# The Relationship between Monetary Aggregates and Economic Growth: Evidence from Nigeria

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**Abstract:** This study examines the relationship between monetary aggregates and economic growth with evidence from Nigeria. It examines the extent to which narrow and broad money supply relate to Nigerian Real Gross Domestic Product. Data collected were analyzed using multiple regression. The result of the study shows though broad money supply ($M_2$) has a salutary effect on the performance of the economy as shown by the positive relationship it exhibits, the relationship is not such that monetary aggregates can significantly contribute to the performance of the economy. The paper recommends that since monetary aggregates are weak in achieving growth in the Nigerian economy, a combination of monetary and fiscal policy measures , perhaps will achieve the desired objective of growing the economy.
**Keywords:** Monetary aggregate; Economic Growth.

## INTRODUCTION

Monetary policy refers to sets of monetary variables used by the monetary authorities to regulate the availability of credits and money supply to achieve set macroeconomic goals. The instruments include money supply, interest rate, liquidity reserves, open market operations.

Studying monetary aggregates can generate a lot of information about the financial stability and overall health of a country. For example, monetary aggregates that grow at a pace that is too rapid may cause inflation – if there is a greater amount of money in circulation to be used on the same amount of goods and services, prices are likely to rise in response. If this occurs, central banking groups are likely to be forced to raise interest rates or reduce the money supply growth in some way.

Monetary aggregates have remained essential tools for manipulating a nation's economy in the best interest of all. The past few decades have revealed that there is a lower connection between fluctuations in the money supply and significant metrics like inflation as well as gross domestic product (GDP) and unemployment. As of 2016, the central bank's monetary policy is better understood by looking at the amount of the money is releasing into the economy. M2 is still considered to be useful as an indicator of potential inflation when it is compared to GDP growth. The objective of monetary policy is to achieve set macroeconomic goals such economic growth, full employment, price stability and balance of payment equilibrium which are measures of macroeconomic stability. This opinion has been accredited to the classical monetary policy theory and further deepened by the monetarists' economists. Central Bank of Nigerian Decree 1969 empowered Central Bank of Nigeria with the monetary policy functions for the economy. Monetary policy is to the monetary authorities what the farm instruments are to the farmers [1]. It is an instrument used to fine-tune the economy to achieve set macroeconomic goals. Its implication can be expansionary where interest rate, liquidity reserves is reduced and money supply increased to enhance availability of credit or contractionary where interest rate, liquidity is increase and money supply reduced to reduced excess money in circulation. This is a mechanism to control excess liquidity and inflation to achieve price stability.

Monetary policy is transmitted through the banking system. Its effectiveness is determined by the development of the banking system, the extent to which reserves are held by the banks and the rate of compliance of the banking system with the monetary guidelines of the Central Bank. Osiegbu [2] found that the compliance rate on the sectoral credit allocation was very poor and this led to the poor performance of the industrial sector in the 1980s and 1990s. When properly managed as in the developed countries, monetary policy has the capacity of encouraging investment (through bank lending) which is a prerequisite for achieving economic growth. Though, this depends on the

monetary policy stance and what the government aims to achieve. The challenges in applying monetary policy in Nigeria are numerous. Onoh [3] noted that application of monetary policy in Nigeria is characterized by ill timing, inconsistency, poor management, ex-post and lack of direction. However, the inability of monetary authorities to achieve the desired objective in the past decades led to some reforms in the banking system such as the deposit money banks, the deregulation of the financial sector and the increase in the monetary policy instruments. It is therefore necessary to investigate the effect of these reforms on the growth of Nigerian economy.

Monetary aggregates have at times been advocated as a guide to monetary policy on the ground that they may have a fairly stable relationship with the economic and can be controlled to a reasonable extreme by the central Bank, either through control over the supply of balances at the federal reserve of the federal fund rat. An increase in the federal fund rate (and other short-term interest rate, for example) will reduce the attractiveness of holding money balances relative to new higher yielding money market instruments and thereby reduce the amount of money demanded and slow growth of the money stock. There are a few measures of the money stock ranging from the transactions dominated $M_1$ to the broader $M_2$ and $M_3$ measures, which include other liquid balances and these aggregates have different behaviors.

One additional aggregate is the monetary base (MB), also known as High-Powered money serves as a basis upon which effective money supply depends. The MB aggregate is not widely observed. It includes not only includes money in circulation but specifically includes the portion of commercial banks' reserves that are stored in the reserves of deposit money banks.

For the Central Bank of Nigeria to continuously apply monetary policy over the years implies that monetary policy has a contributory effect on the economy. It is important to examine this position empirically. This is what this paper is set to do.

**Statement of the Problem**

In many countries, the reliability of the monetary aggregates as the main vehicle for the conduct of monetary policy has become increasingly questionable due in part to the phenomenon of a weakening relationship between monetary variables and their targets. In Nigeria, it has been observed that moderation in inflation has not kept pace with the slowdown in growth of the monetary aggregates, particularly since the global financial crisis; raising concerns about the stability of the underlying assumption of the theoretical relationship between the intermediate target of monetary policy, broad money supply, and prices.

The macroeconomic indicators such as inflation rate, economic growth rate, capital formation and the banking sector performance can elucidate this fact. This result to inability of the monetary policy to achieve the monetary policy objectives such as price stability and adequate economic growth, for instance, Nigeria still has high rate of inflation and poor growth rate. In 2012 the growth rate of the economy was 7.3% compared with inflation rate of 12.0% [4], percentage of total commercial banks credit to Gross Domestic Product (GDP) was 25.67% in 2012 and 28.05 in 2013 compared with the real economic growth rate of 7.82% and 7.69% 2003 - 2012. Interest rate shows that Nigerian real interest rate was 22.8%, 20.8%, 19.4%, 18.7%, 18.3%, 18.7%, 22.6%, 22.5%, 22.4% and 24.6% compared to the growth rate of the economy by 9.5%, 6.5%, 6.5%, 6.3%, 6.4%, 5.9%, 6.9%, 7.9%, 7.4% and 6.5% while inflation 14.3%, 15.0%, 17.8%, 8.21%, 5.4%, 11.5%, 12.5%, 13.7%, 10.7% and 12.0% from 2003 – 2014. There is also the problem of inability to determine the causal effect of monetary policy on the effectiveness of economic growth because of conflict with the fiscal policy.

The general purpose of this study is to examine the relationship between monetary aggregates and macroeconomic performance in Nigeria. The specific objectives are to examine the extent to which narrow and broad money supply relate to Nigerian Gross Domestic Product.

