

Macroeconomic Dynamics and Financial Crisis in Nigeria

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Abstract: This work as an empirical economics assessment examined the role of domestic macroeconomic policies with emphasis on the management of the impact of macroeconomic variables on the global financial crisis in Nigeria.. It applies VAR framework on annual time series data from 1969 to 2009. The paper opines that the Nigerian economy is far from converging towards a sustainable equilibrium in the short run. The paper suggests that attitudinal change, monetary and fiscal policies could be used to address the Nigerian version of the global financial crisis. However, the right mix of these policies to avoid conflicts in the light of dampening effects of the global financial melt-down as well as the possible effects of the global financial crisis and macroeconomic fluctuations on economic development in Nigeria is of relevance..The direction and magnitude of relevant policy to stimulate increased government intervention, it was observed that there is the need for comparative dynamics of economies in order to return to the path of sustainable growth and development.

Keywords: macroeconomic, financial crisis, econometrics, development, dynamics

1. Introduction

The global financial crisis followed a period of economic boom: 2003-2007. During that period, the world economy was growing at an average of 5% per annum. However, the current crisis was precipitated by a combination of factors including emergence of subprime rates in the USA housing sector, deepening crisis in the financial markets, rising crude oil prices and surges in commodity prices which triggered-off series of bankruptcies, forced mergers, loss of employment, firm closures and concerns in the corridors of economic policy analysts in the USA and major capitalist economies. In the course of the financial crisis, the world economic growth rate has dropped to about 1% between the fourth quarter of 2007 and third quarter of 2008 (World Bank, 2009), as reminiscence of the Great depression of the 1930s.

The impact of the sub-prime crisis spread well beyond United States, causing a widespread squeeze in liquidity and credit. And price hikes in primary commodities, fueled partly by speculation that has shifted from financial instruments to commodity markets, added to the challenge for policy makers' intent on avoiding a recession while at the same time keeping inflation under control. The Global Development Finance 2009, revealed the negative effects of the global financial crisis that have caused liquidity and other assets flow into developing countries like Nigeria to fall by 41 per cent in 2008. From a peak of \$1.2 trillion in 2007, the development finance coming into developing countries dropped sharply to \$707 billion in 2008. From the projection, it is revealed that capital flows would fall further to \$363 billion in 2009, due to the fact that not a few African banks depend on the international

markets for some financing. The new global economic and financial crisis has become a major concern for political leaders, economists, and managers of financial institutions around the globe. Addressing the global financial crisis would, however, require knowing the root causes of crisis. There are some disagreements as to 'what constitute a crisis', but as related to the issues in discourse Eichengreen and Portes (1987) have defined crisis 'as a sharp change in asset prices that leads to distress among financial markets participants.' But as Eichengreen (2004) has observed, it is not very 'clear where to draw the line between sharp and moderate price changes or how to distinguish severe financial distress from financial pressure

Threat of a reduced capital inflow as well as liquidity available to banks for onward transfers as loan for investment and other purposes would probably result to an era of slower growth, which would require tighter and more effective oversight of the financial system. The economic and social impact of the global financial crisis is enormous. It has damaged global markets and economies around the world: the industrialized western economies, the newly industrializing economies of East Asia and China, Latin American, the Middle-East and African economies. It has affected business operations and investments by way of reducing domestic and international demand for goods and services and pushing up unemployment as many industries and organizations are shedding off workers. The global economic downturn has also affected national income and budgets, exchange rates and interest rates, and slowed down economic growth in societies around the globe.

The global financial crisis has further

exposed the fragility of today's global financial sector. Instead of reducing risk, complex financial instruments have served to spread the impact of risky investments across countries and markets. The recent crisis has shown once again that market discipline is ineffective in preventing recurrent episodes in which financial firms attempt to extract double-digit returns out of economies that grow at much slower rates particularly in a country like Nigeria. Since financial crises can have major repercussions on the real economy, policymakers have no choice but to bail out parts of the financial sector when systemic threats are brought to the fore. However, such bailouts with moral hazard tendency, also undermine the call for tight regulation.

The current international framework for monetary and exchange-rate policies offers opportunities for speculative activities that are highly profitable for a limited period of time, but ultimately destabilize the entire system. The rapid unwinding of "carry trade" activities, aimed at extracting gains from nominal interest rate differentials, presents another threat for the global financial system. The financial turbulence, the speculative forces contributing to commodity price hikes and instability, and the apparent failure of foreign exchange markets to bring about changes in exchange rates that reflect current account trends suggest that there is an urgent need for reviewing the institutional framework of the global economy.

A combination of factors threaten to keep growth weak, including lower commodity prices, a tougher environment in which to attract funds, a withdrawal of portfolio investment, a shortage of dollars in some markets, and, now, heightened concerns about exchange rate depreciation that

have led to a pullback in cross-border lending. Unemployment as a significant aspect of changes to business has not become a core research agenda in the country.. The volatility and characteristics of macroeconomic variables is essential feature of instability in macroeconomic policy decisions and governance.

