

Effect Of National Annual Budget Reading On Equity Returns At The Nairobi Securities Exchange

Duncan Elly Ochieng, (PhD, CIFA)¹ Ouma Duncan Otieno,²

The objective of this study was to investigate the effect of budget reading on equity returns at Nairobi Securities Exchange. The study adopts descriptive statistics design using event model methodology to establish the correlation between the variables. Secondary data on stock performance around the 2009, 2010, 2011, 2012 and 2013 budget reading dates was collected from the NSE database. Data analysis was done using SPSS program to generate the descriptive statistics, and the study finds that the reading of national budget has significant effect on the stock returns at NSE during the event period, depending on information content. Analysis of the AAR, CAR and SCAR of the companies in the NSE-20 share index, during the 5 day event period before and after the annual national budget reading finds that other than year 2010 that records no statistical significance of SCAR, the SCAR p value for 2009, 2011, 2012 and 2013 are all less than $p = 0.05$, suggesting that the market returns for four years deviated significantly from their means during the event period of budget readings. Therefore, the study recommends that investors, investment banks, listed companies and the capital markets authority to consider the effect of national budget reading on stock returns, to formulate policies that can cushion investors against the effects of budget reading.

Key Words: National Budget Reading, Equity Returns, Nairobi Securities Exchange

¹ Lecturer University of Nairobi School of Business Department of Finance and Accounting and a Certified Investment and Financial Analyst duncan.elly@uonbi.ac.ke

² PhD Student University of Nairobi School of Business Department of Finance and Accounting

Introduction

National budget reading is an annual government activity used to communicate economic policies and budget allocations to be followed for the next financial year. Such fiscal and economic policies communicated through a national budget are thought to have some effect on the equity returns. Return on equity is a measure of a company's profitability that shows how much profit a company generates with the money shareholders contribute (Chirinko & Foad, 2006). This study therefore, focuses on the effect of national budget reading on the equity returns of companies listed at the Nairobi Securities exchange.

Block (2001), state that the performance of the financial markets is greatly influenced by governmental events, including but not limited to, the reading of the national budget. This idea is supported by Drazen (1999) who recognize that major governmental events such as general elections and reading of the national budget have a significant effect on the performance of the emerging market. Lower nominal interest rates acts as an incentive for firms to take loans due to the less cost of debt. The expansion of capital through such a loan typically raises stock prices when this capital is allocated in an efficient manner. Fiscal policy communicated during the national budget reading elicits sudden market reactions. For instance, the States's reduction of the returns on government assets such as treasury bonds may cause increase in demand for stocks, leading to sharp rise of stock prices (Melkiel, 1973).

The National Annual Budget normally include projected revenues and expenditure for a financial year that is often approved by the legislature, accepted by the president or

chief executive and presented to the nation by the Finance minister. It approximates the predicted government revenues and government spending for the current financial year. The two elementary components of all the budgets are the revenues and expenses. National Budgets derive their revenues from taxes. Government expenditures include outlay on present goods and services, infrastructure, education, research, health, retirement benefits among other uses. Though national budgets have economic basis, they also contain political and technical interests (Pedro & Valkanov, 2003). The political forces in the national budget are aimed at either avoiding burdens or obtaining benefits. This can lead to three types of budgets, namely; balanced budget, surplus budget and deficit budget. A balanced budget is the one which government revenues and the expenses are equal, surplus budget is the one whose projected revenues surpass the spending and deficit budget is the one whose projected expenditure exceed the revenues (Robinson, 2007). Whichever the type; the impact on national securities exchange and economy in the general must be felt. The impact generated can be short term or long term and positive or negative.

This implies that investors get the information about the annual reading of the national budget at least thirty days before the actual key event. Because of the unpredictability on whether the budget will impact positively or negatively to the national securities exchange, the investors tend to react by either increasing their investment or withdrawing their investment. Investors with long term goals normally

perceive this key event as a setback and therefore tend to shrink their investment, while investors with short term objectives perceive the event as an opportunity of getting more benefits and therefore tend to multiply their investment (Kiptoo, 2006). Usually, the reaction begins immediately the information on the reading of the budget is released, that is, thirty days before the actual reading of the budget and can extend up to thirty days after the reading of the budget. Within this period the market can experience abnormal returns (Kairu, 2007).

