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MACROECONOMIC EFFECTS OF CAPITAL FLOW STRUCTURE IN SUB-SAHARAN AFRICA

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ABSTRACT

The influence of capital flows on the macroeconomic stability has been a great concern and examining the effect is of great importance to the macroeconomic policies and risk aversion measures in the recipient countries. Therefore, this study quantitatively analyzed the influences of the capital flows on growth rate of output and inflation rate using several Structural Vector Autoregressive (SVAR) models. The study found that the capital flows have inconclusive effects on output and inflation in the selected African countries from 1985Q1 to 2015Q4. In addition, FDI inflows account for about 20 percent of the macroeconomic fluctuations in the sample period whereas FDI outflows contribute almost 9 percent. The FDI inflows contribute nearly 17 percent fluctuations in Nigeria's economic growth, and 18 percent of unstable inflation rate in Burkina Faso. On the other hand, 3 percent of fluctuations in the growth of Nigerian economy is explained by its FDI outflows against 0.5 percent in other countries.

INTRODUCTION

Global capital flows are very critical in running the world economy because of their link with economic and financial conditions as well as their influence on macroeconomic policy-making. In addition, capital flows influence the level of financial stability and vulnerability most in developing economies. For instance, the net inflows are important for macroeconomic stability especially exchange rate while gross inflows play a crucial role in determining financial stability and vulnerability in any country. Both net flows and gross capital flows are very relevant in formulating monetary policies. This calls for the significant number of academic researches that have focused on investigating factors that influence the flows of capital over the time. In the early 1990s, Calvo, Leiderman and Reinhart (1993) and Fernand ez-Arias (1996) initiated both the theoretical and empirical framework for analyzing the determinants of capital flows by classifying them into country-specific "pull" factors and external "push" factors. The push-pull framework has been extensively applied in advanced economies which started in the United States while the spillover effect of these actions on developing economies has been a recent academic debate. The level of global uncertainty poses a significant challenge in determining the substantial drivers of capital flows.

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Milesi-Ferretti and Tille (2011) attributed the sharp retrenchment in foreign capital flows during the crisis to a huge push shock whereas other studies identified expansionary monetary policies as the key driver of capital flows in emerging nations after the crisis. The appropriate policy response to capital inflow relies on whether flows are driven by external or domestic factors. Also, long-term influence on the recipient economy differs based on whether inflows are primarily cyclical or structural in nature. This indicates the existence of policy direction gap to be filled especially in developing economies. In the light of the above, this study examines the macroeconomic effects of capital flows in selected sub-Saharan African countries[1]. The study also provides answers to the following research questions: whether any exogenous shock to the flows of foreign direct investment affect macroeconomic variables in the recipient countries? What is the direction and magnitude of these effects? Whether FDI inflows and FDI outflows lead to different macroeconomic effects in the selected African economies? Do resource-rich countries experience different macroeconomic effects arising from the flows of foreign direct investment compared to resource-poor counterparts?

Stylized Facts: Share of FDI inflows to the GDP in the region recorded a downward trend between 1970 and 1973. Its share

[1] See Appendix: Fig. A.1 and Fig. A.2 for the historical trends of FDI flows for the countries; Fig A.3 and Fig.A.4 for the trends of growth rate and inflation.

rose from about 1 percent in 1973 to about 1.5 percent in 1974. The FDI inflows into sub-Saharan Africa is characterized with fluctuations between 1975 and 2015.Its highest share of about 5 percent was witnessed in 2001 while the share of FDI inflows to the region's GDP was declined to zero percent. On the other hand, there is slight fluctuations in the share of the region's FDI outflows to its GDP from 1979 to 2015. In 2001, the share of FDI that flew out of the region recorded the lowest with about – 1.24 percent (see Figure 1). From 2014 onwards, the region witnessed constant trend in terms of FDI outflows and downward trend of the FDI inflows. This reflects the economic structure in most countries of the region, in which most rely on the export of primary commodities as the major source of revenue. In addition, the large proportion of FDI inflows into the region is mainly concentrated on these sectors whose nature is capital-intensive.

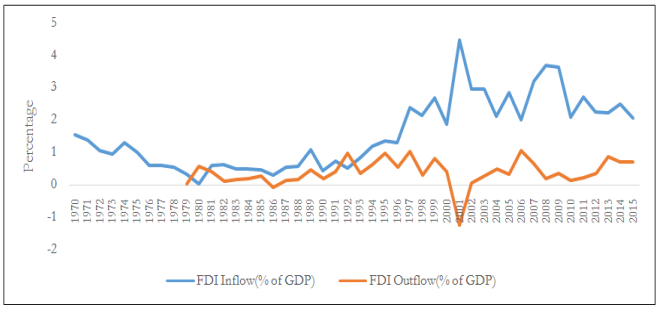

Figure 1. Historical Trends of FDI Inflows and FDI Outflows in Sub-Saharan Africa, 1970-2015

The rest of this study is sectionalized as follows. The existing studies on capital flows are reviewed in section 2. Section 3 provides the analytical framework as well as methodology employed to empirically analyze the macroeconomic effects of capital flows, while empirical results are presented and discussed in section 4. Section 5 is conclusion.

Literature Review

Calvo, Leiderman and Reinhart(1993) assessed the degree of co-movement between various US variables(interest rate, equity and real estate returns) and a proxy of capital flows to Latin American economies(reserve accumulation and real exchange rate appreciation) using principal component analysis. Other studies used data on capital flows instead of a mere proxy. Some studies (Ghosh and Ostry, 1993; Chuhan *et al*. 1998) found that domestic economic fundamentals were the predominant driver of capital flows. World Bank study of 1997 identified structural changes such as deregulation of financial markets, new information and communication technology and rise of institutional investors in US as the drivers of upward trends in the mid-1990s. While in the mid-2000s, push factors are important drivers of capital flows (see Baek, 2006; Kyaw, 2008a; IMF, 2015, Albuquerque *et al*., 2005). Global crisis of 2008/09 and after the crisis is considered by Broner *et al*. (2013). They found gross capital flows to be highly pro-cyclical. Therefore, four episodes – surges (of non-resident inflows), stops (of non-resident inflows), flight (of resident outward investment), and retrenchment (of resident outward investment), are noted. Other studies that investigated how push factors influence capital flows include Ghosh *et al*. (2014a), Ahmed and Zlate (2013), World Bank (2014), Koepke (2014), and Vasishtha (2014) etc. Blanchard *et al*. (2015) examined the capital flow of 19 emerging economies using the Mundell-Fleming model from 2000 to 2014. They considered variables such as GDP growth, bond flows, non-bond flows, other external development and rate of term of trade etc. in the model. Their results revealed that non-bond inflows contribute to an exchange rate appreciation and reduce the cost of borrowing in a given policy rate. This leads to an expansionary situation. In addition, the exogenous bond flows adversely affect the level of output, but non-bond flows enhance the economic output.

Obiechina (2010) investigated the relationship between capital flows and financial crises in Nigeria by annual time series data spanning from 1986 to 2008. He suggested that exchange rate pegs need to be avoided but concluded that economic policies have to be implemented by considering uncertainties in financial market development and capital accounts liberalization. Kohli (2001) conducted an empirical analysis of capital flows and macroeconomic effects in India by applying impulse response function for the sample period 1985-1998. He found that foreign capital inflows have led to real exchange rate appreciation, and significantly influence the domestic money supply. In addition, these effects were controlled during a capital surge through government intervention and sterilization. Lipschits *et al*. (2001) analyzed the flows of capital to transition economies. Their conclusion is that capital inflows to the CEE economies can be regarded as useful resources in the process of development, convergence and catch up. However, the inflows make the CEE countries more vulnerable to global capital market shocks. Lane and McQuade (2013) investigated the relationship between domestic credit growth and global capital flows in 30 European countries from 1993 to 2008 with the aid of OLS and 2SLS estimation techniques. Their empirical result indicates that the presence of a significant cross-country variation in domestic credit growth and cross border capital flows during the pre-crisis era. In addition, they found that the strong relationship is established between domestic credit growth and net debt inflows but no link is recorded between domestic credit growth and net equity inflows. Similar conclusion is reached when they extended the sample countries to 54(advanced and emerging countries). Raghavan *et al*. (2014) empirically analyzed the influence of portfolio capital flows and domestic credit on the Australian economy with the use of quarterly data spanning from 1983 to 2013. The estimates of their structural vector autoregressive model reveal that the debt flows influence the amount of net portfolio flows in Australia but no real effect on Australian macroeconomic variables is emanated from equity flows. Considering the global financial crisis period in the model, this led to a greater effect on the gross national expenditure, GDP, and credit.

Mody and Murshid (2011) investigated the role of volatility regime in the growth of global capital flows in 61 economies between 1980 and 2003. They selected countries across different continents of the world and subjected the annual data of variables such as GDP growth, current account, ethic fractionalization, financial development, financial integration, fiscal balance, foreign aid, government type, institutional quality etc. to weighted, panel and pooled regression models. They found that foreign capital flows have boosted economic growth when the volatility is below a threshold, but slower growth was linked with more capital flows during the periods of volatile growth. In addition, they concluded that volatility levels and changes capture the interaction of domestic production and institutional structures with global factors.

Bogdan *et al*. (2015) examined the relationship between international capital flows and economic growth in 11 Central, Eastern and Southeastern Europe countries from 1997 to 2012 using a dynamic panel growth regression model. Their finding shows that real international shocks such as export growth, banking crises and evolution of loan portfolios significantly influence the short run developments. Also, a positive relationship is established between credit to households and output growth; and between corporate credit and output growth, but not significant during the periods of crises. Weeks (2012) examined macroeconomic impact of capital flows in sub-Saharan countries between 1980 and 2008 based the Harrod-Domar framework. He found that the presence of a strongly cyclical nature in capital flights for all the three country groups, with a striking fall in the early 2000s. In addition, there was a continuous decline in debt service in the mid-1990s; while foreign direct investment experienced an upward trend but its aggregate for all countries are below the amount of capital flights. Similar pattern is recorded for the case of financial development assistance. In the same vein, Weeks (2014) conducted an analysis on the macroeconomic effects of capital flights in 31 sub-Saharan African countries using annual data for the sample period 1970-2010. The outcome of his findings based on Harrod-Domar framework, shows that capital flights would not be lower in a country whose government implements sound macroeconomic policies. He concluded that capital flight adversely affects the economic growth between 1980 and 2010 with more impacts in the petroleum exporting economies and those with internal conflicts.

Rossini *et al*. (2008) analyzed the macroeconomic implications of capital inflows in Peru from 1991 to 2007 using both cointegration and regression approaches. Their result reveals that a rise in foreign direct investment and long term debt significantly determine capital inflows to Peru. In addition, they concluded that macroeconomic stability indicators such as fiscal and monetary discipline, and financial stability are key drivers of capital inflows. Kandil and Trabelsi (2015) examined the link between macroeconomic performance and capital flows before and after the financial crisis in Turkey, by employing quarterly data from 1989 to 2009. The result of their VAR model indicates that liberalization of financial flows significantly influences macroeconomic performance especially after the crisis period. Kim and Yang (2008) investigated the impact of capital inflows on emerging East Asian economies using quarterly data from 1999 to 2006. Based on a panel VAR model, they found that capital inflows determine the asset price in a positive relationship. In addition, this relationship is extended to stock prices, land prices, nominal and real exchange rates.

Davis (2014) examined the macroeconomic effect of debt- and equity based capital inflows in 30 countries, comprising 16 developed economies and 14 emerging market, using the structural panel VAR model from 2005 to 2013 based on quarter data. He found that an exogenous rise in debt inflows contributes significantly to an increase in GDP, inflation, stock prices, credit growth and exchange rate appreciation, while an exogenous increase in equity-based capital inflows has a non-significant effect. Therefore, he concluded that macroeconomic effects of capital inflows were as a result of changes in debt-based capital inflows. Studies such as Milesi-Ferretti (2011), Lane and Milesi-Ferretti (2012) postulate that bank loans and other forms of debt-based capital flows have witnessed the largest swings over the past few years, based on disaggregation of capital flows in debt flows and equity flows. Similarly, Forbes and Warnock (2014) point out that global push factors are the main driving forces of both debt- and equity-based capital inflows but push factors influence debt flows(both bank loans and portfolio debt flows) stronger. Equity flows are driven more by the receiving country-specific factors.