The objective of this paper is to examine the relationship between global financial crisis and the macroeconomic variables in Nigeria. Using the VAR method of analysis.. This is achieved by analyzing the effects of various macroeconomic policy dynamics using Nigerian data by applying the Vector Auto regression (VAR) approach..This approach is considered appropriate due to its ability to capture shocks in an economy.

2. Macroeconomic Policies and the Nigerian Economy

Measuring the performance of the Nigerian economy is an up hill task because of ineffective institutions and paucity of data. The wide spread impact of the new global economic crisis has clearly demonstrated how interconnected the world has really become, as economic forces in a faraway country would affect nations thousands of miles away. There are, however, variations in living standards around the globe, as economic growth rates and productivity vary from nation to nation. Some countries are poor, some are fairly well off, and others are rich, just as some individuals are poor, some are fairly well off, and others are considered rich. But everything is relative, and that is certainly the case with poverty. Measuring the performance of the Nigerian economy is an up hill task because of ineffective institutions and paucity of data. The wide spread

impact of the new global economic crisis has clearly demonstrated how interconnected the world has really become, as economic forces in a faraway country would affect nations thousands of miles away. There are, however, variations in living standards around the globe, as economic growth rates and productivity vary from nation to nation. Some countries are poor, some are fairly well off, and others are rich, just as some individuals are poor, some are fairly well off, and others are considered rich. But everything is relative, and that is certainly the case with poverty. The Nigerian economy is a mono-cultural oil economy. It is necessary to review the macroeconomic policy issues that pervaded the Nigerian economy as a whole and also in phases.era. For most part of the period under study, macroeconomic stability basically meant a mix of external and internal balance to ensure full employment, sustainable economic growth and low inflation rate. In the case of Nigeria, crude-oil revenue exposed her to highly pro-cyclical financial swings characteristic of volatile crude-oil prices.

Full employment as one of the key macroeconomic variables hinged on economic growth and development signify a high degree of pro-cyclical macroeconomic policies which have not encouraged growth, in many developing economies including Nigeria; they have in fact increased growth volatility. In the dynamism, macroeconomic policies, such as imprudent fiscal spending can lead to inefficient resource allocation, in some cases contributing directly to overheating in the economy and sowing the seeds of macroeconomic instability.

The most common economic measuring tool is the Gross National Product (GNP) or the total income earned by a nation's

permanent residents [the nationalist] at a given period. The average income of a citizen of any country is the GNP per capita, calculated by dividing the GNP with the population. GNP, however, differs from Gross Domestic Product (GDP) or the market value of all final goods and services produced within a country in a given period of time (Mankiw 2001), by including income that a nation's citizens earn abroad and excluding income that foreigners earn in the country .The most common economic measuring tool is the Gross National Product (GNP) or the total income earned by a nation's permanent residents [the nationalist] at a given period.

On the other hand, it could result in over-tightening of monetary policy and indiscriminate fiscal adjustments which can lead to substantial losses in many valuable social projects, weakening accumulation of infrastructure and human capital as well as aggravating the downturn and reducing the potential for long term growth in the economy. Given the indices currently used by international organizations, Nigeria's current GNP per capita of about \$260 is below that of less affluent countries such as Bangladesh with a per capita income of about \$370. Nigeria's low per capita income compares with those of smaller African countries with less endowment in natural resources, such as Tanzania with a per capita income of \$260 and Mozambique of about \$220. African countries that enjoy impressive standard of living are South Africa with a per capita income of about \$3,170 and Botswana with a per capita income of \$3,240.

Nigeria's poor per capita income becomes more frightening when compared with those of some western nations. For instance, in 2007, the GDP of the United States

was about \$13.8 trillion with per capita GDP of about \$46,000, and the per capita GDP of Britain was put at about \$23,590. This is not to mention the impressive economic performances of the four Asian Tigers of Singapore, South Korea, Taiwan and Hong Kong that are said to have “had a stretch of sustained economic growth ranging from 6-10 per cent annually” (The Great Courses, October 2008) in the years before the impact of the global financial crisis. Nigeria’s GDP in 2007 was \$166 billion in 2007.

Fiscal policy can always provide a useful countercyclical device. Indeed, it is frequently argued that fiscal policy is a more powerful countercyclical instrument than monetary policy in an open economy. One of the problems with managing the Nigerian economy is that the nation’s fiscal policies do not synchronize with its monetary policies. Economic principles are not working in Nigeria’s environment -the forces of demand and supply hardly determines prices in the society. For instance, while reduction in global demand for oil is forcing down oil prices globally, oil prices are not going down in Nigeria. The federal government, which controls the prices of petroleum products, has refused to reduce oil prices with the flimsy excuse that domestic prices are not deregulated. Weak institutions and poor infrastructure have combined with years of unreasoned monetary and fiscal policies to damage the economy and eroded productivity.

Fiscal policy has often been preferred in Nigeria in view of the underdevelopment of the financial sector up to the 1990s. As a fall out on the impact of the global economic crisis, economic agents’ confidence have been so battered that government needs to tackle the problems from various angles, such as

the use fiscal stimulus to jumpstart the economy; envisage a restructuring of the financial system in order to strengthen banks, and employment of monetary policy tools to arrest exchange rate volatility and liquidity concern within the confine of the money market.