Finance signalling theory asserts information about dividend, debt and fiscal policy reaching capital markets conveys potential changes to the future cash flows. The theory is based on the assumption that the higher the information asymmetry level, the higher the sensitivity of future returns. This means that information on the changes in fiscal policy, such as the national budget reading event may act as a signal that can elicit abnormal returns in the securities market (Fama, et al (1969). A number of empirical studies have been done to assess the impact of events on stock markets performance. In Kenya there have been many event studies investigating the impact of several variables on stock prices. For instance, Kamau (2012) examined the performance of the securities exchange market before and after the promulgation of the Kenyan new constitution (2010) at the NSE and concluded that the stock market reported higher returns before the promulgation, average returns during the event date and low returns after the event. Irungu (2012) found that market reaction to election announcements is either negative or

positive depending on the election at hand. Miya (2007) also looked at the stock market behaviour around national elections in Kenya and found that share prices fall before the election date and start rising thereafter. Abnormal returns shift steeply downwards after the election date and start increasing thereafter before settling to a new equilibrium.

Business operating cycle theory refers to a periodic activity or event where major policies such as fiscal and monetary policy are communicated by the ruling class or the incumbent politicians. Such policies stimulate the economy, and are often meant to improve their chances for re-election. The theory notes that expansionary monetary and fiscal policies usually communicated by the political class include tax cuts, falling unemployment, falling interest rates and new government spending on services for special interests (Pedro, & Valkanov, 2003). These policies have politically popular consequences in the short run, but when over implemented can also have dire consequences in the long run, by accelerating inflation, establishing an untenably low rate of savings that cannot sustain future investment, damaging the foreign trade balance and encouraging long-term growth of the GNP at the expense of people's disposable incomes (McCallum, 1978).

However, there is limited empirical investigation into effect of fiscal policy and events that indicate major fiscal policy adjustments like the budget on stock market returns. There exists a gap that this study intends to fill. This study thus, investigates the effect of budget announcements on stock returns in the Nairobi

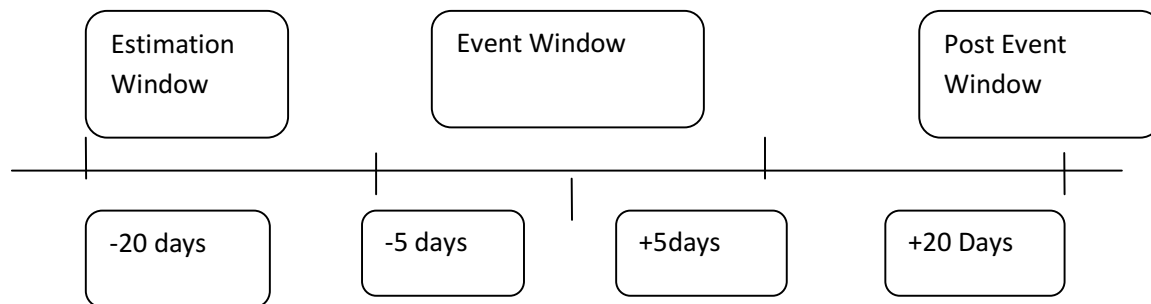
stock Exchange. We used event modelling methodology establish the correlation between the variables. The research question that guided this study is: What is the effect of national annual budget reading on equity performance at the Nairobi Securities Exchange?

Research Methodology

The study adopts descriptive design using an event study model to investigate the effect of budget reading on equity returns of companies listed at NSE. This design was preferred since the researcher intended to describe the behaviour of equity returns without manipulating the stock market performance around the event period (Christensen, Johnson & Turner, 2011). Event model is a statistical method that assesses the

impact of an event on the value of a firm (MacKinlay, 1997).The study population includes the 61 companies listed in the NSE 20-share index between 2009 and 2013. Analysis was done by determining the daily market returns, average market returns, total returns and cumulative returns of the companies around the estimation window of 20 days before and 20 days after the event (day -20 to day + 20).

The nation annual budget reading date was considered day 0 if it happens on trading day. If announcements are done on a non-trading day, the next available trading day is assigned day 0. The event period is taken to be five days before the reading to five days after the national annual budget reading.



