**CHAPTER ONE**

**INTRODUCTION**

**1.1 BACKGROUND OF THE STUDY**

Small scale enterprise is very crucial to the development of a country’s economy, especially a country like Nigeria. Entrepreneurship enhances national development, poverty eradication and employment generation. It is the bedrock of any nation’s industrialization.

By definition, small and medium sized enterprises SMEs are seen as the entrepreneurship businesses with small number of employees, small investment capitals and small annual business turn over. According to statistical figure showing the importance of micro, small and medium scale business MSMEs, sector to Nigeria economic growth. A survey carried out by the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) in conjunction with National Bureau of Statistic (NBS) in 2013 revealed; the total number of MSMEs in the country as at 2013 stood at 37,067,416 with micro businesses recording 36,994,578, small businesses 68,168 and medium businesses recording 4,670. The total number of persons employed by the sector as at Dec, 2013 stand at 59,741,211 representing 84.02% of Nigeria’s total labour force.

Nigeria is an entrepreneurial economy with an estimated 37million micro, small and medium-sized companies, whose contribution to economic growth and job creation is significant. Contributing over 48% to the GDP, employing over 60 million Nigerians and contributing over 7% to exports according to the National Bureau of Statistics.

In Nigeria the level of finance for entrepreneurship is one of the lowest in the world, however, while the World Bank (2010) report indicates that Nigeria’s financial system is highly capitalized and vibrant, her contribution to entrepreneur and MSME’s sector is about 1.6% of the total loans and advances to the private sector as of 2009 (CBN,2009).

Access to finance is the ability of individuals or enterprise to obtain financial services, including credit, deposit, payment, insurance and other risk management services.

Credit is generally understood to mean the finance provided to others at a certain rate of interest and the creation of credit is one of the most important functions of commercial banks.

However, less than a third of the country’s MSMEs have successfully obtained a loan from financial institution, instead, most use their personal savings or reinvested profits as a source of business financing, the smaller the business, the less likely it is to have applied for and received a loan from any financial institution. Many of these businesses have the potential to become bigger and more prosperous but their growth is restricted for a variety of reasons which access to credit is the major.

Access to credit has been identified as one of the key factors required to accelerate growth and improve welfare in developing countries. There is need to intensify efforts in making credit accessible to entrepreneurs, since this will liberate majority of the population from poverty, encourage savings and improve investment in physical and human capital which promotes economic growth. Entrepreneurship would be significantly enhanced through the provision of credit facilities to enable them engage in economic activities and be more self-reliant, increase employment opportunities and create wealth (CBN, 2005). The importance of credit access to entrepreneurial development made the central Bank of Nigeria adopt the financial institution as the main source of financing entrepreneurship in Nigeria. Despite this however, finance is still considered as one of the major hindrances to entrepreneurial development in Nigeria (Ubom, 2003). While government and non-government organisation (NGOs) have been engaging a number of programme and policies to encourage entrepreneurship in the country. Based on the introductory discussion the paper therefore seeks to examine access to finance and entrepreneurial development.

1.2 **STATEMENT OF THE PROBLEM**:

A research carried out by Okpara and Wynn (2007) on small business development showed that the rate of their failure in developing countries are higher than in the developed countries.

In Nigeria, empirical report shows that an estimate of about 70% of the industrial employment is held by SMEs and more than 50% of the Gross Domestic Product is SMEs generated (Odeyemi, 2003). Given the role of SMEs to the economy of Nigeria, various regimes of government since independence in the 1960s, have focused on various programs and spent immense amount of money with the primary goal of developing this sector, these have however not yielded any significant results as evident in the present state of the SMEs in the country (Mambula, 1997). SMEs are generally very susceptible and only a certain number of them manage to survive due to several factors such as difficulty in accessing credits from banks and other financial institutions.