**LITERATURE REVIEW**
**Conceptual and Overview of Monetary Policy**

Monetary policy is defined by the Central Bank of Nigeria (CBN) as combination of measures designed to regulate volume and cost of money in an economy, in consonance with the level of economic activities. Odufalu [5] defined monetary policy as the combination of measures taken by monetary authorities (e.g. the CBN and the ministry of finance) to influence directly or indirectly both the supply of money and credit to the economy and the structure of interest rate for economic growth, price stability and balance of payment equilibrium. He added that the CBN is empowered by decree 25 of 1991 Act to formulate and implement monetary policy in Nigeria, in consultation with the ministry of finance subject to the approval of the President [6]. Sums it up when he said that monetary policy is therefore applied to influence the availability and cost of credit in order to control the money supply policy. He generally described the action taken by the Central Bank as using tools / instruments at its disposal to influence monetary conditions in particular, the quantity and supply of money and macroeconomic goals.

These goals would normally include price stability, full employment, high economic growth rate and balance of payments equilibrium. The attainment of these goals will result into the country achieving both

internal and external balance of trade and payment. The practice of monetary policy using tools / instruments to regulate the quantity of money supply to achieve stability in the economy is based on the premise that there is a stable relationship between the quantity of money supplied in an economy and economic activities. Even though, the way and manner with which the central bank regulates its money supply vary from place to place the approach can be divided into two main groups [7]. The first group advocates that monetary policy should target price stability as its single important objectives. The other macro-economic goal agitates for due regulation of money supply and in extension in the control of persistent price increase to ensure sustainable and balanced development in the economy.

Monetary policy is known to be a vital instrument that a country can deploy for the maintenance of domestic price and exchange rate stability as a critical condition for the achievement of a sustainable economic growth and external viability. Monetary policy may be inflationary or deflationary depending upon the economic condition of the country. Contractionary policy is enforced to squeeze money supply to curb inflation and expansionary policy is to stimulate economic activity to combat unemployment in recession. Elsewhere, Shane Hall [8], Kuttner [9] examine the impact of monetary policy actions on the bill, note, and bond yields, using U.S. Fed funds futures rates as a measure of expected component of policy changes to separate expected and unexpected components changes in the target funds. Kuttner finds that interest rate market's response to the anticipated part of monetary policy changes is small while its reaction to the unanticipated surprises is large and highly significant. He contends that the failure of previous studies in documenting the close link between monetary policy actions and market reactions is due to the inability to disentangle the anticipated component of the policy change from the unanticipated component [10]. However, the impact of nominal exchange rate flexibility on inflation is more ambiguous. All empirical researches confirm that depreciations of nominal exchange rate are correlated with temporary increases in consumer prices [11]. Roley and Sellon [12] examine how treasury security yields, stock prices and federal funds futures rates respond on Federal Open Market Committee (FOMC) meeting dates when expected policy actions do not occur. Their empirical results suggest a small but statistically significant reversal rates when an expected federal funds rate target change does not occur. Grenville [13] brought out that below are six main channels through which changes in interest rates affect economic activity: - inter temporal substitution (since interest rates represent the price of expenditure in the present relative to the future), - the effect of induced changes in the exchange rate on the tradable sector - interest rate effects on other asset prices - cash-flow effects on liquidity constrained borrowers - credit

supply effects, and - the direct effect of changes in monetary policy on expectations of growth. Each of these channels, and the interaction between them, makes a contribution to the lags of monetary policy.

Monetary policy has been strictly limited by macroeconomic stabilization agreements made with the IMF and World Bank in conjunction with IMF loans, the HIPC (Heavily Indebted Poor Country) initiative and the PRSP (Poverty Reduction Strategy Paper). In addition to the typical IMF requirements to limit credit to the government and increase foreign reserves, the Nigerian Bank has also been encouraged to focus on reducing inflation into the low single digits. This focus on inflation fighting and the other limitations imposed by IMF conditionality has reduced the prospects for rapid economic growth and broad-based employment generation in Nigeria [14]. An alternative monetary policy which focuses more on real variables, including promoting employment and faster GDP growth, is both feasible and necessary if Nigeria is to make more rapid progress in reducing poverty and generating sustainable development. There is general agreement among economists and policymakers that monetary policy works mainly through interest rates. When the central bank policy is tightened through a decrease in reserve provision, for instance, interest rates rise. The rise in interest rates leads to a reduction in spending by investors.

## RESEARCH DESIGN

This study uses quasi experimental research design approach for the data analysis. This approach combines theoretical consideration (a prior criterion) with the empirical observation and extracts maximum information from the available data. However, for the purpose of this study, the secondary data collection method will be used, and the multiple regressions with the use of econometric view will be used. The two-tailed test will be used in testing the hypotheses formulated.

For the purpose of this study which is to examine monetary aggregates and economic growth in Nigeria, secondary data sourced from the Central Bank of Nigeria Statistical Bulletin are used.

## METHOD OF DATA ANALYSIS

The study used multiple regression defined as an equation with one dependent variable and more than one independent variable. The technique used in this study is the Ordinary Least Square (OLS) estimation technique. The test instruments in the OLS are the t-statistics and F-test which were used to test the significance of variables and the overall significance of the regression respectively. Other test instruments also employed were the Durbin Watson test which was used to test the presence or absence of auto correlation between and among the explanatory variables and the

adjusted R square used to test the percentage variation of the dependent and the independent variables.

**Model Specification for the Study**

The theoretical assumption of the classical monetary policy has been that the manipulation of the monetary variables will be used to achieve set macroeconomic goals. The models below assume that economic growth is a linear function of the monetary policy variables.

Based on the objectives of the study, the functional model is specified as follows:

$$RGDP = f(M_1, M_2)\ldots\ldots\ldots\ldots\ldots (1)$$

From equation 1, we formulate the econometrics model below

$$RGDP = \beta_0 + \beta_1 M_1 + \beta_2 M_2 + \mu \quad \ldots\ldots (2)$$

Where,

**RGDP** = Real Nigerian Gross Domestic Product

$M_1$ = Narrow money supply

$M_2$ = Broad money supply

$\mu$ = stochastic error term, is a surrogate or proxy for all the Omitted or neglected variables that may affect the predictor variable but are not included in the regression model

$\beta_0$, $\beta_1$ and $\beta_2$ = Parameters to be estimated.

**A-Priori Expectation of Results**

According to monetary policy theories and economic principles, increase in the independent variables will efficiently lead to realization of macroeconomic goals of growth in output known as economic growth. Therefore, it is expected that $\beta_1$, $\beta_2 > 0$.