Returns are measured for the reading period (day -5 to day +5). Measure of return is constructed on each day over the event window relative to “normal” control period (estimation window covering the 20).

Cumulative returns are the sum of returns in a given time period. It is calculated by adding the return for the day to the previous day returns. It is important in indicating the growth in returns over the period of analysis whether it is increasing or decreasing over the period. In some days, the returns decrease thus having a negative effect on the cumulative returns whereas in some days, the returns increase having a positive effect on the cumulative returns.

The changes in the NSE index for the same period will also be computed. This will be denoted as the market return (MR).

$$NSE\ 20\ share\ Index\ Return\ in\ time\ t (Market\ Return) = \frac{(NSE_t - NSE_{t-1})}{NSE_{t-1}} \dots\dots\dots 1$$

The daily returns were calculated for both individual securities as well as Market Index (NSE-20 share index) as

$$R_i = (P_t - P_{t-1}) / P_{t-1} \dots\dots\dots 2$$

where;

R_i = Returns on Security i on time t ;

P_t = Price of the security at time t ; and,

P_{t-1} = Price of the security at time $t-1$

To calculate the Abnormal Returns (AR), the equation as below;

$$AR_i = R_i - R_{m_t} \dots\dots\dots 3$$

where;
 A_{i_t} = Abnormal returns on security i at time t ;
 R_{i_t} = Actual returns on security i at time t ;
 R_{m_t} = Actual returns on market index.

The Average Abnormal Returns was calculated as:

$$AAR_t = 1/n \sum A_{i_t} \dots\dots\dots 4$$

where;
 AAR_t = the average abnormal returns on day t
 AR_{i_t} = the abnormal returns on security i at time t .

The Cumulative Abnormal Returns (CAR) was calculated as:

$$CAR_k = \sum AAR_t \dots\dots\dots 5$$

where;
 CAR_k = the cumulative average abnormal returns for the k th period
 AAR_t = average abnormal returns at time t . The study also established the significance of the AR_t using t-test.

Standardized cumulative abnormal return (SCAR) is then computed as the abnormal returns on security on day t divided by the standard deviation of abnormal returns on security i on day t presented as;

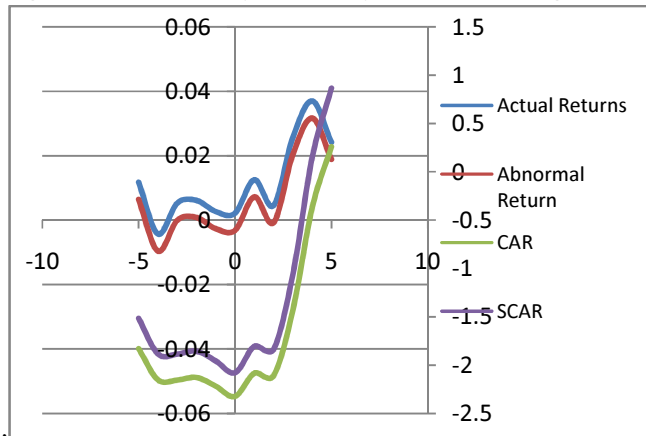
$$SCAR = \frac{\text{Cumulative Abnormal Returns}}{\text{Standard Deviation of Cumulative Abnormal Returns}} \dots\dots 6$$

A t-test was applied for the 10 years, whose mean Cumulative Abnormal Returns(CAR) were aggregated and means of the two periods, that is, before and after budget reading date checked for significant differences at 95 % confidence level. If the significance level found is less than the critical value (α) set at 0.05, then the conclusion is such that the information content of annual budget readings is significant. In other words, there exists significant difference in abnormal returns before and after the annual budget readings.