Literature Gap

The study is similar to the previous research on the macroeconomic effects of international capital flows. However, it has able to fill the literature gap by examining the phenomenon in relation to African countries. In addition, it employs quarterly and recent data in its analysis. The structural vector autoregressive (SVAR) model is estimated using time series analysis for each country rather than pooling the countries together as done in the previous studies. Scanty researches have been applied to African countries especially Nigeria, Burkina Faso, Kenya and Cameroon in a comparative manner. In addition, it examines these four countries comparatively using time series techniques. The choice of these countries is based on the data availability for the key variables as suggested in the existing literature. Apart from this, these countries have some unique features that would make the study analysis robust. First, Nigeria and Burkina Faso belong to the West Africa and members of ECOWAS. Nigeria is a resource-rich country while Burkina Faso is a resource-poor nation. Second, Cameroon and Kenya are East African nations. Cameroon is endowed with natural resources especially energy while Kenya is a resource-scarce country. Moreover, all the countries except Burkina Faso are classified as middle-income countries, and none of the selected countries is regarded as a fragile country in the region. Nigeria and Cameroon are also identified among oil exporters in sub-Saharan Africa. This points out to another research question on whether the effects of FDI flows differ based on the income status of the recipient.

Analytical Framework and Methodology

Analytical Framework

The existing literatures identify that smaller flows are as a result of the following factors: costly investment; existence of non-traded capital goods; global factors; differences in total factor productivity; and uncertainty of returns. Also, the motives for attracting FDI include the most stable type of capital inflows; direct transfer of know-how; boosting production chain; enhancing country's competitiveness and trade surpluses. However, its demerits are higher importation of goods, widening current account deficits, and less diversification. Many countries view the swings in capital flows as the major drivers of high macroeconomic volatility especially in the recipient ones. Some nations call for formulating policies that would manage the macroeconomic and financial stability risks linked with capital inflow surges or disruptive capital outflows(IMF, 2012). Whereas other studies regard global liquidity and risk as the key determinants of capital inflows (Forbes and Warnock, 2012; Fratzscher, 2012; and Rey, 2013). In addition, they argued that international push factors have more influence on capital flows into a country than any country-specific pull factors (Davis, 2014).

In the light of this, this study uses FDI flows as a proxy for capital flows in the concerned countries.

Methodology

Data specifications

In reference with the framework of SVAR model in Davis (2014), this study utilizes three key variables, namely the capital flows (Kflows), real GDP growth rate (GR) and inflation rate (INFL). The selection of the last two variables is based on the theoretical stands in the literature. The sample period spanning from first quarter 1985 to fourth quarter 2015 is chosen on the basis of data availability, and only four countries in sub-Saharan Africa are considered in the study because most African countries are lack of adequate data during the sample period. The FDI flows in percentage of GDP is used as a proxy for the capital flows in each of the selected countries. All the variables are annual data drawn from International Monetary Fund (IMF) and World Bank. In addition, these variables have been transformed into quarterly data using E-views software as suggested in the previous studies that high frequency is very important in analyzing the capital flows. The study firstly investigates the stationary features of the four variables using both the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests before the SVAR models are specified. The results of ADF and PP tests reveal that all the level variables have unit roots at the significance of 5 percent. However, these variables are stationary by taking their first difference.

The SVAR model

The basic condition of using SVAR model is that all variables are stationary as stated in Sims (1980). This condition is in line with the outcomes of the unit root tests. Therefore, the SVAR model in this study is estimated with data in levels as suggested in the work of Toda and Yamamoto(1995), whose advantage is that it avoids the potential bias for unit root and cointegration tests(Chen *et al*., 2016). In addition, the long run information is obtained using the level variables rather than the first-differenced variables (Chen *et al*., 2016). To quantify the macroeconomic effects of capital flows in these countries, the study initially specifies a vector of the three variables as Y_t= (Kflows, GR, INFL).

Then, a SVAR model is expressed in relation to the vector as:

$$B_0 Y_t = \alpha + \sum_{i=1}^{p} B_i Y_{t-i} + u_t \quad 1$$

where p = q+1 denotes the length suggested by Toda and Yamamoto (1995) and q is determined in line with the principles of minimum Akaike Information criterion(AIC) and Schwrtz Information criterion(SC) values.

The purpose of this study is to empirically analyze the impacts of capital flows on macroeconomic variables for the whole sample period. B_0,α, and B_i are the unknown coefficient vector and matrices to be estimated; while u_t is the vector of serially and mutually uncorrelated structural innovations. The reduced form of the VAR is specified as:

$$Y_t = B_0^{-1}\alpha + \sum_{i=1}^{p} B_0^{-1} B_i Y_{t-i} + e_t \quad 2$$

Where $e_t = B_0^{-1} u_t$ represents the vector of the estimated forecast errors in the reduced VAR model. No restriction is imposed on B_0^{-1} since the capital flows are mainly influenced by both push and pull factors. The errors e_t of the reduced form are decomposed as follows:

$$e_t = \begin{bmatrix} e_t^{KFlows} \\ e_t^{GR} \\ e_t^{INFL} \end{bmatrix} = \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix} \begin{bmatrix} u_t^{KFlows\ shock} \\ u_t^{GR\ shock} \\ u_t^{INFL\ shock} \end{bmatrix} \quad 3$$

The elements a_{ij}(i = 1,.., 3; j = 1,..,3) are the coefficients of the i's response to the shocks j.

The impulse response function (IRF) of SVAR is applied to quantify the impacts of one standard structural innovation from capital flows on macroeconomic variables, and the variance decomposition approach (VDA) of SVA is employed to investigate the share of capital flows to the macroeconomic fluctuations. There has been broadly used of IRF and VDA in empirical researches as observed in (Chieh *et al*., 2016).

EMPIRICAL RESULTS AND DISCUSSIONS

How do the macroeconomic variables respond to the capital flow shocks?

In this segment, the study investigates the impulse response of capital flow shocks on the real GDP growth rate and inflation rate in the concerned economies. A three-variable SVAR (Kflows, GR, INFL) model is firstly estimated in line with equation 2 using the least square approach. All the empirical results are obtained from the software of Eviews 9.

Net FDI Inflows as a proxy for capital Inflows

Figure A.5 shows the impulse responses of the GDP growth rate and inflation rate to one standard deviation of FDI inflow shock in Burkina Faso. The study finds that real GDP growth rate responds to FDI inflow shock negatively and negative impacts turn to significant positive after one year and half, implying that the FDI inflow shock has both negative and positive significant influences on the country's GDP growth rate in the sample period. However, the statistical significance of the responses is weak because the confidence bands enclose zero.

Table 1. Structural Vector Autoregressive Model: FDI Inflow

	Burkina Faso	Cameroon	Kenya	Nigeria
C(1)	0.163524***	0.521045***	0.298285***	0.754786***
C(2)	-1.018009	-0.026384	0.540124**	-1.545472***
C(3)	1.269213***	0.936991***	0.706028***	2.523722***
C(4)	5.730607***	-0.097732	0.782775	-1.124338**
C(5)	0.384735***	1.841831***	-1.542566***	-0.387304***
C(6)	1.934447***	2.349688***	2.378616***	3.871938***

Note: *** 1%, ** 5%, * 10%.@e1 = C (1)*@u1; @e2 = C (2)*@e1 + C (3)*@u2; @e3 = C (4)*@e1 + C (5)*@e2 + C (6)*@u3

Therefore, it is concluded that FDI inflow shocks do have a negative and positive effect on the economic growth in the sample period from first quarter 1985 to fourth quarter 2015. Although, statistical significance is weak (Table 1). The impulse responses of the inflation rate to one standard deviation of FDI inflow shock in Burkina Faso is positive up to the end of the second year. About the end of the second year after the FDI inflow shock, inflation rate responds to FDI inflow shock negatively. In addition, the statistical significance of the responses is strong because the confidence band s do not enclose zero. The impulse responses of GDP growth rate and inflation rate to one standard deviation of FDI inflow shock and FDI outflow shock is depicted in Figure A.5 and Figure A.6 for the case of Cameroon. The impulse responses of both GDP growth rate and inflation rate to FDI inflow shocks is negative and significantly weak. However, the GDP growth rate responds positively to FDI inflow shocks after the second quarter of the year, and becomes significant positive impacts (see Figure A.5).

responds positively at the beginning of the third quarter of the following year (Figure A.6). On the other hand, Nigeria's GDP growth rate and inflation rate respond negatively and insignificantly at 5 percent to one standard deviation of FDI outflows. The significance of their impulse responses is weak because confidence b and enclose zero. In addition, the response of the GDP growth rate remains negative in the sample period, while inflation rate's response attains positive after the end of the year (Table 2 and Figure A.6).

where @e1 represents FDINO residuals, @e2 represents GR residuals, @e3 represents INFL residuals.

How much macroeconomic fluctuations can be explained by the capital flows shocks?

In this section, the study's focus is to examine the contributions of the capital flows to the macroeconomic fluctuations in the countries.

Table 2. Structural Vector Autoregressive Model: FDI Outflow

	Burkina Faso	Cameroon	Kenya	Nigeria
C(1)	0.414823***	0.267731***	0.053047***	0.312675***
C(2)	0.098335	0.155778	0.330820	-1.478006*
C(3)	1.296887***	0.943856***	0.725104***	2.772684***
C(4)	1.451137***	-0.205253	-9.661352**	-0.633772
C(5)	0.260877*	1.761189***	-1.499191***	-0.186213
C(6)	2.061228***	2.434713***	2.344386***	4.114562***

Note: *** 1%, ** 5%, *1%.
@e1 = C (1)*@u1; @e2 = C (2)*@e1 + C (3)*@u2; @e3 = C (4)*@e1 + C (5)*@e2 + C (6)*@u3

where @e1 represents FDINI residuals, @e2 represents GR residuals, @e3 represents INFL residuals.

With reference to Kenya, the GDP growth rate and inflation rate respond positively to FDI inflow shocks. However, the significance of their impulse responses is weak because their confidence bands enclose zero. In addition, response of GDP growth rate reaches zero at the end of first quarter of the second year and turns negative afterwards (see Figure A.5). The impulse responses of GDP growth rate and inflation rate to one standard deviations of FDI inflow shocks in Nigeria are negative and significant. However, the responses of the country's GDP growth rate and inflation rate turn positive at almost fourth quarter of the following year and second quarter of the year respectively (Figure A.5).

Net FDI Outflows as a proxy for capital outflows

For the case of FDI outflows in Burkina Faso, the impulse responses of both GDP growth rate and inflation rate to FDI outflow shocks is positive but insignificant for GDP and significant for inflation rate (see Table 2). However, the GDP growth rate responds negatively to FDI outflow shocks after the third quarter of the year, whereas inflation rate becomes significant negative impacts after the fourth quarter of the year (see Figure 3). The insignificant and positive impulse response of real GDP growth rate to one standard deviation of the FDI outflow shocks is noted in Cameroon. Similarly, the impulse response of Cameroon's inflation rate to FDI outflow shocks is statistically insignificant and negative (Figure A.6 and Table 2). Similar responses are observed for the case of Kenya as reported in Table 3. Unlike Cameroon, Kenya's inflation rate responds to its FDI outflow shocks negatively and significantly. The impulse responses of the GDP growth rate remain positive through the sample period but inflation rate

The macroeconomic variables' variances are decomposed to three components by applying the variance decomposition technique and the results are presented.

