

MONEY/FINANCE IN CIRCULATION FLOW AND THE NIGERIA ECONOMY

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Abstract

It is a popular believes that money is a substitute to a barter trade system and very important event in the history of finance in nearly all facet of human economy. This paper examined the relationship between money and finance in circulation flow and the Nigeria economy. The data were generated from the CBN statistical bulletin and annual reports covering the period of 1970-2011. Econometric software - E-views 3.1 was used to analyze the data. The finding showed that a slight change in MS, TGE and CPI result in the correspondent increase in GDP by 5.2%, 5.7% and 3521.11% respectively. There were impact of MS on TGE and CPI on MS in the short run with respect to the Nigerian economic growth. Finally GDP was found to statistically significant in the current year.

Keywords: Money, Growth, CBN, Circulation, Granger Causes

1. INTRODUCTION

The introduction of money is a substitute to a barter trade system which was a very important event in the history of finance. To the simple Finance is nothing but money needed to consummate economic and business, transactions and exchange processes for Economic development Osiegbu and Onorah (2011), Ezrim (2005). Exerted by Osiegbu (2005) the introduction of money removed most of the problems created by exchange by barter trade including the double coincidence of wants, lack of commodity, measure of value, difficult in strong value, problem associated with making deferred payment. These problems associated with barter system created the need for money, thus as economic welfare progressed; it became necessary to have a medium of exchange that would resolve the barter system problems.

A slight modification of the simple school is contained in the perception of finance not only as money but also as monetary assets Onuorah and Osiegbu, Ezirim (2005). Anyafo (1998) typified finance as a marketable resource furthering up his argument, finance is a resource which can be sold or brought from

the financial markets. The analogy can be extended further for just as there are different variables and classes of materials and labour, so there are all sorts of finance each with individual peculiarities Ezirim (2005). An obvious deduction from finance position stands as domestic currency, foreign exchange, money market instruments. By this token finance is seen as money, no matter the way it is defined. The simple view point of finance is so wide spread and pervasive that even the elite directly or indirectly propagate it.

For instance, how would one explain the position of a person who upon being plagued with lack of money to meet desired needs, claims to be having severe financial problem. Imagine a situation where some entrepreneurs who are plagued with problem of inadequate capital, begin to complain that they are facing financial distress or difficulties. Imagine a student who does not have enough money to buy his needs, walking up to his friend and complaining. "Oh Men"! I am having financial problems; in fact I am financially distressed. Please could you lend me some money, I will pay in few weeks. These are some examples of very many cases of confusion of financial terms. This problem-ridden economic agent failed to discern clearly the difference between monetary problems and financial problems, and thus between money and finance. In circulation as Anyafo (1998) pointed out, Finance is the science of management of money, while money on the other hand is a tool that lubricates transactions and exchange between economic agents. Whereas monetary problems are expressed in lack of and inadequacies in respect of holding or possessing money, currently financial problems are usually expressed in managerial bankruptcy in relation to handling money-financial problems or distressed have a poor managerial outlook for the concerned economic agent. It includes bad financial management capabilities, more or less, if this argument taken, then it is improper to say that one has financial problems when the problem is merely lack of money except where the two conditions are present.

In theory, money is easy to define. It is the stock of assets that can readily be used to settle debts or to buy goods and services. This property, of being easily and quickly exchanged for something else, is known as *liquidity*, and provides a reason for people to hold money, either to enable them to buy and sell goods when they want to, or as a form of insurance against unforeseen events. In theory, therefore, we simply define money as the stock of all completely liquid assets: of those assets which can immediately and costless be used to buy things. In practice, however, it is extraordinarily difficult to translate this theoretical definition into a satisfactory measure of the money supply. There are several reasons for this: it is impossible to draw a clear dividing line between liquid and non-liquid assets; the liquidity of an asset may be different at different times, and under different circumstances; institutional changes may cause changes in the liquidity of different assets.

