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Does Inflation Matter for Financial Sector Development in Uganda? Evidence from Autoregressive Distributed Lag (ARDL) Co-Integration Approach

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Abstract:- An empirical investigation is undertaken to assess the inflation's impact on the development of the financial sector (FSD) in Uganda, 1980-2014.Variable M2 was used to measure FSD while Inflation (CPI), Investment, Trade Openness, Government Expenditures, were the control variables used. We employed the econometric technique of Auto Regressive Distributive Lag (ARDL) estimation method. It is found that inflation and FSD have a long run relationship that is negative andthe rate of adjustment at 61 per cent of the variables from short to long run is demonstrated by the Error Correction Term (ECM).Similarly, the study reveals that, a one point increase in inflation results in a drop of 0.076 of FSD.In addition, although we find that government expenditure negatively relates with financial sector development, Investment and trade openness positively relates with financial sector development. Therefore the government should design policies that aim at stabilizing prices with the aim of reducing inflation in Uganda.

Keywords:- *Financial Sector Development, ARDL, M2, Inflation, Uganda.*

I. INTRODUCTION

Financial Sector Development (FSD) plays a significant role in many developing countries through direct and indirect channels. FSD does not only increases the supply of capital but also assists the apportionment of financial funds to investment (Muhammad et. al. 2016). In a similar way, FSDraises technological innovation through rewards to the entrepreneurs enhancing productivity and economic growth as well as increasing liquidity to mobilize local savings, and enhances bank competitions (King and Levin, 1993), among others.

The importance attached to FSD has resulted into many SSA countries making reforms in the financial sector especially in regards to inflation. For example, a number of financial sector reforms in Uganda were implemented from 1987 through 2005 and these include: prudential regulation,interest rate liberalization, reserve requirement measures, liberalization of security markets, reduction in directed credit, pro-competition measures and privatization of financial intermediaries (Kasekende, et al. 2000). However, despite the measures undertaken by the Ugandan government, the financial sector remains underdeveloped. One would argue that nevertheless the reform policies are essential, the country should have a stable macroeconomic environment to induce admirable financial sector growth hence the need to investigate whether inflation is a hindrance factorfor the financial sector development in the Ugandan case.

The political instabilities that Uganda experienced in the 1980s resulted into macroeconomic instabilities. For example, Uganda witnessed a rapid increase in the rate of inflation averaging more than 100 percent annually during 1981-1989 and registering more than 200 percent in 1986/87. However, with the implementation of International Monetary Fund (IMF) policies and the emergency of political stability, Uganda registeredan annual rate of inflation of less than 100 percent in the 1993/94. Specifically, the economic recovery programme adopted in 1987 emphasized, trade and exchange rate liberalization, fiscal discipline, and adherence to anti-inflationary monetary measures, (Kabundi Alain, 2012). Early 2000s experienced low inflation rates with the lowest rate of -0.29 percent in 2001/2002 and the highest was 13 percent in 2008/2009. Single digit thereafter was maintained up to 2014.

The motivation aspect of this study is that, as far as could be ascertained, no study has been done to establish the link between inflation and FSD in Uganda using ARDL approach. Similarly, most studies in this area employed cross sectional and panel data covering large samples from various countries, but due to heterogeneous factors prevalent to different countries,there is needs to conduct country specific research inorder to relate the empirical findings. (Espinoza, Leon and Prasad, (2010)).

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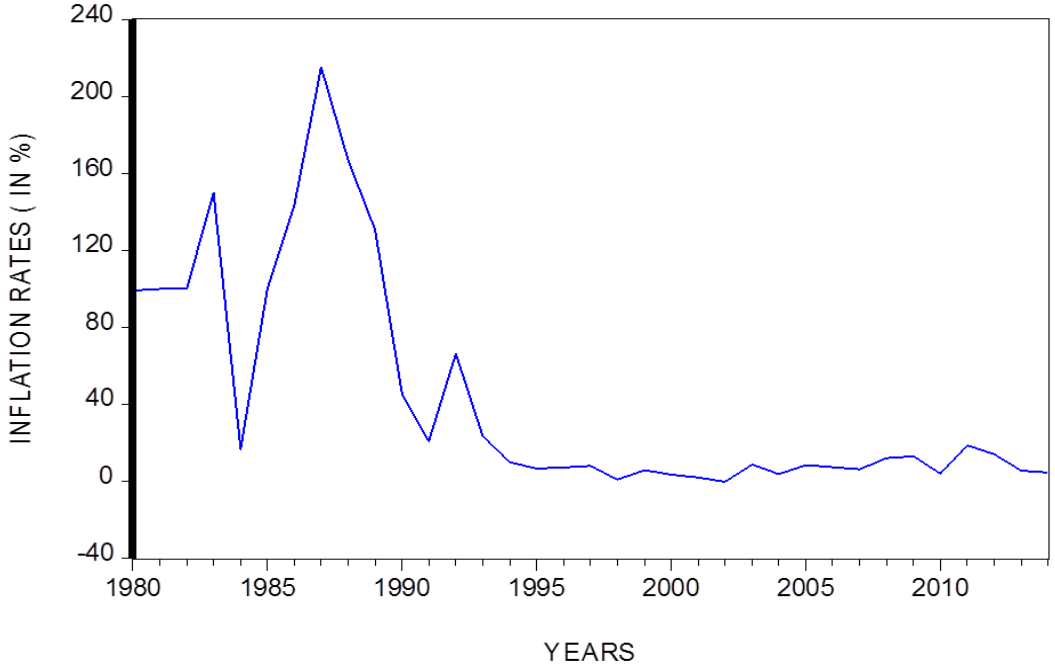
Figure 1.1: Inflation in Uganda, 1980-2014