3. Method of analysis

The use of VAR has become a standard method of analysis in empirical economics since Sims (1980). This is resulting from the failure of simultaneous equations models to provide good forecasting power and their insufficient representation of the dynamic interactions in a system of variables. Thus, it helps to observe impulse-response mechanisms; study variance decomposition of variables in the system; for forecasting; causality and policy formulation analysis.

These outcomes of VAR procedure are germane to the identification of policy measures to address the current economic downturn which has a global outlook.

The Model

This work draws inspiration from the work of Baltagi (2003). In formulating the model for this study. The model used in the work is to be modified for this work. In that work, three families of VARs were specified. First, a 3-variable VAR with employment rate, CPI inflation and interest rate. Second, a 3- variable VAR model with unemployment, interest rate and growth rate of industrial production, Third, a VAR with five variables. Consequently, given a set of k time series variables; the basic VAR relevant for this work will be the latter and will be stated implicitly of the form as below:

$$RGDP = f(RMS, RGE, EXR, PLR, CPI)$$

The variables of the model are:

- rgdp : real gross domestic product;
- rms : real broad money supply;
- rge : real government expenditure;;
- exr : exchange rate;
- cpi : consumer price index; and
- plr : prime lending rate

The Data

This paper applies the VAR framework on annual time series data in Nigeria from 1969 to 2009 to estimate the responses of monetary and fiscal measures to unanticipated impulses shocks over different horizon. The data are sourced from the Central Bank of Nigeria. The software package to support the VAR analyses was EVIEWS 7.0

4The Results

The main findings include the following:

(1) The consumer price index and the prime lending rate were significant at % percent and percent respectively.

(2) A positive money supply is equally negatively impacted on the GDP also.

(3) Apart from the PLR and CPI that were significant, all other variables were not significant at all.

(4) There is no significant relationship between government expenditure and real GDP.

(5) All these give a vivid picture of the poor level of preparedness of Nigeria to shocks arising from the global financial crisis.

(6) Invariably, the forecast position reveals the non- challant attitude to the reaction required so as to get out of the woods quickly. The response rate is very poor.

(7) The impulse-response function has been in convergence since independence.

However, in the present dispensation, the sharp divergence has revealed the pronounced dynamism of the macroeconomic factors on the economy. In this instance, the relevance of these macroeconomic variables requires a steady and consistent approach to put the economy in proper perspective. This is expected to pull the country out of the woods as a result of the effect of the global financial crisis. All the variables are in divergence.

5. Conclusion

The Nigerian economy is far from converging towards a sustainable equilibrium in the short run. However, analysis carried far into the horizon indicates that the variables converge uniformly to the steady state equilibrium if a proper zeal to triumph is involved. This call for a positive and paradigm shift towards recovery. It shows that both monetary and fiscal policies could be used to address the impact of global crisis from this perspective. It is of the essence that authorities must use the right mix of these policies to avoid conflicts so as to move the economy forward with the aim of achieving a stable and full employment status which forms the nucleus of macro economic objectives in this instance.

As the global financial/economic downturn persists, African countries including Nigeria are concerned about what happens in regards to development cooperation, aid delivery and provision of social amenities as they face higher borrowing costs and lower export demand as well as weak currencies, falling remittances, reduced capital inflows and macroeconomic imbalances. To this end, advanced countries are expected assist

the less developed nations in this regard.. In essence, African economies are being challenged to use the global downturn to transform their economies by diversifying sources of growth, improving governance and evolving right policies to attract investments to Africa and as such strive to achieve and even surpass the stated macroeconomic objectives of government..

As global competition and the use of technology are on the increase Nigeria should begin now to take very seriously investment in education and skill training as no nation can compete effectively in the emerging global market place with poorly educated and skilled graduates. The leading factors of production in the new world economy are said to be technology, knowledge, creativity and innovation. How much land or mineral resources a nation has no longer determines the wealth and progress of nations, but the quality of their human capital. Good education could help people thrive in difficult economic times, but that alone cannot change Nigeria. The policy makers should redesign and implement effective monetary and fiscal policies to provide good incentives to individuals and organizations to invest in the economy, and encourage proper competition to increase the quantity and quality of goods and services.

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It is of paramount importance to consider the potential role of home countries and the international community in facilitating flawless trade mechanism particularly from the angle of low-income nations that lack domestic capabilities, skills, knowledge and abilities. Risk-mitigation measures by home countries and international organizations can help in this regard also. Special attention may have to be given to measures aimed at mitigating three broad types of risks such as - political risk (including sub-sovereign and contractual and regulatory risks); credit risk and exchange-rate risks. Since Nigeria is among the nations that depend on foreign aid, remittance from abroad and trade with countries at the epicenter of the financial crisis the political leaders of Nigeria should not fold their hands and expect miracle to happen. They should reduce waste and improve social environment with rapid industry and service sector job creation to reduce the rising youth unemployment and underemployment in the society.

