreign holdings of the instruments; money market instruments and deposits as forms of liquidity (Davis, 2000).

Modigliani and Miller (1958) argue that a firm acting in the best interest of the stockholders at the time of the decision, will exploit any investment opportunity if and only if the rate of return on the investment, is as large as or larger than the market capitalization rate of the expected value of the uncertain stream in the class to which the firm belongs. They propose that investors and tax payers take into account the risks and returns of pension assets and liabilities when making their private portfolio decisions.

Bodie (1990) , Brown and Wilcox (2009) establish that pension funds can achieve the shareholder maximization by investing entirely in fixed income securities since their special tax status has no value if they are invested in stocks. Bodie et al. (1987) studies pension asset allocation among 539 firms in US. Regressing pension fund assets invested in fixed income securities against various characteristics of the firm and the pension plan, the study establishes that indeed underfunded companies hold fewer bonds and more stocks.

In the recent decades, pension plans have shifted from investing in bonds to high risk assets such as equities, real estate, hedge funds, and commodities among other assets as observed in developed markets such as the US, Switzerland and Australia. Rauh (2009) examines the investment policy implications of corporate pension plans in the United States and finds that well-funded pensions take more risk, while underfunded pensions are risk-averse. The author also documents that pension plans are more heavily invested and allocated in risky securities; the positive relationship between investment lagged returns and equities is prompted by risk

management incentives, which seems to be consistent with the view that heavy asset allocations to risky securities promote and enhance efficient risk management to maximize returns, control risk and meet obligations to pensioners.

There is however limited empirical literature linking pension plans investment strategies directly to monetary policy programs. Boubaker et al. (2015) studies the effect of monetary policy initiatives on pension plans risk incentives. Using a comprehensive sample of 151 public pension funds in the US for the period 1998 to 2013, the study simultaneously employ a Bayesian VAR (BVAR) model estimated over rolling windows where parameters are treated as random, and a reduced-form Markov-switching Structural VAR (MS-SVAR) model where parameters are allowed to change at a particular time. With the former enabling to reduce the parameter uncertainty and improve forecast accuracy, and the latter giving the possibility to capture the potential of regime changes.

Their study explicitly explains the critical role of monetary policy on pension plans asset allocations and investment strategies. The main finding of the study is that monetary policy changes, which are associated with lower policy rates close to zero lower bound and the launch of a large program of asset purchases (i.e., quantitative easing), provoked a risk-shifting incentive for pension funds to riskier securities, such as equities and alternative investments in hedge funds and private equities. That allocation of assets by pension plans is mainly determined by risk shifting incentive which is encouraged by the loosening of monetary conditions. When interest rates decline and the Federal Bank respond by loosening monetary policy using programs such as quantitative easing (large program of asset purchases) pension funds invest into riskier securities such as equities and alternative investments in hedge funds, private equities and real estate. This suggests that the funding status of a given pension plan changes in accordance with developments in the monetary policy and that pension funds tend to invest more in equities and less in safe assets, such as government bonds during such periods.

The study also finds a positive correlation between risk taking and the decline in treasury yields, resembling to an incentive for risk-shifting. That a decline in treasury yields is associated with a decrease in allocation of pension assets in bond securities and an increase in the allocation to

equity assets. The study suggests that overly exposing pension funds to potentially “higher – returning” but more volatile investments, such as equities, worsen their ability to keep promises to pensioners especially during stock market crashes such as the ones experienced in 2001 and 2008. Consequently, a safety-first investment strategy where plans allocate a higher proportion of their assets in low-yielding securities, such as Treasury bonds seems to be a good alternative during turbulent economic periods.

3.2 REVIEW UNDER FISCAL POLICY

The fiscal policy refers to a situation where the government adjusts its spending levels and tax rates to monitor and influence a nation's economy. It impacts on various factors of the economy and while there are various studies done on fiscal policy and its impact on private investments in general, none of the studies have focused on pension investment ·Government spending and tax policy will generate either a budget surplus or a deficit, which will in turn mean that the government sector will either contribute towards financing investment or "crowd out" private investment.

Njuru (2012) investigated the effects of fiscal policy on private investment in Kenya from 1964 to 2010. The study used semi-annual data and adopted modified flexible accelerator model, vector auto-regression modeling technique and error correction model. The results of the study revealed that fiscal policy design and implementation matters to private investment levels in Kenya. It found that taxes, government expenditure, government debt servicing and fiscal reforms could either promote or deter private investment both in the short-run and in the long-run. In addition, the study found fiscal reforms to be paramount in re-shaping the economy whose performance has been disappointing. The study concluded that appropriate measures ought to be taken while coming up with fiscal policy framework to ensure that as it achieve other objectives of the government; growth of private investment is taken into account.

Alesina et al (2002), evaluated the effects of fiscal policy on investment using a panel of OECD countries. In particular, they investigated how different types of fiscal policy affect profits and as a result, investment. They found a sizable negative effect of public spending and in particular of

its public wage component on business investment. The result is consistent with models in which government employment creates wage pressure for the private sector. Various types of taxes also had negative effects on profits, but, interestingly, the effects of government spending on investment are larger than the effect of taxes.

Akpo et al. (2015), analyzed the impact of fiscal policy on investment expenditure in Nigeria for the period 1970-2010. A multiple regression model was specified in the study to assess the impact of fiscal policy on investment, using government expenditure, gross domestic product and corporate income tax. The estimation technique employed is the ordinary least squares (OLS) method. They found that fiscal policy has a significant impact on investment expenditure. Government expenditure and gross domestic product have significant impact on investment, but corporate income tax has a positive, instead of a negative, impact on investment expenditure in Nigeria. Based on their findings, they recommended that the government should use an expansionary fiscal policy to encourage increase in investment in Nigeria and government spending should be channeled to capital projects and social overhead capital that will encourage investment, such as constant electricity supply and good road networks.

Afonso and Jalles (2011) assessed the relevance of budgetary components for private and public investment in 95 countries for the period 1970-2008. The study estimated two equations and employed panel and Bayesian Model Averaging (BMA) approach. Their results showed a positive effect attributed to total Government expenditures and to public investment in fostering private investment, and negative effects of government expenditure on wages and government consumption spending on private investment. Interest payments and subsidies had a negative effect on both types of investment. Social security spending had a negative effect on private investment for the full and OECD samples, whereas government health spending has a positive and significant impact on private investment. Moreover, stronger fiscal numerical rules decrease public investment.