**ANALYSIS AND RESULTS**
**Presentation of Results**

| Dependent Variable: RGDP | | | | |
|---|---|---|---|---|
| Method: Least Squares | | | | |
| Date: 10/26/17   Time: 02:41 | | | | |
| Sample (adjusted): 1981 2015 | | | | |
| Included observations: 41 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 1.55E+13 | 6.76E+11 | 22.93326 | 0.0000 |
| M1 | -34.63322 | 98.82282 | -0.350458 | 0.7279 |
| M2 | 24.44487 | 37.80302 | 0.646638 | 0.5218 |
| R-squared | 0.300585 | Mean dependent var | | 1.67E+13 |
| Adjusted R-squared | 0.263774 | S.D. dependent var | | 4.52E+12 |
| S.E. of regression | 3.88E+12 | Akaike info criterion | | 60.88210 |
| Sum squared resid | 5.72E+26 | Schwarz criterion | | 61.00748 |
| Log likelihood | -1245.083 | Hannan-Quinn criter. | | 60.92776 |
| F-statistic | 8.165562 | Durbin-Watson stat | | 0.131356 |
| Prob(F-statistic) | 0.001122 | | | |

| Null Hypothesis: M1 has a unit root | | | | |
|---|---|---|---|---|
| Exogenous: Constant | | | | |
| Lag Length: 5 (Automatic - based on SIC, maxlag=9) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | 9.229248 | 1.0000 |
| Test critical values: | 1% level | | -3.632900 | |
| | 5% level | | -2.948404 | |
| | 10% level | | -2.612874 | |
| *MacKinnon (1996) one-sided p-values [15]. | | | | |
| Augmented Dickey-Fuller Test Equation | | | | |
| Dependent Variable: D(M1) | | | | |
| Method: Least Squares | | | | |
| Date: 10/26/17   Time: 02:45 | | | | |
| Sample (adjusted): 1981  2015 | | | | |
| Included observations: 35 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| M1(-1) | 1.545184 | 0.167423 | 9.229248 | 0.0000 |
| D(M1(-1)) | -1.680821 | 0.321012 | -5.236010 | 0.0000 |

| | | | | |
|---|---|---|---|---|
| D(M1(-2)) | -1.798731 | 0.267023 | -6.736243 | 0.0000 |
| D(M1(-3)) | -1.057326 | 0.405341 | -2.608489 | 0.0144 |
| D(M1(-4)) | -1.738176 | 0.348010 | -4.994614 | 0.0000 |
| D(M1(-5)) | -2.661295 | 0.479397 | -5.551333 | 0.0000 |
| C | -1.20E+09 | 9.10E+08 | -1.318840 | 0.1979 |
| R-squared | 0.968368 | Mean dependent var | | 1.10E+10 |
| Adjusted R-squared | 0.961590 | S.D. dependent var | | 2.31E+10 |
| S.E. of regression | 4.53E+09 | Akaike info criterion | | 47.48347 |
| Sum squared resid | 5.75E+20 | Schwarz criterion | | 47.79454 |
| Log likelihood | -823.9608 | Hannan-Quinn criter. | | 47.59086 |
| F-statistic | 142.8635 | Durbin-Watson stat | | 1.816174 |
| Prob(F-statistic) | 0.000000 | | | |

| | | | | |
|---|---|---|---|---|
| Null Hypothesis: D(M1) has a unit root | | | | |
| Exogenous: Constant | | | | |
| Lag Length: 9 (Automatic - based on SIC, maxlag=9) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | 1.139822 | 0.9969 |
| Test critical values: | 1% level | | -3.670170 | |
| | 5% level | | -2.963972 | |
| | 10% level | | -2.621007 | |
| *MacKinnon (1996) one-sided p-values. | | | | |
| Augmented Dickey-Fuller Test Equation | | | | |
| Dependent Variable: D(M1,2) | | | | |
| Method: Least Squares | | | | |
| Date: 10/26/17   Time: 02:44 | | | | |
| Sample (adjusted): 1981  2015 | | | | |
| Included observations: 30 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| D(M1(-1)) | 2.957737 | 2.594912 | 1.139822 | 0.2685 |
| D(M1(-1),2) | -3.797936 | 2.782740 | -1.364819 | 0.1883 |
| D(M1(-2),2) | -3.099046 | 2.767651 | -1.119739 | 0.2768 |
| D(M1(-3),2) | -2.789103 | 2.688434 | -1.037445 | 0.3126 |
| D(M1(-4),2) | -4.185991 | 2.790300 | -1.500194 | 0.1500 |
| D(M1(-5),2) | -3.615752 | 2.997303 | -1.206335 | 0.2425 |
| D(M1(-6),2) | -1.784000 | 2.870075 | -0.621587 | 0.5416 |
| D(M1(-7),2) | -1.312141 | 2.859036 | -0.458945 | 0.6515 |
| D(M1(-8),2) | -1.064946 | 2.794068 | -0.381145 | 0.7073 |
| D(M1(-9),2) | 4.902462 | 2.351652 | 2.084688 | 0.0508 |
| C | -23161538 | 1.13E+09 | -0.020508 | 0.9839 |
| R-squared | 0.912497 | Mean dependent var | | 2.91E+09 |
| Adjusted R-squared | 0.866443 | S.D. dependent var | | 1.19E+10 |
| S.E. of regression | 4.36E+09 | Akaike info criterion | | 47.50619 |
| Sum squared resid | 3.61E+20 | Schwarz criterion | | 48.01997 |
| Log likelihood | -701.5929 | Hannan-Quinn criter. | | 47.67055 |
| F-statistic | 19.81353 | Durbin-Watson stat | | 1.651238 |
| Prob(F-statistic) | 0.000000 | | | |

| | | | | |
|---|---|---|---|---|
| Null Hypothesis: M2 has a unit root | | | | |
| Exogenous: Constant | | | | |
| Lag Length: 8 (Automatic - based on SIC, maxlag=9) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | 1.555523 | 0.9991 |
| Test critical values: | 1% level | | -3.653730 | |
| | 5% level | | -2.957110 | |
| | 10% level | | -2.617434 | |
| *MacKinnon (1996) one-sided p-values. | | | | |