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and expect miracle to happen. They should reduce waste and improve social environment with rapid industry and service sector job creation to reduce the rising youth unemployment and underemployment in the society. Nigeria cannot achieve greatness without addressing its fundamental problems. With all the twists and turns in the new global economy

Nigeria needs leaders committed to tackling the sociopolitical and economic

problems facing the nation. There should be massive investment in the non-oil and agricultural sector of the economy, commitment to sustainable monetary and fiscal policies, and sufficient highly skilled personnel to supervise the needed reforms and manage the affairs of the nation. For sound policy formulation, the Nigerian economy should adopt developmental programmes so as to promptly correct the identified divergence in the impulse-response function.

Appendix

Appendix 1: Table of data on variables in model

RGDP	CPI	EXR	MS	PLR	RXD
3225.500	0.220000	0.714300	660.4000	7.000000	433.4200
4219.000	0.230000	0.714300	978.2000	7.000000	716.1000
4715.500	0.230000	0.657900	1041.800	7.000000	823.6000
4892.800	0.250000	0.657900	1214.900	7.000000	1012.300
5310.000	0.260000	0.657900	1522.500	7.000000	963.5000
15919.70	0.300000	0.616200	2352.300	7.000000	1517.100
27172.00	0.400000	0.626700	4241.200	6.000000	2734.900
29146.50	0.480000	0.630800	5905.100	6.000000	3815.400
31520.30	0.590000	0.651400	7898.800	6.000000	3819.200
29212.40	0.670000	0.647500	7985.400	7.000000	2800.000
29948.00	0.740000	0.560500	10224.60	7.500000	3187.200
31546.80	0.820000	0.544500	15100.00	7.500000	4805.200
205222.1	0.990000	0.636900	16161.70	7.750000	4846.700
199685.3	1.060000	0.670200	18093.60	10.25000	5506.000
185598.1	1.310000	0.748600	20879.10	10.00000	4750.800
183563.0	1.840000	0.808300	23370.00	12.50000	5827.500
201036.3	1.930000	0.999600	26277.60	9.250000	7576.400
205971.4	2.030000	3.316600	27389.80	10.50000	7696.900
20806.50	2.240000	4.191600	33667.40	17.50000	15646.20
219875.6	3.500000	5.353000	45446.90	16.50000	19409.50
236729.6	5.260000	7.650000	47055.00	26.80000	25994.20
267550.0	5.650000	9.001000	68662.50	25.50000	36219.60

265379.1	6.370000	9.754000	87499.80	20.01000	38243.50
271365.5	9.230000	19.66100	129085.5	29.80000	53034.10
274833.3	14.50000	22.63100	198479.2	18.32000	136727.1
275450.6	22.77000	21.88600	266944.9	21.00000	89974.90
281407.4	39.35000	84.57500	318763.5	20.18000	127629.8
293745.4	50.88000	79.60000	370333.5	19.74000	124491.3
302022.5	56.31000	74.62500	429731.3	13.54000	158563.5
310890.1	60.74000	84.36700	525637.8	18.29000	178097.8
312183.5	64.76000	92.52800	699733.7	21.32000	449662.4
329178.7	69.25000	109.5500	1036080.	17.98000	461660.0
356994.3	82.32000	112.4860	1315869.	18.29000	579300.0
433203.5	92.93000	126.4000	1599495.	24.85000	696800.0
477533.0	105.9600	135.4060	1985192.	20.71000	984300.0
527576.0	121.8700	132.6700	2263588.	19.18000	1032700.
561931.4	143.6200	130.4000	2814846.	17.95000	1223700.
595821.6	155.4500	128.2700	4027902.	17.26000	1290202.
634251.1	163.8200	117.9600	5809827.	16.93000	1589270.
672302.6	182.8000	119.7900	9458490.	14.88000	2117400.
716949.7	205.4000	146.4600	10767378	18.98000	2131960.

source: CBN

Appendix 2: Multiple Regression Result

Dependent Variable: RGDP

Method: Least Squares

Date: 06/13/11 Time: 22:54

Sample: 1969 2009

Included observations: 41

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	3910.505	1650.338	2.369517	0.0235
EXR	-1126.505	892.7126	-1.261890	0.2153
MS	-0.011401	0.017426	-0.654256	0.5172
PLR	10199.88	1763.057	5.785339	0.0000
RXD	0.015864	0.132899	0.119366	0.9057
C	-7818.610	23775.71	-0.328849	0.7442
R-squared	0.921880	Mean dependent var	244777.7	
Adjusted R-squared	0.910720	S.D. dependent var	204552.5	
S.E. of regression	61119.66	Akaike info criterion	25.01351	
Sum squared resid	1.31E+11	Schwarz criterion	25.26428	
Log likelihood	-506.7770	Hannan-Quinn criter.	25.10483	
F-statistic	82.60609	Durbin-Watson stat	1.492595	
Prob(F-statistic)	0.000000			