II. LITERATURE REVIEW

Previous studies on financial sector development-Inflation nexus identifies three models (Boyd et al., 1996). The first group argue that the presence of information asymmetries distort the saving and investment pattern in an economy. Therefore in the existence of high inflation rates, the financial market friction will be worsen thereby hampering the efficiency of the financial system(Stiglitz and Weiss, 1981;Huybens and Smith, 1998). The second group views the behaviourof a government particularly on financing deficit (McKinnon, 1973; 1982; Bencivenga and Smith, 1992). In these models, governments with large deficits and seigniorage revenue increase their inflation tax base by depending on action to tax the financial system. The models also predict government interventions policies when deficits and inflation exceed a certain threshold level (Bencivenga et al., 1995 and Abbey 2012). The last group looks at the relationships among the financial development, economic growth and inflation as a whole. They discovered a negative link between growth and inflation hence inflation and financial market performance may be interrelated (Boyd et al., 1996, Abbey 2012 and Akena 2018).

Empirically, various studies investigated the financial sector development and inflation nexus using time series, cross-section, and panel data analysis. However despite the continuous efforts from the different scholars to establish this relationship, there is no consensus as some studies either find positive, negative, no relationship or relationship with threshold. Below are some of these studies.

First, many recent studies reveals that a more developedfinancial system enhances and sustains growth through fosteringcapital accumulation and savings, (Romer, 1986; Schumpeter, 1911; Gurley and Shaw, 1955 and Goldsmith, 1969).In other word, economies with better functioning financial institutions grow faster, Levine (2004) that is, a better-functioning financial systems positively ease its leverage ratio.

On the other hand, empirical finding reveals that financial market frictions (majorly cause by high inflation rate) reduces the level of investment and subsequently the country's economic growth (Haslag and Koo, 1999; Zoli, 2007; and Azariadis and Smith,1996). The study of Boyd and Smith (1996) similarly, found a significantly negative relationship between FSD and inflation more so irrespective of the time periods, variables/indicators used, empirical procedures employed or the country of study. They also found out a nonlinear relationship suggesting the existence of threshold for inflation impact on FSD. Lastly their findings identified asymmetric information as a mechanism through which increasing rate of inflation intensifies the friction in credit market and produces adverse consequences for financial sector development.

Another Channel identified is that inflation lowers the real value of internalrevenue used thereby making firms to rely on external sources aggravating information frictions common in in the financial market (Smith and Van Egteren, 2005). Antinolfi and Huybens (1998) advanced a similar argument as regards to the capability of increasing inflation rate to worsenthe problem of unbalanced access to information, which not only creates a problem in the credit market, but in the entire array of assets' market.

The link between Inflation and FSD has been studied by various researchers in various countries and time frames. The financial indicators/ variables employed were mainly; Credit to private sector, Liquidity indicators/measures such as M3 or M2, GDP, Inflation rates, Degree of openness, Government expendituresand Investment. Because of the heterogeneity nature of these variables, many studies

employed econometric model of ARDL bound testing approach and a statistically negative results were established. The summery are in the table below.

Authors	Country of study	Time frame	Finding
Abdullah and Khaled (2015)	Saudi Arabia	1982-2013	Negative relationship
Haroon and Khan (2015)	Pakistan	1991-2011	Negative relationship
, Eyas (2014)	Saudi Arabia	1984-1012	Negative relationship
Aboutorabi (2012)	Iran	9173-2007	Negative relationship
Odhiambo (2012)	Zambia	1980-2011	Negative relationship
Ozturk and Karagoz (2012)	Turkey	1971-2009	Negative relationship
Wahid, Shabaz and Azeem (2011),	Bangladesh	1985-2005	Negative relationship
Khan, Senhadji and Smith (2006)	Cross-sectional	Cross-sectional	Negative relationship
Mundell (1963)			Positive relationship
Tobin (1965)			Positive relationship
English (1999)			Positive relationship

As is demonstrated above, a positive relationship between inflation and FSD is possible. Higher persistent inflation can promote real economic activity without affecting the interest rates thereby fostering FSD.