| Augmented Dickey-Fuller Test Equation | | | | |
|---|---|---|---|---|
| Dependent Variable: D(M2) | | | | |
| Method: Least Squares | | | | |
| Date: 10/26/17   Time: 02:45 | | | | |
| Sample (adjusted): 1981 2015 | | | | |
| Included observations: 32 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| M2(-1) | 0.448050 | 0.288038 | 1.555523 | 0.1341 |
| D(M2(-1)) | 1.023315 | 0.432137 | 2.368032 | 0.0271 |
| D(M2(-2)) | -1.191531 | 0.402633 | -2.959345 | 0.0072 |
| D(M2(-3)) | -0.881275 | 0.475426 | -1.853655 | 0.0772 |
| D(M2(-4)) | 0.000790 | 0.509798 | 0.001549 | 0.9988 |
| D(M2(-5)) | -0.640746 | 0.540059 | -1.186438 | 0.2481 |
| D(M2(-6)) | -0.448363 | 0.536155 | -0.836258 | 0.4120 |
| D(M2(-7)) | -0.108780 | 0.557449 | -0.195140 | 0.8471 |
| D(M2(-8)) | 1.681590 | 0.601412 | 2.796071 | 0.0105 |
| C | -1.70E+09 | 1.57E+09 | -1.080366 | 0.2917 |
| R-squared | 0.993924 | Mean dependent var | | 3.24E+10 |
| Adjusted R-squared | 0.991439 | S.D. dependent var | | 6.74E+10 |
| S.E. of regression | 6.24E+09 | Akaike info criterion | | 48.19574 |
| Sum squared resid | 8.56E+20 | Schwarz criterion | | 48.65378 |
| Log likelihood | -761.1319 | Hannan-Quinn criter. | | 48.34757 |
| F-statistic | 399.8914 | Durbin-Watson stat | | 1.940076 |
| Prob(F-statistic) | 0.000000 | | | |
| Null Hypothesis: D(M2) has a unit root | | | | |
| Exogenous: Constant | | | | |
| Lag Length: 7 (Automatic - based on SIC, maxlag=9) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | 8.389269 | 1.0000 |
| Test critical values: | 1% level | | -3.653730 | |
| | 5% level | | -2.957110 | |
| | 10% level | | -2.617434 | |
| *MacKinnon (1996) one-sided p-values [15]. | | | | |
| Augmented Dickey-Fuller Test Equation | | | | |
| Dependent Variable: D(M2,2) | | | | |
| Method: Least Squares | | | | |
| Date: 10/26/17   Time: 02:46 | | | | |
| Sample (adjusted): 1981  2015 | | | | |
| Included observations: 32 after adjustments | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| D(M2(-1)) | 2.367533 | 0.282210 | 8.389269 | 0.0000 |
| D(M2(-1),2) | -1.730100 | 0.418295 | -4.136073 | 0.0004 |
| D(M2(-2),2) | -2.561860 | 0.343975 | -7.447813 | 0.0000 |
| D(M2(-3),2) | -2.962601 | 0.368448 | -8.040754 | 0.0000 |
| D(M2(-4),2) | -2.426532 | 0.452638 | -5.360869 | 0.0000 |
| D(M2(-5),2) | -2.558903 | 0.343448 | -7.450636 | 0.0000 |
| D(M2(-6),2) | -2.554080 | 0.437393 | -5.839320 | 0.0000 |
| D(M2(-7),2) | -2.201034 | 0.515389 | -4.270627 | 0.0003 |
| C | -3.62E+08 | 1.36E+09 | -0.266657 | 0.7921 |
| R-squared | 0.970313 | Mean dependent var | | 1.05E+10 |
| Adjusted R-squared | 0.959987 | S.D. dependent var | | 3.21E+10 |
| S.E. of regression | 6.43E+09 | Akaike info criterion | | 48.23759 |
| Sum squared resid | 9.50E+20 | Schwarz criterion | | 48.64982 |
| Log likelihood | -762.8014 | Hannan-Quinn criter. | | 48.37423 |
| F-statistic | 93.96897 | Durbin-Watson stat | | 2.062286 |
| Prob(F-statistic) | 0.000000 | | | |
| Pairwise Granger Causality Tests | | | | |

| Date: 10/26/17   Time: 02:43 | | | |
| Sample: 1981  2015 | | | |
| Lags: 2 | | | |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
| --- | --- | --- | --- |
| M1 does not Granger Cause RGDP | 39 | 0.89390 | 0.4185 |
| RGDP does not Granger Cause M1 | | 0.00370 | 0.9963 |
| M2 does not Granger Cause RGDP | 39 | 0.87005 | 0.4280 |
| RGDP does not Granger Cause M2 | | 0.42009 | 0.6604 |
| M2 does not Granger Cause M1 | 39 | 0.22076 | 0.8030 |
| M1 does not Granger Cause M2 | | 67.6494 | 1.E-12 |

**Interpretation of Regression Results**

The result on test of causality between RGDP and money supply in Nigeria shows there is a unidirectional causality running from RGDP to money supply justifies the use of a single equation in the model estimation as can be seen in the Granger causality test. The result of the model estimation shows that $\beta_1$ is negative with the coefficient of -34.63 means that an increase in narrow money supply by one basis point causes a decline in real gross domestic product by 44.63 naira. This is contrary to a priori expectation and calls for further investigation. The $M_2$ has a coefficient of 24.44, positive and conforms to a priori expectation. However, both $M_1$ and $M_2$ are not statistically significant. This shows that monetary aggregates do not significantly affect real gross domestic product in Nigeria. This model appears weak looking at the adjusted $R^2$ suggesting that the model only account for 26 percent of the changes in the dependent variable (RGDP), but the F-value demonstrates that the entire model is significant.

**CONCLUSION**

From the findings of the study, monetary policy cannot be effectively used in achieving the macroeconomic goal of economic growth in Nigeria. That given the development of the banking system, monetary policy alone can not be relied upon to bring the desired changes in the economy. This conclusion is drawn from the weak (non significant) relationship between real gross domestic product and monetary aggregates.

**RECOMMENDATIONS**

Based on the result of our finding, we recommend that domestic monetary policy should be integrated with fiscal policy to perhaps, enhance Nigeria macro-economic stability. Again, emphasis should be laid on broad money supply to grow the economy.

