Chapter 6: Do Macroeconomic Policies Explain Cross Country Differences in Investment in Sub-Saharan Africa?

6.0.0: Introduction

Economic performance in sub-Saharan Africa[73] (SSA) has been the weakest among developing countries. In fact, many SSA countries have experienced stagnation and/or economic decline. In the early 1980's, many countries had a lower per capita income than twenty years earlier. Average growth in Africa has remained below the average for all developing countries. In 1993, for example, the average growth for all developing countries was 6.1 percent, East Asia recorded an average growth of 8.7 percent, Latin America and Caribbean region 3.47 percent while Africa registered 1.4 percent. Economic performance of the East Asian economies[74] has been exceptionally impressive, during 1965-1990 these economies grew faster than all other regions (World Bank, 1993). Consequently, many attempts have been made to explain the observed divergence in economic growth performance across countries. The World Bank in 1993 notes that; Macroeconomic stability and rapid growth in exports were the two key elements in 'starting the virtuous circles of high rates of accumulation, efficient allocation, and strong productivity growth that formed the basis for East Asia's success' (World Bank 1993, page 105). The divergence's in economic performance despite almost similar international settings, suggest that domestic policies play an important role in explaining the divergence in economic performance. Indeed much of the policy reform in developing countries that has been carried out through the advice of the IMF

[73]There are over 40 countries in sub-Saharan Africa, however due to data coverage and availability, we study 22 countries only.

[74]These countries are: Japan, Republic of South Korea, Hong Kong, Singapore, Taiwan, Thailand, Malaysia and recently China. Please note, this study refers to the above countries before the Asian financial crisis.

and World Bank in form of adjustment policies have focused mainly on domestic macro policies especially fiscal, monetary, and trade and exchange rate policy.

In chapter 1, it is hypothesized that the government is supposed to provide a stable economic environment to facilitate accumulation of money and capital between the different groups of entrepreneurs. One important aspect of this stability is sound macroeconomic policies. This section then sets out to investigate empirically, how far macroeconomic policies explain differences in investment activity in SSA[75]. Research on macro economic policy and economic performance has received some attention in recent years. In broad cross-country analysis, variables that represent macro economic policy have been included in growth regressions. For example, Kormendi and Meguire (1985), and Grier and Tullock (1989) include average inflation rate and government expenditure in growth regressions. They find evidence that inflation affects growth negatively[76] .Fischer (1993) reports that growth is negatively associated with inflation, large budget deficits and distorted foreign exchange markets. On Africa, Ghura and Greenes (1993) find evidence of adverse effects of exchange rate misalignment on economic growth.

This chapter has two aims. The first is to use data exclusively from Sub-Saharan Africa to test the hypothesis that macroeconomic policy is an important determinant of gross physical capital formation (investment). The second is to briefly consider the policy options in the context of this analysis. Ideally we would want to study the relationship between private

[75]Although our preferred equation for investment both at the single equation level and at the macroeconomic level includes returns to investment, lack of data on many other countries in SSA renders the extension of similar analysis on a cross country basis difficulty. Whereas data on private credit is available for most countries, data on returns on capital is difficult to obtain.

[76]These studies use the ratio of government expenditure to GDP as a measure of fiscal policy. Kormendi and Meguire (1985) and Savvides (1995) do not find any evidence that the size of government sector per see is detrimental to growth. They do not find evidence that countries with large average size of government grow slower. However, Landau (1986) finds a negative relationship between government size and rate of growth in per capita GDP. De Gregorio, (1992) reports a negative relationship between the size of the government and growth.

capital formation and macroeconomic policies. Unfortunately, consistent and comparable data is not easily available on private investment separately. However, given the importance of investment in an economy, even the relationship between gross domestic investment and macroeconomic policy would be of interest. There are four characteristics of macro economy, that are generally accepted to constitute a stable macroeconomic environment: low inflation, manageable internal and external debt, a realistic real exchange rate and the ability quickly to stabilize the economy when confronted with external macroeconomic shocks (World Bank, 1993, World Bank, 1994). Do countries that score well on these measures in SSA invest more?. And what are the policy implications?. The analysis in this chapter particularly centers on these two questions.

The structure of this chapter as follows: section 2 briefly discuses how macro economic management may affect investment activity. Section 3 presents the alternative measures of macro economic management together with the underlying testable macro economic hypotheses. A brief economic survey on macroeconomic performance in SSA in comparison with East Asian NIC's is presented in section 4. In section 5 we present the empirical analysis together with a summary of the main findings.