III. METHODOLOGY

3.1 Data sources and estimation techniques

Data on M2, inflation rates (Infl), GDP, Government expenditure, Trade Openness (TOP) and Investment (INV) are obtained from World Bank Development Indicators (WDI), World Bank economic outlook database and International Financial Statistics data from IMF. An econometric model ofARDLbound testing approach developed byPesaran et al.(2001) is adopted for estimation. Modern developments in time series econometric analysis are also taken into consideration.

3.2: Research Hypotheses

The main objective is to test the impact of inflation on financial sector development in Uganda. It's a quantitative study in nature with the following hypothesis;

H_O: Inflation has no impact on financial sector development in Uganda.

H_1: Inflation has an impact on financial sectors development in Uganda

3.3: Regression equations

To investigate the financial sector development-inflation nexus in Uganda, the study employed ARDL bound testing approach developed by Pesaran et al (2001). The same method was applied by Abdulla and Khalid (2015) in The Kingdom of Saudi Arabia, in Iran by Aboutorabi (2012) and, in Bangladesh by Wahid, Shahbaz and Azeem (2011) among others. ARDL method is widely used becausevariables being purely I (0), purely I (1) or mutually co-integrate does not matter whereas OLS cans only be applied if all the variables are stationary at levels and VECM (Johansen Approach) model is appropriate when all variables are stationary at I (1). The study adopted the ARDL model after carefully studying the econometric nature of the variables adopted in order to avoid ending up with spurious regressions output.In examining the impact of inflation on financial development, a cross-sectional regression 3.1 was adopted.

$$FSD = \alpha + \beta\, Infl + \gamma CONTROL\, VARIABLES\, j + \varepsilon \quad \textbf{3.1}$$

Where; FSD is the financial sector Development(M2), $Infl$ is the inflation rates, $CONTROL\, VARIABLES$ are other control variables (GOVT, TOP, INV and GDP) and ε are white noise. In the context of ARDL bounds model, the equation 3.1 can be nested as shown below;

$$\Delta M2_{t-1} = \theta_1 + \theta_2 Infl_{t-1} + \theta_3 GOVT_{t-1} + \theta_4 TOP_{t-1} + \theta_5 INV_{t-1} + \sum_i^p \alpha \Delta M2_{t-i} + \sum_i^q \beta \Delta Infl_{t-i} + \sum_i^q \delta \Delta GOVT_{t-i} + \sum_i^q \rho \Delta TOP_{t-i} + \varepsilon_t \quad \textbf{3.2}$$

Where; Δ is a difference operator, FSD are measured by M2, *Infl* is the inflation rates measured by CPI, *GOVT* is the Government spending as a share of GDP, *TOP* is a ratio of the sum of import and export to GDP, *INV* is the investment rate as a share of GDP and ε_t is the white noise error term, $i = 0, 1, 2, ., ., .,\ p\ where\ p$ is the lag length of dependent variable and $i = 0,1,2, ., ., \ldots, q. where\ q$ is the lag length of the explanatory variables.

3.4: Cointegrating relationship

Determining integrating relationships among variables are very important before estimations. Methods originally employed were those of Engle and Granger (1987) or Johansen (1991) which requires all variables to be stationary after first differencing (I(1)) in case some variables are stationary at level (I(0)).For a mixed Stationarity, Pesaran and Shin (1998) justified the use of ARDL model for estimating the cointegrating relationshipof variables because it does not requires the symmetry of lag length; Lag terms can differs among variables.

In ARDL method, F-test statistic is done from the above equation 3.2 with the null hypothesis (H0:$\theta_2 = \theta_3 =$

$\theta_4 = \theta_5$) against the alternative hypothesis of cointegration (H1: $\theta_2 \neq \theta_3 \neq \theta_4 \neq \theta_5$). The presence of cointegrating relationship depend on the value of F-statisticposition such that;the cointegrating hypothesis is accepted if the F-statistic value is more than the upper critical bound value, otherwise the hypothesis is rejected if it falls below. The result is inconclusive if the F-value falls mid-way between the lower bound value and the upper bound value.To estimate short-run and long-run relationship between inflation and FSD, the unrestricted error correction version of ARDL model equation below was used.

$$\Delta M2_t = \theta + \sum_{i=0}^{p} \alpha \Delta M2_{t-i} + \sum_{i=0}^{q} \beta \Delta Infl_{t-i} + \sum_{i=0}^{q} \delta \Delta GOVT_{t-i} + \sum_{i=0}^{q} \rho \Delta TOP_{t-i} + \sum_{i=0}^{q} \sigma \Delta INV_{t-i} + ECM_{t-1} + \mu_t \quad \textbf{3.3}$$

Where, $ECM_{t-1}$is the error correction term and measures the deviation of FSD from its long-run position.

Before running the regression on the model equations developed above, several checks and tests on data are conducted. They are intended to test all the variables' behavior in order to ascertain their reliability to bestow confidence in the entire exercise. In this section we present the descriptive statistics, the multicollineality test and Stationarity test.