In Pakistan, Malik (2013) examined private investment and fiscal policy, both linear as well as non-linear impact. The results imply that it is better to examine different aspects of fiscal policy instead of fiscal policy variables in aggregate form as the impact of fiscal policy variables in

aggregate and disaggregate form do not comply with each other. Different categories of expenditures and revenues have different impact on private investment. Secondly, in most of the cases there exists a non-linear relationship, which implies the significance of certain threshold level for the different fiscal policy instruments to encourage private investment.

Caballeno & Lopez (2012), assessed the impact of fiscal variables on private investment comparing some Latin-American economies to other advanced ones for the period 1990-2008. They used two dynamic panel models in which they group countries with similar characteristics and development levels. The analysis of the relation between the different taxes and the rate of productive accumulation (private investment/GDP), showed that the countries analyzed with a predominant income tax, their accumulation rate is also higher. The results were coherent for both sets of countries, Latin America and OECD, that public spending complements and encourages private investment; it does not crowd it out. It was also observed that for both blocks taxation discourages investment, but the increase in government spending financed in such a way more than offsets this negative effect, yielding as a result a net positive fiscal balance on private investment. From their results the authors infer that governments can, with higher spending, boost up the economy even when they finance spending with higher taxes.

Verga (2004) investigated empirically the link between the tax reform and the investment performance of Chile for the period 1975-2003. Macroeconomic and microeconomic evidence found to be consistent with the hypothesis of the reduction in the corporate income tax as being one of the determinants of the investment boom of the late eighties and nineties in Chile. The results indicated that the tax reform explains an increase in private investment of three percentage points of the GDP. On the other hand, information on 87 publicly held companies was used to construct a panel for the period 1980-2002. The microeconomic evidence confirmed that investment was positively affected by the tax reform.

Omojolaibi et al. (2016), examined the nexus between fiscal policy and private investment in five selected West African countries using annual data from 1993 to 2014. The study employed Fixed Effect Model for Panel data ordinary least square approach and the results showed the existence of a significant crowding in effect of government capital expenditure and tax revenue

while non- tax revenue showed a crowding out effect. Recurrent expenditure and external debt also showed crowding out effects but these were insignificant. The accelerator effect of output growth was also found to be insignificant across the countries over the time period. The study called for concerted efforts from these countries to channel funds towards capital projects and also restructure the tax systems to prevent the negative effects of public debt on private investment.

4.0 ANALYTICAL FRAMEWORK

4.1 CONCEPTUAL FRAMEWORK

FISCAL POLICY

Literature on investment maintains that fiscal policy can either crowd-in or crowd-out private investment depending on how this policy is designed and implemented (Keynes, 1936). The analytical framework underlying this position is fashioned in line with the flexible accelerator model that is based on Keynesian investment theory. This model is reformulated to take into account the effect of other factors affecting private capital stock accumulation as proposed by Blejer and Khan (1984). The dynamic flexible accelerator model imply that the rate at which firms move from actual level of investment to the desired or optimal level is gradual involving lags, and that the variation in investment depends on output.

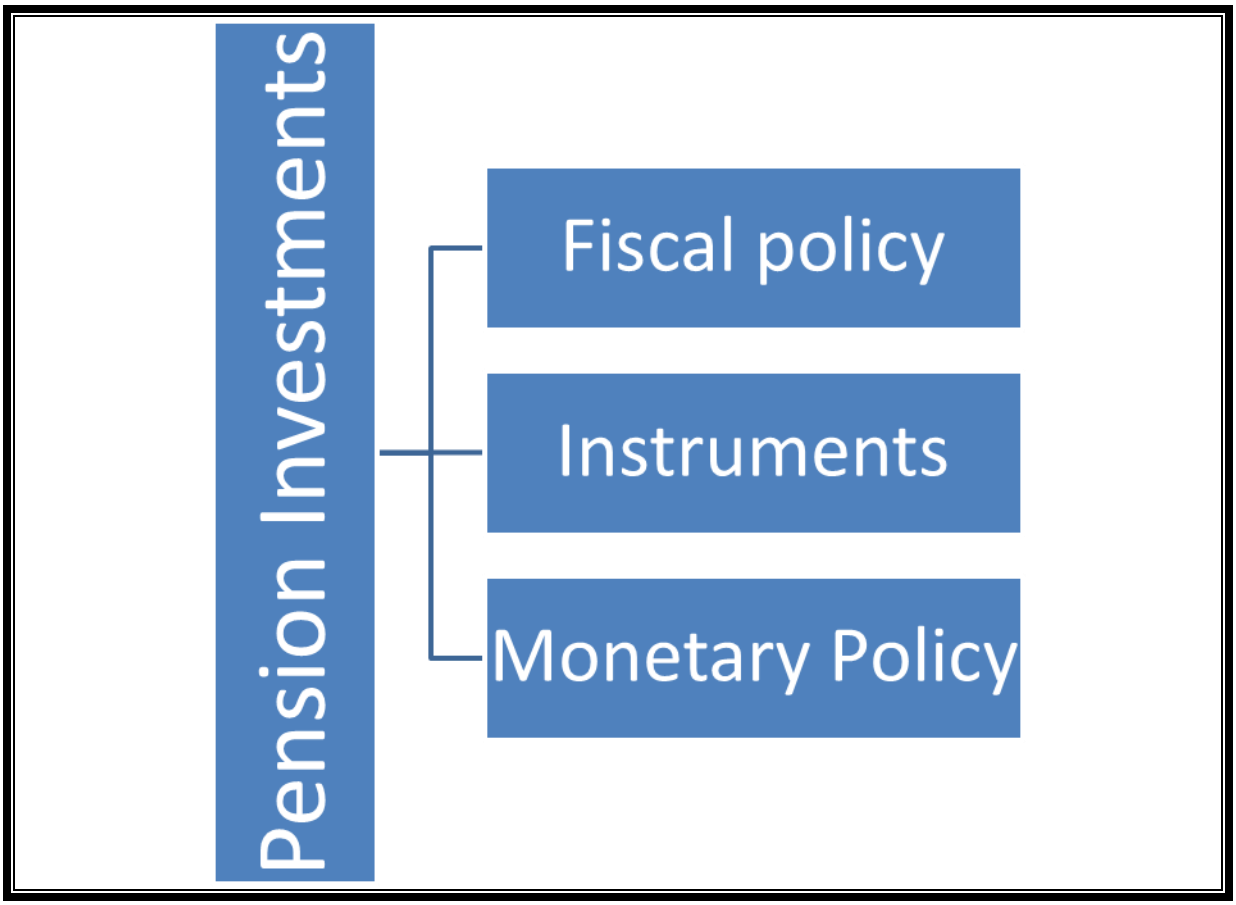
The aggregate effect of non-fiscal variables is captured through the variations in output. Fiscal reforms have influence on private investment. In Kenya, the major fiscal reforms which have taken place include the establishment of KRA, creation of export processing zones, economic liberalization, giving of tax amnesty and government expenditure downsizing.