The distinction between money and finance is hard to make precise, because liquidity is a matter of degree, assets being more or less liquid, rather than simply liquid or non-liquid. An asset's liquidity may vary over time and under different circumstances. Consider the example of a bank account where the bank is entitled to ask for a week's notice for withdrawals. Most of the times the bank may ignore this, allowing customers to withdraw funds on demand, in which case the deposits are very liquid. Sometimes, if withdrawals are very large, the bank may enforce its entitlement to notice, in which case the deposits are less liquid. Institutional changes cause the liquidity of different assets to change. For example, when building societies were allowed to issue cheque books, their deposits became more liquid. It is because there is no clear-cut criterion for deciding what counts as money and what does not, that there are so many definitions of the money supply. In addition, institutional changes mean that it has often been necessary to introduce new definitions of the money supply, and to switch from one definition to another. For example, when the Abbey National became a PLC it changed its status from that of a building society to that of a bank (it became subject to the regulations governing banks instead of those governing building societies). There was an overnight increase in those definitions of the money supply (M1 and M3) which included bank deposits but not building society deposits, even though there was no change in the assets held by the public. The item which appears in all definitions of the money supply is cash (notes and coin) in the hands of the public (i.e. the private sector, excluding the banking system). In addition, because most transactions are now settled without cash, using cheques or other means of transferring funds from one bank account to another, bank deposits have to be included. This, however, is where the problems start, because there are many types of deposit, ranging from sight deposits (payable on demand) on which no interest is paid and on which cheques can be drawn (which should clearly be included in definitions of the money supply) to interest-bearing deposits on which a long period of notice is required for withdrawals, and on which cheques cannot be drawn (which cannot be used to finance transactions, and thus should not be counted as money). In between these two extremes there are many different types of deposit. Different definitions of the money supply are based on different decisions about which types of deposit to include.

Measurement of Money

The future of money is hard to predict, and it is hard to forecast how money evolve. The amount of money in circulation can be related to the economy in form of: total gross product (TGE), money supply (ms), Gross domestic product (GDP), consumer price index (Cpl). To know if we have too much money, we must first measure how much money is in the economy. Unfortunately this is not as simple as counting dollar bills and coins. There are other things in the economy which are money and not dollar bills (debit cards). So, how is money measured? The typical method is to use monetary aggregates. These aggregates measure the amount of money in the economy with each aggregate using a slightly different definition. The

most common aggregates are: M1, M2, and M3. The following table (take from the textbook) shows how these three aggregates are measured in relation with each other.

Money aggregate	Component	Value in billions \$
M1 =	Currency	686.2
+	Travelers' Checks	7.6
+	Demand Deposits (Checking Accts No Interest)	315.3
+	Other Checkable Deposits (With Interest)	328.5
Total M1		1337.6
M2 =		
+	Small-Denomination Time Deposits	794.7
+	Savings Deposits and money market	3415.3
+	Retail Money Market Mutual Funds	735.5
Total M2		6283.1
M3 =		
+	Large-Denomination Time Deposits	1036.3
+	Institutional Money-Market Mutual Fund	1104.7
+	Repurchase Aggrements	516.6
+	Eurodollars	344.5
Total M3		9285.2

The main difference between these three aggregates is their degree of liquidity with M1 being the most liquid and M3 the least.

2. REVIEW OF LITERATURE

Theoretical Background of Money, Finance

The schools of thought who argued varied positions on money are the classical school, Keynesian school and neo-classical viewpoint. Before delving into their major argument, it is necessary to amplify the relationship between money and finance in the economic stand. Money is stock-in-trade, as stock-in-trade, it becomes the article of merchandise in the hands of finance with which it affects its environments and

interest parties. This is why finance is perceived as that discipline that deals with money and in a broader sense than money.

The Classical School

The classical insignificance of money for the classical argument, money is insignificant referring to finance as that which suffered obscurity in the hands of the classical economist. Money was passive and neutral as a causative factor in the economy Niebyl (1946) and Wallace (2005). The substance of the classical argument was captured by mills (1848) who posited that there cannot in short, be intrinsically a more insignificant phenomenon in the economy of society than money.

The Keynesian Position

The incoming of the Keynesian mainstream however gave more recognition and affection to the going need of money than the classical. In the era, dominates by this school of mainstream taught, money was ascribed some measures of importance and so was finance. The work of J.M. Keynes titled, the General theory of money is a case in point which gave impetus to the development of money. Keynes era created awareness and recognition to something more than money. Ezirim (2005) the sum of the Keynesian argument is that money exerts an indirect influence on the economy through the vehicle of interest rates thus money started gaining some recognition as a causative factor in the economy.

