THE EFFECTS OF FINANCIAL INTERMEDIATION ON ECONOMIC GROWTH IN NIGERIA: AN EMPIRICAL ANALYSIS

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Abstract

This study examined the effects of Financial Intermediation on Economic Growth in Nigeria. It used Gross Domestic Product (GDP) as proxy for economic growth and Bank credits to key sectors and Money Supply (M2) as proxy for Financial Intermediation. A time series data for the period 1981-2013 from the Central Bank of Nigeria Statistical Bulletin of all the variables under the study were obtained. The Econometric tools of Engel-Granger Co-integration and Granger Causality methods of analysis were employed to determine the nature of relationship and causality. The results show that financial intermediation affects economic growth positively. Both proxies for financial intermediation which are Bank Credit and Money Supply (M2) have positive relationship with Gross Domestic Product for the period under study. There exist also, a long-run relationship between financial intermediation and economic growth for the period under study with causality flowing from Money Supply to Gross Domestic Product and a bilateral causality between Bank Credit and Gross Domestic Product. Based on these findings, it was recommended that intermediating agencies should encourage financial inclusion by directing credits to all sectors since there is a long run relationship between credit and GDP and that Government should encourage flow of money supply in the system by creating credits through the Central Bank for the deficit units.
Keywords: Financial Intermediation, Economic Growth, Bank Credit, Money Supply, Co-integration, GDP.

Introduction

Financial institutions are involved in so many activities, one of which is intermediating between the surplus and deficit units of the economy. Bencivenga and Smith (1991), while laying credence to this, puts it that the basic activities of banks are acceptance of deposits and lending these deposits to a large number of agents, holding of liquid reserves against predicated withdrawal demand, issuing of liabilities that are more liquid than their primary assets and eliminating or reducing the need for self- financing of investments. By providing liquidity therefore, banks make provisions for risk adverse savers

to hold bank deposits rather than liquid (but unproductive) assets. The funds obtained are then made available for investment in productive capital. Moreover, by exploiting the fact that banks have large number of depositors and hence predictable withdrawal demand, they can economize on liquid reserves holdings that do not contribute to capital accumulation. Again, Bencivenga and Smith (1991) further argued that by eliminating self-financed capital investment, banks also prevent the unnecessary liquidation of such investment by entrepreneurs who find that they need liquidity. In short, an intermediation industry permits an economy to reduce the fraction of savings held in the form of unproductive liquid assets, and to prevent misallocation of invested capital due to liquidity needs (Bencivenga and Smith, 1991). Schumpeter in Kings and Levine (1991), argued that the services provided by financial intermediaries which includes but not limited to mobilizing savings, evaluating projects, managing risks, monitoring managers and facilitating transactions, are essential for technological innovation and economic growth and development.

Levine et al (2000) asserts that financial intermediaries emerge to lower the costs of researching potential investments, exerting corporation controls, managing risks, mobilizing savings and conducting exchanges. Financial intermediaries while providing these services in the economy, influence savings and allocation decisions in ways that may alter long-run growth rates. Banks play effective roles in the economic growth and development of a country. This role they perform excellently by helping to mobilize idle savings from the Surplus Unit (SUs) for onward lending to the Deficit Units (DUs), thus helping in the capital formation of a nation (Ujah and Amaechi, 2005). It is in realization of the importance of bank's role in financial intermediation that successive governments in Nigeria have been allocating deliberate roles to them in various National Development Plans.

Afolabi, (1998) states that through the instrumentalities of financial intermediation, the transfer of funds from the surplus sector to the deficit sector becomes very simple. The intermediary will act as a pool, collecting deposits of millions of savers and can create forums, e.g. interest-yielding accounts. The intermediary matches the deposit requirements of the saver with the investment requirements of the borrower. He acts as a pool, collecting savings of different sizes from different categories of savers and meeting the investment needs of the various types of investors. The surplus sector therefore gains by placing his money with the intermediary since the income to be earned does not depend on whether or not the intermediary has in fact lent the money out or whether or not the money was profitably lent. The overall economic effect according to Afolabi, (1988) is that financial intermediation leads to a better aggregation of savings and therefore helps in capital formation and investment in the economy.