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**Appendix**

| Table A.1.3.1: Quarterly Monetary Aggregates (N' Billion) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period | NFA | NCG | CPS | CCP | CSLG | RM | M1 | M2 | PSDD | Reserves | CIC |
| 1981 | | | | | | | | | | | |
| Q1 | 5.8 | 1.9 | - | 7.9 | - | 3 | 7.2 | 12.9 | 5.3 | 0.7 | 2.3 |
| Q2 | 5.8 | 1.8 | - | 8.4 | - | 2.9 | 7.4 | 13.2 | 5.5 | 0.6 | 2.3 |
| Q3 | 4.4 | 3.8 | - | 9.2 | - | 2.1 | 6.9 | 13.1 | 5.9 | 0.7 | 1.4 |
| Q4 | 2.6 | 6.5 | - | 9.7 | - | 5 | 9.9 | 16.2 | 6.1 | 0.7 | 4.3 |
| 1982 | | | | | | | | | | | |
| Q1 | 1.1 | 6.2 | - | 10.4 | - | 4.7 | 9.1 | 16 | 5.3 | 0.5 | 4.2 |
| Q2 | 0.7 | 6.8 | - | 10.9 | - | 4.9 | 9.2 | 16.5 | 5.4 | 0.7 | 4.2 |
| Q3 | 0.7 | 6.2 | - | 11.2 | - | 5.2 | 9.4 | 17 | 5.6 | 1 | 4.3 |
| Q4 | 0.9 | 10.7 | - | 11.6 | - | 5.8 | 10.3 | 18.1 | 6.1 | 1.1 | 4.7 |
| 1983 | | | | | | | | | | | |
| Q1 | 0.7 | 8.6 | - | 11.6 | - | 5.8 | 9.6 | 17.3 | 5.4 | 1.3 | 4.6 |
| Q2 | 0.5 | 11.3 | - | 11.7 | - | 5.3 | 10.2 | 18.5 | 6 | 0.7 | 4.6 |
| Q3 | 0.6 | 13.6 | - | 11.7 | - | 5.4 | 11.4 | 20.2 | 6.8 | 0.5 | 4.9 |
| Q4 | 0.5 | 16.5 | - | 12.2 | - | 6.1 | 11.5 | 20.9 | 6.7 | 0.8 | 5.3 |
| 1984 | | | | | | | | | | | |
| Q1 | 0.6 | 16 | - | 12.4 | - | 6.3 | 11.4 | 21.1 | 6.5 | 1 | 5.2 |
| Q2 | 0.9 | 16.5 | - | 12.5 | - | 4.8 | 11.1 | 21.4 | 7.5 | 0.8 | 4 |
| Q3 | 0.8 | 16.5 | - | 12.4 | - | 5.9 | 11.8 | 22.2 | 7.2 | 0.9 | 5.1 |
| Q4 | 1.1 | 19.1 | - | 12.9 | - | 5.9 | 12.5 | 23.4 | 7.6 | 0.6 | 5.3 |
| 1985 | | | | | | | | | | | |
| Q1 | 1.1 | 16.6 | - | 13 | - | 5.7 | 11.9 | 23 | 7.4 | 0.9 | 4.9 |
| Q2 | 1 | 17.6 | - | 13.1 | - | 5.6 | 12.4 | 23.9 | 8 | 0.9 | 4.8 |
| Q3 | 0.6 | 20.6 | - | 13.4 | - | 5.7 | 13.6 | 25.6 | 9.1 | 0.8 | 4.9 |
| Q4 | 1.4 | 20.3 | - | 14.1 | - | 5.7 | 13.9 | 26.3 | 9 | 0.3 | 5.4 |
| 1986 | | | | | | | | | | | |
| Q1 | 1.2 | 17 | - | 14.7 | - | 5.9 | 13.6 | 26.6 | 8.7 | 0.6 | 5.3 |
| Q2 | 1.1 | 17.8 | - | 15.3 | - | 5.8 | 12.8 | 26.1 | 8.1 | 0.6 | 5.2 |
| Q3 | 2 | 17.5 | - | 16.9 | - | 6 | 14.7 | 29.5 | 9.8 | 0.6 | 5.3 |
| Q4 | 5.4 | 19.6 | - | 18.3 | - | 6.7 | 13.6 | 27.4 | 8.4 | 1 | 5.7 |
| 1987 | | | | | | | | | | | |
| Q1 | 4.7 | 20.1 | - | 18.8 | - | 6.1 | 12.5 | 26.6 | 7.6 | 0.8 | 5.3 |
| Q2 | 1.3 | 19 | - | 19.5 | - | 6 | 12.2 | 27.5 | 7.4 | 0.7 | 5.3 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Q3 | 3.3 | 18.9 | - | 20.4 | - | 6.7 | 12.7 | 29.1 | 7.5 | 1 | 5.6 |
| Q4 | 3.7 | 22.2 | - | 21.9 | - | 8.5 | 15.2 | 33.7 | 8.9 | 1.6 | 6.9 |
| 1988 | | | | | | | | | | | |
| Q1 | 2.7 | 22.4 | - | 23 | - | 8.1 | 16.5 | 36.7 | 9.9 | 1.1 | 7 |
| Q2 | 4.6 | 19.8 | - | 23.4 | - | 8.6 | 17.5 | 39.2 | 10.6 | 1.1 | 7.5 |
| Q3 | 4.5 | 20.1 | - | 25.4 | - | 9.1 | 17.9 | 40.2 | 10.3 | 0.9 | 8.2 |
| Q4 | 9.5 | 29.3 | - | 25.5 | - | 11.7 | 22.2 | 45.4 | 12.8 | 1.5 | 10.2 |
| 1989 | | | | | | | | | | | |
| Q1 | 15 | 28.2 | - | 27.8 | - | 12.2 | 23.8 | 49.4 | 13.8 | 1.3 | 10.8 |
| Q2 | 15.1 | 20.4 | - | 28.6 | - | 12.7 | 24.5 | 48.1 | 14.1 | 1.5 | 11.2 |
| Q3 | 18.9 | 11.4 | - | 29 | - | 12.4 | 23.7 | 44.2 | 12.8 | 0.7 | 11.6 |
| Q4 | 22.5 | 7.4 | - | 29.6 | - | 11.8 | 26.3 | 47.1 | 16.5 | 1.1 | 10.7 |
| 1990 | | | | | | | | | | | |
| Q1 | 29.4 | 13.2 | - | 31.7 | - | 13 | 27.3 | 50.2 | 17 | 1.2 | 11.8 |
| Q2 | 32.5 | 2.2 | - | 31.8 | - | 14.2 | 25.6 | 49 | 14.2 | 1.7 | 12.6 |
| Q3 | 35.4 | 3 | - | 35.9 | - | 14.7 | 31.2 | 56.9 | 19.4 | 1.6 | 13 |
| Q4 | 43.9 | 22.8 | - | 35.4 | - | 18.3 | 39.2 | 68.7 | 24.2 | 2.1 | 16.2 |
| 1991 | | | | | | | | | | | |
| Q1 | 52.5 | 10.5 | - | 34.2 | - | 19.5 | 40.7 | 71 | 25.1 | 2.8 | 16.7 |
| Q2 | 53.6 | 21 | - | 37.7 | - | 18.7 | 46.5 | 80.1 | 29.8 | 0.9 | 17.8 |
| Q3 | 49.9 | 6.3 | - | 38.8 | - | 24.9 | 45.9 | 81.2 | 27.9 | 5.5 | 19.4 |