The Neo-Classical Thinkers

The major land mark in the evolution and development of the finance field was recorded in the 1950's with the upsurge of a growing analytical causative factor in the economy by the reinsurance of the neo-classical thinking and the 'land over' of the mainstream economist by the monetarists. Hence both the classical argument of classical insignificance and Keynesian in direct influence were in their own words "falsified" Ezrim (2005), Ayres and Frank (1965). According to the monetarists not only does money matter, it is also the only thing that matters in the economy.

The trends in the development of finance since the 1950's, perfectly agreed with th above argument. and events, finance which deals with money must of necessity be only discipline that matters.

The traditional Approach posits by Ezra Solomon (1965), was of the opinion that finance was taken to equate corporation finance was taken to equate corporation finance which is seen as financial management. Expansion away from traditional approach was the increasing attention given to working capital management in place of long term financing. Following up Ezra's argument, finance becomes a wise usage of monetary resources and financial investment decision. The further trend in the development of finance and finance study is the continual broadening finance. Finance managers get full of analytical and intellectual taught on handling of finance, wider usage and broader initiatives originates the field of finance and creation of the finance disciplines Modigliani Miller (1958) as the MM Theory. The disciplines in the areas of finance study "The Scope" of finance as seen now are personal, public, corporate and international finance, Bank Management, Risk Management, Investment – Portfolio Management, Financial System, Insurance Management, Investment Banking, Osiegbu, P.I. and Onuorah, A.C (2011).

The Empirical Studies

Very many authors have worked on the relationship between money, finance and money in circulation flow using various methodologies and analytical tools. Some have extended their empirical works to many countries of the world. For instance, Jane Guyer (2004), Akinobu Koroda, at John's Hopkins University analyzed the temporaries of money circulation in highly developing commercial cash economies working on Chinese history shows how the demand and supply for different circulating currencies reveal significantly.

Findings of Iyoha (1969), Taiwo (1990), Odedokun (1996), Ojo (1993), Chete (2002), Saidu (2007), Owoye and Owoye and Onafowora (2007) show that there is a relationship between money and circulating money when tested using co-integration between money and money in circulation for a period of 40 years in Switzerland Asogu (1998) examined the relationship between money in circulation in the economy on Gross Domestic Product. He adopted the St. Louis Model on annual and quarterly time series data. He discovered that there is relationship between money/finance and money in circulation.

Tawadros (2007) tested the hypothesis of long-run money flow for Egypt, Jordan Morocco using seasonal co-integration techniques to test the flow of money for Middle Eastern economies using quarterly data on money supply, total gross product, gross domestic product and the empirical results showed that money is co-integrated with finance. Chew (1999) worked on the reed edge and the Phillips curve on money flow and subjective beliefs, the paper's approach involved the forces of demand and supply. The study found that nominal effects will be experienced if a monetary revaluation is common knowledge.

Asian and Korap (2007) attempted to test main assumptions of the quantity theory of money for Turkish economy using some contemporaneous estimation techniques to examine the long-run stationary of economic relations on which quantity theory is constructed. It was found that stationary characteristics of the velocities of narrowly and broadly defined monetary aggregates cannot be rejected.

3. DATA AND METHODOLOGY

The model for the research study are:

Gross domestic product (GDP), money supply (MS) and consumer price index (CPI) and are modeled as follows:

$$GDP = \beta_0 + \beta_1 MS + \beta_2 TGE + \beta_3 CPI + \varepsilon \dots\dots\dots 1$$

$$GDP_{t+1} = \beta_0 + \beta_1 MS_{t-1} + \beta_2 TGE_{t-1} + \beta_3 CPI_{t-1} + \varepsilon \dots\dots\dots 2$$

$$GDP_{t-1} = \beta_1 GDP_{t-1} + \varepsilon \dots\dots\dots 3$$

The model (1) estimates the relationship between the GDP and other macroeconomic variables. Model 2 test for granger causality test and model 3 test for relationship. The data was collected from the CBN Statistical bulletin and annual reports (1970-2011).