Net FDI Inflows as a proxy for capital Inflows

Burkina Faso

In Table A.3, it can be observed that the FDI inflow shocks only account for a small proportion of growth rate fluctuations in the short term and long term, and this can also reflect why the impulse responses of growth rate to the FDI inflow shocks are not significant. In the same vein, inflation shocks (1.5%) have the least explanatory power of growth rate fluctuations in both the short term and the long term. Since the variance decomposition results attain a stable state in quarter 8, so the decomposition results in quarter 8 are finally used to compare the different factor's contributions to the growth rate fluctuations. The study finds that the FDI inflows contribute to 1.5 percent of the economic growth fluctuations in the sample period ranking second among the three economic growth influencing factors considered in this study.

In addition, inflation shocks (1.4percent) contribute least to the economic growth fluctuations in the covered period. This is in consistency with the existing literature that found that inflation shocks have little systematic predictive power for changes in economic growth. In addition, some studies claimed that economic growth shock is capable of explaining majority of the economic growth evolutions. On the other hand, The FDI inflows contribute to about 18 percent of the inflation rate fluctuations in the sample period ranking second. In the same vein, economic growth rate shocks account for the least share of the inflation rate fluctuations in Burkina Faso.

Cameroon

As reported in Table A.3, the FDI inflow shocks only contribute a small share to growth rate fluctuations in the short term but its share increases to about 10 percent in the long term. Inflation shocks (2.25%) have the least explanatory power of growth rate fluctuations in the sample period. On the other hand, The FDI inflows contribute to about 2 percent of the inflation rate fluctuations in the sample period ranking least in the sample period. Whereas, economic growth rate shocks account for almost 37 percent share of the inflation rate fluctuations in Cameroon.

Kenya

About 5 percent of growth rate fluctuations in Kenya is associated with the FDI inflows as shown in Table A.3. In addition, more than 90 percent of Kenya growth rate fluctuations is explained by itself in the sample period. Insignificant share is arising from inflation rate. Whereas, the inflation rate fluctuations are not significantly explained by the FDI inflows as account for about 3 percent in the covered period. GDP growth rate and inflation rate itself contribute 19 percent and 75 percent respectively to inflation rate fluctuations in Kenya on average in the sample period.

Nigeria

Table A. 3indicates that about 17 percent fluctuations of Nigeria's growth rate are explained by the FDI inflows into the country while about 82 percent is associated with the growth rate itself in both the short and the long term. On the other hand , fluctuations in the country's inflation rate are mainly explained by itself (93 percent) and GDP growth rate (5.7 percent) in the short term. In the long term, about 10 percent of inflation rate fluctuation in Nigeria is associated with the FDI inflows, while 6 percent and 84 percent arise from GDP growth rate and inflation itself respectively.

Net FDI Outflows as a proxy for Capital Outflows

Burkina Faso

From Table A.4, the FDI out flows contribute an insignificant share of growth rate fluctuations in the short term and long term, and this also buttresses why the impulse responses of growth rate to the FDI outflow shocks are insignificant. However, growth rate shock has the high explanatory power of growth rate fluctuations in both the short term and the long term. The FDI outflows shocks account for about 18 percent of the inflation rate fluctuations in the sample period ranking second in the sample period. In addition, economic growth rate shocks account for the least share of the inflation rate fluctuations in Burkina Faso with the average of 2.6 percent (see Table A.4).

Cameroon

As presented in Table A.4, the FDI outflow shocks only contribute a small share to growth rate fluctuations in the short term and the long term. Inflation shocks (2.5%) are ranked second among factors that contribute to growth rate fluctuations in the sample period. On the other hand, The FDI outflows contribute to about 0.1 percent of the inflation rate fluctuations in the sample period ranking least in the sample period. Whereas, economic growth rate shocks account for almost 30 percent share of the inflation rate fluctuations in Cameroon.

Kenya

Approximately 0.5 percent of growth rate fluctuations in Kenya is associated with the FDI outflows as indicated in Table A.4. In addition, more than 90 percent of Kenya growth rate fluctuations is linked to growth rate shock in the sample period. Insignificant share is arising from inflation rate. On the other hand, the inflation rate fluctuations are not significantly explained by the FDI outflows in the sample period. GDP growth rate and inflation rate itself account for 19 percent and 75 percent to inflation rate fluctuations in Kenya on average in the sample period.

Nigeria

Table A.4 reports that about 3 percent fluctuations of growth rate experienced in Nigeria are explained by the FDI outflows while more than 90 percent is associated with the growth rate itself in both the short and the long term. On the other hand, fluctuations in the country's inflation rate are attached to inflation rate shock (98 percent) and GDP growth rate shock (1.4 percent) in the short term. In the long term, about 8 percent of inflation rate fluctuation in Nigeria is linked with the growth rate shock, while 0.5 percent is explained by the FDI outflow shock.

Concluding Remarks

Capital flows has always been a great concern for examining the levels of macroeconomic stability. Therefore, this study utilizes the capital flow components and establishes several SVAR models complemented with other factors such as GDP growth, inflation. In reference to the impulse response functions and variance decomposition techniques of the SVAR models, the study empirically analyzes the influences of capital flows on the macroeconomic stability from 1985 Q1 to 2015Q4 through which some conclusions are made as follows:

- Real GDP growth rate responds to FDI inflow shock negatively and negative impacts turn to significant positive after one year and half in Burkina Faso. Whereas its inflation rate responds to FDI inflow shocks negatively towards the end of the second year after the FDI inflow shock.
- The impulse responses of both GDP growth rate and inflation rate to FDI inflow shocks in Cameroon are negative and significantly weak, but the GDP growth rate responds positively to FDI inflow shocks after the second quarter of the year, and becomes significant positive impacts.
- For the case of Kenya, the GDP growth rate and inflation rate respond positively to FDI inflow shocks. However, the significance of their impulse responses is weak because their confidence band s enclose zero.
- The impulse responses of GDP growth rate and inflation rate to one standard deviations of FDI inflow shocks in Nigeria are negative and significant
- With reference to FDI outflows, the impulse responses of both GDP growth rate and inflation rate to FDI outflow shocks for Burkina Faso is positive but insignificant for GDP and significant for inflation rate.

The insignificant and positive impulse response of real GDP growth rate to one stand ard deviation of the FDI outflow shocks is noted in Cameroon. However, Kenya's inflation rate responds to its FDI outflows negatively and significantly.

- Nigeria's GDP growth rate and inflation rate respond negatively and insignificantly to one stand ard deviation of FDI outflows.

Policy Implications

Relevant policy implications that can be drawn from the above conclusion are as follows:

- Since the capital flows pose a significant positive impact on economic growth and inflation in the covered period. Policy makers in the selected countries need to establish a proactive measure for the occurrence of the unexpected capital flow shock.
- The capital flows perform a very crucial role in stabilizing the economy but the available quantitative data of countries' capital flows especially for the high frequency data still remains a big challenge for academic researches. Therefore, each of African countries individually and collectively should bridge the gap of data unavailability by monitoring the capital flow situation.

This study examines the impacts of capital flows on growth rate and inflation by analyzing the contribution of capital flows especially FDI flows to the fluctuations of macroeconomic stability. In addition, it compares the contributions of different FDI flows components to output fluctuations and changes in inflation rate. Considering the frequency of capital flows in the region, most countries especially oil exporting ones need to diversify the sources of the capital inflows in order to avoid the macroeconomic instability arising from the global events such as the recent continuous decline in the FDI inflows especially resource-rich countries like Nigeria. The outcome of this study provides relevant information for policy makers and financial market participants. However, further research can be done by using data of higher frequency, longer sample period and more countries, which might provide more understand ing on the effects of capital flows in the region.