| Q4 | 56 | 39.6 | - | 42.1 | - | 29.9 | 50.1 | 87.5 | 27 | 4.5 | 25.3 |
| 1992 | | | | | | | | | | | |
| Q1 | 84 | 45.4 | - | 43.8 | - | 27.5 | 59.9 | 102.7 | 36.7 | 2.6 | 24.9 |
| Q2 | 85.3 | 22.3 | - | 55 | - | 30.7 | 70.6 | 114.9 | 44.9 | 3 | 27.7 |
| Q3 | 81.3 | 31.4 | - | 48.7 | - | 35.9 | 73.5 | 121.6 | 44 | 4.2 | 31.8 |
| Q4 | 35.8 | 91.1 | 80 | 76.1 | 1.5 | 77.3 | 76 | 129.1 | 39.2 | 31.6 | 39.7 |
| 1993 | | | | | | | | | | | |
| Q1 | 46.4 | 84 | 99.5 | 94.7 | 1.7 | 95.2 | 82.4 | 146.6 | 43.3 | 45.1 | 42.9 |
| Q2 | 64.1 | 71.2 | 134.3 | 129.2 | 1.9 | 103.5 | 91.4 | 159.5 | 46.8 | 46.4 | 47.9 |
| Q3 | 61.7 | 87.3 | 155 | 149.8 | 1.8 | 109.8 | 100.9 | 176.1 | 49.2 | 46.6 | 55.4 |
| Q4 | 63.6 | 185.2 | 95.5 | 91.2 | 1.5 | 115.5 | 118.8 | 198.5 | 60.9 | 42 | 62.6 |
| 1994 | | | | | | | | | | | |
| Q1 | 55 | 196.5 | 137.5 | 132.6 | 1.6 | 154.7 | 118.6 | 208.2 | 63.9 | 81.7 | 57.9 |
| Q2 | 52.3 | 200.4 | 143.8 | 138.4 | 1.9 | 137.1 | 131.6 | 228.3 | 75.8 | 58.8 | 59.8 |
| Q3 | 35 | 202 | 145 | 139.2 | 2 | 139.4 | 142.8 | 242.8 | 74.6 | 54.8 | 72.2 |
| Q4 | 56.2 | 288.1 | 151 | 145.1 | 2.2 | 151.7 | 169.4 | 266.9 | 78.8 | 42.1 | 96.2 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 | | | | | | | | | | | |
| Q1 | 105.3 | 183.8 | 147.1 | 141.1 | 2.3 | 146.9 | 158.2 | 254.5 | 71.8 | 49.8 | 91.1 |
| Q2 | 121.3 | 175.1 | 180.3 | 173.1 | 2.5 | 167.3 | 177.1 | 290.7 | 89.6 | 59.4 | 93.6 |
| Q3 | 111 | 167.3 | 193.5 | 187.5 | 2.4 | 187 | 181 | 301.9 | 91.5 | 81.3 | 95.3 |
| Q4 | 108.7 | 263 | 211.4 | 204.9 | 2.9 | 182.8 | 201.4 | 318.8 | 94.6 | 53.8 | 113.9 |
| 1996 | | | | | | | | | | | |
| Q1 | 119.1 | 180.3 | 218 | 212.3 | 2.1 | 178.1 | 203.3 | 328.7 | 102.2 | 59.1 | 106.9 |
| Q2 | 122.2 | 216.4 | 234.8 | 228.9 | 4.6 | 185.9 | 213.3 | 354 | 111.7 | 62.5 | 108.3 |
| Q3 | 131.9 | 179.4 | 252 | 247.2 | 3.2 | 180.3 | 209.3 | 351.9 | 105.8 | 55.7 | 110.8 |
| Q4 | 238 | 110.5 | 260.6 | 255.6 | 3.5 | 194 | 227.5 | 370.3 | 111.3 | 52.5 | 126 |
| 1997 | | | | | | | | | | | |
| Q1 | 204.9 | 67.5 | 284.9 | 279.8 | 3.6 | 178.2 | 242.4 | 409.9 | 130.1 | 41.1 | 119.3 |
| Q2 | 226 | 75.6 | 321.4 | 314.6 | 5 | 171.5 | 243.1 | 410.6 | 133.9 | 40.3 | 118.7 |
| Q3 | 237.4 | 38.8 | 339.5 | 334.6 | 3 | 176.7 | 244.3 | 425.5 | 131.2 | 41.1 | 122.9 |
| Q4 | 234 | 46.4 | 319.5 | 316.6 | 1.5 | 202.7 | 268.6 | 429.7 | 138 | 45.3 | 144.8 |
| 1998 | | | | | | | | | | | |
| Q1 | 254.5 | 34.8 | 327.9 | 325.1 | 1.1 | 195.1 | 273 | 468 | 147.7 | 42.6 | 137.7 |
| Q2 | 275.3 | 47.2 | 353.9 | 351.2 | 1.2 | 207.3 | 277.3 | 477.3 | 152.5 | 46.6 | 141.7 |
| Q3 | 285.1 | 34.2 | 357.8 | 355.5 | 0.9 | 224.2 | 302.4 | 527 | 173.3 | 51.3 | 143.9 |
| Q4 | 247 | 139.9 | 372.6 | 370.7 | 0.9 | 236.5 | 318.6 | 525.6 | 161.9 | 44.5 | 172.4 |
| 1999 | | | | | | | | | | | |
| Q1 | 634.9 | -33.2 | 401.4 | 395.4 | 4.3 | 286.3 | 367.6 | 609 | 217.3 | 64.2 | 170.9 |
| Q2 | 608.4 | 142.8 | 427.4 | 425.2 | 1.4 | 252.7 | 364.9 | 634.9 | 218 | 73.2 | 169.9 |
| Q3 | 624 | 91.3 | 441 | 437.4 | 2.8 | 235.3 | 353.9 | 655.6 | 204.1 | 65.3 | 165.9 |
| Q4 | 666.3 | 176.8 | 455.2 | 452.4 | 2.1 | 287.9 | 393.1 | 699.7 | 206.6 | 74.9 | 208.6 |
| 2000 | | | | | | | | | | | |
| Q1 | 774.8 | 20.3 | 478.2 | 470.1 | 3.4 | 300.4 | 474.4 | 795.5 | 298.6 | 88.6 | 197.8 |
| Q2 | 888.7 | -26.4 | 522.3 | 511.6 | 6.2 | 305.2 | 505.1 | 904.2 | 325.4 | 96.1 | 204 |
| Q3 | 920.4 | 48.2 | 564.2 | 552.1 | 8.6 | 366.3 | 542.3 | 962.7 | 337.5 | 120.4 | 234.2 |
| Q4 | 1,275.00 | -124 | 596 | 587.5 | 7.6 | 426.6 | 637.7 | 1,036.10 | 363.7 | 97.4 | 310.5 |
| 2001 | | | | | | | | | | | |
| Q1 | 1,263.20 | 25.8 | 713.6 | 690.4 | 22.5 | 479.4 | 759 | 1,274.00 | 477.2 | 136.7 | 320.3 |