MONETARY POLICY

Private sector investment is driven by a composite of factors both internal and external to the firm. Since firms are at varying levels of growth some factors tend to be more effective than others. The existence of financial intermediary institutional weaknesses such as: ineffective screening and monitoring capabilities for loans, absence of credit rating agencies and information asymmetry on borrower's credit worthiness, coupled with non-financial factors noted above provides a substantial hindrance for the growth of private sector investment. In Kenya, private sector investment as a proportion of GDP averaged 16.49 percent in the ten years between 1998 and 2008 while projections are that private sector investment in the coming years is expected to rise to 22.9 percent by 2012/13 and 24 percent by 2030, (Vision 2030). According to the CBK annual report of 2000 the Kenyan economy "requires an investment / GDP ratio of

about 25%, sustained over time, to raise the growth rate of real GDP to about 6% per annum that is necessary to effectively address the twin problems of unemployment and poverty". Monetary policy contraction or expansion typically affects money supply through the monetary transmission mechanism where money supply (M2) composed of cash and quasi cash, call, savings & time deposits as well as certificates of deposits is manipulated by Central Banks. Through the use of several toolkits inclusive of central bank lending, open market operations, quantitative easing, cash reserve ratio and liquidity ratio requirements; monetary policy can effect desired changes in monetary aggregates. Where monetary policy affects deposits, it is said to influence financial intermediary's liabilities side of the balance sheet whilst monetary policy that affects cash/ reserves works on the asset side of financial intermediary's balance sheet in order to inject or absorb liquidity from the economy.

Figure 4.1: Transmission mechanisms on policies to pension investments



Source: Authors computation

4.2 EMPIRICAL MODEL

PENSION SCHEME INVESTMENTS

The econometric approach in the analysis is the time series estimation process. The process involves each of the 14 assets being regressed against variables for fiscal policy, variables for monetary policy and a couple of control variables. The key variables in each category are as follows and the list may not be exhaustive.

Fiscal variables that are considered to be crucial includes: total revenue percent of GDP; total expenditure percent of GDP; fiscal deficit percent of GDP; and domestic debt percent of GDP.

Monetary variables on the other hand includes: inflation rate; treasury bill rate; Repo rate; Money supply growth M3; Cash ratio; and CBR rate.

Control variables include: GDP growth rate; population; labour force; and financial deepening. These control variables are quite important in the model as they improve the explanatory power of the independent variables. In this case the model being an investment model, the control variables explain quite well the supply side elements of investment which makes them very crucial.

The equation estimated for the pension investment asset is represented in the following specification below.

$$Asset_i = \quad C + \beta_1 \sum M_i + \beta_2 \sum F_i + \beta_3 \sum G_i + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where;

Asset = all assets by pension investments

M = Monetary variables

F = Fiscal variables

G = control variables

β = the coefficients

C = constant

ε = the error term

As the period covered for data is 2000 to 2015, a total of 15 years, the time series econometrics may not yield plausible results due to small sample size. This therefore leads to the study undertaking impulse response functions, variance decomposition in a VAR estimation procedure for the asset investment versus the monetary and fiscal policy variables. This in a sense is also supported by the granger causality tests and the flow charts that identify movements in asset profiles versus the policy variable profiles.

A VAR model estimates coefficients proportionally to the number of variables included in the VAR model. Stock &Watson [Stock &Watson, 2012] suggest that the number of variables in a VAR model should be kept small to reduce the probability of estimation errors that can result in a reduction in accuracy in forecasts. The number of variables included in a VAR model should therefore be limited to those of high relevance to minimize the inaccuracy of the estimated coefficients.

The number of lag lengths in a VAR model is determined either by using an F-test on the lags to test their statistical significance or by using either the Bayesian Information Criteria (BIC) or the Akaike Information Criteria (AIC) for VAR models. In our model, we have used the two information criteria and we will therefore elaborate on these two in the following section.

A VAR analysis framework is necessary to determine how the policies drive the several assets in the pension investments schemes. The model applied here is the vector autoregressive (VAR) analysis approach. The strength of this methodology is that it is convenient as it only requires the estimation of a relatively small number of parameters and does not impose any structure of the economy. Thus the study makes use of the VAR model for mainly three variables namely; variable on fiscal policy, variable on monetary policy and variable on investment asset, all which are set up as a system of equations as follows.

$\Delta E_t = b_0 + \sum b_1 \Delta A_{t-i} + \sum b_2 \Delta TB_{t-i} + \sum b_3 \Delta E_{t-i} + e_{1t}$

$\Delta TB_t = a_0 + \sum_{a1} \Delta A_{t-i} + \sum a_2 \Delta TB_{t-i} + \sum a_3 \Delta E_{t-i} + e_{2t}$

$\Delta A_t = c_0 + \sum c_1 \Delta A_{t-i} + \sum c_2 \Delta TB_{t-i} + \sum c_3 \Delta E_{t-i} + e_{3t}$ ………………………………………. (2)

Where ΔEt is the current expenditure percent of GDP, ΔAt is the investment Asset percent of total and ΔTBt is the treasury bills interest rate. For the variables involved in the model further work will involve both the impulse response functions (IRFs) and the variance decompositions (VDs) which will help very much to examine the role of the two policies. With the IRFs, it is possible to trace the impact of a one-time shock to a variable on all variables in the VAR over the future time horizon.

4.3 DATA SOURCES AND TYPES

The study has used pension scheme investment data which was sourced from RBA databases and for the years 2000 to 2015. The fiscal variables data have been sourced mainly from the budget documents found in The National Treasury also covering the period 2000 to 2015. However the data for monetary variables have been sourced from Central Bank of Kenya databases and also for the period 2000 to 2015. The main source of any other data used in the analysis was drawn from economic surveys of several years and all from Kenya National bureau of Statistics.

The fiscal variables data are mainly based on financial year basis and presented as so covering period from July to June for a full year. The other national accounts and monetary statistics are for calendar year basis and therefore refer to January to December period. The units of measurement for each data is as per the source and has been clearly indicated in the analysis.