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Appendix

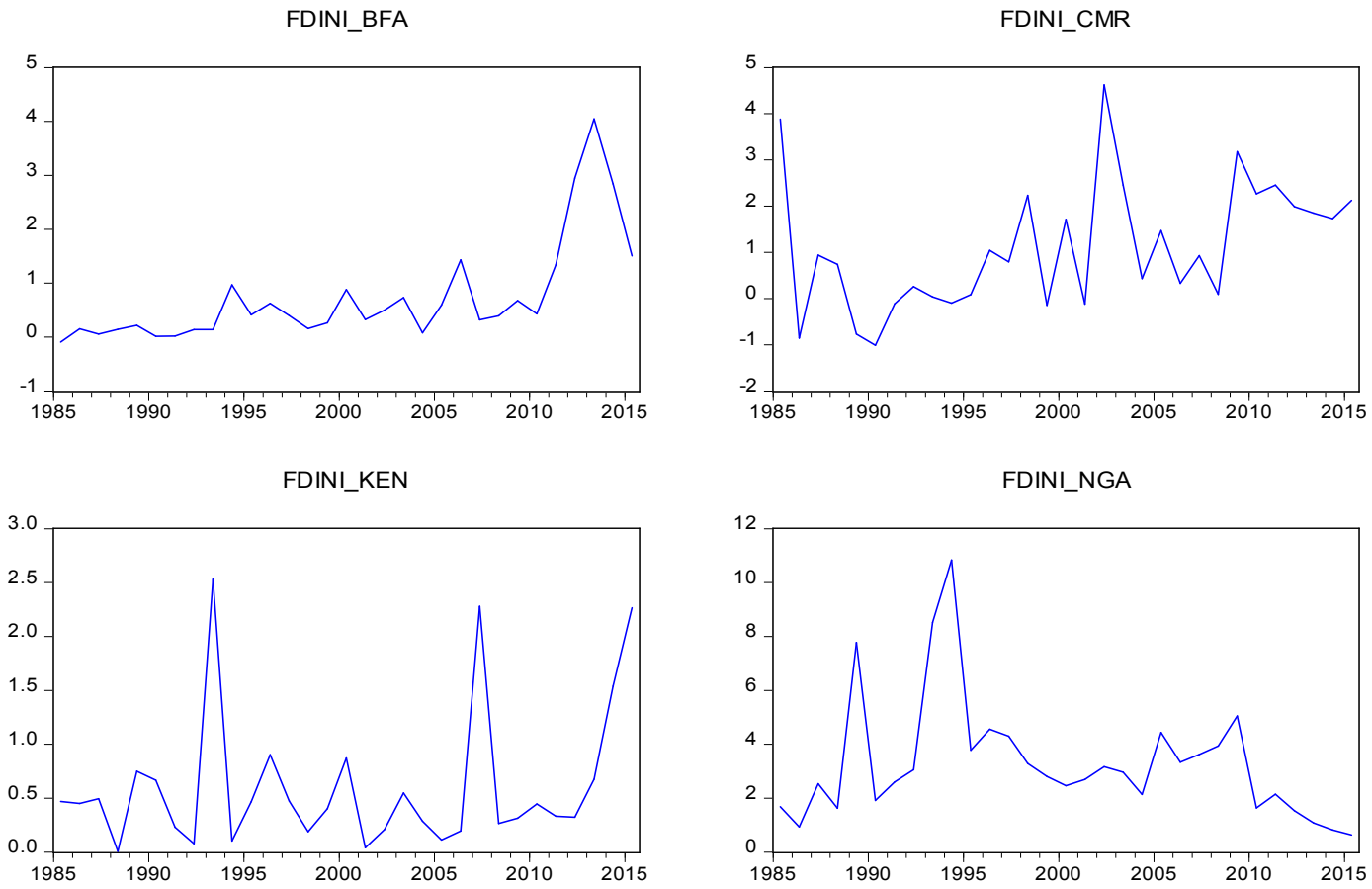


Figure A.1. FDI Inflows in Selected African Countries

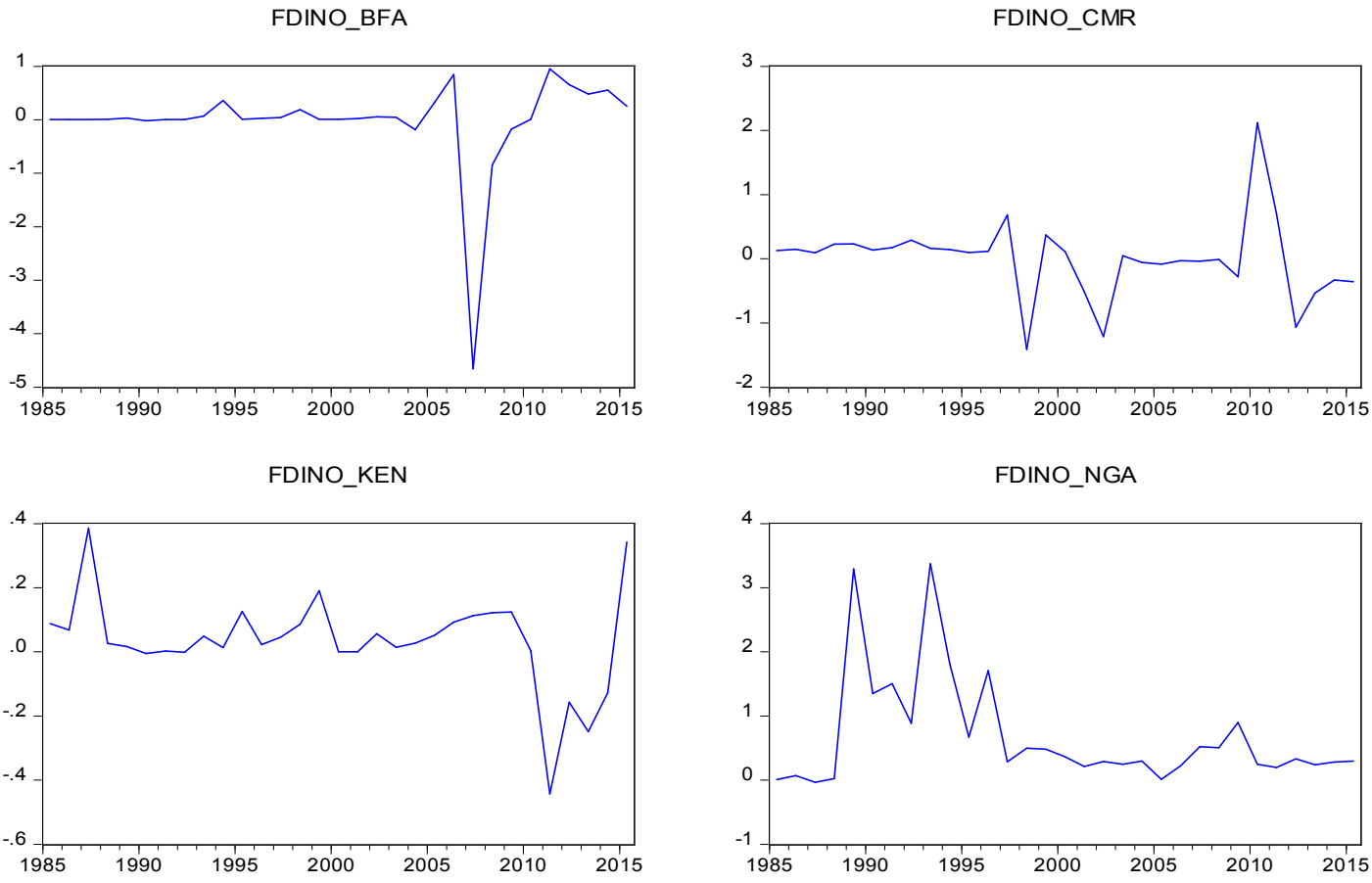


Figure A.2. FDI Outflows in Selected African Countries

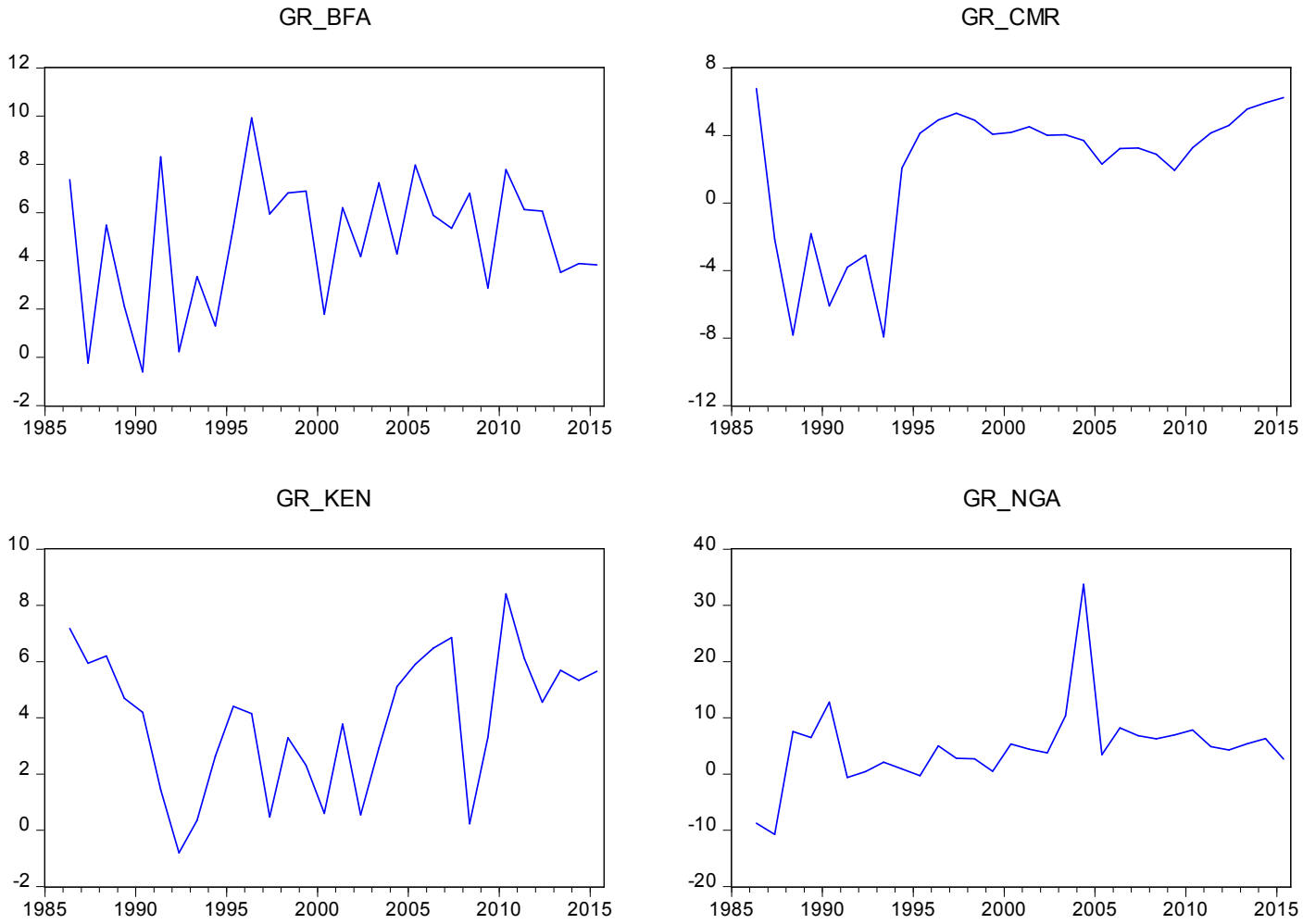


Figure A.3. Real GDP Growth Rate in Burkina Faso, Cameroon, Kenya and Nigeria

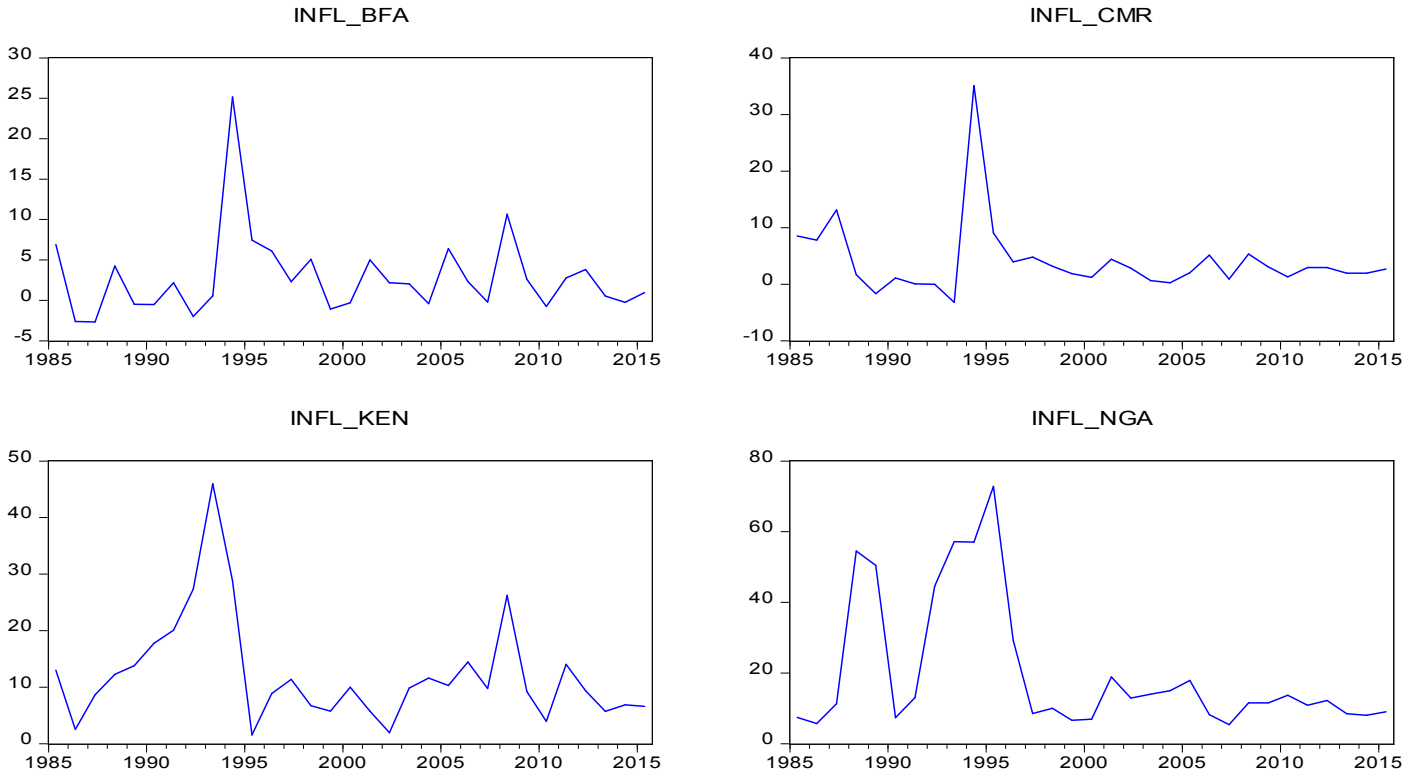


Figure A.4. Inflation Rate in Burkina Faso, Cameroon, Kenya and Nigeria

Table A.1. Summary of Descriptive Statistics

Descriptive Statistics

Statistics	FDINI_BFA	FDINI_CMR	FDINI_KEN	FDINI_NGA	FDINO_BFA	FDINO_CMR	FDINO_KEN	FDINO_NGA
Mean	0.731214	1.113632	0.610599	3.285759	-0.030028	0.001853	0.034977	0.680477
Median	0.391174	0.915947	0.444949	2.819646	0.018957	0.093174	0.038708	0.326118
Maximum	4.125562	7.085243	2.686606	11.42874	1.588947	2.299475	0.595023	3.558220
Minimum	-0.259426	-1.241723	-0.272477	0.586033	-5.052113	-1.551639	-0.47622	-0.501188
Std. Dev.	0.958135	1.439254	0.666545	2.277635	0.928801	0.625493	0.153237	0.862441
Skewness	2.104814	1.013537	1.755655	1.707460	-4.029487	0.595377	-0.348236	2.002155
Kurtosis	6.883357	4.825948	5.381580	6.099285	21.23121	6.531574	6.560494	6.505610
Jarque-Bera	169.4741	38.45612	93.00632	109.8808	2052.841	71.76454	68.00465	146.3397
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	90.67056	138.0904	75.71423	407.4341	-3.723412	0.229801	4.337159	84.37918
Sum Sq. Dev.	112.9168	254.7886	54.64670	638.0773	106.1085	48.12273	2.888229	91.48792
Observations	124	124	124	124	124	124	124	124