| Q2 | 1,398.40 | -69.9 | 758.6 | 729.4 | 28.5 | 490.2 | 751.1 | 1,263.20 | 461.4 | 133.6 | 340.9 |
| Q3 | 1,440.50 | -27.4 | 832.6 | 810.5 | 19.5 | 521.5 | 773.7 | 1,327.60 | 488.5 | 150.6 | 344.2 |
| Q4 | 1,347.60 | -6 | 855 | 827.1 | 26.8 | 545.9 | 816.7 | 1,315.90 | 478 | 142.4 | 403.5 |
| 2002 | | | | | | | | | | | |
| Q1 | 1,326.20 | 112 | 892.9 | 871.7 | 16.5 | 644.2 | 835.9 | 1,423.30 | 519.8 | 273 | 371.1 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Q2 | 1,248.90 | 126.6 | 939.4 | 925.3 | 12.2 | 596.2 | 872.1 | 1,502.10 | 582 | 241.9 | 354.4 |
| Q3 | 1,191.60 | 211.6 | 968.6 | 944.6 | 21.9 | 628.8 | 933.6 | 1,605.40 | 626.8 | 256.8 | 372 |
| Q4 | 1,282.20 | 373.6 | 955.8 | 938.3 | 17.3 | 591.6 | 946.3 | 1,599.50 | 559.3 | 128.4 | 463.2 |
| 2003 | | | | | | | | | | | |
| Q1 | 1,346.50 | 430.7 | 1,024.30 | 1,010.60 | 13.5 | 610.8 | 1,121.50 | 1,918.90 | 753.2 | 175.7 | 435.1 |
| Q2 | 1,325.90 | 605 | 1,066.00 | 1,047.60 | 17 | 653.9 | 1,319.70 | 2,124.30 | 937.2 | 208.7 | 445.2 |
| Q3 | 1,173.90 | 625.7 | 1,065.10 | 1,045.80 | 15.4 | 642.2 | 1,264.00 | 1,981.10 | 901.6 | 207.6 | 434.6 |
| Q4 | 1,388.20 | 591.9 | 1,212.00 | 1,191.50 | 20.2 | 688.7 | 1,225.60 | 1,985.20 | 813.4 | 186.4 | 502.3 |
| 2004 | | | | | | | | | | | |
| Q1 | 1,570.60 | 500 | 1,321.10 | 1,303.40 | 17.4 | 635 | 1,201.50 | 2,106.20 | 817.2 | 168.5 | 466.5 |
| Q2 | 1,829.70 | 453.8 | 1,393.80 | 1,372.90 | 20.6 | 654.5 | 1,214.80 | 2,113.30 | 841.8 | 198.2 | 456.3 |
| Q3 | 2,010.60 | 453 | 1,489.30 | 1,464.20 | 23.8 | 650.5 | 1,262.90 | 2,156.80 | 877.3 | 192.5 | 458 |
| Q4 | 2,644.70 | 485.7 | 1,534.40 | 1,507.90 | 24.6 | 732.3 | 1,330.70 | 2,263.60 | 872.1 | 186.5 | 545.8 |
| 2005 | | | | | | | | | | | |
| Q1 | 3,140.50 | 593.2 | 1,666.80 | 1,642.90 | 21.4 | 736.7 | 1,469.60 | 2,568.10 | 1,040.50 | 223.8 | 512.8 |
| Q2 | 3,397.90 | 341.7 | 1,840.80 | 1,816.70 | 20.5 | 747.9 | 1,454.20 | 2,691.30 | 1,038.30 | 253 | 494.9 |
| Q3 | 4,003.90 | 603.1 | 1,986.20 | 1,937.50 | 45.5 | 808.6 | 1,557.00 | 2,773.00 | 1,112.40 | 295.2 | 513.4 |
| Q4 | 4,098.50 | 306 | 2,007.40 | 1,950.40 | 54.5 | 762.8 | 1,725.40 | 2,814.80 | 1,162.20 | 120.4 | 642.4 |
| 2006 | | | | | | | | | | | |
| Q1 | 5,109.00 | 471.9 | 2,127.00 | 2,040.80 | 80.8 | 728.9 | 1,837.50 | 3,307.70 | 1,357.50 | 165.2 | 563.7 |
| Q2 | 5,568.80 | 360.8 | 2,303.70 | 2,257.50 | 42.2 | 797.6 | 2,216.90 | 3,911.80 | 1,702.30 | 194.8 | 602.8 |
| Q3 | 5,718.70 | -235.1 | 2,571.70 | 2,494.50 | 70.7 | 816 | 2,329.00 | 4,320.70 | 1,804.60 | 200.8 | 615.1 |
| Q4 | 6,307.90 | -1,936.60 | 2,650.80 | 2,556.90 | 80.7 | 974.9 | 2,280.60 | 4,027.90 | 1,629.70 | 195.6 | 779.3 |
| 2007 | | | | | | | | | | | |
| Q1 | 6,997.90 | -2,508.60 | 3,048.90 | 2,982.20 | 53.5 | 841.3 | 2,602.40 | 4,798.30 | 2,009.10 | 113.8 | 727.4 |
| Q2 | 7,633.40 | -2,615.00 | 3,503.70 | 3,463.40 | 40.3 | 858.3 | 2,639.10 | 5,116.20 | 2,113.30 | 143.3 | 715 |
| Q3 | 6,977.30 | -2,462.90 | 4,203.20 | 4,144.20 | 59 | 967.3 | 3,038.60 | 5,672.60 | 2,495.20 | 245 | 722.3 |
| Q4 | 7,266.50 | -2,368.50 | 5,056.70 | 4,969.00 | 87.8 | 1,195.30 | 3,116.30 | 5,809.80 | 2,378.40 | 234.5 | 960.8 |
| 2008 | | | | | | | | | | | |
| Q1 | 7,991.60 | -2,502.00 | 5,964.30 | 5,862.30 | 102 | 1,200.00 | 4,546.10 | 7,998.20 | 3,883.30 | 308.2 | 891.8 |
| Q2 | 8,316.20 | -2,716.40 | 6,754.70 | 6,655.30 | 99.4 | 1,517.80 | 4,328.50 | 7,948.40 | 3,655.50 | 599.5 | 918.3 |
| Q3 | 8,523.50 | -3,230.00 | 7,474.70 | 7,378.50 | 96.1 | 1,247.20 | 4,521.80 | 8,960.30 | 3,765.00 | 270.8 | 976.4 |
| Q4 | 8,550.40 | -3,107.70 | 8,059.50 | 7,909.80 | 149.8 | 1,549.10 | 4,857.30 | 9,166.80 | 3,964.60 | 393.8 | 1,155.30 |
| 2009 | | | | | | | | | | | |