6.1.0: Macro economic Management and Capital Formation

There are several channels through which macro economic management may affect capital formation or investment activity. An emerging body of literature stress the importance of uncertainty in investment decision making. According to this school of thought, the characteristics of investment behavior namely; irreversibility (once investment is undertaken, it can not be wholly reversed), uncertainty and timing and or the ability to wait, make uncertainty an important factor in investment decision making. Various sources of uncertainty

about future profits ,e.g., fluctuations in product and input costs, exchange rates and taxes, may have a profound effect on investment. Thus removing uncertainty would be an important policy to stimulate investment (Pindyck (1991), Serven and Solimano (1993), Dixit and Pindyck (1994), Fischer (1995)). If investors are risk averse, an investment is likely to be made only when the expected return exceeds the expected risk. So in the face of high risk or uncertainty, firms may postpone an investment or continue to use old equipment until the situation unfolds. Uncertain economic environment resulting from poor policy may lead to investment being postponed, wrong investment decisions being made or even induce capital flight and discourage foreign capital inflows. Thus a stable macro economy may be good for investment.

Secondly, it is generally argued that investment decisions may be affected by how optimistic or pessimistic investors are. The term 'animal spirits' is sometimes used to describe the optimism or pessimism (Dornbusch and Fischer, 1995). One important basis for expectations is economic downturns and or booms. This is because, the level of national income is generally an indicator of the level of demand facing any firm. Consequently, investment activity is likely to be related to the level of economic activity (economic downturns and or booms). Indeed, some economists have argued that this relationship leads to an 'investment accelerator'. The so-called *accelerator theory of investment*. Empirical studies on growth[77], have found positive relationship between some measures of macro economic stability and economic growth. Thus this may form the second channel through which macroeconomic policy may affect investment activity. Moreover, policy uncertainty can affect output through technical progress or productivity. Embodied technical progress may be

[77]These studies include Kormendi and Meguire (1985), Grier and Tullock (1989), Ghura and Greenes (1993), Fischer (1993) and Savvides (1995), ibid.

affected as total investment expenditure responds to policy uncertainty. If productivity growth comes about through increasing returns to scale, this may require that output expand and or factors switch to more efficient uses. Both mobility of factors of production and output decisions are likely to be affected by policy. Policy uncertainty is thus likely to affect technical progress and or output adversely as it discourages risk-taking and in turn may have unfavorable impact on investment .

6.1.1: The Alternative Measures of Sound Macroeconomic Management

Any shock to the economic system is likely to be reflected in either one or more of the alternative aggregate measures of macro economic performance. That is, exogenous shocks are likely to be reflected in fiscal, monetary, debt management and exchange rate macro economic statistics. For example, the occurrence of a drought may require that food be imported in turn worsening external balance position. There may as well be increased claims on the government in terms of drought relief, which worsen the budgetary position. Civil strife, which has been/is common in some African countries may disrupt economic activity and not only would defense expenditure increase but also output may be depressed. Increases in international interest rates may have an adverse impact on debt management in debtor nations, which will be reflected in the macroeconomic indicators. All these are instances of non-policy induced shocks that may bring about instability which may be captured in macro economic statistics. Consequently, good macro economic management should also *include* the swiftness to quickly stabilize the economy against exogenous shocks without undertaking policies that exacerbate the initial shock. A case where the government may aggravate the initial shock is for example, what Gulhati (1990) has observed that most

African governments tend to 'ride the terms of trade escalator' rather than stabilize the macro economy[78].

It is commonly accepted that low and anticipated inflation constitute sound macro economic management. For example, Savvides (1995), Fischer (1993), Grier and Tullock (1989), and Kormedi and Meguire (1985) find negative relationship between inflation and growth. High and unpredictable inflation is normally associated with high relative price variability, which is likely to distort resource allocation in the economy. High inflation raises risk and uncertainty; in an inflationary environment, investors will only envision future returns with greater uncertainty. As a result they be disinclined to commit themselves to long-term investment. With high inflation, investors may lack confidence in the governments' commitment to a stable economic environment. The impact of rapid inflation on the financial system is adverse. Highly negative real interest rates resulting from high inflation (in controlled financial markets) hurt domestic savings (World Bank, 1994)

On the other hand, if the Tobin-Mundell effect holds, an increase in anticipated inflation, by lowering real interest rates, may result in a shift of resources away from real money balances toward real capital, thereby boosting capital formation. However, it is sometimes argued that in developing countries, such shifts may involve acquisition of nonproductive resources such as real estates and foreign currency. To test the effect of inflation on investment we use the annual average inflation rate as an explanatory variable in the investment function. We also test the importance of price variability by including the coefficient of variation of inflation in the investment function.