5.0 EMPIRICAL FINDINGS

5.1 Time series Estimation Results

The results for the time series model for the asset government securities is presented in table 5.1 below. The Government securities was regressed against independent variables, namely, expenditure (% GDP), fiscal deficit (%GDP), inflation, interest rate (91 day treasury bill) and GDP growth rate. Generally, all the coefficient are statistically insignificant which was largely attributed the small sample size.

Table 5.1: Government Securities

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXPGDP	-0.447517	1.357953	-0.329553	0.7493
DEFGDP	0.203046	1.174002	0.172952	0.8665
INFL	-0.067581	0.493874	-0.136839	0.8942
INTRATE	0.449395	0.470949	0.954231	0.3649
GDPG	-0.166511	0.918059	-0.181373	0.8601
C	42.61561	30.24080	1.409209	0.1924
R-squared	0.154539			

The models results shows that the R^2 is 0.154539 which is too low for time series estimation. This means that independent variables can only explain 15.5 percent of the variations of the dependent variable. That means that the two policies had little or no impact on the asset investment of the pension schemes.

However, as the results may not be plausible due to the small sample size for only 15 observations while there are six variables in the estimation, the degrees of freedom are extremely very low. This therefore calls for another method of estimation that gives fair estimates in the case for small samples. Thus the study proceeds with the estimation using VAR methodologies.

5.2 VAR Estimation Results

A VAR equation was estimated on government security with fiscal variable as revenue percent of GDP and the monetary variable as the inflation rate. The estimation results are shown in Table 5.2 below. Generally, the R-squared for the Government security equation is 86 percent implying that there was an improvement in the explanatory power.

Table 5.2 VAR Estimation Results on Government Securities, Revenue and Inflation

Variables	GOVTS	REVGDP	INFL
GOVTS(-1)	1.378832	-0.086337	1.516873
	(0.38482)	(0.26013)	(0.61713)
	[3.58306]	[-0.33190]	[2.45795]
GOVTS(-2)	-0.294120	-0.030125	-0.438544
	(0.13148)	(0.08887)	(0.21085)
	[-2.23707]	[-0.33896]	[-2.07993]
REVGDP(-1)	-1.103671	0.725735	0.860754
	(0.62884)	(0.42508)	(1.00846)
	[-1.75509]	[1.70729]	[0.85353]
REVGDP(-2)	1.779420	-0.171527	1.359972
	(0.71496)	(0.48329)	(1.14656)
	[2.48885]	[-0.35491]	[1.18613]
INFL(-1)	-0.125681	-0.099615	-1.107500
	(0.23012)	(0.15556)	(0.36904)
	[-0.54615]	[-0.64038]	[-3.00103]
INFL(-2)	-0.913787	-0.044906	-1.301398
	(0.24116)	(0.16302)	(0.38674)
	[-3.78914]	[-0.27547]	[-3.36501]
C	-7.406814	13.82825	-50.12917
	(21.5044)	(14.5364)	(34.4862)
	[-0.34443]	[0.95128]	[-1.45360]
R-squared	**0.856830**	**0.612201**	**0.729273**

NB. Standard errors in ( ) & t-statistics in [ ]

In the Government security equation, the significant coefficients are for Government security lagged once, revenue (%GDP) lagged twice and inflation lagged twice. However, the sign for revenue and inflation coefficients are not as expected. Revenue coefficient has a positive sign which implies that the higher the past revenues the higher the Government securities. This should not be the case since higher revenues means that there is less need for borrowing. Inflation has a negative coefficient implying that the higher the inflation the less is the borrowing through Government securities.

Table 5.3 VAR Estimation results on Quoted Equity, Inflation and Deficit

Variables	QEQUITY	INFL	DEFGDP
QEQUITY(-1)	0.203845	0.150184	0.125748
	(0.22282)	(0.23426)	(0.09472)
	[0.91482]	[0.64111]	[1.32751]
QEQUITY(-2)	0.312394	0.026608	-0.159588
	(0.20003)	(0.21030)	(0.08504)
	[1.56171]	[0.12653]	[-1.87674]
INFL(-1)	-0.142850	-0.539703	-0.044176
	(0.28348)	(0.29803)	(0.12051)
	[-0.50391]	[-1.81091]	[-0.36658]
INFL(-2)	0.476391	-0.509590	-0.090302
	(0.22876)	(0.24050)	(0.09725)
	[2.08249]	[-2.11890]	[-0.92858]
DEFGDP(-1)	1.544948	1.539659	0.998784
	(0.85513)	(0.89900)	(0.36352)
	[1.80669]	[1.71263]	[2.74754]
DEFGDP(-2)	0.520915	-1.484610	-0.480939
	(0.95413)	(1.00309)	(0.40561)
	[0.54596]	[-1.48004]	[-1.18572]
C	17.24615	13.76293	0.177086
	(4.62280)	(4.85999)	(1.96518)
	[3.73067]	[2.83189]	[0.09011]
R-squared	**0.841719**	**0.607081**	**0.777116**

NB. Standard errors in ( ) & t-statistics in [ ]

The R^2 for the Quoted equity estimation is high at 84 percent implying that the variations in the variable are well explained by the explanatory variables. There are two significant coefficients for inflation in the second lag and deficit in the first lag. The coefficient for inflation has a positive sign implying that when inflation is high it is only prudent to invest the funds in quoted equities. The deficit coefficient has a positive sign that implies that when the deficit is high the investment in quoted equities goes up. This can only happen when the returns from quoted equity is higher than that from government securities.

Table 5.4: VAR Estimation results on Immovable property, fiscal deficit and interest rate

Variables	IMMOVABLE	INTRATE	DEFGDP
IMMOVABLE(-1)	0.611420	-0.252212	0.057119
	(0.09999)	(0.14561)	(0.04165)
	[6.11456]	[-1.73216]	[1.37148]
IMMOVABLE(-2)	-0.056151	-0.071261	0.039571
	(0.14339)	(0.20879)	(0.05972)
	[-0.39160]	[-0.34130]	[0.66258]
INTRATE(-1)	-0.689361	-0.753399	-0.234288
	(0.30246)	(0.44042)	(0.12598)
	[-2.27919]	[-1.71063]	[-1.85980]
INTRATE(-2)	0.772078	-0.129374	-0.052215
	(0.20446)	(0.29772)	(0.08516)
	[3.77626]	[-0.43456]	[-0.61317]
DEFGDP(-1)	1.599282	0.957724	0.928028
	(0.93172)	(1.35671)	(0.38806)
	[1.71648]	[0.70591]	[2.39143]
DEFGDP(-2)	-1.936805	-1.945753	-0.503604
	(0.84968)	(1.23725)	(0.35389)
	[-2.27945]	[-1.57264]	[-1.42303]
C	5.608595	18.19282	-1.386875
	(6.34831)	(9.24403)	(2.64409)
	[0.88348]	[1.96806]	[-0.52452]
R-squared	**0.917984**	**0.663842**	**0.887342**

The estimation result on immovable property has a high R-squared at the level of 92 percent which shows a strong explanatory power. The coefficient for the interest first lag and deficit second lag are significant with an expected negative sign. When the interest rate is low the investment in immovable property goes up due to expected higher returns. Similarly when the fiscal deficit goes down implying reduced government borrowing and therefore investments in immovable properties increases.