4.1.1: Descriptive statistics

This is one of the important data analyses that portray the major statistical characteristics of the data employed in the research. Table 4.1 displays the variables characteristics employed in the study, which includes; M2, Inflation (INFL), GDP, Investment (INV), Government expenditure (GOVT) and Trade Openness (TOP) for the period of 1980-2014 in Uganda. The Jarque-Bera statistics is less than 5.99 except inflation which reveals a fairly normally distributed variables.

IV. DESCRIPTIVE ANALYSIS AND ESTIMATION

Table 4.1 Descriptive statistics

	DCPS	GDP	GOVT	INFL	INV	M2	TOP
Mean	6.830857	5.534000	12.30571	43.66026	15.38000	16.40857	37.09429
Median	5.300000	6.300000	12.50000	12.05100	14.90000	16.90000	35.30000
Maximum	16.10000	11.50000	18.80000	215.4000	23.60000	24.80000	62.20000
Minimum	2.600000	-3.300000	8.100000	-0.288000	7.300000	5.600000	16.20000
Std. Dev.	4.093936	3.418495	2.611844	58.61241	4.838741	5.879394	11.82796
Skewness	0.865450	-0.924814	0.182397	1.394054	-0.028643	-0.304804	0.701565
Kurtosis	2.391158	3.778646	2.552299	3.762995	1.892436	1.830598	2.594249
Jarque-Bera	4.909778	5.873306	0.486370	12.18541	1.793720	2.536220	3.111218
Probability	0.085873	0.053043	0.784126	0.002259	0.407848	0.281363	0.211061
Sum	239.0800	193.6900	430.7000	1528.109	538.3000	574.3000	1298.300
Sum Sq. Dev.	569.8507	397.3276	231.9389	116804.1	796.0560	1175.287	4756.619
Observations	35	35	35	35	35	35	35

4.1.2: Testing for Multicollineality

In essence, two or more variables shouldn't depend on each other, otherwise such variable/s become redundant and should be dropped. To detect multicollineality, we inspect the correlation matrix values which should not be closed to one.. The value one means the variable is perfectly multicollinear (they are the same perhaps differs by names only)

4.1.3: Stationarity test

Table 4.3 below presents the ADF and the Phillips Perron tests conducted at both level and first difference of the variables. The stationarity analysis is essential to avoid spurious regression of estimating non-stationary series.

Table 4.3: The Stationarity test

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			ADF-TEST			
		LEVELS		FIRST-DIFFERENCE		
VARIABLES	T-STATISTICS	P-VALUE	COMENT	T-STATISTICS	P-VALUE	COMENT
DCPS	-2.567466	0.2964	Non-stationary	-6.838973	0.0000*	Stationary
INFL	-2.83541	0.1952	Non-stationary	-5.357883	0.0000*	Stationary
GDP	-4.133942	0.0028	Stationary	.....		.....
GOVT	-2.544552	0.3063	Non-stationary	-6.838973	0.0001*	Stationary
M2	1.745926	0.9782	Non-stationary	-6.740902	0.0000*	Stationary
TOP	-3.821532	0.0275	Stationary	.....		.....
INV	-3.027781	0.1398	Non-stationary	-5.265563	0.0008*	Stationary
			PHLLIPS PERON TEST			
		LEVELS		FIRST-DIFFERENCE		
VARIABLES	T-STATISTICS	P-VALUE	COMENT	T-STATISTICS	P-VALUE	COMENT
DCPS	-2.415973	0.3653	Non-stationary	-8.720491	0.0000*	Stationary
INFL	-2.83893	0.1941	Non-stationary	-12.42401	0.0000*	Stationary
GDP	-4.118804	0.0029	Stationary	.....		.....
GOVT	-2.46031	0.3444	Non-stationary	-6.725189	0.0000*	Stationary
M2	2.20084	0.992	Non-stationary	-6.668845	0.0000*	Stationary
TOP	-3.862261	0.0251	Stationary	.....		.....
INV	-3.091329	0.1244	Non-stationary	-5.720936	0.0002*	Stationary