Nigeria is the most populous African country with a population of over 160 million people. It is also one of the world's top producers of crude oil and despite this; the country is still among the comity of third world countries with majority of its population living below the poverty line. Banks dominate the financial sector in Nigeria and therefore, given the mixed results of empirical finding as shown above, it is important to examine whether such postulations hold for the Nigerian economy. Again, there is detailed information about Nigerian banking history, but little information is available on the activities of the financial industry and how they affect the economy where they operate. Similarly, factors which motivate or drive growth within the economy relative to the industry are largely under

Researched. All these stimulate and motivate the researcher towards carrying out this study to fill this gap.

It is therefore against this background and given the intermediary role of commercial banks in economic growth and development that this study aims at exploring in the light of past trends, the extent to which the financial intermediation impacts on the economic growth of Nigeria.

Objectives of the Study

The broad objective of this study is to ascertain the relationship that exists between Financial Intermediation and Economic Growth in Nigeria.

The specific objectives include;

1.   To determine the nature of relationship that exists between Bank Credit and Economic Growth in Nigeria.
2.   To determine the nature of relationship that exists between Money Supply and Economic Growth in Nigeria.

Research Questions

1.   What is the nature of relationship between Bank Credit and Economic Growth in Nigeria?
2.   What is the nature of relationship between Money Supply and Economic Growth in Nigeria?

Research Hypothesis

Ho1: There is no significant relationship between Bank Credit and Economic   Growth in Nigeria

Ho2: There is no significant relationship between Money Supply and Economic   Growth in Nigeria

Literature Review
Conceptual Review

Finance is required for different purposes by different organizations, individuals and other economic agents. In order to provide the much needed finance, there are varieties of institutions rendering financial services. Such institutions are called financial institutions. Commercial banks are among such institutions that render financial services. They are mainly involved in financial intermediation, which involves channeling funds from the surplus unit to the deficit unit of the economy, thus transforming bank deposits into loans or credits.

Before the evolution of financial intermediation, anyone who needs to spend more than he could himself provide would have to look for a wealthy person or persons from whom he could borrow. This is known as a system of direct or un-intermediated finance. Afolabi, (1998), posits that as crude as this system was, it probably satisfied the need of that time because financial requirements then were limited to such personal uses like marriages, burial ceremonies and minor commercial activities like farming. He further argued that at that time, intermediation was neither necessary nor sufficient for capital formation to take place. Financial intermediation will thus, not be necessary for instance, if the lender and the borrower can come into direct contact and would in fact not be necessary if there is no deficit or surplus sector. However, modern economic transactions will be difficult, if not impossible, with un-intermediated finance as the business world nowadays is much more complex and financial requirements are too large. Even without considering the complexity

of modern times, un-intermediated finance has its inherent problems such as high tendency for subjectivity, unattractive interest rates, method of security was too crude and at times inhuman, repayment periods were usually too short for any meaningful long-term use, such that it became difficult for long-term projects to be financed from money raised from such medium amongst others. According to Bencivenga and Smith (1991), in the absence of banks i.e. financial intermediation, too much investment is self-financed and long delays exist between investment expenditure and receipts of profits from capital invested. They further argued that the absence of intermediary sector results in a composition of savings that is unfavorable to capital formation. Thus, an intermediation industry permits an economy to reduce the fraction of the savings held in the form of unproductive liquid assets, and to prevent misallocations of invested capital due to liquidity needs.

The argument just given suggests that financial intermediaries may naturally tend to alter the composition of savings in a way that is favorable to capital accumulation. Then, if the composition of savings affects real growth rates, intermediacies will tend to promote growth. Here, the analysis draws heavily on the contributions of the "endogenous growth" literature, as exemplified by Roomer (1986) and Lucas (1988). One of the many insights of this literature is that savings behavior will generally influence equilibrium growth rates. In particular, to the extent that intermediaries tend to promote capital investment, they will also tend to raise rates of growth.

Empirical Literature
Financial Development and Economic Growth – Empirical Evidence

The importance of financial institutions especially banks in generating growth within the economy has been widely discussed in literature. Early economists such as Schumpeter in 1991 identified banks' role in facilitating technological innovation through their intermediary role. He believed that efficient allocation of saving through identification and funding of entrepreneurs with the best chances of successfully implementing innovative products and production processes are tools to achieve growth in an economy. Several scholars thereafter (McKinnon 1973, Shaw 1973, King and Levine 1993) have all supported the above postulation about the significance of banks to the growth of the economy. In assessing the relationship, a large number of recent empirical studies have relied on measures of size or structure to provide evidence of a link between financial system development and economic growth.