6.0 INVESTMENT GUIDELINES FOR PENSION SCHEMES

6.1 Average schemes' investments and maximum limits

The investment guidelines are presented in Annex 1 which gives the maximum percentage for each investment category of asset class. Therefore the entire pension scheme industry is expected to observe and adhere to these guidelines. This study collected data from fund managers on their respective investments for each asset class for the last five years and also a recommendation on change of the limits where possible. Table 6.1 presents the schemes average investments for the last five years and the recommended limits.

Table 6.1: Investment in the Asset Classes and recommended limits

Asset Class	Maximum limits	Last 5 years average	Recommended average limit
All exchange traded derivatives	17.5	0.0	10.4
Any other assets	10.0	0.0	7.1
Cash and Demand Deposits	5.0	3.3	3.8
Commercial Paper, Non listed bonds and other debt instruments	10.0	0.6	8.7
EAC government securities and Infrastructure bonds	90.0	41.1	65.0
Fixed Deposits, Time Deposits and Certificate of Deposits	30.0	10.9	25.2
Guaranteed funds	100.0	0.0	60.0
Immovable property in Kenya	30.0	2.7	18.1
Listed Corporate Bonds, Mortgage Bonds and Fixed Income Instruments	20.0	5.4	13.1
Offshore investments	15.0	1.7	8.0
Preference Shares and Ordinary Shares of companies listed in EAC	70.0	20.1	40.2
Private Equity and Venture Capital	10.0	0.0	7.6
Unlisted shares and equity instruments	5.0	0.1	5.0

Source: Fund managers' survey data

In all the asset class categories no investment that exceeded the legal maximum limit. In some classes no investment were made particularly on derivatives, guaranteed funds, private equity

and venture capital. The asset class mostly invested in is EAC government securities and infrastructure bonds (41.1%) and preference shares and ordinary shares of companies listed in EAC (20.1%). In almost all the asset classes the average performance for five years was below half of the recommended maximum limits.

On the recommended maximum limits by the fund managers, except for the unlisted shares and equity instruments asset class, all other classes have a recommendation of lower maximum legal limit. This can be attributed to the fact that no asset class investment exhausts the legal maximum limit. Therefore the investments limits have never been a challenge to pension investment schemes. This shows that other dimensions of investments particularly diversification are required to be explored in order to maximize on these types of investments.

6.2 Investment challenges faced by fund managers

Legal Challenges facing pension scheme investment plans and strategies

- The short Fund Managers cycles of 3 years are not aligned to the 5 year strategies that are adopted by most funds.
- Members being allowed to move with 75 per cent of their pension benefits during employer shift. This affects performance and optimal investment strategy
- Regulatory guidelines are restrictive thereby hindering diversification of investments
- Weak enforcement and transmission of pension laws
- Errors in computation of benefits for members

Governance challenges

- Whilst custodians and fund manager roles are regulated and well defined, unregulated services are being rendered by "one shop" firms. For instance, the same non-custodian/non-fund management firms can provide the following services; actuarial, fund administration, umbrella schemes, investment consulting, property investment, corporate trusteeship, etc. By offering all these services, the firm effectively controls the pension scheme.
- Training in investments, particularly alternative assets
- Higher frequency of meetings and performance reporting encourages short term outlook and scheme expenses
- Higher administrative costs due to poor or unstructured governance
- Conflict of interest leading to lack of focus to the best outcome
- Lack of adequate understanding of the roles of various parties I.e. fund managers,

administrators, custodians, with certain parties sometimes encroaching on the jurisdiction of other parties
- Restrictions on asset allocations
- Weakness in the composition and suitability of trustees
- Lack of trustee fiduciary knowledge and training
- Inability to understand expert/technical advice

General challenges
- Delays in decision making since some decisions have to be done in consultation with trustees
- Corruption. Trustees appointing service providers for personal gains, trustees making property investments for personal gains without taking professional advice.
- Poor understanding of alternative assets like Private Equity
- Shallow investible universe where all schemes are chasing the same few select stocks and government securities
- Poor understanding of risk-return matrix. Trustees want high returns without the high risk that comes with it
- Too much focus on short term (quarterly) evaluation of performance rather than long term (3 year or 5-year) performance.
- Most pension funds in Kenya are small (below KSh 1 billion) and thus cannot meet the minimum thresholds for investing in quality private equity funds
- Small schemes face higher administrative costs due to size
- A potentially volatile investment climate
- Unethical conduct in certain instances
- Limited awareness of trustees on adoption of new trading strategies and/or new asset classes
- Weak corporate regulation and governance issues in financial institutions – e.g. the collapse of certain banks and bankruptcy of corporate
- Tough economic times make it difficult for fund managers to achieve returns acceptable to the trustees

7.0 CONCLUSION AND POLICY RECOMMENDATIONS

7.1 Conclusion

The Government has continued to pursue prudent fiscal policies over the years, focusing strongly on revenue collection underpinned by deepening tax administration reforms and modernization. Efforts to contain growth of total expenditures continue through shifting of resources from recurrent to capital expenditures. The government implements the Medium Term Expenditure Framework (MTEF) in the budget process and manages expenditures through the Integrated Financial Management System (IFMIS). This therefore provides an opportunity to fund managers to predict the trend of the fiscal policy in the medium term, hence guiding their investment decisions.

On monetary policy the CBK Act mandates the Bank to stabilize the general price level in the economy. Through the MPC of CBK, the monetary policy tool (i.e. CBR) is reviewed every two months taken care of prevailing economic and market conditions. This in a way indicates that monetary policy is also predictable and therefore the fund managers can re-align their investments accordingly.