| Q1 | 8,105.30 | -3,605.90 | 8,226.40 | 8,015.60 | 210.9 | 1,384.00 | 4,666.70 | 8,997.80 | 3,862.60 | 346.3 | 1,037.80 |
| Q2 | 7,643.60 | -3,150.00 | 8,556.90 | 8,305.30 | 251.7 | 1,291.50 | 4,484.60 | 9,077.00 | 3,738.20 | 284.9 | 1,006.60 |
| Q3 | 6,886.90 | -2,957.10 | 9,811.40 | 9,516.40 | 295 | 1,262.00 | 4,333.50 | 9,458.50 | 3,554.80 | 230.1 | 1,031.90 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Q4 | 7,593.30 | -2,356.70 | 10,219.30 | 9,895.80 | 310.3 | 1,653.90 | 5,017.10 | 10,780.60 | 4,089.90 | 472.3 | 1,181.50 |
| 2010 | | | | | | | | | | | |
| Q1 | 7,249.60 | -1,782.20 | 10,050.70 | 9,715.60 | 321.8 | 1,810.90 | 4,966.50 | 11,023.30 | 4,132.90 | 724.4 | 1,086.50 |
| Q2 | 6,484.80 | -1,585.90 | 10,102.80 | 9,783.70 | 319.2 | 1,535.10 | 4,918.00 | 10,845.50 | 4,122.60 | 471.5 | 1,063.60 |
| Q3 | 6,454.00 | -1,324.00 | 10,336.10 | 9,994.90 | 341.2 | 1,344.30 | 5,255.90 | 11,224.80 | 4,375.00 | 218.9 | 1,125.40 |
| Q4 | 6,506.60 | -1,331.70 | 9,830.30 | 9,460.50 | 369.8 | 1,845.70 | 5,571.30 | 11,525.50 | 4,489.00 | 467.6 | 1,378.10 |
| 2011 | | | | | | | | | | | |
| Q1 | 6,988.10 | -1,450.50 | 9,446.90 | 9,070.20 | 376.8 | 1,705.90 | 5,424.50 | 11,653.60 | 4,311.80 | 289.5 | 1,416.40 |
| Q2 | 6,453.70 | -1,262.20 | 9,957.90 | 9,537.70 | 420.2 | 2,065.10 | 5,637.30 | 12,172.10 | 4,620.80 | 711.1 | 1,354.00 |
| Q3 | 6,669.80 | -1,215.90 | 11,110.70 | 10,710.60 | 400.2 | 1,908.20 | 6,002.30 | 12,618.10 | 4,990.50 | 565.9 | 1,342.40 |
| Q4 | 7,138.70 | -1,030.70 | 14,183.60 | 13,670.40 | 513.2 | 2,784.10 | 6,771.60 | 13,303.50 | 5,526.40 | 1,218.00 | 1,566.00 |
| 2012 | | | | | | | | | | | |
| Q1 | 7,306.70 | -855 | 14,119.90 | 13,581.80 | 538.1 | 2,527.60 | 6,522.90 | 13,271.00 | 5,381.60 | 1,094.80 | 1,432.80 |
| Q2 | 7,522.30 | -1,681.60 | 14,701.10 | 14,114.80 | 586.3 | 2,512.00 | 6,599.40 | 13,483.10 | 5,511.10 | 1,148.20 | 1,363.70 |
| Q3 | 8,301.50 | -1,867.40 | 14,754.00 | 14,155.00 | 599 | 3,117.80 | 6,392.50 | 14,065.30 | 5,322.30 | 1,769.00 | 1,348.80 |
| Q4 | 9,043.70 | -2,453.60 | 15,151.80 | 14,485.90 | 665.9 | 3,704.50 | 7,420.90 | 15,483.80 | 6,119.80 | 2,072.80 | 1,631.70 |
| 2013 | | | | | | | | | | | |
| Q1 | 9,685.90 | -2,521.00 | 15,261.90 | 14,599.90 | 662 | 3,911.50 | 6,938.50 | 15,669.20 | 5,695.90 | 2,403.00 | 1,508.50 |
| Q2 | 9,164.40 | -2,542.70 | 15,692.00 | 15,031.00 | 661 | 3,236.20 | 6,939.50 | 15,593.20 | 5,811.70 | 1,810.60 | 1,425.50 |
| Q3 | 8,923.50 | -3,191.40 | 16,279.30 | 15,574.30 | 704.9 | 4,650.00 | 6,293.50 | 14,362.50 | 5,125.30 | 3,175.90 | 1,474.00 |
| Q4 | 8,658.60 | -1,656.30 | 16,191.50 | 15,388.80 | 779.1 | 5,090.20 | 7,032.80 | 15,689.00 | 5,586.20 | 3,313.80 | 1,776.40 |
| 2014 | | | | | | | | | | | |
| Q1 | 6,609.10 | 1,649.40 | 16,451.30 | 15,849.80 | 577.9 | 4,665.80 | 7,617.90 | 17,732.90 | 6,332.10 | 3,091.80 | 1,574.00 |
| Q2 | 7,673.10 | -236.1 | 16,925.60 | 16,415.10 | 486.9 | 4,786.40 | 7,096.40 | 17,576.60 | 5,884.90 | 3,289.60 | 1,496.70 |
| Q3 | 7,578.80 | 276.7 | 17,691.70 | 17,183.60 | 484.5 | 4,943.00 | 7,352.60 | 18,200.20 | 6,053.10 | 3,395.10 | 1,547.90 |
| Q4 | 6,954.20 | 1,150.10 | 18,123.60 | 17,561.70 | 536.4 | 5,930.90 | 6,904.80 | 18,913.00 | 5,467.40 | 4,133.00 | 1,798.00 |
| 2015 | | | | | | | | | | | |
| Q1 | 6,787.80 | 1,986.80 | 18,649.00 | 18,080.20 | 543.2 | 5,907.20 | 6,983.90 | 19,132.40 | 5,512.80 | 4,088.80 | 1,818.40 |
| Q2 | 5,951.50 | 2,512.50 | 18,897.30 | 18,374.80 | 471.4 | 5,945.80 | 6,542.40 | 18,811.40 | 5,358.40 | 4,383.40 | 1,562.30 |
| Q3 | 5,083.10 | 2,787.60 | 18,732.20 | 18,142.30 | 397 | 5,788.30 | 7,148.60 | 18,718.00 | 5,929.60 | 4,150.80 | 1,637.50 |
| Q4 | 5,653.30 | 2,893.20 | 18,719.30 | 18,109.90 | 583.8 | 5,812.70 | 8,571.70 | 20,029.80 | 7,115.60 | 3,954.80 | 1,857.90 |