They used macro or sector level data such as the size of financial intermediation or of external finance relative to Gross Domestic Product (GDP) and found that financial development has a significant positive impact on economic growth.

Financial Development-Growth Nexus

The direction of casualty has been described by Patrick (1966), as supply-leading and demand-following hypothesis. This postulation was buttressed by McKinnon, (1973). When causal relationship runs from financial development to growth, it is termed supply-leading because it is believed that the activities of the financial institutions increase the supply of financial services which creates economic growth. The proponents of this hypothesis believe that the activities of financial institutions serve as a useful tool for increasing the productive capacity of the economy. They opine that countries with better developed financial system tend to grow faster. According to Mackinnon (1973), a farmer could provide his own savings to increase slightly the commercial fertilizer that he is now using and the return on the marginal new investment could be calculated. However, there is a

virtual impossibility of a poor farmer's financing from his current savings, the total amount needed for investment in order to adopt the new technology. As such access to finance is likely to be necessary over the one or two years when the change takes place, he concluded.

Going through the literature in more detail, the seminal study conducted by King and Levine (1993), on seventy countries made up of developed and developing economies used cross-country growth regression. The aim of the research was to find out whether higher levels of financial development are significantly and robustly correlated with faster current and future rates of economic growth, physical capital accumulation and economic efficiency improvements. The results showed that finance not only follows growth; finance seems important to lead to economic growth.

Demirguc-Kunt and Levine (2008) in a review of the various analytical methods used in finance literature, found strong evidence that financial development is important for growth. To them, it is crucial to motivate policy makers to prioritize financial sector policies and devote attention to policy determinants of financial development as a mechanism for promoting growth.

Growth-Financial Development Nexus

Similarly, when growth within the economy results in increase in the demand for financial services and this subsequently motivates financial development, then it is termed demand-following hypothesis. The proponents of this hypothesis believe that economic growth is a causal factor for financial development. According to them, as the real sector grows, the increasing demand for financial services stimulates the financial sector (Gurley and Shaw, 1967). Robinson (1952) was of the opinion that economic activities propel banks to finance enterprises. Thus, where enterprises lead, finance follows. The study by Mushin and Eric (2000) on Turkey further lends credence to this postulation. According to their study, when banks deposits; private sector credit or domestic credit ratios are alternatively used as proxy for financial development; causality runs from economic growth to financial development. They therefore concluded that growth seems to lead financial sector development.

Bi-Directional Relationship between Financial Development and Economic Growth

However, there are other scholars who believe that causality runs in both directions. The proponents of this view postulate that there is a bi-directional relationship between financial development and economic growth. Demetrius's and Andria nova (2004), postulate that whether financial development causes growth, it is important that the financial system is well functioning. If so, they believe it will assist the real economy to fully exploit available new opportunities. When there is reverse causation, it is assumed that when the real economy grows, there will be more savings coming into the financial system which will allow it to extend new loans. This assertion could readily be applied to the Shan and Jonahing (2006) study of China economy where they found a two-way causality between finance and growth. Using five variables namely GDP, total credit to the economy, labour, investment and trade, the study observed that financial development was the second most important sector after the contribution from labour force growth in affecting economic growth. They also found out that strong economic growth in the last 20 years has significant impact on financial development by providing a solid credit base. The study concluded that causality for GDP growth to financial development is stronger than the causality from finance to GDP growth.

Concluding, although evidence from empirical work support the fact that both finance and real output are positively related to each other, the relationship is country specific and one should not extrapolate one country's to another.

Theoretical Framework

To explain economic growth, several models have been developed by economists. One of such is the Harold-Domar Model on which this study is hinged. This model holds that the impact of money in an economy depends on its ability to influence interest rate. The rate of interest in turn influences the rate of investment which in turn influences national income. The model postulates that changes in national income depend linearly on change in capital stock or investment. The assumption is that investment is a function of savings; they conclude that economic growth will proceed at the rate which society can mobilize savings coupled with the productivity of investment (Levine, 1997:693, Azege, 2009:7, Masha, et al, 2004:10). Theoretically therefore, savings is seen as positively impacting on economic growth through its positive influence on capital formulation.