Appendix 3 : VAR result

Vector Autoregression Estimates

Date: 06/13/11 Time: 22:58

Sample (adjusted): 1971 2009

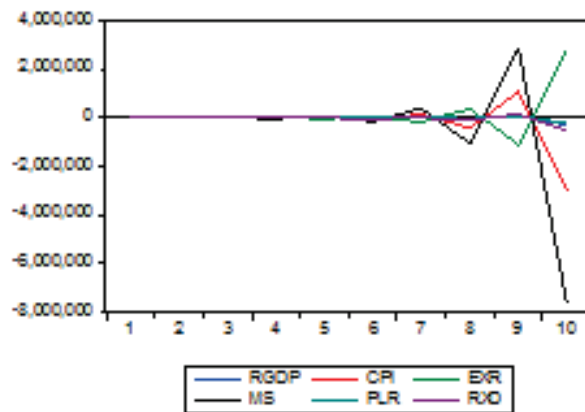
Included observations: 39 after adjustments

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

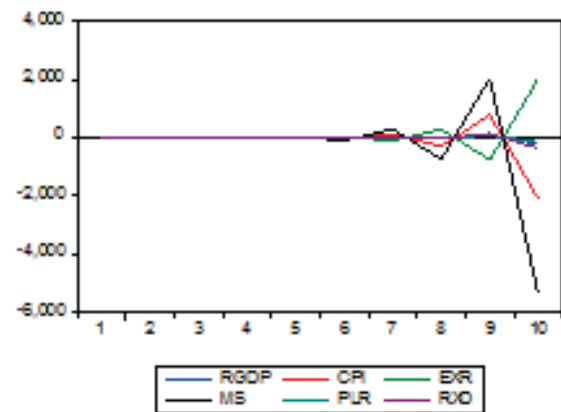
	RGDP	CPI	EXR	MS	PLR	RXD
RGDP(-1)	0.434211 (0.19571) [2.21861]	-3.70E-06 (1.1E-05) [-0.34343]	1.28E-05 (4.3E-05) [0.29652]	-0.681837 (0.96658) [-0.70541]	2.30E-05 (1.4E-05) [1.59580]	0.035486 (0.15644) [0.22683]
RGDP(-2)	0.104864 (0.19303) [0.54324]	6.92E-06 (1.1E-05) [0.65114]	5.73E-06 (4.3E-05) [0.13457]	-0.057245 (0.95335) [-0.06005]	-9.14E-06 (1.4E-05) [-0.64171]	-0.121495 (0.15430) [-0.78739]
CPI(-1)	920.5612 (3840.28) [0.23971]	0.961287 (0.21146) [4.54600]	1.154419 (0.84732) [1.36244]	-28111.75 (18966.2) [-1.48220]	-0.025409 (0.28339) [-0.08966]	-16210.45 (3069.72) [-5.28076]
CPI(-2)	-584.1230 (3297.43) [-0.17715]	-0.322313 (0.18157) [-1.77518]	-1.176489 (0.72754) [-1.61707]	73784.43 (16285.2) [4.53077]	0.010340 (0.24333) [0.04249]	19513.60 (2635.79) [7.40331]
EXR(-1)	-291.6259 (1170.75) [-0.24909]	0.159653 (0.06447) [2.47658]	0.616229 (0.25831) [2.38558]	-3968.851 (5782.05) [-0.68641]	0.003155 (0.08639) [0.03651]	2668.793 (935.839) [2.85177]
EXR(-2)	461.7045 (1221.07) [0.37811]	0.037533 (0.06724) [0.55823]	0.423576 (0.26942) [1.57220]	-19388.53 (6030.58) [-3.21504]	0.008166 (0.09011) [0.09062]	-2255.433 (976.063) [-2.31074]
MS(-1)	-0.019211 (0.09110) [-0.21088]	-5.67E-06 (5.0E-06) [-1.12963]	3.26E-05 (2.0E-05) [1.62059]	-0.733657 (0.44992) [-1.63064]	3.60E-06 (6.7E-06) [0.53556]	-0.379739 (0.07282) [-5.21473]
MS(-2)	0.040907 (0.19982) [0.20472]	1.82E-05 (1.1E-05) [1.65106]	-5.34E-05 (4.4E-05) [-1.21194]	3.343324 (0.98684) [3.38790]	-4.95E-06 (1.5E-05) [-0.33574]	0.843074 (0.15972) [5.27835]