[78]In this paper we ignore the distinction between policy and non-policy induced macro economic instability It is not easy to distinguish their respect effects in the macroeconomic statistics. We also do not have reliable and consistent data on non-policy induced shocks on the countries included here.

Fiscal policy adjustment is one of the central issues in economic reform programs being undertaken in developing countries. The main objective has been to reduce budget deficits. Policy measures have sought to cut government expenditure and or increase revenue. Financing budget deficits by borrowing from the banking system (money creation) and the general public is inflationary and or may 'crowd out' the private investment. Crowding out has been discussed in the context of Kenya in chapters 4 and 5.

Empirical work on fiscal policy has tended to revolve around the budget deficit and the size of the government as measured by government consumption expenditure to GDP[79]. For the latter, distinction is usually made between productive government expenditure e.g. on education, health and infrastructure (the complementarity hypothesis) and not- productive spending (i.e. government consumption) Barro (1991). High government consumption expenditure may induce distortionary taxation and or crowd out private investment. Large shares of general government consumption may mean that little resources are left for investment by the public sector in basic infrastructure. In this study we test this hypothesis by including the ratio of general government consumption expenditure to real GDP as a regressor in the investment function[80].

In mixed economies, however, the question on what the appropriate size of the public sector should be is still controversial. For example, Stiglitz (1993) notes that *"while some claim that the presently perceived problems are the result of, or are at least exacerbated by government programs, others believe that the main problem is too little government, or misdirected government programs" (page 191)*. In recent years, a general global trend

[79]Due to data unavailability most of the studies focus on government consumption expenditure e.g. Landau (1986), Grier and Tullock (1989), De Gregorio (1992). Fischer (1991) has focused on budget deficit.

[80]Due to data limitations, to study the impact of budget deficit we select another sample of countries on which data is available.

towards markets or private sector initiatives and less government, characterized by privatization and liberalization[81], can be observed.

In this study it is also hypothesized that large external debt discourages investment in the domestic economy. First, a large debt implies a need to carry out transfers to the creditors, this reduces available resources for investment in the local economy. Secondly, large external debt creates uncertainty about future policy as these may require fiscal contraction and/or increased taxation and exchange rate changes. As discussed above this uncertainty discourages investment. Borenzenstein (1990) argues that debt overhang acts as a foreign tax on current and future incomes, because part of investment return will accrue to creditors in terms of debt service payments. This may discourage capital formation and promote capital flight. A highly indebted country will also face credit constraints in international capital markets. For example, The African Development Bank Report (ADB) 1994, reports that the multilateral component in the region's debt is steadily increasing as a result of *'eroded creditworthiness and a consequent inability to attract funds from other sources' (ADB, Report, 1994, page 36).* In empirical studies, Serven and Salimano (1993) have found a significant negative impact of external indebtedness on private investment in a broad group of developing countries.

As for exchange rate policy reform in developing countries, the focus has been on the need to avoid exchange rate overvaluation and misalignment. Reforms have required, among other things, devaluation/depreciation of local currency and removal of controls. Exchange rate appreciation reduces profitability of tradeables and may induce imports at the expense of domestic production. Reduced profitability in the tradeables may discourage exports, as export earnings fall, unless there is increased inflow of foreign resources, say aid or loans, imports

[81]For a wide coverage of this subject see, World Development Report, 1997. *The State in a Changing World.*

may also decline as import financing reduces. On the other hand, in countries where a large part of investment component comprise imported capital, a real currency depreciation may increase the cost of the imported capital and thus discourage investment. Therefore, the impact of a real currency depreciation on investment is an empirical issue.