Results and Discussion

The objective of the study was to establish the effect of national annual budget reading on equity market performance at the Nairobi Securities Exchange. The study looked specifically at the how the stock market performance perceived the results of the 2009, 2010, 2011, 2012 and 2013 budget readings. Analysis was done by determining the AR, AAR, CAR and SCAR of the companies in the NSE-20 share index during the 5 day period before and after the annual national budget reading and the result compared with 15 days period on either side of the event as estimation period. The following results were found;

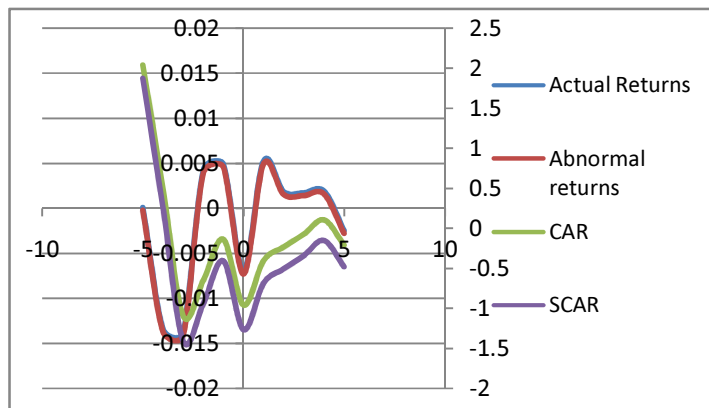
Figure 1: Returns before and after annual budget reading 2009



The days leading up to the budget reading, all the return values experience a very slight dipping trend. Abnormal returns were observed to be moving in sync with the actual returns, both of which had a slight rise 1 day after the 2009 budget reading. A dip in actual and abnormal returns is observed on the third day then a sharp rise is witnessed on the fourth day. The CAR and the SCAR also witnessed to be moving in sync, experiencing a dip on day 0 of the event, which was the budget reading date, then a sharp spike on the 4 day.

Source; Research Data

Figure 2: Returns before and After Budget Reading 2010



As presented in figure 4.2 below, the AR, CAR, abnormal returns and SCAR moved together throughout the annual national budget reading period event window. These returns decline on to the negative on the days running to the reading date and subsequently rise and decline again in the period after the annual national budget reading.

Figure 3: Returns before and after budget reading 2011

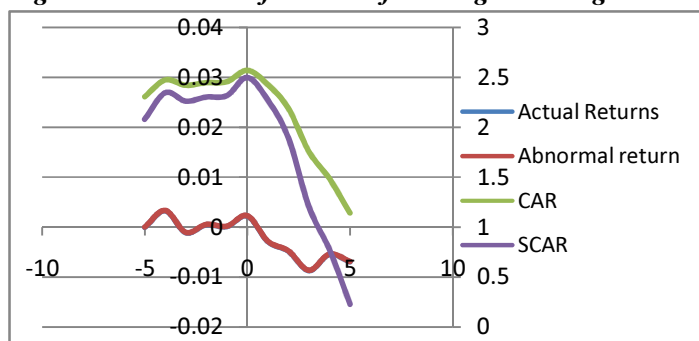
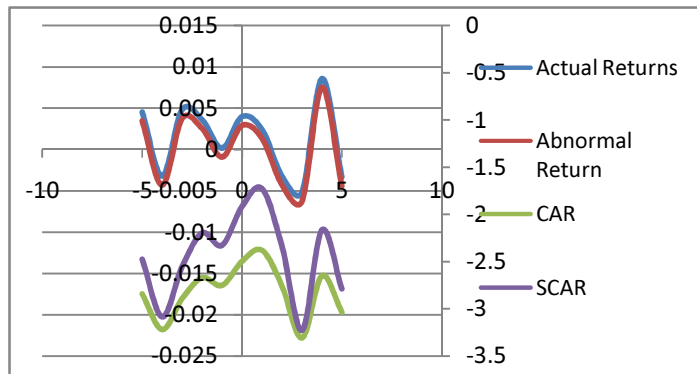


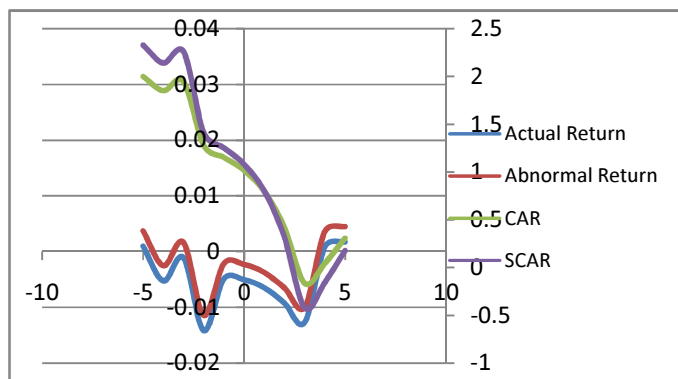
Figure 3, the actual returns, abnormal returns and cumulative abnormal returns all rise slightly on day 0 of the event window, which is the reading date, then take a downwards trend on the subsequent days following the budget reading date

Figure 4.4: Returns before and after the budget reading 2012



In 2012, The AR, CAR, Abnormal returns and SCAR have show similar trends albeit at different levels throughout the budget reading event window. The actual and abnormal returns were observed to move together at almost the same level.