PLR(-1)	4505.451 (2633.63) [1.71074]	-0.027073 (0.14502) [-0.18669]	0.667252 (0.58108) [1.14829]	986.5739 (13006.8) [0.07585]	0.431779 (0.19435) [2.22171]	5497.642 (2105.19) [2.61147]
PLR(-2)	1133.169 (2830.64) [0.40032]	0.204012 (0.15586) [1.30891]	-0.520957 (0.62455) [-0.83413]	19903.43 (13979.8) [1.42372]	0.299789 (0.20888) [1.43519]	-2130.806 (2262.67) [-0.94172]
RXD(-1)	0.018764 (0.19212) [0.09767]	-1.11E-05 (1.1E-05) [-1.05384]	9.04E-06 (4.2E-05) [0.21324]	-1.539088 (0.94882) [-1.62210]	-4.31E-06 (1.4E-05) [-0.30377]	0.107111 (0.15357) [0.69747]
RXD(-2)	0.055626 (0.19510) [0.28512]	1.73E-05 (1.1E-05) [1.61348]	-1.52E-05 (4.3E-05) [-0.35302]	-1.300045 (0.96355) [-1.34923]	1.93E-08 (1.4E-05) [0.00134]	0.237544 (0.15595) [1.52318]
C	-1209.020 (23055.1) [-0.05244]	-1.285431 (1.26949) [-1.01256]	-1.832731 (5.08686) [-0.36029]	-121401.9 (113863.) [-1.06621]	2.221922 (1.70132) [1.30600]	-24643.72 (18429.1) [-1.33722]
R-squared	0.952025	0.998357	0.968249	0.992048	0.759693	0.996438
Adj. R-squared	0.929883	0.997599	0.953594	0.988378	0.648782	0.994794
Sum sq. <u>resids</u>	7.44E+10	225.6748	3623.492	1.82E+12	405.3235	4.76E+10
S.E. equation	53504.91	2.946150	11.80530	264247.6	3.948337	42769.11
F-statistic	42.99618	1316.881	66.07204	270.3119	6.849587	606.1371
Log likelihood	-472.0457	-89.57150	-143.7054	-534.3331	-100.9905	-463.3113
<u>Akaike</u> AIC	24.87414	5.260077	8.036175	28.06836	5.845668	24.42622
Schwarz SC	25.42866	5.814598	8.590696	28.62288	6.400188	24.98074
Mean dependent	257139.5	43.04821	45.86272	1140753.	14.96821	349299.2
S.D. dependent	202061.3	60.12900	54.80134	2451185.	6.662329	592774.1
Determinant <u>resid</u> covariance (dof adj.)		7.85E+32				
Determinant <u>resid</u> covariance		6.89E+31				
Log likelihood		-1761.579				
<u>Akaike</u> information criterion		94.33739				
Schwarz criterion		97.66451				

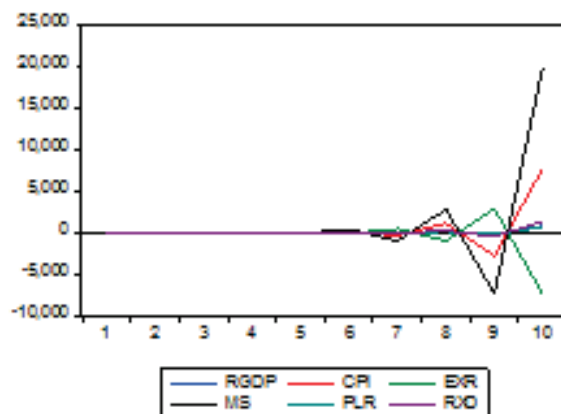
Response of RGDP to Cholesky
One S.D. Innovations



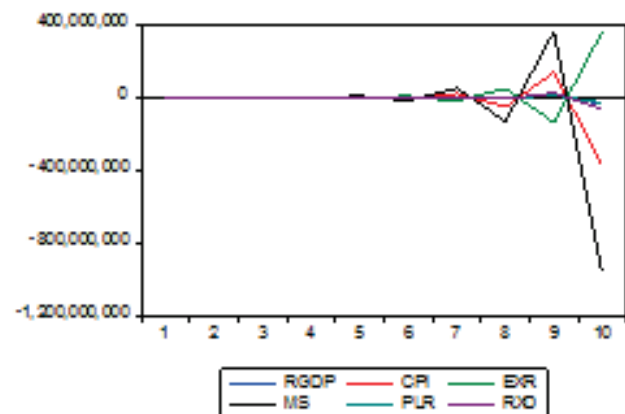
Response of CPI to Cholesky
One S.D. Innovations



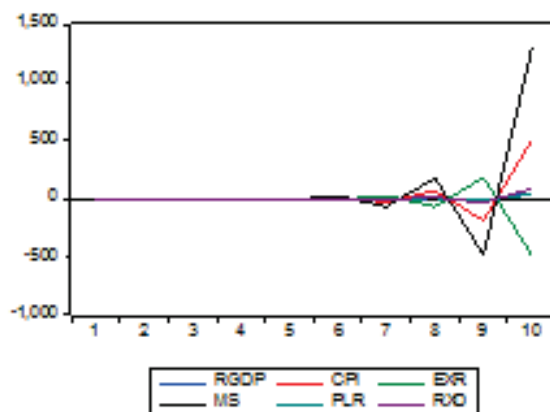
Response of EXR to Cholesky
One S.D. Innovations



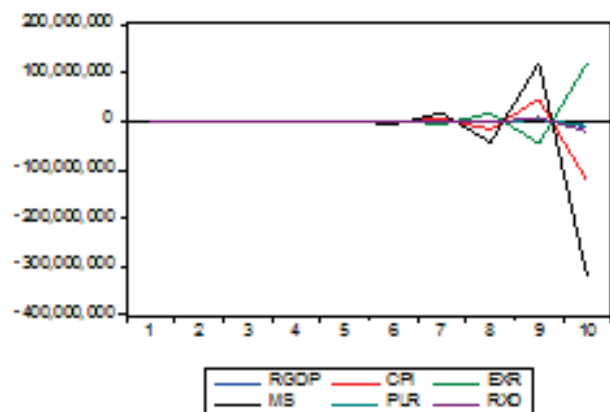
Response of MS to Cholesky
One S.D. Innovations