The emphasis laid on savings by the Harold-Domar growth model preempts a conclusion that banks intermediation function leads to economic growth. This thinking is reinforced by the McKinnon-Shaw hypothesis that economic growth is dependent on bank intermediation. To them, the important role banks play in growth can be confirmed by comparing repressed financial systems and liberalized ones. They conclude that liberalization leads to increased real interest rate which acts as an incentive for people to save and invest (Tenant, 2006:3, Gemech & Struthers, 2003:2).

This theoretical framework which traces the path to economic growth through the mechanism of savings and investment is adopted by this study.

Methodology

The analysis in this study is based on time series data for Gross Domestic Product and Financial Intermediation of the Nigerian economy for the period 1981-2013. Multiple regression analysis was adopted with Gross Domestic Product (GDP) as the dependent variable and proxy for Economic Growth and Bank Credits and Money Supply (M2) as independent variable and proxy for Financial Intermediation. The study also adopted econometric techniques in its design with secondary data drawn from CBN Statistical Bulletin, CBN Annual Report and Statement of Accounts for the years under review.

The method of analysis used in this study was drawn from developments in the Co-integration theory and Error Correction Mechanism (ECM). This has been developed to especially overcome the problems of spurious correlation often associated with non-stationary time series data.

The concept of Co-integration (Granger, 1986; Mill, 1990) creates the link between integrated processes and the concept of steady state equilibrium. The idea behind co-integration is that 'although two different series may not themselves be stationary, some linear combination of them may indeed be stationary with the generalisation to more than two series' (Komolafe, 1996). The guiding rule is that 'variables of different orders cannot be co-integrated', otherwise their linear combinations will be stationary. The theory of co-integration arises out of the need to integrate short-run dynamics with long-run equilibrium. The traditional approach to the modelling of short-run dis-equilibrium is the partial adjustment model. However, an extension of this in the co-integration technique is the Error Correction Mechanism (ECM) (Granger and New bold, 1974; Engle and Granger,

1987). These authors have proved that co-integration is a sufficient condition for an ECM formulation.

The original co-integration regression is specified as follows:

$$Y_t = a_0 + a_1 X_t + e_t \qquad (1)$$

Where Y_t represent the dependent variable, X_t stands for the independent variable, and e_t is the random error term, a_0 and a_1 are intercept and slope coefficients respectively.

According to Komolafe (1996), co-integrating technique is superior to the traditional partial adjustment model for the following reasons. First, it is central to econometric modelling of integrated variables as well as investigation of long-run relationships among those variables. Secondly, it assists to overcome 'spurious' (Granger and New bold, 1974) or 'nonsense' (Yule, 1926) regression. Thirdly, data consistency is achieved given that the model variables would be of the same order of integration. Lastly, information is greatly enhanced since both short-run changes in variables and long-run relationships in levels are included in the ECM specification.

Model specification

$$GDP = f (BNC, MNS) \qquad (2)$$

$$GDP = \beta_0 + \beta_1 BNC + \beta_2 MNS + e \qquad (3)$$

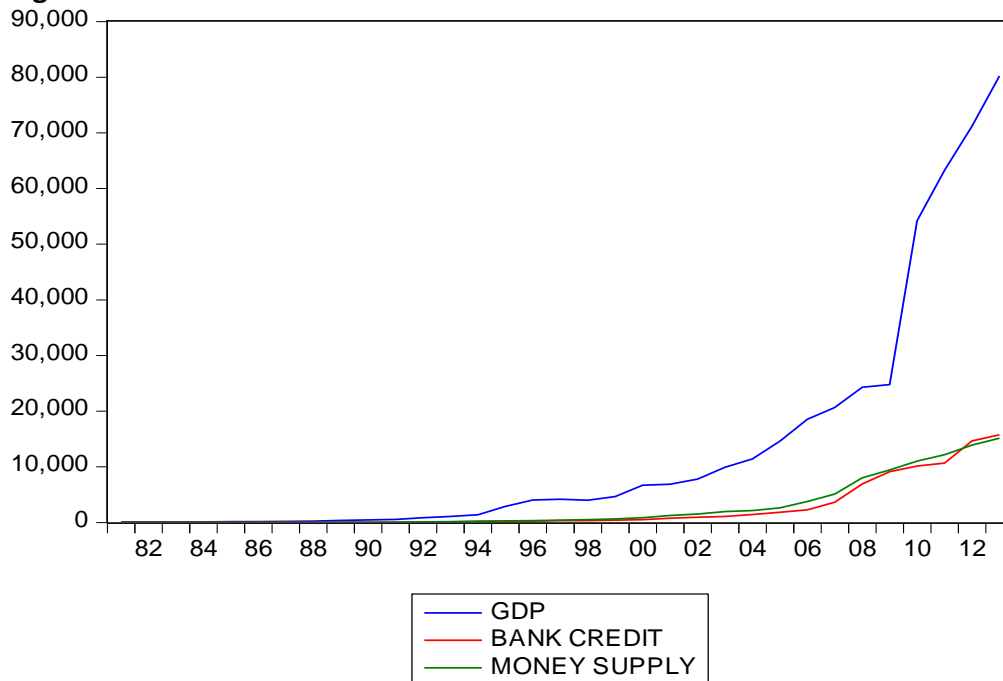|		
Where GDP	=	Gross Domestic Product at 1990 Constant Basic Prices
BNC	=	Bank Credits to key Sectors
MNS	=	Money Supply (M2)
β_0	=	Autonomous economic growth
$\beta_1, \beta_2,$	=	Coefficients of the regressions
e	=	Error Term or White Noise