4. ANALYSIS OF ESTIMATION RESULT/ FINDINGS

Dependent Variable: GDP
 Method: Least Squares
 Date: 05/16/12 Time: 06:47
 Sample: 1970 2011
 Included observations: 35
 Excluded observations: 7

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MS	0.051507	0.026144	1.970119	0.0578
TGE	0.057583	0.090066	0.639345	0.5273
CPI	35.21059	9.951572	3.538194	0.0013
C	121780.4	20549.99	5.926056	0.0000
R-squared	0.842071	Mean dependent var		276585.2
Adjusted R-squared	0.826788	S.D. dependent var		222192.5
S.E. of regression	92473.80	Akaike info criterion		25.81445
Sum squared resid	2.65E+11	Schwarz criterion		25.99220
Log likelihood	-447.7529	F-statistic		55.09698
Durbin-Watson stat	0.342572	Prob(F-statistic)		0.000000

Source:

MODEL ESTIMATION

$GDP = \beta_0 + \beta_1MS + \beta_2TGE + \beta_3CPI + \varepsilon$ it is mathematically expressed as

$GDP = 121780.4 + 0.0515MS + 0.057TGE + 35.2105CPI$ hence, from model estimation MS, TGE and CPI positive effect on the dependent variable (GDP) for the period under study and degree of association among GDP and the independent variables is very high at 73.1%. This implies that an increase on any of the unit of the independent variables will result to increase in the GDP. In addition, a unit change or rise in MS, TGE and CPI result in the correspondent increase in GDP by 5.2%, 5.7% and 3521.11% respectively. The adjusted R-square value (0.8278) inferred the independent variables were able to explain approximately 82.8% of total variation of the dependent variable (GDP) for the period (1970-2011).

Test for Predicting Power

To test for the level of the predictive power of the model estimated, the value (1.0484) obtained shows that the model is good and can be use for further prediction value is 1.0484 implying very high predictive power of about 104.9%. To adjudge the model fit and accuracy of analytical model estimates, the R-square (0.8421) indicates that it is fitted and accurate at 84.2%. To investigate the significance of parameters and the overall significance

Dependent- GDP Test for individual variable significance table result

Variable	Coefficient	p-value	Decision p > 0.05
MS	0.05151	0.0578	Not sig
TGE	0.0576	0.527	Not sig
CPI	35.211	0.0031	Sig

From the analysis in the table above, it was shown that both MS and TGE are not statistically significant but CPI is significant at 5% level.

In the overall significant test, the table above probability value (0.002) associated with F statistics (4.700478) < 0.05, it therefore shows that the entire regressors were statistically significant to GDP. This implies exact parameterization of variables.

White Heteroskedasticity Test:

F-statistic	12.18942	Probability	0.000001
Obs*R-squared	25.31013	Probability	0.000299

Ramsey RESET Test:

F-statistic	6.568394	Probability	0.000794
Log likelihood ratio	23.78613	Probability	0.000088

The diagnostic test results revealed that there is presence of homoskedasticity and model is in functional form as the White Heteroskedasticity and Ramsey RESET Tests are less than the critical value at 5%. Serial absence in the series is tested by the value of the JB- statistic less than 5% but the data set is not normally distributed at 5% level of significance'

Unit Root test result revealed that in the GDP (2), TGE (at level) and CPI (1) were stationary while MS is not stationary at 5% critical level since the ADF value is less than 5% critical value, see table below:

GDP At Level,

ADF Test Statistic	1.174837	1% Critical Value*	-3.7076
		5% Critical Value	-2.9798
		10% Critical Value	-2.6290

*MacKinnon critical values for rejection of hypothesis of a unit root.

At Order2

ADF Test Statistic	-3.388669	1% Critical Value*	-3.8067
		5% Critical Value	-3.0199
		10% Critical Value	-2.6502

*MacKinnon critical values for rejection of hypothesis of a unit root.

TGE at Level

ADF Test Statistic	14.92367	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

MS at Level

ADF Test Statistic	1.902903	1% Critical Value*	-3.7204
		5% Critical Value	-2.9850
		10% Critical Value	-2.6318

*MacKinnon critical values for rejection of hypothesis of a unit root.

MS at oder 1

ADF Test Statistic	0.905375	1% Critical Value*	-3.7856
		5% Critical Value	-3.0114
		10% Critical Value	-2.6457

*MacKinnon critical values for rejection of hypothesis of a unit root.

MS at Order2

ADF Test Statistic	-0.146055	1% Critical Value*	-3.8877
		5% Critical Value	-3.0521
		10% Critical Value	-2.6672

*MacKinnon critical values for rejection of hypothesis of a unit root.

CPI At level

ADF Test Statistic	-1.780929	1% Critical Value*	-3.6067
		5% Critical Value	-2.9378
		10% Critical Value	-2.6069

*MacKinnon critical values for rejection of hypothesis of a unit root.