Figure 4.5: Returns before and after budget reading 2013



The AR, CAR, ER, MR, abnormal returns and SCAR followed similar trends in their different levels. These returns start dipping in the days running up to the reading date and continue this trend on the subsequent days after, up to negatives and then a gradual rise from the third day onwards. The actual and abnormal returns experience the most prominent dips all the way through the event window, until the third day, after which they rise into the positive.

Table 1: Descriptive Statistics for Abnormal Returns

The descriptive statistics for the variables is presented as number of observations (N), the mean and the standard deviation for the five budget reading events for the various years.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Abnormal 2009	11	.00628103	.012459391	.003756648
Abnormal 2010	11	-.00183526	.006917184	.002085609
Abnormal 2011	11	-.00212091	.003890567	.001173050
Abnormal 2012	11	.00011177	.004422477	.001333427
Abnormal 2013	11	-.00230373	.005435384	.001638830

For all the five events, the standard errors for the sample mean for the abnormal return (AR) are relatively small meaning that they adequately represent the population mean.

Null Hypothesis: Annual national budget reading has no effect on equity returns at the Nairobi Securities Exchange

Alternative Hypothesis; Annual national budget reading has an effect on equity returns at Nairobi Securities Exchange.

This study tests the following hypothesis:

T- test on Abnormal Returns

One Sample Test

Test on Abnormal Returns	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Abnormal Return 2009	1.672	10	.125	.006281031	-.00208930	.01465136
Abnormal Return 2010	-.880	10	.400	-.001835258	-.00648229	.00281177
Abnormal Return 2011	-1.808	10	.101	-.002120910	-.00473463	.00049281
Abnormal Return 2012	.084	10	.935	.000111769	-.00285929	.00308283

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Abnormal Return 2012	.084	10	.935	.000111769	-.00285929	.00308283
Abnormal Return 2013	-1.406	10	.190	-.002303730	-.00595527	.00134781

This output gives the t-test value, the degrees of freedom, and the two-tailed significance. The P values for all the 5 years are more than 0.05, hence alternative hypothesis is rejected. The findings

established that event day of annual national budget reading had no statistical significance on abnormal returns in all the 5 years.

Table 2: Descriptive Statistics for Cumulative Abnormal Returns
One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Cumulative Abnormal Return 2009	11	-.03556711	.025557825	.007705974
Cumulative Abnormal Return 2010	11	.00313150	.007501950	.002261923
Cumulative Abnormal Return 2011	11	.02308169	.009506565	.002866337
Cumulative Abnormal Return 2012	11	-.01722466	.003245257	.000978482
Cumulative Abnormal Return 2013	11	.01371519	.013108571	.003952383

For all the five events, the standard error for the sample mean for the abnormal return

(AR) is relatively small suggesting that they adequately represent the population mean.

T – test on Cumulative Abnormal Returns

T-test results show the p values CAR in 2009, 2011, 2012 and 2013 are way less than 0.05,

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2- tailed)	Mean (2- Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Cumulative Abnormal 2009	-4.616	10	.001	-.03556711	-.0527371	-.0183971
Cumulative Abnormal 2010	-1.384	10	.196	-.003131497	-.00817138	.00190838
Cumulative Abnormal 2011	8.053	10	.000	.023081688	.01669509	.02946829
Cumulative Abnormal 2012	-17.603	10	.000	-.017224659	-.01940485	-.01504447
Cumulative Abnormal 2013	3.470	10	.006	.013715190	.00490873	.02252165

indicating that the individual returns for the years deviated significantly from their means on budget reading. The null hypothesis is rejected. This means that the cumulative abnormal returns of the years had statistical significance to the budget reading.