Response of PLR to Cholesky
One S.D. Innovations



Response of RXD to Cholesky
One S.D. Innovations



Period	Response of RGDP:					
	RGDP	CPI	EXR	MS	PLR	RXD
1	53504.91	0.000000	0.000000	0.000000	0.000000	0.000000
2	24866.29	-1562.967	7795.482	-5377.384	15732.27	605.5360
3	23094.78	8604.662	8189.848	10222.83	17147.20	2034.683
4	17099.87	-3037.917	20628.05	-14481.21	22202.78	87.82428
5	18395.09	24235.37	-10914.42	63173.13	24383.26	2465.693
6	7524.710	-54629.11	58040.74	-133657.5	17638.73	-13627.38
7	24037.52	151536.6	-152772.2	406122.3	31754.86	18931.37
8	-32534.05	-411135.4	385039.4	-1035652.	-13383.53	-80362.05
9	107646.6	1095689.	-1101410.	2878045.	102406.0	177531.2
10	-282607.3	-2993273.	2862885.	-7642112.	-212958.2	-529829.8

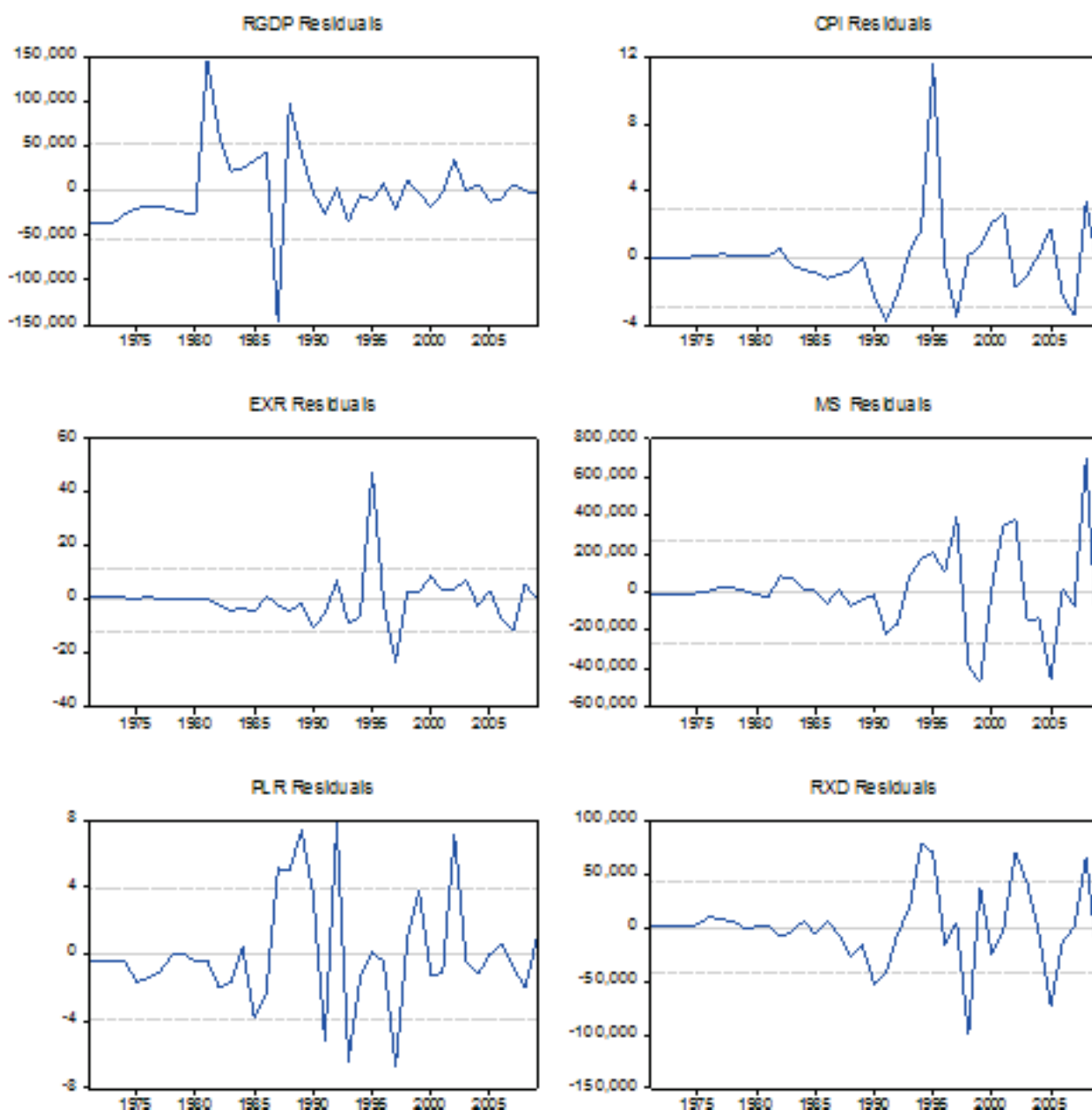
Period	Response of CPI:					
	RGDP	CPI	EXR	MS	PLR	RXD
1	-0.080267	2.945056	0.000000	0.000000	0.000000	0.000000
2	-0.295221	3.900443	1.466877	-1.633147	-0.104587	-0.359769
3	0.203492	7.876419	-0.037958	6.714778	0.674428	0.504536
4	0.123544	0.118203	7.599438	-10.85429	1.345096	-0.990237
5	2.366305	19.17983	-13.15821	42.50527	3.400479	1.816380
6	-3.056904	-36.56908	37.45455	-96.57483	-0.537304	-8.674746
7	10.15488	108.5429	-108.8495	283.2032	10.46093	15.35752
8	-28.30349	-288.5210	272.9775	-735.4731	-20.28025	-54.01483
9	71.73627	775.3873	-772.7688	2022.684	61.87462	128.6758
10	-202.4542	-2106.836	2028.272	-5402.978	-160.1202	-369.2777