The predictability of the monetary and fiscal policies therefore has resulted to investments schemes having a less pronounced relationship with these policies. Therefore the impact is only at lagged variable level than at the nominal levels as evidenced by the estimation results.

7.2 Policy Recommendations

The pension scheme investment on government securities is low when the government revenue collection is high and vice versa. This implies that investment in government securities will be less when fiscal policy is effective in terms of revenue collection. The fund managers will determine investment on government securities based on the revenue collection performs under the prevailing fiscal policy regime.

Inflation has a direct and positive impact on investment on quoted equity by the pension scheme. This implies that when inflation is high the pension scheme would rather invest in quoted equities than holding cash balances. Therefore monetary policy episodes have a direct impact on decision to invest on quoted equities. During tight monetary policy stance inflation tend to be contained and therefore lower giving fund managers an opportunity to decide whether to hold cash balances or invest on quoted equities.

The deficit variable has a positive and significant relationship with the pension scheme investment on quoted equity. When the government deficit is high there is high domestic borrowing leading to high interest rates. This leads to pension schemes investing more on both government securities and quoted equities. Therefore the positive relationship between deficit and quoted equity can only be explained by pension scheme diversification on investment portfolios. This implies that fund managers can base their investment decision on quoted equity when they predict the deficit trend in every fiscal policy regime.

The investment on immovable property has a negative and significant relationship with interest rate. This implies that when interest rate is high, then the cost of capital is also high and therefore there will be less investment on immovable properties. Thus during the monetary policy regime that leads to higher interest rates in the market, the fund manager will be able to minimise investments on immovable properties and vice versa.

The maximum legal limit on asset class investments is not a challenge at all to the fund managers at the moment. There is no clear basis to readjust the legal limits as none of asset class investment exhausts the legal maximum limit. The recommendation by fund managers to reduce the maximum legal limit for each asset class is not based on the asset performance nor on restrictive limits. As the limits are not a challenge in the pension industry, then other dimensions of investments particularly diversification are required to be explored in order to maximize on returns to the pension scheme investments.

Recommendations from Fund Managers

How pension schemes investments can be improved in the future

- Fees should be standardized to avoid undercutting
- Tax exemptions should be made automatic for any schemes
- Limit access to benefits to allow pension schemes to focus on long term investment
- Segregated/company schemes should be encouraged to use pooled or umbrella arrangements until they are sufficiently large (Kshs 5 billion and above) to allow them to diversify into a wide range of asset classes such as private equity, property and infrastructure.
- More trustee education on alternative asset classes
- Increased disclosure and transparency and cultivation of high ethical conduct
- Introduction of life stage investing
- Learning best practices from experienced fund managers or lesson from well managed and developed pension schemes

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8.0 ANNEX 1

INVESTMENT POLICY AND INVESTMENT GUIDELINES

INVESTMENT GUIDELINES

37. Investment Policy

(1) A scheme and a pooled fund, shall prepare and submit to the Authority and after every three years revise and submit to the Authority a written statement of the principles governing investments decisions for the purposes of the scheme or the pooled fund.

(2) The statement shall be signed by the trustees and the investment adviser and cover, among other things:

(a) the policy of the scheme, or the pooled fund, in compliance with regulation 38;

(b) the policy of the scheme, or the pooled fund, in the following matters:

(i) the categories of investments to be held;

(ii) risk;

(iii) the realisation of investments;

(iv) asset liability matching; and

(v) such other matters as may be prescribed by the Authority from time
to time.

(3) Neither the scheme nor the statement of principles governing decisions about investments of the scheme fund, or pooled fund, shall impose restrictions on any power to make investments by reference to the consent of the sponsor.

(4) A scheme shall, before a statement under this regulation is prepared or revised, obtain and consider the written advice from a registered Chartered Financial Analyst, actuary, investment advisor or fund manager registered under the Capital Markets Act (Cap. 485A) or manager under the Act:

Provided that the advisor shall not be the scheme manager, related to the company or an employee of the scheme.

(5) A scheme shall consider the latest actuarial report where applicable when determining the principles governing investments decisions for the purposes of the scheme.

(6) Where in the case of a scheme, or a pooled fund:

(a) a statement under this section has not been prepared or is not being maintained; or

(b) the trustees of a scheme whose funds are not part of a pooled fund and the pooled fund itself have not obtained and considered advice from a manager, the Authority may by direction prohibit any trustee of such scheme from being a trustee or disqualify a pooled fund from pooling scheme funds.

38. Investment guidelines

(1) Notwithstanding the provisions of regulation 37 a scheme, or pooled fund, shall invest only in an asset class referred to in column 1 of form G as prescribed to the extent to which the market value of the investment in the class expressed as a percentage of the total assets of the scheme or pooled fund does not exceed the percentage listed in column 2 of form G as prescribed in respect of such asset:

Provided that:

a scheme, or pooled fund, may exceed the maximum percentage indicated in column 2 in the event of increase in the market price of assets, bonus issues or transfer of investment from one class of asset to another but any such excess shall not continue for a period of more than ninety days;

a scheme, or pooled fund, may exceed the maximum percentage indicated in column 2 in the event of revaluation of real property but any such excess shall be reported immediately to the Authority together with an action plan as to how the trustees intend to return the scheme into compliance and the Authority shall within 30 days of receipt of the action plan advise the scheme in writing if the plan is acceptable or require the scheme to implement the plan subject to such terms and conditions as the Authority may deem appropriate;

the maximum investment in the quoted equity of any one company shall be thirty per centum of the aggregate market value of the total assets of the scheme or pooled fund;

the maximum investment in the unquoted equity, commercial paper, loan stock and debentures issued by the company controlled by or a related company of the sponsor shall be three per centum of the aggregate market value of the total assets of the scheme:

Provided that in the case of quoted equity, the maximum investment shall be ten per centum of the aggregate market value of the total assets of the scheme;

Investments in the category "Any other asset" shall be subject to prior written approval of the Authority, which shall be formally considered by the Authority within thirty days of application by a scheme.

(2) Any portion of a scheme fund which is not invested through a pooled fund or invested in guaranteed funds issued by an approved issuer for purposes of these regulations shall be treated as the aggregate market value of total assets of the scheme and shall be invested without regard to the portion of the scheme fund invested through a pooled fund or guaranteed fund:

Provided that the investment guidelines shall not apply to the approved issuer in regard to the investment of guaranteed funds.