Statistics	GR_BFA	GR_CMR	GR_KEN	GR_NGA	INFL_BFA	INFL_CMR	INFL_KEN	INFL_NGA
Mean	4.868544	2.105313	3.930814	4.713998	2.839193	4.025751	12.26219	20.01514
Median	5.395098	3.861845	4.481314	4.544868	1.854572	2.595942	10.19418	12.17491
Maximum	13.13535	10.82507	8.808382	35.84489	26.93270	37.87191	47.19060	76.42606
Minimum	-1.40754	-8.71814	-0.97327	-13.17321	-4.114221	-8.493167	-1.106047	1.863981
Std. Dev.	2.769352	4.158715	2.431901	7.343298	5.345905	6.699198	9.412901	19.01982
Skewness	-0.168707	-1.203178	-0.293554	1.578366	2.450359	3.319382	1.826177	1.514797
Kurtosis	2.904072	3.504129	2.147594	9.933363	10.84149	16.21091	6.733440	3.916178
Jarque-Bera	0.615250	30.22349	5.356459	290.1824	441.7813	1129.440	140.9377	51.75873
Probability	0.735191	0.000000	0.068685	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	584.2252	252.6375	471.6976	565.6798	352.0599	499.1932	1520.512	2481.878
Sum Sq. Dev.	912.6480	2058.095	703.7832	6416.959	3515.180	5520.147	10898.13	44495.70
Observations	120	120	120	120	124	124	124	124

Statistics	RIR_CMR	RIR_KEN	RIR_NGA
Mean	13.90678	8.252164	-0.030592
Median	15.71099	7.461496	3.825084
Maximum	21.75760	21.37783	29.75247
Minimum	-5.582377	-9.073323	-46.99138
Std. Dev.	5.805182	6.910039	17.98523
Skewness	-1.656795	-0.1599	-0.845507
Kurtosis	5.551637	2.913054	3.271342
Jarque-Bera	67.04778	0.567461	15.15464
Probability	0.000000	0.752970	0.000512
Sum	1279.424	1023.268	-3.793361
Sum Sq. Dev.	3066.713	5873.082	39786.61
Observations	92	124	124

Table A.2. VAR Models

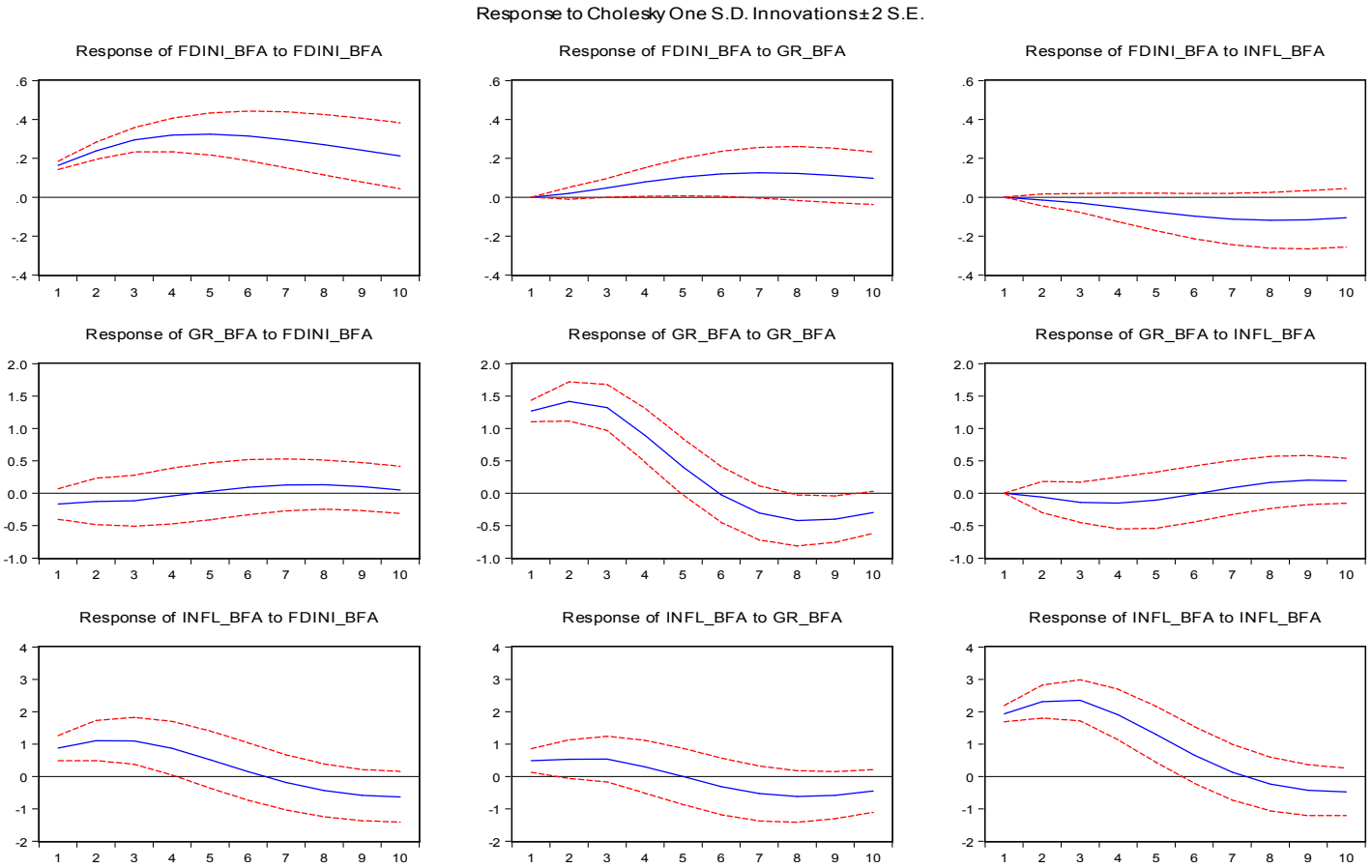
Vector Autoregressive Model

FDI Inflow: Dependent Variable	Burkina Faso	Cameroon	Kenya	Nigeria
C	-0.00618	0.223381***	0.129539	0.363731
FDINI(-1)	1.516620***	1.137916***	1.209556***	1.198393***
FDINI(-2)	-0.379637*	-0.214461	-0.229043	-0.231959
FDINI(-3)	-0.186522	-0.198858**	-0.256705**	-0.22257**
GR(-1)	0.018649	0.053049	0.000255	0.015746
GR(-2)	-0.005786	-0.060414	-0.005741	-0.006165
GR(-3)	-0.000856	0.058431	0.009512	0.007010
INFL(-1)	-0.007622	-0.008117	0.005827	0.025084
INFL(-2)	0.005828	0.012926	-0.004277	-0.011406
INFL(-3)	-0.003271	-0.010783	0.000596	0.006801
Adj. R-squared	0.971520	0.836620	0.810556	0.891175
F-statistic	440.6724	67.00030	56.14654	106.5481

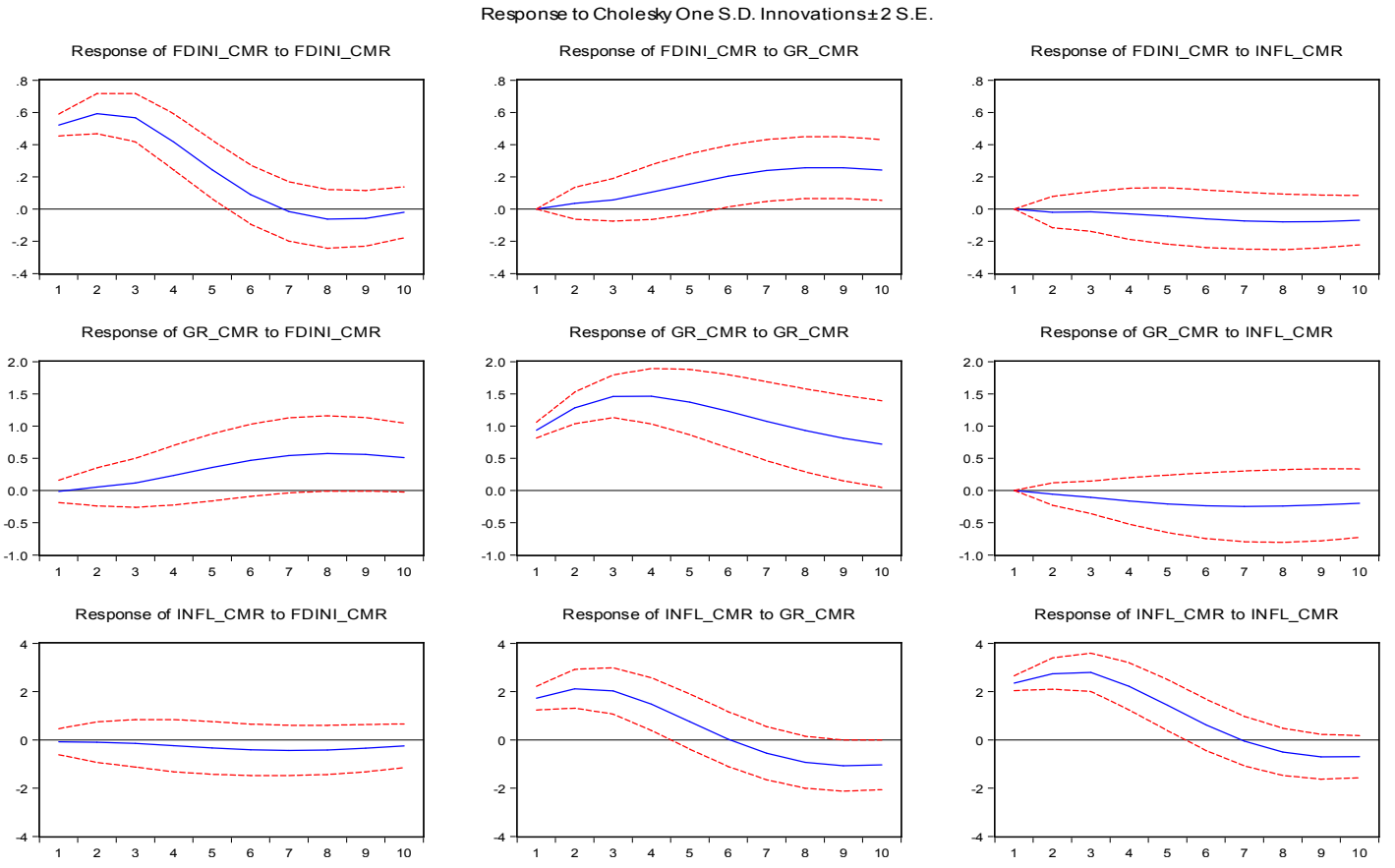
FDI Outflow: Dependent Variable	Burkina Faso	Cameroon	Kenya	Nigeria
C	-0.005919	0.014711	0.005668	-0.002761
FDINO(-1)	1.325911***	1.337555***	1.520217***	1.218929***
FDINO(-2)	-0.527339***	-0.548099***	-0.621194***	-0.464614***
GR(-1)	0.002725	-0.004591	-0.001647	0.003082
GR(-2)	-0.002264	-0.004691	0.001405	-0.000343
INFL(-1)	-0.004479	-0.002186	0.000161	0.004212
INFL(-2)	0.003394	0.002559	-9.78E-05	0.003801
Adj. R-squared	0.810248	0.825301	0.885073	0.871186
F-statistic	84.26549	93.12084	151.1729	132.8814

Figure A.5: Impulse Response (Using FDI inflow as a proxy for capital flows)