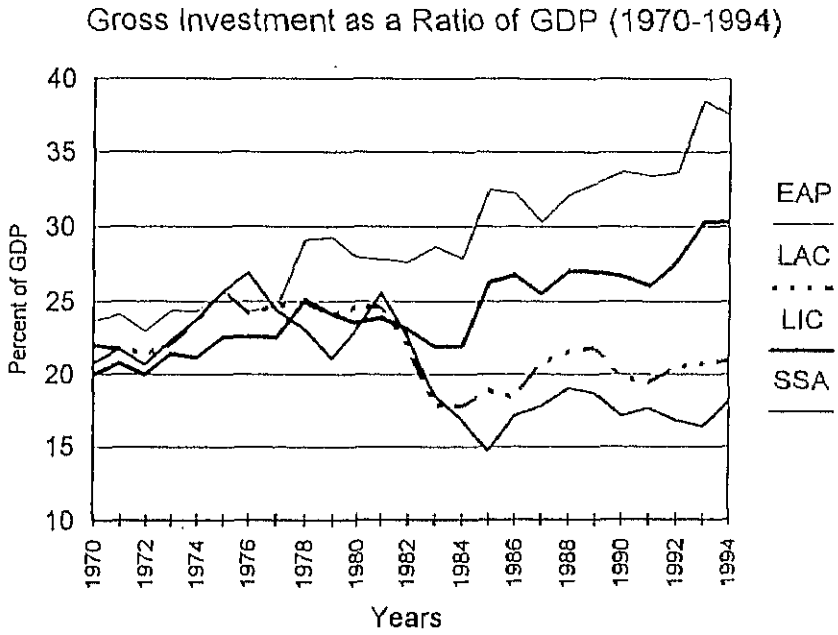
The importance of a sound and stable financial system in the process of development can not be overemphasized. The financial sector is important in mobilizing savings, allocation of financial savings, as well as providing services that further trade, among other things. Therefore a sound financial system is important in fostering high and efficient investment. In SSA, governments have exercised control over the financial system through ownership, mandatory credit ceilings, interest rates control and credit allocation. In recent years financial sector reforms have sought to liberalize interest rates, reduce directed credit programs, others measures involve restructuring and recapitalization of distressed banks, et cetera. (See discussion in chapter 4 and World Bank 1994). These reform measures, it is hoped will revitalize the financial systems in reforming countries. In the literature on financial development, two aggregate measures commonly used to indicate the level of financial development are; the ratio of money supply (M_2) to GDP and the ratio of the banking sectors' claims to the private sector to GDP. An increase in these ratios would imply growth in the formal financial system relative the informal sector. As for the banking sectors' claims to the private sector, an increase in this ratio only suggests an improvement in the formal financial sector only if claims to the public sector do not increase. Such measures of financial depth are only policy indicators. We assume that countries that have sound financial systems will have higher ratios of both M_2 to GDP and of Claims on the Private Sector to GDP ratio. Following Gregorio and Guidotti (1995) we use credit to the private sector as a ratio of GDP as our

policy indicator. Credit to the private sector is more appealing in African countries where government's borrow from the banking system. A significant coefficient for this variable may also suggest that government borrowing from the banking system occasionally crowds out private sector investment.

6.1.1.1: Macro Economic Performance Indicators

Although almost all developing countries experienced a slow down in investment after 1982, the fall in investment activity in SSA was more drastic. However, countries in East Asia and Pacific region maintained a strong growth in investment. Latin American countries also recorded a dismal investment activity but recovery was much quicker than in the SSA case. The chart below shows movements in investment activity by region over the period 1970-1994. The dismal investment performance in SSA can be seen clearly. Although investment in SSA as group fell, within SSA there are is mixed performance.

Chart 6: Trends In Investment by Region



Note: SSA is sub-Saharan Africa, LAC is Latin American Countries, EAP represents East Asia and Pacific while LIC is all low income countries. Data from World Bank, World Development Indicators, 1997.

Table 14 shows selected macro economic indicators in selected SSA countries together with those of the East Asian NIC's, for comparison purposes. It is evident that the Asian NIC's have had superior capital accumulation as well as GDP growth. In SSA, two countries: Gabon and Congo have high investment ratios comparable to Asian NIC's during the same period. However, over the sample period the two SSA countries actually experienced de-investment. Real investment in Congo fell by 11 per cent and Gabon registered a fall of about 6.5 per cent. As as the general price level is concerned, many SSA countries have been able to register single digit inflation rate as the Asian NIC's. Out of the 21 countries included in the sample, 9 registered double digit inflation. These countries, however, show declining trends in inflation overtime. This could be as a result of implementation of stabilization measures under Structural Adjustment Programs. As to the measure of financial development, credit to the private sector credit, the Asian NIC's (except for Indonesia with a period average of about 28 percent) are far a head of SSA.