Investment Guidelines

Asset Class	**Maximum (%) legal**
1. Cash and Demand Deposits in institutions licensed under the Banking Act of the Republic of Kenya.	5%
2. Fixed Deposits, Time Deposits and Certificate of Deposits in institutions licensed under the Banking Act of the Republic of Kenya.	30%
3. Listed Corporate Bonds, Mortgage Bonds and Fixed Income Instruments; loan stocks approved by the Capital Markets Authority; collective investment schemes incorporated in Kenya and approved by the Capital Markets Authority reflecting this category; and global depository receipts.	20%
4. Commercial Paper, Non listed bonds and other debt instruments issued by private companies, provided that the bond or instrument has been given investment grade rating by a credit rating agency registered by the Capital Markets Authority, and collective investment schemes incorporated in Kenya and approved by the Capital Markets Authority reflecting this category.	10%
5. East African Community Government Securities and infrastructure bonds issued by public institutions and collective investment schemes incorporated in East African Community (EAC) and approved by an EAC Capital Markets regulator reflecting this category.	90%, or 100% in the case of scheme receiving statutory contributions
6. Preference shares and ordinary shares of companies listed in a securities exchange in the East African Community and collective investment schemes incorporated in Kenya and approved by the Capital Markets Authority reflecting this category; Exchange Traded Funds; and global depositary receipts.	70%
7. Unlisted shares and equity instruments of companies incorporated in Kenya and collective investment schemes incorporated in Kenya and approved by	5%

the Capital Markets Authority reflecting this category.	
8. Offshore investments in bank deposits, government securities, listed equities and rated Corporate Bonds and offshore collective investment schemes reflecting these assets.	15%
9. Immovable property in Kenya	30%
10. Guaranteed Funds.	100%
11. All exchange traded derivatives contracts approved by the Capital Markets Authority	5%
12. All listed Real Estate Investment Trusts incorporated in Kenya and approved by the Capital Markets Authority.	30%
13. Private Equity & Venture Capital	10%
14. Any other assets	10%

8.1 ANNEX 2

FUND MANAGER QUESTIONNAIRE

This questionnaire is part of research being conducted by Kenya Institute for Public Policy Research and Analysis (KIPPRA) on behalf of the Retirements Benefits Authority (RBA) to examine the impact of changes in fiscal and monetary policies on pension schemes investment performance.

Name of enumerator _____Date:_____
Time started: _____Time Ended: _____County_____
Sub County_____ Name of the Pension Scheme_____ Postal Address_____

A1: What guides fund managers in making investment decision?

A2: Please indicate average percentage for last 5 years and recommend a desirable rate on the assets in the Table below.

Asset Class	Maximum (%) legal	Last 5 yr Average	Recommended
15. Cash and Demand Deposits in institutions licensed under the Banking Act of the Republic of Kenya.	5%		
16. Fixed Deposits, Time Deposits and Certificate of Deposits in institutions licensed under the Banking Act of the Republic of Kenya.	30%		
17. Listed Corporate Bonds, Mortgage Bonds and Fixed Income Instruments; loan stocks approved by the Capital Markets Authority; collective investment schemes incorporated in Kenya and approved by the Capital Markets Authority reflecting this category; and global depository receipts.	20%		
18. Commercial Paper, Non listed bonds and other debt instruments issued by private companies, provided that the bond or instrument has been given investment grade rating by a credit rating	10%		

	agency registered by the Capital Markets Authority, and collective investment schemes incorporated in Kenya and approved by the Capital Markets Authority reflecting this category.			
19.	East African Community Government Securities and infrastructure bonds issued by public institutions and collective investment schemes incorporated in East African Community (EAC) and approved by an EAC Capital Markets regulator reflecting this category.	90%, or 100% in the case of scheme receiving statutory contributions		
20.	Preference shares and ordinary shares of companies listed in a securities exchange in the East African Community and collective investment schemes incorporated in Kenya and approved by the Capital Markets Authority reflecting this category; Exchange Traded Funds; and global depositary receipts.	70%		
21.	Unlisted shares and equity instruments of companies incorporated in Kenya and collective investment schemes incorporated in Kenya and approved by the Capital Markets Authority reflecting this category.	5%		
22.	Offshore investments in bank deposits, government securities, listed equities and rated Corporate Bonds and offshore collective investment schemes reflecting these assets.	15%		
23.	Immovable property in Kenya	30%		
24.	Guaranteed Funds.	100%		
25.	All exchange traded derivatives contracts approved by the Capital Markets Authority	5%		
26.	All listed Real Estate Investment Trusts incorporated in Kenya and approved by the Capital Markets Authority.	30%		
27.	Private Equity & Venture Capital	10%		
28.	Any other assets	10%		

A3: What is your view or opinion on the current monetary and fiscal policy in Kenya.

A4: How would you describe the impact of monetary and fiscal policies on pension schemes investments?

_____
_____
_____
_____

_____
_____
_____
_____

A5: What legal challenges do you face in the pension scheme investments plans and strategies?

_____
_____
_____
_____

A6: What other general challenges in pension investment schemes.

A6: Provide policy recommendations on how schemes investments can be improved in the future

ANNEX 3: ESTIMATION RESULTS

Time series Estimation for Government Securities

Dependent Variable: GOVTS				
Method: Least Squares				
Date: 09/09/16 Time: 17:31				
Sample: 2001 2015				
Included observations: 15				
	Coefficient	Std. Error	t-Statistic	Prob.
EXPGDP	-0.447517	1.357953	-0.329553	0.7493
DEFGDP	0.203046	1.174002	0.172952	0.8665
INFL	-0.067581	0.493874	-0.136839	0.8942
INTRATE	0.449395	0.470949	0.954231	0.3649
GDPG	-0.166511	0.918059	-0.181373	0.8601
C	42.61561	30.24080	1.409209	0.1924
R-squared	0.154539	Mean dependent var		33.82438
Adjusted R-squared	-0.315162	S.D. dependent var		5.310557
S.E. of regression	6.090174	Akaike info criterion		6.740405
Sum squared resid	333.8120	Schwarz criterion		7.023625
Log likelihood	-44.55304	Hannan-Quinn criter.		6.737388
F-statistic	0.329015	Durbin-Watson stat		1.793254
Prob(F-statistic)	0.883173			