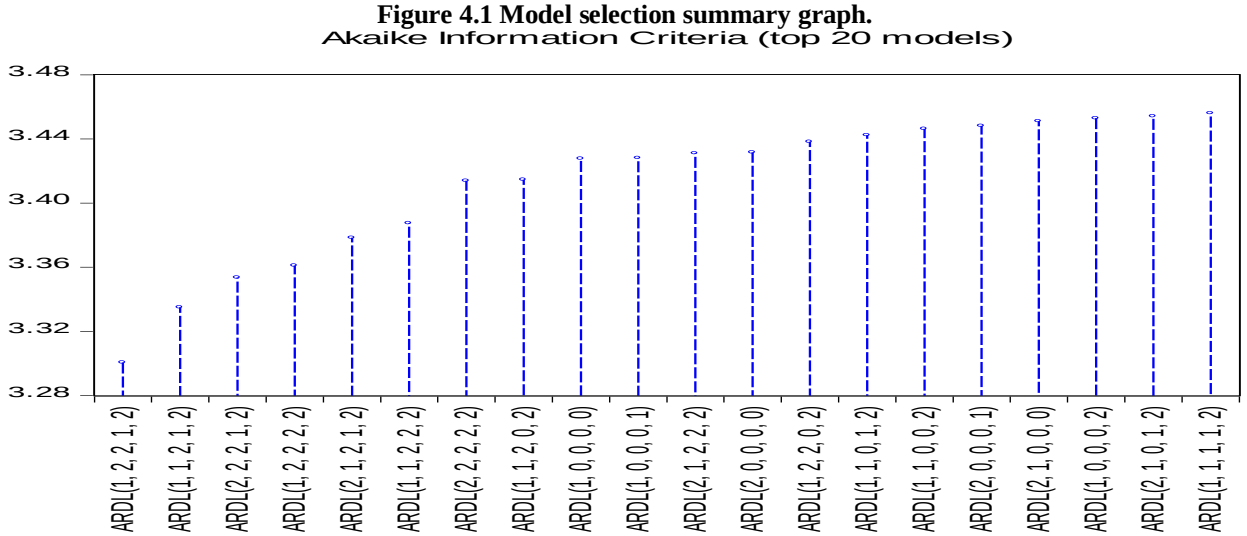
The ADF and PP Stationarity test results shown above are consistent and it shows that,GDP and TOP are stationary at level, I(0) while the other remaining variables(INFL, GOVT, M2 and INV) became stationary at all levels after first difference.

4.2 Autoregressive Distributed Lag (ARDL) model

4.2.1 Lags selection

Before running the final regression to estimate the nature of long run relationship, we needs first to determine ARDL model with appropriate lags for each variable. We adopted the denotation ARDL (p, q_1, q_2, q_3, q_4), where in this particular case, p is the lag of dependent variable and q_1 to q_4 are the respective lags of the explanatory variables INFL, GOVT, TOP and INV. Figure 4.1 suggests ARDL (1, 2, 2, 1, 2) as the best model with dependent variable (M2) to enter with lag 2, Infl with lag 2, GOVT with lag 2, TOP with lag 1 and INV with lag 2 respectively.

Figure 4.1 Model selection summary graph.



4.2.2: Cointegrating Relationship

The cointegration and long run relationship equation developed in subsection 3.3 is adopted.The results below shows the F-statistics value of 4.697820, above the upper bound (I1) even at 1 percent level. We therefore reject the null hypotheses to conclude that the variables are co-integrated implying long-run relationships among them. Bound test for cointegration is a precondition tocontinue with the model otherwise there is no need to test for long run relationship, Pesaran, et al (2001).

Table 4.4: Bound F-test for Cointegration

ARDL Bounds Test
Date: 10/23/16 Time: 12:57
Sample: 1982 2014
Included observations: 33
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	4.697820	4

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.2	3.09
5%	2.56	3.49
2.5%	2.88	3.87
1%	3.29	4.37

The bound test confirms co-integration enabling us to ascertain further the nature of the long-run relationship. The equation form for this cointegrating relationship has been developed above (equations 3.3).

Table 4.5: Cointegrating relationship

ARDL Cointegrating And Long Run Form
Original dep. variable: M2
Selected Model: ARDL(1, 2, 2, 1, 2)
Date: 10/23/16 Time: 13:15
Sample: 1980 2014
Included observations: 33

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INFL)	-0.014903	0.006753	-2.206849	0.0392
D(INFL(-1))	0.012387	0.006681	1.854163	0.0785
D(GOVT)	-0.182690	0.126368	-1.445698	0.1638
D(GOVT(-1))	0.444628	0.136284	3.262507	0.0039
D(TOP)	0.010168	0.035207	0.288817	0.7757
D(INV)	0.019531	0.090964	0.214709	0.8322
D(INV(-1))	-0.413687	0.112334	-3.682651	0.0015
CointEq(-1)	-0.610929	0.102923	-5.935794	0.0000

Cointeq = M2 - (-0.0765*INFL -0.9820*GOVT -0.1424*TOP + 0.7381*INV + 26.9773)

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFL	-0.076490	0.011532	-6.632761	0.0000
GOVT	-0.982009	0.254300	-3.861623	0.0010
TOP	-0.142387	0.085195	-1.671309	0.1102
INV	0.738067	0.171478	4.304149	0.0003
C	26.977290	5.036010	5.356877	0.0000

Model results above further confirm the variables' co-integration, their long-run relationship. The expected negative coefficient of CointFq(-1) is statistically significant at 1 per cent level indicating the rate of adjustment towards long-run equilibrium. However we can't at this stage, indulge into deeper interpretations of the results before conducting the model diagnostic tests.