Table 14: Selected Macroeconomic Policy Performance Indicators (for selected countries)

Country	Growth in GDP[1]	Investment Ratio[2] (%)	Inflation[2]	Govt./GDP Ratio[2](%)	Claims on Private/ GDP Ratio[2](%)
SSA					
Burkina Faso	3.3	20.42	2.76	14.66	15.37
Cameroon	-0	20.39	7.04	10.29	24.95
Central Africa Rep.	1.1	11.76	2.64	11.21	9.32
Congo	0	24.54	5.29	19.63	19.53
Cote D'Ivoire	0	11.53	4.46	16.66	37.7
Gabon	1.2	37.28	4.73	19.11	17.89
Ghana	4.6	10.22	34.68	8.79	3.38
Kenya	4.3	16.22	14.26	17.86	19.57
Madagascar	1.5	10.57	15.62	8.12	18.09
Malawi	2.9	11.53	16.96	17.05	11.78
Mauritius	6.3	25.1	7.29	11.05	29.7
Nigeria	3.9	19.56	24.08	14.06	13.97
Rwanda	1.2	13.15	6.06	14.42	7.35
Senegal	2.3	11.81	4.81	15.85	31.7
Seychelles	5.4	24.03	2.32	32.67	8.84
Sudan	0	12.58	56.24	11.25	10.15
Zimbabwe	3	15.15	17.48	22.44	12.67
NIC's					
South Korea	8.9	31.31	5.27	10.32	59.85
Malaysia	5.9	31	2.87	15.12	80.65
Singapore	6.6	38.4	1.8	11.24	100
Thailand	8.5	32.67	3.78	11.27	66
Indonesia	6.6	27.95	8.27	10.12	27.85

[1] The growth rates are calculated by regressing the natural log of real GDP (in local currency) against a time trend and an intercept (sample period 1982-1992).
[2] Period averages
Source: Computations by the Author from IMF Data , IFS Various Issues and World Bank Data, (1997) World Development Indicators.

6.2.0: Empirical Results: Effects of Macroeconomic Policies on Investment.

This sectio attempts an empirical analysis of the theoretical discussion in the previous section. As discussed above, the following indicators of macroeconomic policies ; average annual inflation rate (INFLA), share of general government consumption in GDP (GOVT), external debt as a ratio of GDP (DEBT) , real exchange rate 1987=100) (RINDX) and banking sector claims on the private sector (CRDGP).

The econometric technique applied can be briefly explained by writing the following equation;

$$Y_{it} = \beta_{1i} + \sum_{j=2}^{6} \beta_j X_{jit} + \varepsilon_{it} \quad \text{.....(i)}$$

Where (1) Y_{it} is the observation on the (dependent variable) log investment ratio[82] for the i^{th} country at t^{th} year; (2) i= 1,2,.....N, (N is the number 21 countries included in the sample); (3) t = 1,2,.....T, is the time period (T=11, we have 11 years of data on the variables); (4) β_{1i}, i=1,2,....N are the intercept terms assumed to be different for each country but constant over time[83]; (5) β_j, j= 1,2,...J are the slope coefficients assumed to be constant over time and countries (6) X_{jit} is an observation on the J^{th} explanatory variable for i^{th} country at t^{th} year; (7) ε_{it} is the stochastic random term for i^{th} country and t^{th} year, assumed to be independently identically distributed (iid) with zero mean and constant variance.

The X's comprise our explanatory variables discussed above they include; (DEBT), CREDIT, INFLA, RINDX, GOVT[84] and GROW. GROW is growth in real output. The data used in the analysis is obtained from International Financial Statistics (IMF), various issues and World Bank, World Development Indicators 1995, 1997. The data on external debt is obtained from World Bank, World Debt Tables, 1996. This study covers 21 countries from Sub-Saharan Africa over the period 1982-1992 (the sample thus comprise of 231 observations).

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[82]The specification with log of GFCF produced superior results and was thus adopted.

[83]These represent specific country effects

[84]This comprises government expenditure for goods and services: employee compensation, consumption of fixed capital, military expenditure, but excludes public investment as a ratio of GDP- in real terms. local currency.