**Table 3: Descriptive Statistics for Standardized Cumulative Abnormal Returns
 -One-Sample Statistics**

	N	Mean	Std. Deviation	Std. Error Mean
Standardized Cumulative Abnormal 2009	11	-1.35081096	.970666171	.292666862
Standardized Cumulative Abnormal 2010	11	-.36878141	.883468721	.266375842
Standardized Cumulative Abnormal 2011	11	1.83478616	.755686201	.227847963
Standardized Cumulative Abnormal 2012	11	-2.43679604	.459110903	.138427146

-One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Standardized Cumulative Abnormal 2009	11	-1.35081096	.970666171	.292666862
Standardized Cumulative Abnormal 2010	11	-.36878141	.883468721	.266375842
Standardized Cumulative Abnormal 2011	11	1.83478616	.755686201	.227847963
Standardized Cumulative Abnormal 2012	11	-2.43679604	.459110903	.138427146
Standardized Cumulative Abnormal 2013	11	1.01733133	.972335055	.293170050

Table 3 show the standard error for the sample mean for the SCAR indicate that all the five budget reading events are all

relatively small suggesting that they all adequately represent the population mean.

Test of Significance on Standardized CAR also showed that the reading of

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Standardized Cumulative Abnormal 2009	-4.616	10	.001	-1.350810961	-2.00291337	-.69870855
Standardized Cumulative Abnormal 2010	-1.384	10	.196	-.368781415	-.96230378	.22474095
Standardized Cumulative Abnormal 2011	8.053	10	.000	1.834786160	1.32710926	2.34246306
Standardized Cumulative Abnormal 2012	-17.603	10	.000	-2.436796045	-2.74523095	-2.12836114
Standardized Cumulative Abnormal 2013	3.470	10	.006	1.017331331	.36410775	1.67055491

Cumulative Abnormal Returns

national budget resulted into a negative

Interpretation of Findings

The SCAR t-test found that the p values for the budget reading of 2009, 2011, 2012 and 2013 are all less than 0.05 suggesting that the market returns for four years deviated significantly from their means on budget readings. Thus the null hypothesis is rejected. The table further indicates that SCAR p value for 2010 budget reading was greater than 0.05, inferring that the market returns for that year did not deviate significantly from their means during the budget reading. The overall findings of the

CAR of -0.0038. This shows that the effect was minimal. From the study, it was established that the budget readings had no statistical significance on the abnormal returns, but had statistical significance on CAR and SCAR.

The overall findings of the SCAR indicate that there was a cumulating negative return on equity of -0.26 during the evnt period. This means that national budget reading results into a fall in equity returns.

Conclusion

Based on the results, the study finds that other than year 2010 that showed a SCAR p value of greater than 0.05 pointing to no statistical significance of the budget reading event on equity returns, the SCAR p value for 2009, 2011, 2012 and 2013 were all less than 0.05 suggesting that the market returns for four years deviated significantly from their means during the event period of budget readings. This leads to a conclusion that national budget reading has a negative effect on the stock returns at NSE during the event period depending on information content.

The study concludes that the significance of the reaction of return on equity to the annual national budget readings at the NSE - 20 Share Index is dependent on the year in which the budget was read. Generally, the actual returns, abnormal returns, cumulative abnormal returns, and standardized cumulative abnormal returns generally follow the same trend on annual national budget readings. The SCAR swing around the trend with sharp declines on the budget reading day and an increase thereafter.

The study recommends that the investment banks, listed companies and the capital markets authority to consider the effect of national budget reading on equity standard cumulative abnormal returns to formulate policies that can cushion investors against the effects of budget reading. The study also recommends that same study be done in future but using a longer event study and estimation period. Other event study methodologies such as the filtered GARCH-EVT approach and the non-parametric methodology should be used to analyze the

effect of annual national budget readings on the securities market performance regarding market returns.

Limitations of the Study

The securities market performance and subsequently returns during the annual national budget readings may have been affected by other market anomalies such as Weekend effect, Monday effect, Holiday effect or Investor behavioural biases. Macroeconomic indicators like inflation, interest rates and currency depreciation might also control the effect of these events. Unfortunately, these control factors could not be isolated in the study as it is considered difficult to do so. This is because the data collected from the NSE -20 Share Index may have been affected or had errors. Other factors that ought to have been considered in the study are cashflows, gearing ratio, asset base, growth opportunities, liquidity which were not considered when estimating the returns.