4.3 Residual analysis (Diagnostic Tests)

4.3.1 Testing for Heteroskedasticity

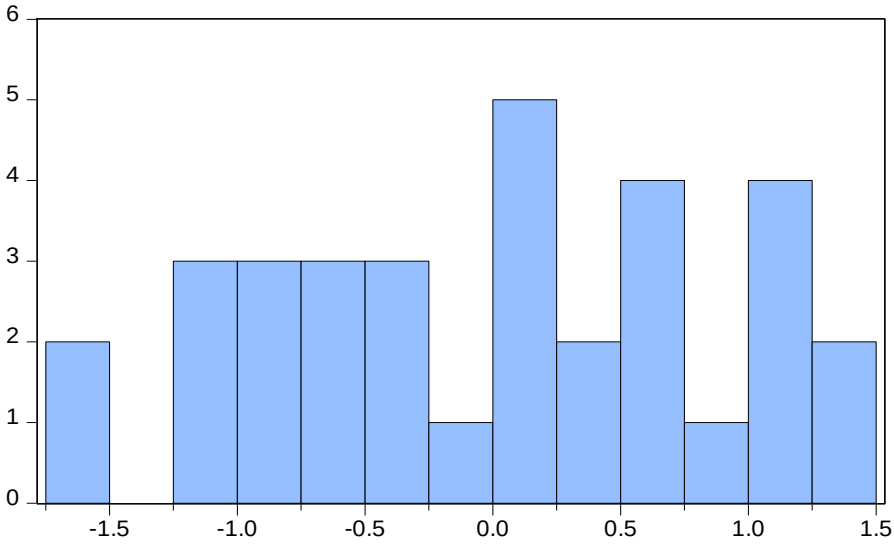
Heteroskedasticity describes a situation where the model's residuals variance is not constant. ARDL also have the assumption that the variance of the residuals is constant (Homoskedastic) otherwise it becomes an inappropriate method to estimate the coefficients. Brensch-Pagan-Godfrey test has been used given its null hypothesis that "the variance of residual (u) is constant against the alternative that it is not."

The P- value shows that the residual is homoscedastic.

4.3.2: Normality Test

To test for the normality distribution of the residual the study employed Jarque–Bera Statistic test. The output is shown on the figure 4.2 below with p-value of the Jarque Berra statistics confirms that we cannot reject the null hypothesis (which states that the residual are normally distributed) and we conclude that the population residuals are normally distributed.

Figure 4.2 Normal Distribution table



Series: Residuals	
Sample 1982 2014	
Observations 33	
Mean	3.34e-15
Median	0.170692
Maximum	1.358214
Minimum	-1.669845
Std. Dev.	0.863136
Skewness	-0.082349
Kurtosis	1.915616
Jarque-Bera	1.654144
Probability	0.437328

4.3.3 Testing for Autocorrelation

In econometric research modelling there are possibilities of incorrectly specifying the model, omitting the relevant variables, use of incorrect functional forms and wrongly data transform which all must be highly avoided. This study therefore used the Breusch-Godfrey serial correlation LM test.The results in Table 4.7 confirm that the residuals are not serially correlated hence unable to reject the null.

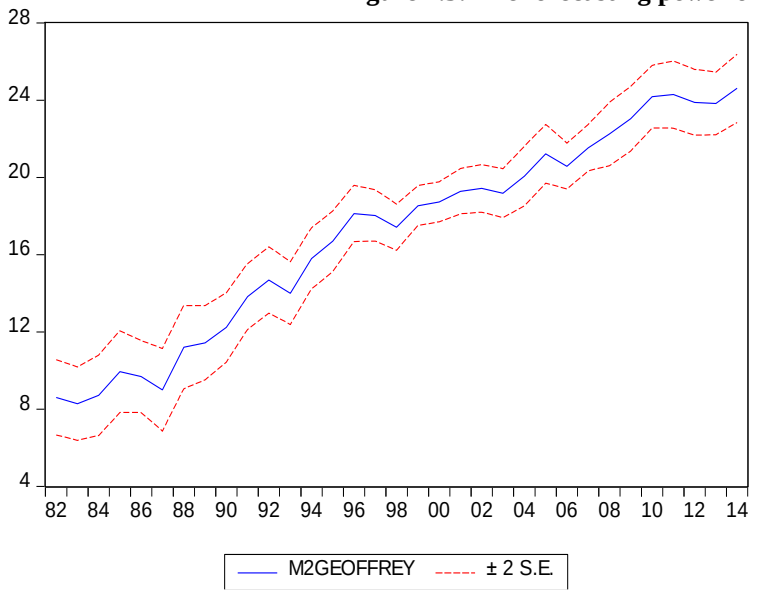
Table 4.7: Serial correlation test result

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.124707	Prob. F(2,18)	0.8835
Obs*R-squared	0.451009	Prob. Chi-Square(2)	0.7981

4.3.4: Test of forecasting power

From the estimated model we want to determine how accurately we can forecast the outcome should there be a change in one or more independent variables. This is an econometric study and therefore, testing the forecasting power of the model isessential. The forecasting power result is displayed in figure 4.3 below. The Thail Inequality Coefficient (TIC) value of 0.024773 falls within an accepted range of +2 or -2 Standard Error which implies that a model has a good forecasting power.