Period	Response of EXR:					
	RGDP	CPI	EXR	MS	PLR	RXD
1	-0.209940	9.859519	6.489290	0.000000	0.000000	0.000000
2	0.626845	11.46516	2.453125	7.970366	2.335634	0.291704
3	0.613472	2.399627	11.72145	-17.64890	0.931977	-2.397629
4	3.083660	30.50951	-14.49905	52.52708	3.717541	2.419237
5	-3.131839	-43.11069	58.51398	-138.6502	-1.042632	-10.53997
6	16.50567	157.0894	-135.6435	377.5886	15.19626	24.13602
7	-33.84605	-382.5688	391.7335	-1015.749	-25.19637	-68.89994
8	104.9034	1072.853	-1027.809	2742.578	87.86904	182.1519
9	-266.7827	-2854.264	2805.218	-7399.871	-214.2670	-495.0799
10	738.3662	7741.616	-7532.248	19960.32	603.6917	1332.427

Period	Response of MS:					
	RGDP	CPI	EXR	MS	PLR	RXD
1	-2078.263	59294.94	-84106.02	243377.8	0.000000	0.000000
2	-29927.24	-189291.6	38103.51	-214825.6	2039.366	-49668.72
3	677.9475	252855.4	-545700.3	1094961.	21505.38	-2428.686
4	-163887.5	-1124392.	643250.1	-2305940.	-107057.2	-260481.9
5	140360.1	2410300.	-2991709.	7062735.	156002.5	329679.1
6	-819015.5	-7387505.	6304770.	-17844192	-605202.5	-1376550.
7	1608536.	18612126	-19477048	49935802	1405310.	3080449.
8	-5165870.	-52238691	49027168	-1.32E+08	-4065457.	-9186319.
9	12760525	1.38E+08	-1.37E+08	3.60E+08	10580375	23520892
10	-36156339	-3.77E+08	3.63E+08	-9.66E+08	-29145084	-65310559

Period	Response of PLR:					
	RGDP	CPI	EXR	MS	PLR	RXD
1	0.360874	-0.121896	1.792690	-0.253260	3.488036	0.000000
2	1.387286	0.050672	0.492783	0.666104	1.502138	-0.138980
3	0.677818	-0.792411	1.252424	-1.430260	1.991234	-0.229080
4	1.091825	1.139583	-0.791553	3.253117	1.586387	-0.024832
5	0.419169	-3.587010	4.007297	-9.369276	1.180479	-0.744996
6	1.728038	9.501264	-8.563771	24.24536	2.120578	1.546203
7	-1.585745	-25.52649	25.81219	-66.31658	-0.616524	-4.393541
8	7.424595	69.03723	-66.35154	177.9002	6.692829	11.95755
9	-16.75385	-186.1180	182.7551	-481.2325	-13.07095	-32.01686
10	48.50852	502.4807	-488.8961	1296.467	39.97248	86.75416

Period	Response of RXD:					
	RGDP	CPI	EXR	MS	PLR	RXD
1	-1029.163	15429.65	-250.1108	23403.41	910.8248	32271.53
2	5302.484	-42961.73	59085.68	-91305.60	19273.53	3456.625
3	16541.38	124019.2	-111809.8	334298.7	10819.23	32765.22
4	-32724.30	-327519.9	301574.6	-796857.7	-10020.77	-59841.97
5	74403.44	869122.9	-894936.7	2298995.	62639.41	136110.2
6	-243981.6	-2361329.	2225435.	-6012890.	-183933.9	-430752.5
7	574368.9	6329450.	-6300747.	16488820	481298.0	1060424.
8	-1662032.	-17175917	16559782	-44092151	-1326525.	-3000705.
9	4329608.	46114385	-45324308	1.20E+08	3558827.	7902697.
10	-11895860	-1.25E+08	1.21E+08	-3.22E+08	-9628812.	-21600325



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