Implication on Policy and Practice

The findings of this study that national budget reading negatively affects equity returns for the event period, has far reaching implications on the fiscal policy and practice. The national government will have to choose between restrictive fiscal policy and expansive fiscal policy in order to stabilise the financial economic performance and to ensure that stock returns at the NSE are not adversely affected.

The negative return on equity experienced during the budget reading period points to the implementation of expansionary monetary policy, where the reading of national budget results into the reduction of

real interest rates. The reduction of the real interest rates of return makes the domestic financial and capital assets become less attractive, and as a result foreign investors reduce their investment in the domestic bonds, stocks, real estate, equities and other assets during the event period. Equally, domestic investors are also likely to prefer investing in overseas in the pursuit of higher rates of return.

In order to change this finding of negative equity returns during national budget reading the , policy makers, particularly the national government need to develop and adopt restrictive fiscal policy which will make the domestic assets including equities to be attractive in order to cushion investors against the effects of budget reading.

References

- Block, S. (2001). *Elections, Electoral Competitiveness and Political Budget Cycles in Developing Countries*. Working Paper, No. 78, October. Cambridge, MA: Harvard University, Center for International Development.
- Chirinko, R., & Foad, H. (2006). *Noise vs. News in Equity Returns*. München: CESifo, Center for Economic Studies & Ifo Institute for economic research.
- Christensen, L. B., Johnson, B., & Turner, L. (2011). *Research methods, design, and analysis (11th ed.)*. Boston: Allyn & Bacon.
- Drazen, A. (1999). *Political Contagion in Currency Crises*. NBER Working Paper, No. 7211. Cambridge, MA: NBER.
- Elton, E. J., Gruber, M. J., Brown, S. J. & Goetzmann, W. N. (2009). *Modern Portfolio Theory and Investment Analysis*. Hoboken New Jersey. John Wiley & Sons.
- Fama, E. F. (1970). Efficient Capital Markets: A Review of theory and Empirical Work. *Journal of Finance*. 24 Issue 2
- Fama, E. F., Fisher, L., Jensen, M. C. & Roll, R. (1969). The adjustment of stock prices to new information. *International Economics Review* 10, 1-21
- Fama, E., and French, K. (1993), Common risk factors in the returns on stocks and bonds, information", *International Economic Review*. 10, 1-21
- Irungu, A. K. (2012). *Informational content of general election results announcement at the Nairobi securities exchange*. Unpublished MBA project, University of Nairobi.
- Kairu, G.S (2007). *The Effects of Secondary Equity Offering on Stock Returns of Firms Quoted on the Nairobi Stock Exchange*. University of Nairobi
- Kamau, J. (2012). *Stock Market Performance Before and After the Promulgation of The New Constitution (2010) At The Nairobi Securities Exchange*. Unpublished MBA thesis, University of Nairobi
- Kiptoo, L. M. (2006). *Information content on dividend announcement by companies quoted at the NSE*, Unpublished MBA thesis, University of Nairobi.
- MacKinlay, A. C., (1997). Event Studies in Economics and Finance. *Journal of Economic Literature* XXXV , 13-39.
- Maina, E. W. (2014). *Effect of Profit Warnings on Stock Returns at the Nairobi Securities Exchange*. Unpublished MBA thesis. University of Nairobi
- Malkiel, B. G. (1973). *A Random Walk Down Wall Street*. New York: W. W. Norton & Co
- Mc Callum, B. (1978). The political business cycle: An empirical test. *Southern Economic Journal*, 44(3), 504-515.

Miya G.H. (2007). *Stock market behaviour around national elections in Kenya*. Unpublished MBA project, University of Nairobi

Nordhaus. W. (1975). The political business cycle. *The review of economic studies*, 42(2), 169-190

Pedro, S.C. & Valkanov, R. (2003). The presidential puzzle: Political cycles and the stock market. *Journal of Finance*, LVIII, 5-7

Suleman, M.T. (2012). Stock market reaction to good and bad political news. *Asian Journal of Finance & Accounting* 4, 30 – 37.