Data Analysis and Discussion

Figure 1

Table 1: ADF unit root test

Variables	ADF Stat	5%critical value	Order	P-value	Remark
D(BNC)	-6.109180	-2.967767	1(2)	0.0000	Stationary
D(GDP)	-6.238080	-2.967767	1(2)	0.0000	stationary
D(MNS)	-3.667636	-2.967767	1(2)	0.0103	Stationary

Author's computation

The output of the unit root test above reveals that all variables under investigation has unit root at level and thus are not stationary. Further investigation reveals that all variables became stationary after second differencing in the order of I(2) integration which justifies their stationary trends hence, we can proceed to test for long run nexus among the employed variables using Engle Granger co-integration test thus;

Table 2: Engel-Granger co-integration test
Series: (GDP) (MNS) (BNC)

Hypothesized No. of CE(s)	Eigenvalue	Trace stat	0.05 Critical Value	prob	Max-Eigen stat	0.05 critical Value	Prob
None *	0.977965	173.2662	29.79707	0.0001	118.2687	21.13162	0.0001
At most 1 *	0.601944	54.99749	15.49471	0.0000	28.55607	14.26460	0.0002
At most 2 *	0.573844	26.44143	3.841466	0.0000	26.44143	3.841466	0.0000

Trace test indicates 3 co-integrating eqn(s) at 0.05 levels

From the table above, we found the presence of two Co-integration equations which suggest the existence of long run relationship among employed variable. This also implies that all the variables under investigation share a mutual stochastic trend and are linked in common long-run equilibrium.

Granger Causality Tests

Pairwise Granger Causality Tests			
Date: 10/10/16 Time: 23:18			
Sample: 1981 2013			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
MNS does not Granger Cause GDP	31	79.6892	8.E-12
GDP does not Granger Cause MNS		0.58058	0.5667
BNC does not Granger Cause GDP	31	32.1565	9.E-08
GDP does not Granger Cause BNC		3.70864	0.0383
BNC does not Granger Cause MNS	31	19.4987	7.E-06
MNS does not Granger Cause BNC		20.5053	5.E-06

Author's Computation

The result of the granger causality test report above using 5% level of significance is analyzed thus;

From the output above, we found the existence of unilateral relationship between MNS and GDP with causality flowing from MNS to GDP which justifies the fact that MNS granger cause GDP hence we do not accept null hypothesis. Furthermore the results above report the existence of bilateral nexus between BNC and GDP with causality flowing from both side which suggest that there is an intertwining relationship between BNC and GDP. On this premises, we conclude that there exit a symbiotic relationship between GDP and BNC. That is, gross domestic product stimulates bank credit and also bank credit promotes economic growth in a symbiotic manner. On this premises, one can say that financial intermediation in Nigeria is neither supply leading nor demand following as we found a symbiotic relationship between proxies for financial intermediation and gross domestic product which was a proxy for economic growth.