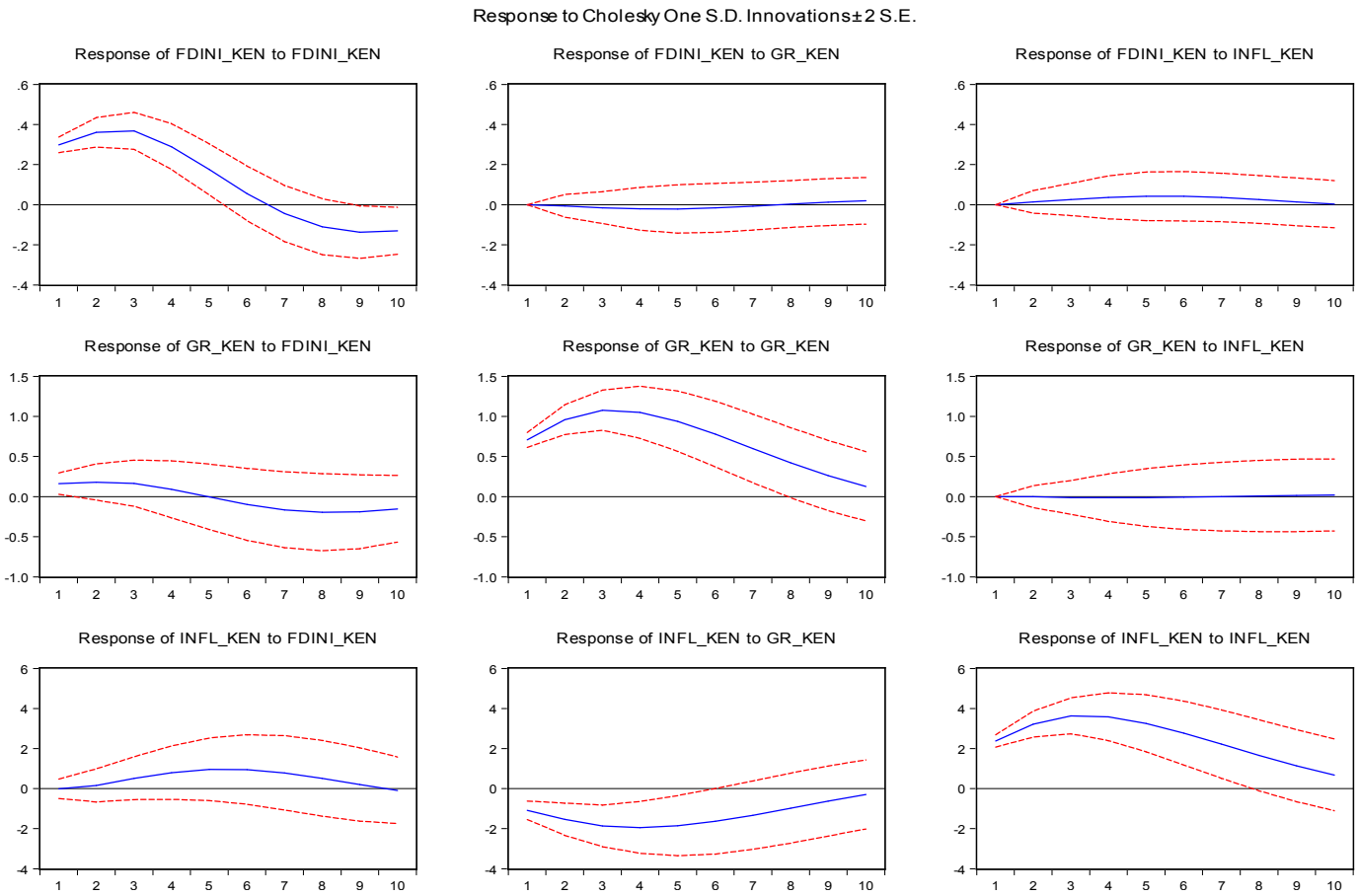
Burkina Faso



Cameroon



Kenya



Nigeria

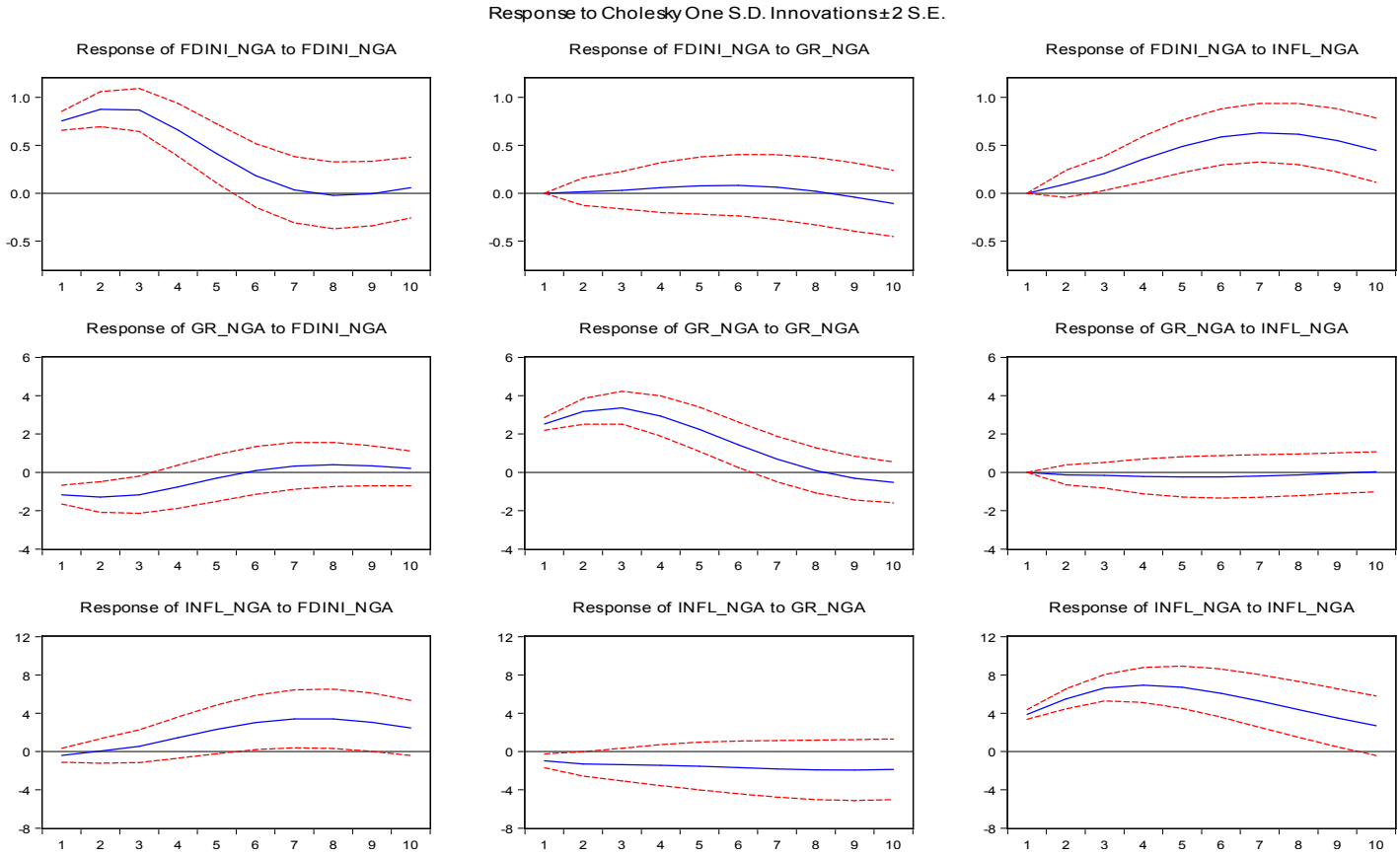
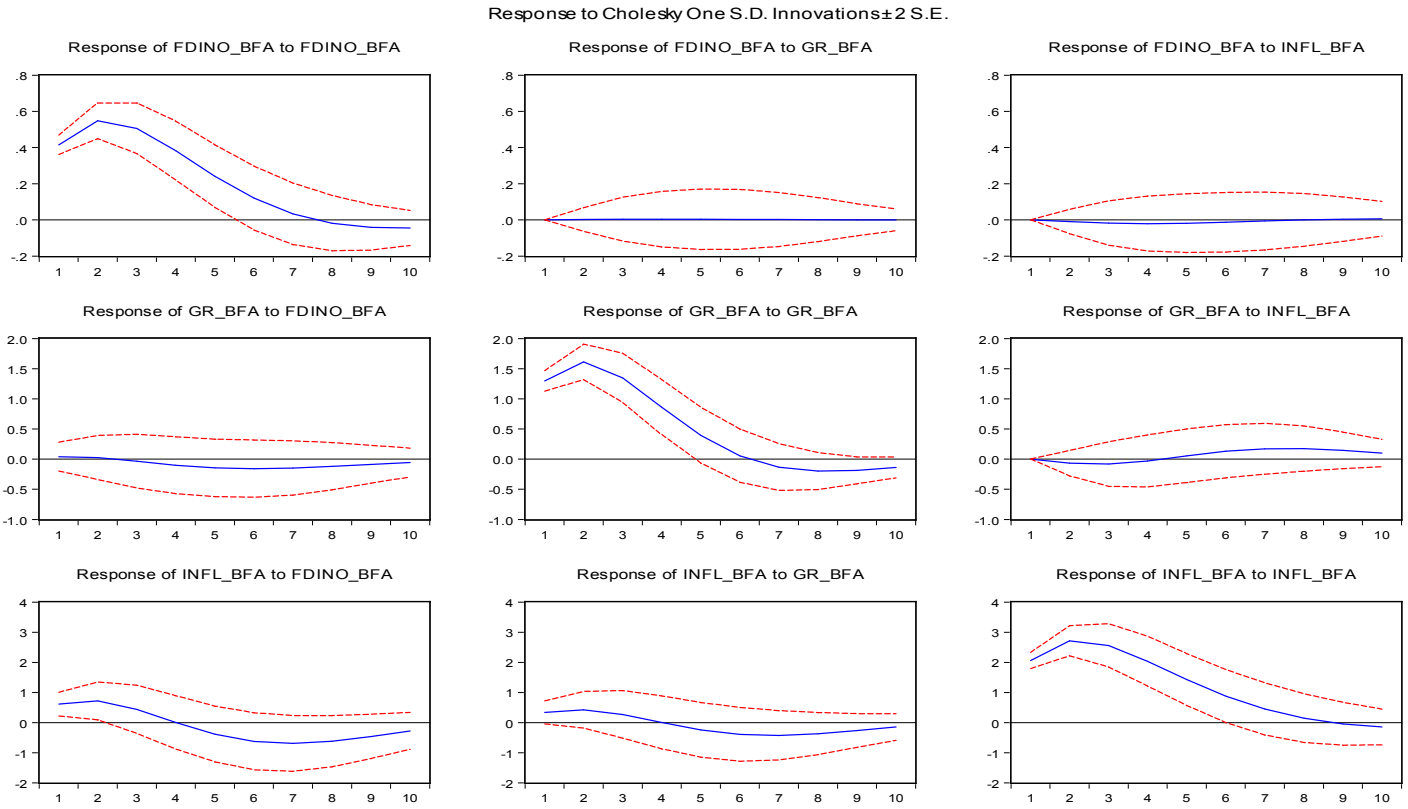
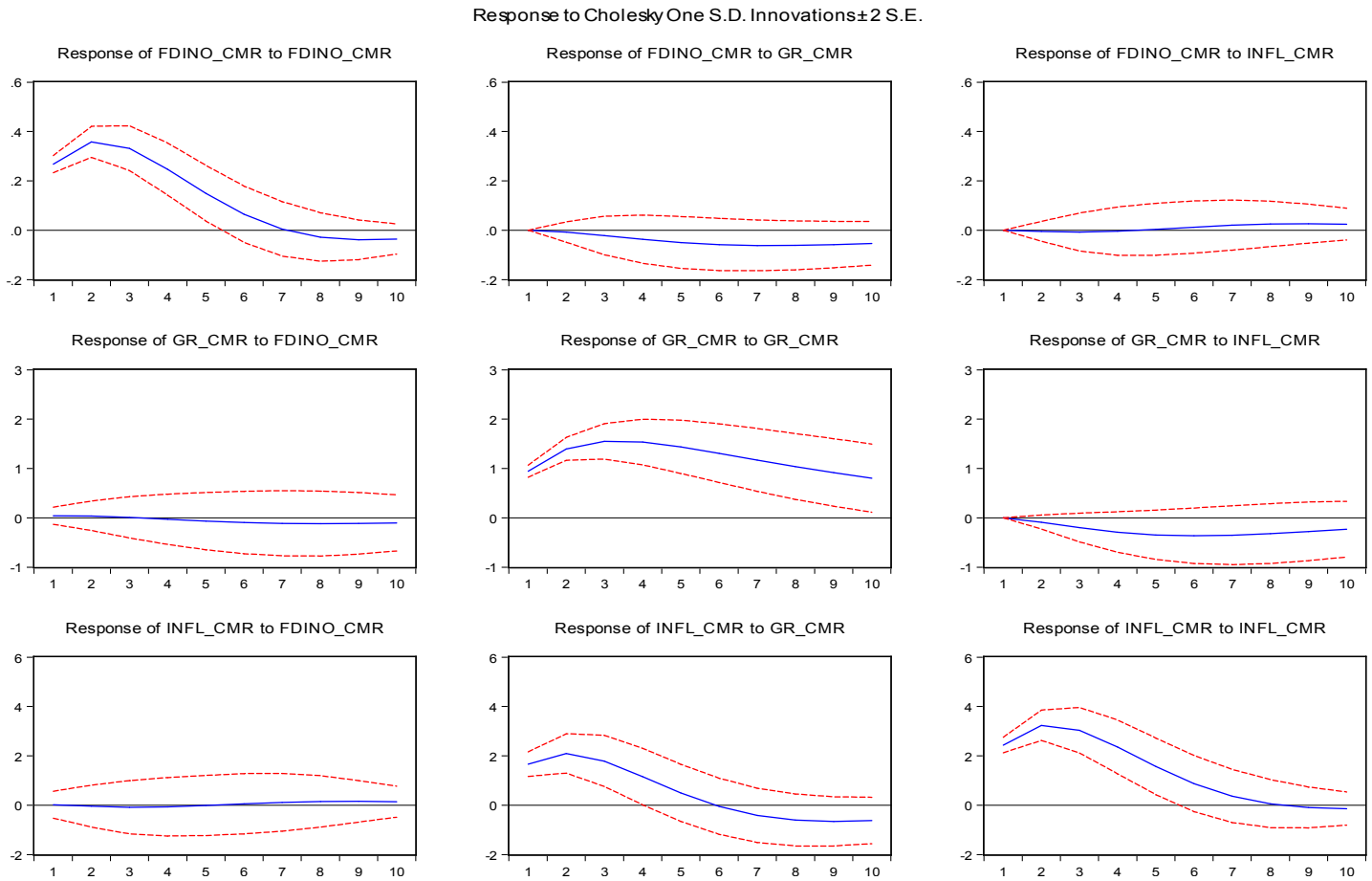