VAR estimation results on Government Securities

Vector Autoregression Estimates
Date: 09/10/16 Time: 11:15
Sample (adjusted): 2003 2015
Included observations: 13 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	GOVTS	REVGDP	INFL
GOVTS(-1)	1.378832	-0.086337	1.516873
	(0.38482)	(0.26013)	(0.61713)
	[3.58306]	[-0.33190]	[2.45795]
GOVTS(-2)	-0.294120	-0.030125	-0.438544
	(0.13148)	(0.08887)	(0.21085)
	[-2.23707]	[-0.33896]	[-2.07993]
REVGDP(-1)	-1.103671	0.725735	0.860754
	(0.62884)	(0.42508)	(1.00846)

	[-1.75509]	[1.70729]	[0.85353]
REVGDP(-2)	1.779420	-0.171527	1.359972
	(0.71496)	(0.48329)	(1.14656)
	[2.48885]	[-0.35491]	[1.18613]
INFL(-1)	-0.125681	-0.099615	-1.107500
	(0.23012)	(0.15556)	(0.36904)
	[-0.54615]	[-0.64038]	[-3.00103]
INFL(-2)	-0.913787	-0.044906	-1.301398
	(0.24116)	(0.16302)	(0.38674)
	[-3.78914]	[-0.27547]	[-3.36501]
C	-7.406814	13.82825	-50.12917
	(21.5044)	(14.5364)	(34.4862)
	[-0.34443]	[0.95128]	[-1.45360]
R-squared	0.856830	0.612201	0.729273
Adj. R-squared	0.713659	0.224402	0.458546
Sum sq. resids	17.43557	7.967093	44.84095
S.E. equation	1.704679	1.152323	2.733769
F-statistic	5.984691	1.578656	2.693757
Log likelihood	-20.35436	-15.26361	-26.49432
Akaike AIC	4.208363	3.425170	5.152973
Schwarz SC	4.512567	3.729374	5.457176
Mean dependent	32.90880	19.66980	8.741047
S.D. dependent	3.185672	1.308447	3.715189

Determinant resid covariance (dof adj.)	20.91706
Determinant resid covariance	2.056479
Log likelihood	-60.02507
Akaike information criterion	12.46540
Schwarz criterion	13.37801

VAR estimation results on Quoted Equities

Vector Autoregression Estimates
Date: 09/10/16 Time: 10:49
Sample (adjusted): 2003 2015
Included observations: 13 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	QEQUITY	INFL	DEFGDP
QEQUITY(-1)	0.203845	0.150184	0.125748
	(0.22282)	(0.23426)	(0.09472)
	[0.91482]	[0.64111]	[1.32751]

QEQUITY(-2)	0.312394	0.026608	-0.159588
	(0.20003)	(0.21030)	(0.08504)
	[1.56171]	[0.12653]	[-1.87674]
INFL(-1)	-0.142850	-0.539703	-0.044176
	(0.28348)	(0.29803)	(0.12051)
	[-0.50391]	[-1.81091]	[-0.36658]
INFL(-2)	0.476391	-0.509590	-0.090302
	(0.22876)	(0.24050)	(0.09725)
	[2.08249]	[-2.11890]	[-0.92858]
DEFGDP(-1)	1.544948	1.539659	0.998784
	(0.85513)	(0.89900)	(0.36352)
	[1.80669]	[1.71263]	[2.74754]
DEFGDP(-2)	0.520915	-1.484610	-0.480939
	(0.95413)	(1.00309)	(0.40561)
	[0.54596]	[-1.48004]	[-1.18572]
C	17.24615	13.76293	0.177086
	(4.62280)	(4.85999)	(1.96518)
	[3.73067]	[2.83189]	[0.09011]
R-squared	0.841719	0.607081	0.777116
Adj. R-squared	0.683439	0.214162	0.554232
Sum sq. resids	58.88257	65.07979	10.64099
S.E. equation	3.132692	3.293423	1.331728
F-statistic	5.317891	1.545054	3.486642
Log likelihood	-28.26507	-28.91552	-17.14467
Akaike AIC	5.425396	5.525465	3.714564
Schwarz SC	5.729599	5.829668	4.018768
Mean dependent	26.53851	8.741047	-3.381327
S.D. dependent	5.567866	3.715189	1.994624

Determinant resid covariance (dof adj.)	45.19463
Determinant resid covariance	4.443350
Log likelihood	-65.03276
Akaike information criterion	13.23581
Schwarz criterion	14.14842

VAR Estimation results on Immovable Properties

Vector Autoregression Estimates
Date: 09/10/16 Time: 11:04
Sample (adjusted): 2003 2015
Included observations: 13 after adjustments

Standard errors in ( ) & t-statistics in [ ]

	IMMOVABLE	INTRATE	DEFGDP
IMMOVABLE(-1)	0.611420	-0.252212	0.057119
	(0.09999)	(0.14561)	(0.04165)
	[6.11456]	[-1.73216]	[1.37148]
IMMOVABLE(-2)	-0.056151	-0.071261	0.039571
	(0.14339)	(0.20879)	(0.05972)
	[-0.39160]	[-0.34130]	[0.66258]
INTRATE(-1)	-0.689361	-0.753399	-0.234288
	(0.30246)	(0.44042)	(0.12598)
	[-2.27919]	[-1.71063]	[-1.85980]
INTRATE(-2)	0.772078	-0.129374	-0.052215
	(0.20446)	(0.29772)	(0.08516)
	[3.77626]	[-0.43456]	[-0.61317]
DEFGDP(-1)	1.599282	0.957724	0.928028
	(0.93172)	(1.35671)	(0.38806)
	[1.71648]	[0.70591]	[2.39143]
DEFGDP(-2)	-1.936805	-1.945753	-0.503604
	(0.84968)	(1.23725)	(0.35389)
	[-2.27945]	[-1.57264]	[-1.42303]
C	5.608595	18.19282	-1.386875
	(6.34831)	(9.24403)	(2.64409)
	[0.88348]	[1.96806]	[-0.52452]
R-squared	0.917984	0.663842	0.887342
Adj. R-squared	0.835968	0.327683	0.774684
Sum sq. resids	31.00486	65.74094	5.378557
S.E. equation	2.273208	3.310109	0.946798
F-statistic	11.19272	1.974787	7.876416
Log likelihood	-24.09597	-28.98122	-12.70976
Akaike AIC	4.783995	5.535573	3.032271
Schwarz SC	5.088198	5.839776	3.336474
Mean dependent	16.92082	7.874615	-3.381327
S.D. dependent	5.612736	4.036968	1.994624

Determinant resid covariance (dof adj.)	27.51143
Determinant resid covariance	2.704810
Log likelihood	-61.80631
Akaike information criterion	12.73943
Schwarz criterion	13.65204