Usually depending on the assumptions[85] made about β_{1i}, a 'fixed effects' or 'random effects' model may be estimated[86]. In the statistical analysis we estimate the basic pooled regression[87] as well as 'fixed effects' and 'random effects' model, and use statistical tests to analyze which specification fits the SSA data well. Tests as to whether, the basic pooled regression is adequate revealed that otherwise. As a result we favor the specification with country specific effects. That is, 'fixed' and 'random' effects specification (see table 15).

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[85]If β_{1i} is assumed to be fixed then (i) is known as '*Fixed effects*' or '*dummy variable*'. The 'fixed effects' model can be conveniently written as;
$Y_{it} = \sum_{k=1}^{N} \beta_{1k} D_{ki} + \sum_{j=2}^{6} \beta_j X_{jit} + \varepsilon_{it}$. D_{ki} are the dummy variables and will take value 1 for the country k but zero for observations on other countries. On the other hand, if β_{1i} is assumed to be random with a mean $\bar{\beta}_1$ and variance σ_μ^2, then the specification is known as '*random effects*' or '*error components*' model and in this case a generalized least square estimator is obtained.
The random effects model can be expressed as $Y_{it} = \bar{\beta}_1 + \sum_{j=2}^{6} \beta_j X_{jit} + \mu_i + \varepsilon_{it}$. Where $\beta_{1i} = \bar{\beta}_1 + \mu_i$

[86]Since the choice was not obvious we estimated both models and used statistical tests to determine which specification fits the data well

[87]The basic pooled regression can be represented by $Y_{it} = \beta_{11} + \sum_{j=2}^{6} \beta_j X_{jit} + \varepsilon_{it}$. The basic pooled regression assumes a common intercept and set of slope coefficients for all the countries. The time series-cross-section nature of the data is not differentiated treating the data as a single sample.

Table 15: Regression Results (21 SSA countries): Macroeconomic Policy and Investment

Explanatory Variables	Fixed Effects	Random Effects
GROW	0.015	0.016
	(4.7)**	(5.00)***
CREDIT	0.019	0.016
	(4.4)***	(4.33)***
DEBT	-0.001	-0.001
	(-1.7)*	(-2.47)***
GOVT	-0.004	-0.0074
	(-0.69)	(-.91)
RINDX	-0.001	-0.001
	(-5.73)***	(-5.93)***
INFLA	0.0003	0.0001
	(.267)	(.45)
	R^2=0.76; $\bar{R}^2$=0.72	R^2=0.72; $\bar{R}^2$=0.69
N	231	231

Note: t-statistics in parenthesis
+ Dependent Variable: log of Gross Domestic Investment as a percentage of Real GDP at Market Prices
* significant at the 0.10 level.
** significant at the 0.05 level.
*** significant at the 0.01 level.

According to Mundlak (1978), if the individual intercepts are correlated with the independent variables, then the 'random' effects model is similar to omitted variable mis-specification and its General Least Square (GLS) estimators will be inconsistent. Hausman (1978) has suggested a test[88] for this purpose. Our Hausman test is $X^2_{(7)} = 16.37$ which significant at the conventional .05 level, thus suggesting that the 'random effects' specification is not appropriate. Consequently, the 'fixed' effects panel specification is chosen. Nonetheless, the results obtained are consistent under the two specifications.

Due to data limitations, in the above sample of countries we have not studied the importance of the budget deficit as an indicator of fiscal policy. Reductions in budget deficits

[88]The test statistics has an asymptotic CHISQ ($X^2_{(k-1)}$) distribution with degree of freedom (K-1), where K is the number of estimated coefficients. For details see Hausman (1978)

is one of the central issues of fiscal policy under adjustment policies. To study the importance of the budget deficit under the prevailing data constraints, it was necessary to choose a different sample of countries. We choose eleven countries with consistent data on budget deficit and re-estimated the investment function with our indicator of fiscal policy being the budget deficit. The following equations are two equations are reported for discussion.