Figure A.6: Impulse Response (using FDI Outflow as proxy for capital flows)

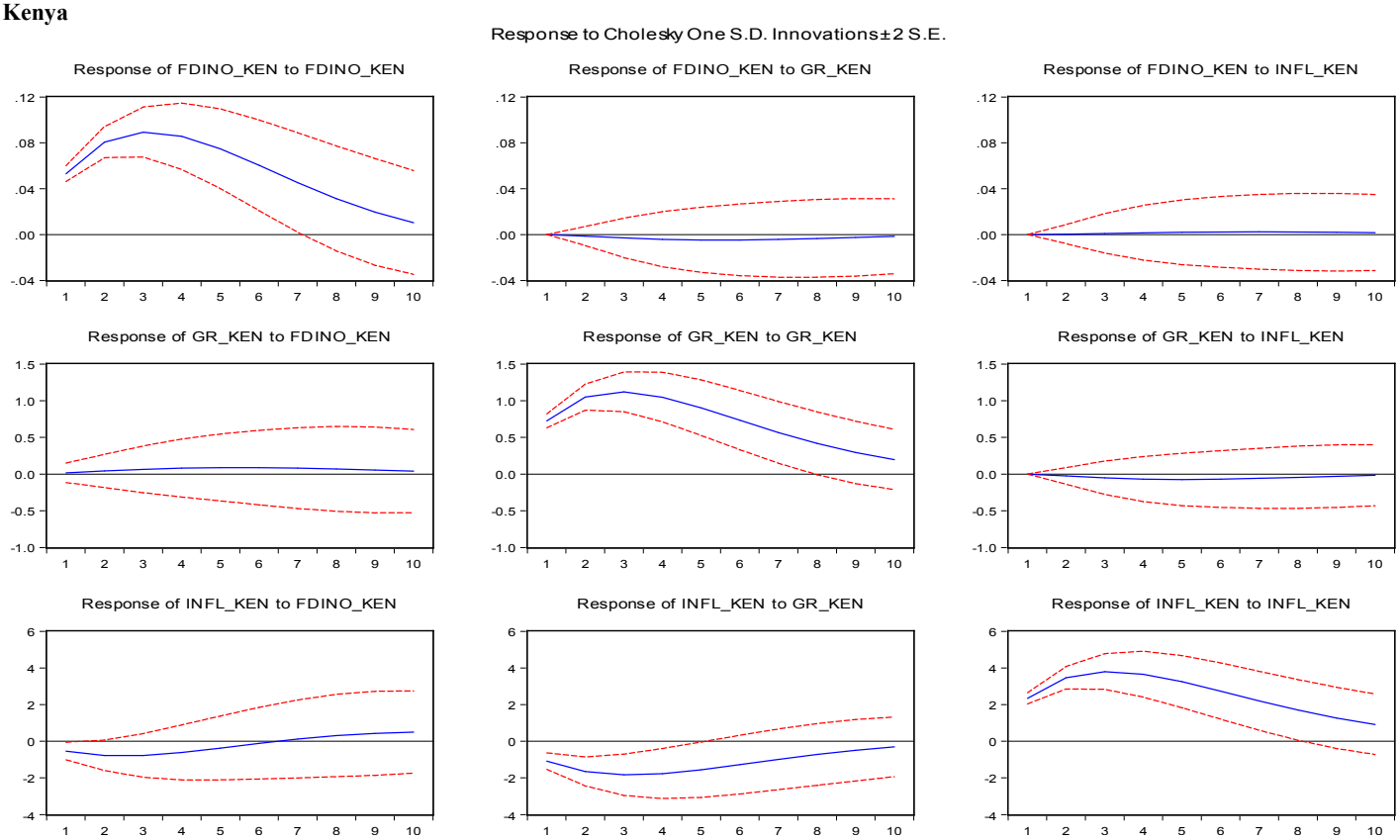
Burkina Faso



Cameroon



Kenya



Nigeria

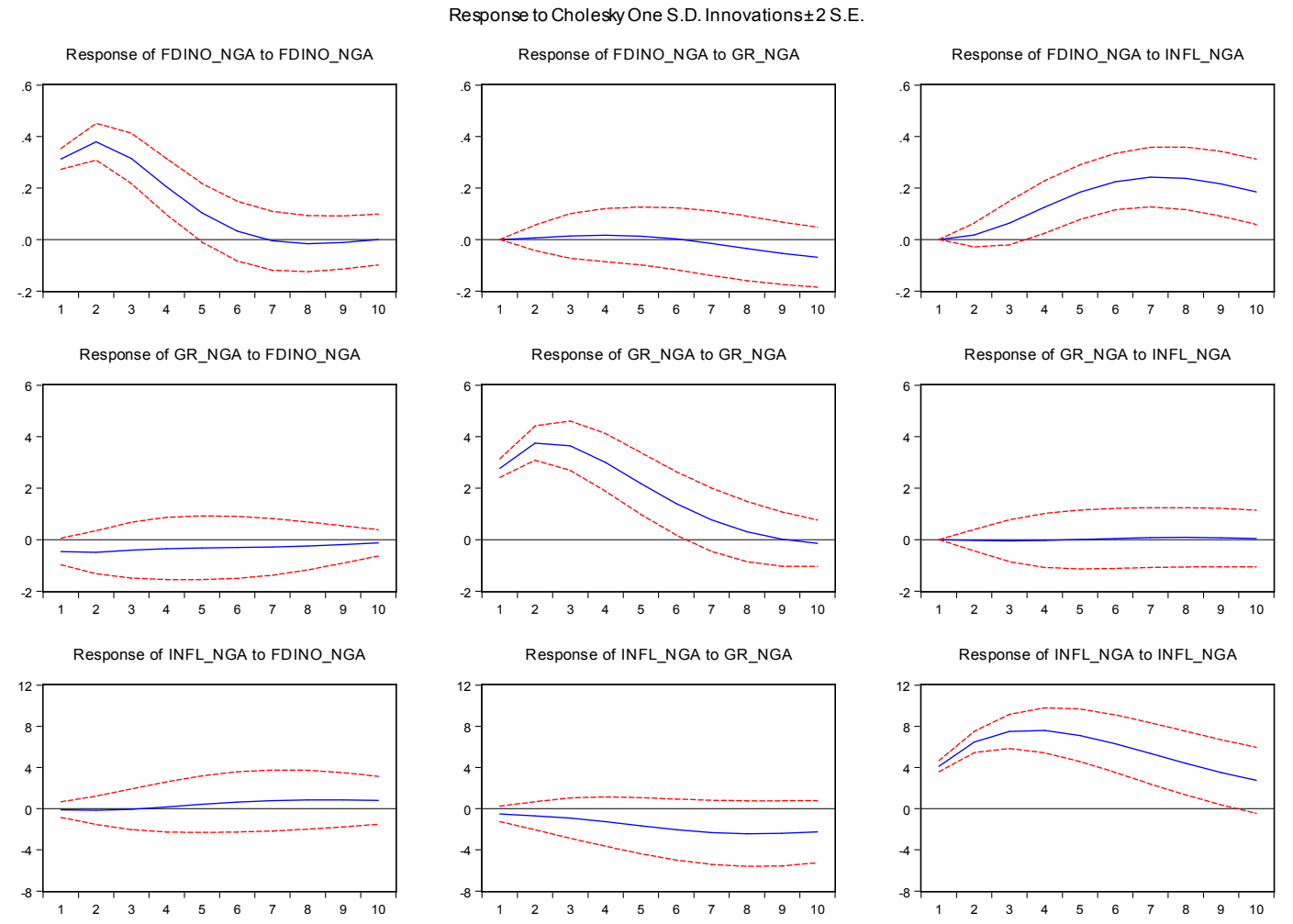


Table A.3. Variance Decomposition (Using FDI Inflows)

Burkina Faso

Period	Variance Decomposition of FDINI_BFA:				Variance Decomposition of GR_BFA:				Variance Decomposition of INFL_BFA:			
	S.E.	FDINI_BFA	GR_BFA	INFL_BFA	S.E.	FDINI_BFA	GR_BFA	INFL_BFA	S.E.	FDINI_BFA	GR_BFA	INFL_BFA
1	0.16	100.00	0.00	0.00	1.28	1.69	98.31	0.00	2.18	16.07	5.03	78.90
2	0.29	99.27	0.47	0.26	1.91	1.20	98.70	0.10	3.40	17.13	4.47	78.40
3	0.42	97.80	1.56	0.64	2.33	1.06	98.50	0.44	4.31	17.15	4.31	78.54
4	0.53	95.54	3.10	1.36	2.50	0.95	98.30	0.75	4.80	17.08	3.85	79.07
5	0.64	92.81	4.81	2.38	2.54	0.94	98.16	0.91	5.00	16.82	3.55	79.63
6	0.73	89.98	6.40	3.62	2.54	1.07	98.02	0.91	5.06	16.54	3.86	79.61
7	0.80	87.38	7.69	4.93	2.56	1.31	97.69	1.01	5.09	16.46	4.89	78.65
8	0.86	85.22	8.63	6.14	2.61	1.52	97.10	1.38	5.15	16.78	6.23	76.98
9	0.91	83.60	9.25	7.14	2.65	1.62	96.46	1.92	5.23	17.49	7.28	75.23
10	0..95	82.50	9.63	7.87	2.67	1.63	95.97	2.40	5.31	18.40	7.78	73.83