Figure 4.3: The forecasting power of the model



Forecast: M2GEOFFREY	
Actual: M2	
Forecast sample: 1980 2014	
Adjusted sample: 1982 2014	
Included observations: 33	
Root Mean Squared Error	0.883959
Mean Absolute Error	0.779606
Mean Abs. Percent Error	5.279645
Theil Inequality Coefficient	0.024773
Bias Proportion	0.000177
Variance Proportion	0.015247
Covariance Proportion	0.984576
Theil U2 Coefficient	0.729021
Symmetric MAPE	5.242623

Forecast errors are usually a result of factors like poor data set and model misspecifications like omission of important exogenous variables or including redundant explanatory variables.

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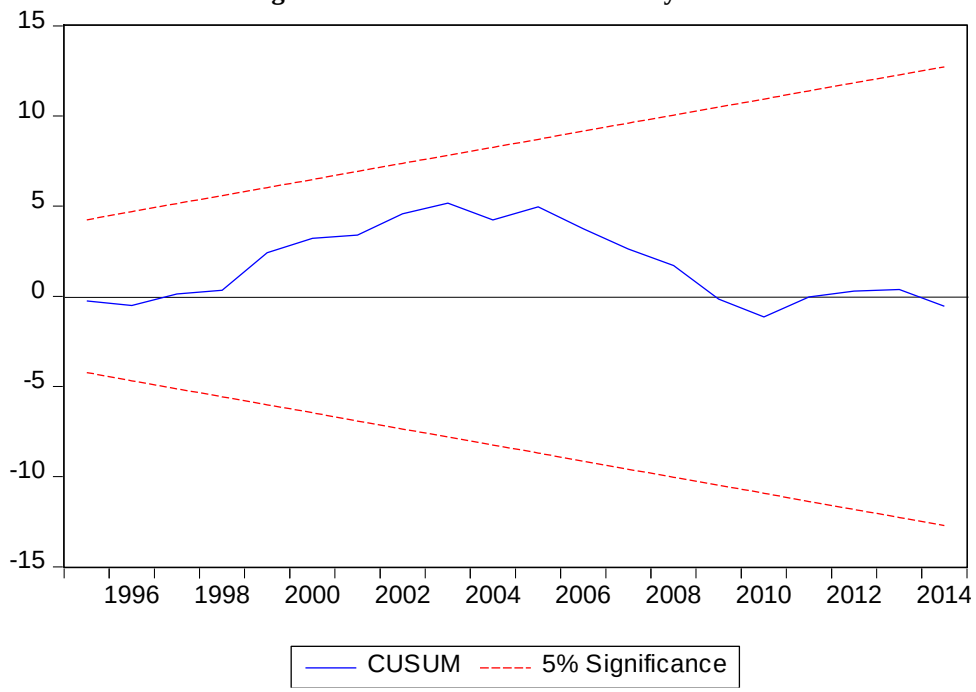
4.3.5: Test for the stability of estimates

This is one of the important diagnostic tests that help to find out the stability of the coefficients of the estimated model. This study employed Cumulative Recursive Sum of Residual (CUSUM) test of parameters' stability which help to check on any significant break in the statistics. The result is shown in the table 4.4 below.

Figure 4.4:CUSUM Plots for Stability Test



The test results reported in Figure 4.4 indicates that all the estimated model coefficients are stable over time in the 5 per cent critical bound. According to this stability test we can accept the result of the model. Similarly to check on the validity of the model, residual plotwas done. This residual analysis is very important since it helps to check on the predictability power of explanatory variables. Our residual plots show good characteristics of randomness centered on zero throughout the range and having symmetric pattern with constant spread. Also when the residuals are compounded (standardized) and plotted it still portrays good characteristics hence justifying that the model is appropriate (see appendices 1 and2).

4.5 INTERPRETATION OF RESULTS

In the previous sub section 4.3, the model diagnostic tests of the result were done to determine the econometric characteristics of the variables. None of these econometric test results refuted the selected model and we can now confidently go ahead interpreting it.

4.5.1 The Error Correction Term

The negative sign of the coefficient, CointEq(-1) in the Error Correction Term shows the existence of long run causality between respective explanatory variable and its regressors. The lagged CointEq (-1) value also shows the rate of convergence from short run towards long run equilibrium path. The finding therefore reveals that, the estimated coefficient of CointEq (-1) value of -0.610929 shows that any adjustment in the short run towards long run is corrected by about 61 percent per year in development of financial sector. In other words, if there is a shock that pushes away financial sector from its equilibrium, the INFL, GOVT, TOP and INV correct the discrepancy at a higher speed of about 61 percent in the current period.