Table 16: Regression Results (12 SSA countries): Macroeconomic Policy and Investment

Explanatory Variables	Fixed Effects	Random Effects
GROWTH	0.017	0.017
	(4.3)***	(4.3)***
CREDIT	0.016	0.013
	(3.3)***	(2.9)***
DEBT	-0.001	-0.001
	(-1.7)*	(-1.6)*
DEFICIT	0.013	0.011
	(2.3)**	(2.1)***
RINDX	-0.001	-0.001
	(-5.3)***	(-5.4)***
INFLA	0.001	
	(1.0)	
VARINFLA		-.383
		(-1.9)*
	R^2=0.79; $\bar{R}^2$=.76	R^2=0.76; $\bar{R}^2$=0.73
N	132	132

In the above table, the notations are as presented in table 15. DEFICIT refers to the budget deficit of the central government as a ratio of GDP. The other new variable that has been introduced is VARINFLA which is the coefficient of variation of the price variable as a measure of price variability. This variable is not included in the 'fixed effects' estimation because of data singularity. This variable is time invariant as the intercept, thus it is only included in the random effects estimation. This variable was not significant in the context of results reported in table 15, thus it is excluded in the final regression analysis.

Some observations can be noted from the results reported above. The estimated coefficients for the variables; credit to the private sector, external debt ratio and growth have the expected signs and are consistently statistically significant. The real exchange rate index has a negative and statistically significant coefficient, suggesting that real exchange rate devaluation or depreciation has an adverse impact on investment. This result is consistent with the hypothesis that, in SSA countries where a large share of investment comprise imported capital, currency devaluation/depreciation increases the cost of investment and thus discourages investment. This thus suggest that the negative effects of exchange rate depreciation on investment outweigh the positive effects. However, the small coefficient imply that its effect on investment is quite limited - see table 17.

We do find statistical evidence that large budget deficits are associated with low investment ratio. The results in table 15 suggest that there is no complementarity between government consumption expenditure and GFCF. The results on the impact of inflation on investment is rather interesting. Only 9 out off the 21 countries covered in this study registered double digit average inflation rate over the period 1982-1992. Fischer (1993), has observed that evidence from Africa reveal that macroeconomic stability is not a sufficient condition for growth, he points out that many countries in Franc zone have grown slowly despite low inflation. Savvides (1995) does not find strong relationship between growth and inflation in a sample of African countries during 1960-87. In another study of a sample of 88 countries, (Bosworth et al. 1995) finds evidence that suggest that inflation affects output growth through productivity growth and not capital accumulation. Gregorio (1991) also finds similar evidence in the case of Latin America. This result may support the view that inflation does not affect

investment directly. However, it is widely presumed that inflation rate beyond one digit has adverse effects on financial savings and investment.

Table 17: The impact of the explanatory variables on Gross Fixed Investment (as a percentage of GDP)*

Effect on Gross Fixed Investment : GDP ratio of a 1% increase in	Percentage points change in Gross Fixed Investment Ratio
Foreign Debt/GDP	-0.22
Real GDP Growth	0.02
Credit to Private sector/GDP	0.21
Real exchange Rate index (1987=100)	-0.05
Government Consumption/GDP	-0.20

* elasticities are calculated at the means

The regression equations are in log-linear form. Therefore, the estimated parameters correspond to log of investment ratio. The results are restated in table 4 so that the impact of the various variables on investment ratio can be seen directly[89] (using results from 'fixed' effects specification, table 15).

According to the results in table 17, a 1 percent increase in foreign debt ratio results in 0.2 percent fall in investment. Similarly, 1 percent increase in real growth would result in an increase in investment of about .02 percent. This result should not be surprising because, the average growth in SSA is about 2.6 percent thus doubling growth to about 5.2 percent would imply a 100 percent increase. The corresponding figure for real exchange rate index is very low, implying that for a real exchange rate devaluation/depreciation to have a reasonable impact of GFCF ratio, the change has to be large. For example a 10 percent real exchange rate devaluation would result in 0.5 percent fall in GFCF ratio. On the other hand, a 10 percent

[89]Elasticities are estimated at the means.

increase in credit ratio to the private sector would result in 2 percent improvement in GFCF ratio. A 1 percent increase in real general government consumption ratio would result in a reduction of about .2 percent on average.

This chapter aimed at attempting to establish whether macroeconomic policy can help explain cross country differences in the level of investment activity in SSA. Given that the indicators employed in this paper (average inflation rate, external debt, real exchange rate, credit to the private sector and the share of general government consumption in GDP and budget deficit) are appropriate indicators of macroeconomic policy, then this study supports the view that macroeconomic policies matter. Sound macroeconomic management helps improve investment activity. The results obtained here confirm some of the results of previous studies on the determinants of investment. These include; the positive of the ratio of credit to the private sector, negative impact of external debt, budget deficit and or government consumption and currency devaluation.