Cameroon

Period	Variance Decomposition of FDINI_CMR:				Variance Decomposition of GR_CMR:				Variance Decomposition of INFL_CMR:			
	S.E.	FDINI_CMR	GR_CMR	INFL_CMR	S.E.	FDINI_CMR	GR_CMR	INFL_CMR	S.E.	FDINI_CMR	GR_CMR	INFL_CMR
1	0.52	100.00	0.00	0.00	0.94	0.02	99.98	0.00	2.92	0.07	35.02	64.91
2	0.79	99.74	0.20	0.06	1.59	0.13	99.75	0.12	4.53	0.08	36.33	63.59
3	0.97	99.45	0.48	0.07	2.17	0.37	99.32	0.31	5.69	0.12	35.63	64.26
4	1.07	98.50	1.36	0.13	2.63	1.05	98.36	0.59	6.29	0.25	34.72	65.04
5	1.10	96.48	3.24	0.28	2.99	2.24	96.82	0.94	6.50	0.50	33.80	65.70
6	1.13	93.09	6.36	0.55	3.28	3.91	94.79	1.30	6.55	0.89	33.37	65.74
7	1.16	88.73	10.34	0.92	3.50	5.85	92.52	1.64	6.58	1.33	33.69	64.97
8	1.19	84.21	14.47	1.32	3.68	7.74	90.34	1.91	6.68	1.69	34.65	63.67
9	1.22	80.16	18.18	1.66	3.81	9.35	88.53	2.12	6.81	1.88	35.81	62.31
10	1.25	76.88	21.22	1.90	3.92	10.55	87.19	2.26	6.93	1.95	36.84	61.21

Kenya

Period	Variance Decomposition of FDINI_KEN:				Variance Decomposition of GR_KEN:				Variance Decomposition of INFL_KEN:			
	S.E.	FDINI_KEN	GR_KEN	INFL_KEN	S.E.	FDINI_KEN	GR_KEN	INFL_KEN	S.E.	FDINI_KEN	GR_KEN	INFL_KEN
1	0.30	100.00	0.00	0.00	0.72	4.95	95.05	0.00	2.62	0.00	17.33	82.67
2	0.47	99.90	0.02	0.09	1.21	3.95	96.05	0.00	4.43	0.13	18.16	81.71
3	0.60	99.69	0.08	0.23	1.63	3.21	96.78	0.00	6.04	0.79	19.27	79.94
4	0.66	99.35	0.16	0.49	1.94	2.48	97.51	0.01	7.33	1.71	20.13	78.16
5	0.69	98.93	0.25	0.82	2.16	2.01	97.98	0.01	8.29	2.67	20.76	76.57
6	0.69	98.53	0.30	1.17	2.30	1.96	98.03	0.01	8.94	3.42	21.19	75.40
7	0.69	98.26	0.30	1.43	2.38	2.31	97.68	0.01	9.34	3.83	21.44	74.73
8	0.70	98.17	0.30	1.53	2.42	2.88	97.11	0.01	9.55	3.95	21.56	74.49
9	0.72	98.17	0.32	1.51	2.45	3.43	96.56	0.01	9.64	3.92	21.57	74.50
10	0.72	98.16	0.38	1.46	2.45	3.80	96.18	0.02	9.67	3.91	21.54	74.55

Nigeria

Period	Variance Decomposition of FDINI_NGA:				Variance Decomposition of GR_NGA:				Variance Decomposition of INFL_NGA:			
	S.E.	FDINI_NGA	GR_NGA	INFL_NGA	S.E.	FDINI_NGA	GR_NGA	INFL_NGA	S.E.	FDINI_NGA	GR_NGA	INFL_NGA
1	0.75	100.00	0.00	0.00	2.78	17.60	82.40	0.00	4.01	0.98	5.93	93.09
2	1.16	99.28	0.02	0.70	4.41	15.53	84.38	0.09	6.93	0.33	5.55	94.11
3	1.46	97.49	0.06	2.45	5.67	13.68	86.19	0.13	9.72	0.50	4.79	94.71
4	1.65	93.22	0.17	6.60	6.44	12.00	87.78	0.22	12.11	1.74	4.49	93.77
5	1.77	86.30	0.34	13.36	6.83	10.87	88.82	0.32	14.12	3.96	4.47	91.57
6	1.87	77.79	0.50	21.71	6.98	10.41	89.17	0.42	15.76	6.86	4.72	88.42
7	1.98	69.80	0.55	29.64	7.02	10.50	89.01	0.49	17.06	9.83	5.16	85.01
8	2.07	63.63	0.51	35.86	7.04	10.78	88.69	0.52	18.04	12.35	5.75	81.90
9	2.14	59.42	0.51	40.07	7.05	10.97	88.51	0.53	18.73	14.11	6.41	79.48
10	2.19	56.82	0.73	42.45	7.07	10.98	88.49	0.52	19.17	15.10	7.06	77.84

Table A.4. Variance Decomposition (Using FDI Outflows)

Burkina Faso

Period	Variance Decomposition of FDINO_BFA:				Variance Decomposition of GR_BFA:				Variance Decomposition of INFL_BFA:			
	S.E.	FDINO_BFA	GR_BFA	INFL_BFA	S.E.	FDINO_BFA	GR_BFA	INFL_BFA	S.E.	FDINO_BFA	GR_BFA	INFL_BFA
1	0.41	100.00	0.00	0.00	1.30	0.10	99.90	0.00	2.18	7.92	2.42	89.66
2	0.69	99.98	0.00	0.02	2.07	0.05	99.84	0.11	3.58	6.94	2.29	90.77
3	0.85	99.94	0.00	0.05	2.47	0.06	99.75	0.19	4.43	5.51	1.86	92.63
4	0.94	99.90	0.00	0.09	2.62	0.20	99.62	0.18	4.87	4.55	1.53	93.92
5	0.97	99.87	0.00	0.13	2.65	0.50	99.28	0.22	5.10	4.73	1.63	93.64
6	0.97	99.85	0.00	0.14	2.66	0.86	98.68	0.46	5.23	5.94	2.12	91.94
7	0.97	99.85	0.01	0.15	2.67	1.15	97.98	0.87	5.31	7.46	2.70	89.83
8	0.97	99.85	0.01	0.15	2.69	1.33	97.39	1.27	5.36	8.66	3.13	88.21
9	0.98	99.85	0.01	0.15	2.70	1.43	97.03	1.55	5.39	9.31	3.34	87.36
10	0.98	99.84	0.01	0.15	2.71	1.47	96.86	1.67	5.40	9.53	3.40	87.07

Cameroon

Period	Variance Decomposition of FDINO_CMR:				Variance Decomposition of GR_CMR:				Variance Decomposition of INFL_CMR:			
	S.E.	FDINO_CMR	GR_CMR	INFL_CMR	S.E.	FDINO_CMR	GR_CMR	INFL_CMR	S.E.	FDINO_CMR	GR_CMR	INFL_CMR
1	0.27	100.00	0.00	0.00	0.94	0.19	99.81	0.00	2.95	0.00	31.79	68.20
2	0.45	99.95	0.03	0.01	1.69	0.11	99.61	0.27	4.85	0.01	30.35	69.64
3	0.56	99.80	0.17	0.03	2.30	0.06	99.04	0.90	5.99	0.03	28.75	71.22
4	0.61	99.46	0.51	0.03	2.78	0.06	98.24	1.71	6.54	0.03	27.25	72.72
5	0.63	98.87	1.10	0.03	3.15	0.09	97.37	2.54	6.75	0.03	26.17	73.80
6	0.64	98.01	1.92	0.07	3.43	0.16	96.57	3.28	6.80	0.04	25.74	74.23
7	0.64	97.00	2.84	0.16	3.64	0.23	95.93	3.84	6.83	0.07	25.93	74.01
8	0.64	95.96	3.72	0.31	3.81	0.31	95.46	4.23	6.86	0.11	26.49	73.40
9	0.65	95.04	4.49	0.47	3.93	0.38	95.15	4.47	6.89	0.16	27.15	72.69
10	0.65	94.27	5.12	0.61	4.01	0.43	94.96	4.61	6.92	0.20	27.72	72.09

Kenya

	Variance Decomposition of FDINO_KEN:				Variance Decomposition of GR_KEN:				Variance Decomposition of INFL_KEN:			
Period	S.E.	FDINO_KEN	GR_KEN	INFL_KEN	S.E.	FDINO_KEN	GR_KEN	INFL_KEN	S.E.	FDINO_KEN	GR_KEN	INFL_KEN
1	0.05	100.00	0.00	0.00	0.73	0.06	99.94	0.00	2.64	4.17	16.96	78.87
2	0.10	99.98	0.02	0.00	1.28	0.13	99.83	0.04	4.73	4.01	17.52	78.48
3	0.13	99.93	0.06	0.01	1.70	0.22	99.67	0.11	6.38	3.68	17.87	78.45
4	0.16	99.87	0.11	0.01	2.00	0.32	99.48	0.20	7.59	3.26	18.07	78.67
5	0.17	99.81	0.17	0.02	2.20	0.43	99.29	0.28	8.41	2.85	18.15	79.00
6	0.18	99.75	0.21	0.04	2.32	0.53	99.13	0.34	8.94	2.54	18.13	79.33
7	0.19	99.70	0.25	0.05	2.39	0.61	99.01	0.38	9.26	2.39	18.04	79.57
8	0.19	99.66	0.27	0.06	2.43	0.67	98.93	0.40	9.45	2.40	17.92	79.68
9	0.19	99.64	0.29	0.07	2.45	0.71	98.88	0.41	9.55	2.55	17.79	79.67
10	0.19	99.63	0.29	0.08	2.45	0.74	98.86	0.41	9.62	2.78	17.67	79.56

Nigeria

Period	Variance Decomposition of FDINO_NGA:				Variance Decomposition of GR_NGA:				Variance Decomposition of INFL_NGA:			
	S.E.	FDINO_NGA	GR_NGA	INFL_NGA	S.E.	FDINO_NGA	GR_NGA	INFL_NGA	S.E.	FDINO_NGA	GR_NGA	INFL_NGA
1	0.31	100.00	0.00	0.00	2.81	2.70	97.30	0.00	4.15	0.07	1.55	98.38
2	0.49	99.86	0.02	0.12	4.71	2.05	97.95	0.00	7.72	0.07	1.27	98.65
3	0.59	98.67	0.06	1.27	5.97	1.75	98.24	0.01	10.79	0.04	1.39	98.57
4	0.64	94.86	0.12	5.01	6.69	1.66	98.33	0.01	13.26	0.04	1.83	98.12
5	0.67	87.77	0.15	12.08	7.04	1.71	98.29	0.01	15.14	0.11	2.63	97.26
6	0.71	78.92	0.14	20.94	7.18	1.82	98.17	0.01	16.54	0.24	3.73	96.03
7	0.75	70.61	0.16	29.23	7.23	1.95	98.03	0.02	17.55	0.42	5.05	94.53
8	0.78	64.03	0.34	35.63	7.24	2.06	97.90	0.04	18.28	0.60	6.43	92.97
9	0.82	59.28	0.75	39.97	7.25	2.12	97.83	0.05	18.79	0.77	7.72	91.51
10	0.84	56.01	1.39	42.61	7.25	2.15	97.79	0.05	19.13	0.91	8.82	90.26

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