4.5.2 Financial Sector and Inflation

As the theory suggests, inflation negatively affects the financial sector performance and the empirical results put the effect both in the short and long run at 1 per cent statistical significance level. In case of this study, a 1 per cent increase in inflation rates results into a fall in the financial sector development by 0.07649 at a 1 per cent level of significance. The finding here confirms that inflation environment; tend to lower the money supply in an economy hence lowering fund for investment, highly discourage Bank lending to the public as well as obscure policies on financial assets portfolios. The efficiency of financial sectors reduces. This finding is consistence with those of; Abdulla and Khaled (2015) in the Kingdom of Saudi Arabia, Alimi (2014) in Nigeria, Aboutorabi (2012) in Iran, Boyd, Levine and Smith (2001) panel data of 64 countries, Boyd and Champ (2003), and Nurettin and Kadir (2012) in Turkey.

4.5.4 Government expenditure and financial sectors development

The finding reveals the link between Government expenditure and financial sector development as being significantly negative at 1- percent level. The output shows

that an increase in government expenditure leads to reduction in financial sector development by about 0.98. This is because, continuous government expenditure (money supply in an economy) spark off inflation in the country which later on impact negatively on financial sector's development. A similar conclusion was reached at in Pakistan by Haroon and Khan (2015) where they found a negative relationship between the social spending (Education, Health and Infrastructure) and bank credit to private sector which was used to proxy FSD.Similarly, negative relationship between TOP and FSD has been found but it's statistically insignificant. A similar finding was got in Nigeria by Alimi (2014).

4.5.5 Investment and financial sector development

Investment and financial sector development are positively related as evidenced in the finding, and specifically a point increase in investment will improve on the performance the financial sector by0.74-percent in Uganda. This is because an improvement in the investment climate, act as an incentive to financial institutions to increase credit to private sector for investment which in turn leads to the improvement in financial sector development. Therefore improvement in the investment climate as well as itsvolume in the country will leads to financial sector development in Uganda.

V. CONCLUSIONS

This study has examined whether inflation has an impact on FSD in Uganda. It has been empirically established that there is a negative relationship between inflation and FSD in Uganda that is statistically significant both in the short run and the long run, adjusting with speed towards the equilibrium. It has also been established that a statistical negative relationship exist between government expenditure and FSD.However Investment and Trade Openness exhibit positive relationship with financial sector development in Uganda.

5.1 Recommendations

The research findings give some policy implications.Firstly, since inflation impact negatively on various macroeconomic variables including financial sector, the monetary authorities should design policies that stabilize prices to curb inflation in an economy. Secondly, Trade openness and investment are found to be positively related to financial sector development. The government should therefore adopt policies that promote international trade and investment. This study has examined whether inflation has an impact on FSD in Uganda.

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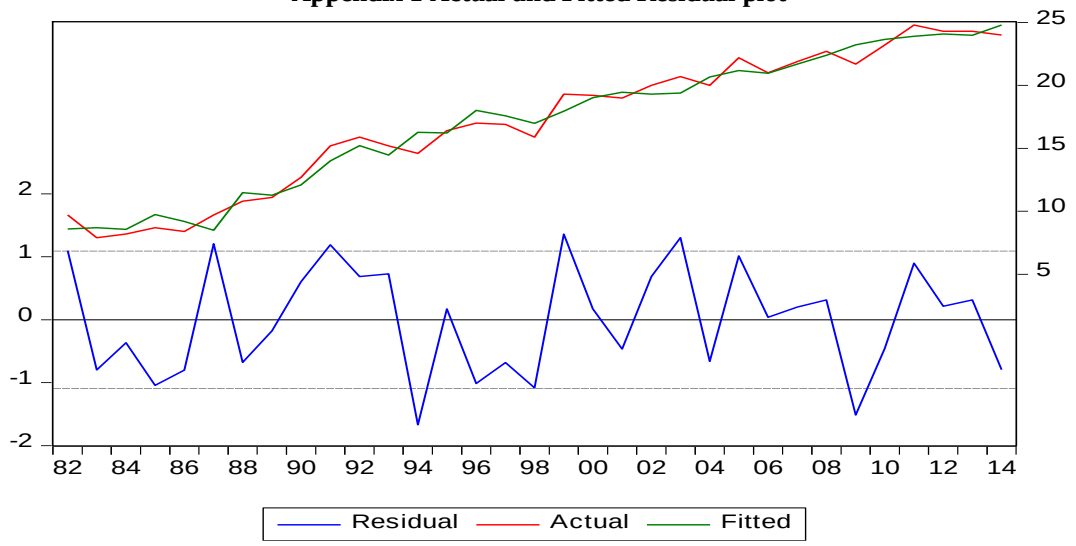
Appendix 1 Actual and Fitted Residual plot



Appendix 2: Standardized Residuals