CPI At Order 1

ADF Test Statistic	-3.717452	1% Critical Value*	-3.6117
		5% Critical Value	-2.9399
		10% Critical Value	-2.6080

*MacKinnon critical values for rejection of hypothesis of a unit root.

The Johansen co integration procedure confirms that the variables were co integrated at most 1* indicating at least two co integrating equations as the L.R test value 37.28 is greater than 29.68 and 35.65 at both 5% and 1% critical values respectively.

Co integration

Date: 05/16/12 Time: 07:05
 Sample: 1970 2011
 Included observations: 28
 Test assumption: Linear deterministic trend in the data
 Series: GDP MS TGE CPI
 Lags interval: No lags

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.761047	77.36925	47.21	54.46	None **
0.584387	37.28758	29.68	35.65	At most 1 **
0.353968	12.70353	15.41	20.04	At most 2
0.016652	0.470171	3.76	6.65	At most 3

*(**) denotes rejection of the hypothesis at 5%(1%) significance level, L.R. test indicates 2 cointegrating equation(s) at 5% significance level.

Since Ms is not stationary at any level or difference but co integrated with other variables under study adoption of VAR estimation is necessary to estimate relationship. However, VAR model result showed that the GDP is statistically significant in the current since 6.14 is greater than 2.0 by the rule of thumb but it is not significant at the previous year. This informs short run relationship.

VAR Model

Date: 05/16/12 Time: 07:06

Sample(adjusted): 1972 2009
 Included observations: 27
 Excluded observations: 11 after
 adjusting endpoints
 Standard errors & t-statistics in
 parentheses

	GDP
GDP(-1)	1.298269 (0.21128) (6.14473)
GDP(-2)	-0.304535 (0.21838) (-1.39450)
C	4347.794 (5757.02) (0.75522)
MS	-0.005001 (0.00854) (-0.58533)
TGE	0.030565 (0.03748) (0.81546)
CPI	0.994006 (3.20755) (0.30990)
R-squared	0.996614
Adj. R-squared	0.995808
Sum sq. resid	4.05E+09
S.E. equation	13880.39
F-statistic	1236.114
Log likelihood	-292.4509
Akaike AIC	22.10747
Schwarz SC	22.39544
Mean dependent	302088.3
S.D. dependent	214370.9

The investigation of effect of the independents variables (MS, TGE, CPI) on the GDP was measured with the granger causality result below:

Pairwise Granger Causality Tests
 Date: 05/16/12 Time: 07:08
 Sample: 1970 2011
 Lags: 2

Null Hypothesis:	Obs	F-Statistic	Probability
MS does not Granger Cause GDP	22	0.98949	0.39219
GDP does not Granger Cause MS		3.53613	0.05199
TGE does not Granger Cause GDP	29	2.70917	0.08692

GDP does not Granger Cause TGE		0.75510	0.48080
CPI does not Granger Cause GDP	29	1.40212	0.26552
GDP does not Granger Cause CPI		0.50060	0.61236
TGE does not Granger Cause MS	29	2.66355	0.09022
MS does not Granger Cause TGE		7.26709	0.00341
CPI does not Granger Cause MS	29	15.4023	5.0E-05
MS does not Granger Cause CPI		0.08084	0.92259
CPI does not Granger Cause TGE	40	0.62103	0.54321
TGE does not Granger Cause CPI		0.11603	0.89079

Using probability values associated with the F-statistic less than 5% critical value criteria, the table showed that both MS and GDP does not granger cause each other. In addition, TGE and GDP, CPI and GDP, TGE and MS do not granger cause each other. These suffice to say that there were no run relationship among hence there are effect on GDP. However, MS and TGE and CPI and MS granger cause each other. These revealed that there was effect of MS on TGE and CPI on MS in the short run.

6. CONCLUSION

From the findings we conclude that rise in MS, TGE and CPI result in the correspondent increase in GDP by 5.2%, 5.7% and 3521.11% respectively. The adjusted R-square value (0.8278) inferred the independent variables were able to explain approximately 82.8% of total variation of the dependent variable (GDP) for the period. Effect of MS on TGE and CPI on MS in the short run can measure the GDP. In addition, all the variables are stationary except MS at 5% in level and difference order but were co integrated. The GDP appears to be significant in current year but not significant in the previous year.

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