Multiple Regressions

Dependent Variable: D(GDP)				
Method: Least Squares				
Date: 10/10/16 Time: 23:21				
Sample (adjusted): 1982 2013				
Included observations: 32 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	216.1204	967.3521	0.223414	0.8248
D(MNS)	8.261805	2.353005	3.511172	0.0015
D(BNC)	-3.291498	1.730802	-1.901718	0.0672
R-squared	0.385030	Mean dependent var		2503.994
Adjusted R-squared	0.342619	S.D. dependent var		5537.624
S.E. of regression	4489.854	Akaike info criterion		19.74609
Sum squared resid	5.85E+08	Schwarz criterion		19.88350
Log likelihood	-312.9374	Hannan-Quinn criter.		19.79164
F-statistic	9.078395	Durbin-Watson stat		1.758905
Prob(F-statistic)	0.000868			

The result above report the short run spill over influx of financial intermediation and it impact growth of the Nigerian economy between the periods 1981 to 2014. From the report above, starting with the relative statistics, we found a positive and significant relationship between money supply (MNS) and economic growth (GDP). (MNS) maintains a significant P-value of (0.0015) and a corresponding positive coefficient value of (8.261805) which suggests that 1% increase in money supply is capable of stimulating economic growth to the tune of 8.2618 units. Hence, there exist a positive and significant short run relationship between money supply and economic growth. Furthermore, bank credit does not seems to statistically promote economic growth in a positive trend as it maintain a positive P-value of 0.0672 and a corresponding negative coefficient value of (-3.2914) respectively. This implies that 1% increase in bank credit is capable of downsizing economic growth to the tune of 3.2914 units. From the global statistic, the coefficient of determinant adjusted R2 stood at 0.342619 which implies that the exogenous variables account for

about 34% variation in the endogenous variable while the remaining 66% is taken care of in the error term. The F-statistics and the corresponding probability reveals the overall significance of the model while our Durbin Watson stood at 1.7589 which is within the acceptable range hence suggest absence of autocorrelation.

Conclusion and Recommendations
Conclusion

From the analysis above, it can be seen that financial intermediation affects economic growth positively. Both proxies for financial intermediation which are bank credit and money supply have positive relationship with Gross Domestic Product for the period under study. There exist also, a long-run relationship between financial intermediation and economic growth for the period under study. It means that financial intermediation will result in a sustainable economic growth. The result also shows a unilateral causality flowing from Money Supply to GDP and a bilateral causality flowing from Bank Credit to GDP. This means that money supply granger causes Gross Domestic Product and bank credit granger causes Gross Domestic Product and Gross Domestic Product granger causes bank credit.

Recommendations

Based on the findings, the following recommendations are made:
1.   The intermediating agencies should encourage financial inclusion by directing credits to all sectors since there is a long-run relationship between credit and GDP.
2.   The Central Bank should encourage borrowing by reducing interest rates
3.   The regulatory authorities should be seen as transparent in the discharge of their duties so as to gain confidence from the financial institutions
4.   Government should encourage flow of money supply in the system by creating credits through the CBN for the deficit units.

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Appendix
Table Showing Figures for GDP, Bank Credit and Money Supply

YEAR	GDP	BANK CREDIT	MONEY SUPPLY
1981	94.33	8.57	14.47
1982	101.01	10.67	15.79
1983	110.06	11.67	17.69
1984	116.27	12.46	20.11
1985	134.59	13.07	22.30
1986	134.6	15.25	23.81
1987	193.13	21.08	27.57
1988	263.29	27.33	38.36
1989	382.26	30.40	45.90
1990	472.65	33.55	52.86
1991	545.67	41.35	75.40
1992	875.34	58.12	111.11
1993	1089.68	127.12	165.34
1994	1399.70	143.42	230.29
1995	2907.36	180.00	289.09
1996	4032.30	238.60	345.85
1997	4189.25	316.21	413.28
1998	3989.45	351.96	488.15
1999	4679.21	431.17	628.95
2000	6713.57	530.37	878.46
2001	6895.20	764.96	1269.32
2002	7795.76	930.49	1505.96
2003	9913.52	1096.54	1952.92
2004	11411.07	1421.66	2131.82
2005	14610.88	1838.39	2637.91
2006	18564.59	2290.62	3797.91
2007	20657.32	3668.66	5127.40
2008	24296.33	6920.50	8008.00
2009	24794.24	9110.86	9419.92
2010	54204.80	10157.02	11034.94
2011	63258.58	10660.07	12172.49
2012	71186.53	14649.28	13895.39
2013	80222.13	15778.31	15158.62