The Financial systems in every country play a key role in the development and growth of the economy, although the ability to play this role effectively and efficiently largely depends on the degree of development of the traditional commercial banks which are key players in the financial systems of nearly every economy, have the potential to pull financial resources together to meet the credit needs of SMEs, however, there is still a huge gap between supply capabilities of the banks and the demanding needs of SMEs.

In spite of the enormous contributions of SMEs in the economy, access to credit facilities from banks and other formal financial institutions has been one of the main issues of SME development, there are various constraint that hinders the smooth access to credit facilities from the formal financial institution which include collaterals, high interest rates charged on loans, literacy levels and the number of lending institutions etc. This study sought to examine access to finance and their role in entrepreneurial development.

1.3 **RESEARCH QUESTIONS**:

The research was guided by the following research questions;

1. How does credit access (finance) enhance entrepreneurial development?

2. To what extent does interest rate influence entrepreneurial development?

1.4  **OBJECTIVES OF THE STUDY**

The main objective of this work is to determine the impact of credit access on entrepreneurial development in Nigeria. The specific objectives are:

1. To determine the impact of finance on entrepreneurial development.
2. To ascertain the extent of the influence of interest rate on entrepreneurial development.

1.**5 HYPOTHESIS**

1. Finance has no significant impact on entrepreneurial development.

2. Interest rate has no significant influence on entrepreneurial development.

1.**6 SIGNIFICANCE OF THE STUDY**

Considering the importance of entrepreneurship in any economy, it is important to understand the role of the financial institutions on entrepreneurial development in the country and the challenges facing the entrepreneurs in the accessing credit.

1.**7 SCOPE OF THE STUDY.**

This study laid emphasis on credit access and entrepreneurial development in Nigeria from 1992-2016.

1.8 **DEFINITIONS OF TERMS**

Entrepreneurship - The art or science of innovation and risk-taking for profit making in business.

Access to finance - The ability of individuals and enterprises to obtain external funding to enable them ease cash flow problem.

Entrepreneurial Development – Is the process of improving the skills and knowledge of entrepreneurs through various training programs.

**CHAPTER TWO**

**LITERATURE REVIEW**

1. **CONCEPTUAL LITERATURE.**

**2.1 CONCEPT OF ENTREPRENEURSHIP.**

Entrepreneurship emerged as an important concept in global economic transformation. Studies have shown that entrepreneurship process is a vital source of developing human capital as well as play a vital role in providing learning opportunities for individuals to improve their skills, attitude and abilities (Shane 2003, Brana 2008, Ekpo and Edet 2011).

Entrepreneurship according to National Directorate of Employment (NDE) is the art which involves recognizing a business opportunity, mobilizing resources and persisting to exploit the opportunity. Schumpeter (1995), defined entrepreneurship as a process of change where innovation is the most vital function of the entrepreneur. It is the basic requirement for economic development in a free enterprise or mixed economy where innovation is the basic of development. Innovation in a system can increase the marginal productivity of the factors of production. UNIDO (1999) defined entrepreneurship as the process of using initiative to transform business concept to new venture, diversify existing venture or enterprise to high growing venture potentials.

The above definitions and discussions point to the fact that entrepreneurship involves innovation, development, recognition, seizing opportunities to marketable ideas, value while bearing the risk of competition. Entrepreneurial development is a catalyst for economic, social and industrial development. Peter and Clark in 1997 as cited in Egai (2008) affirms that entrepreneurial development is a disposition to accept new ideas new methods and making people more interested in present and future then the past. Historically, Nigeria has remained excluded from industrial policy until changes began to occur in 1980s due to competition and increasing service sector. According to Audretsch and Thurik (2001) the role of the entrepreneurial sector changed when industrial comparative advantages shifted toward knowledge based economic activities. Large firms lost their competitive edge while smaller and more flexible entrepreneurial firms gained new importance in the increasing knowledge-based economy.

* 1. **THEORITICAL REVIEW.**

An entrepreneur is a person responsible for setting up a business or an enterprise. Several theories have been developed to throw more light on the process of their emergence behaviour and performance.

This chapter also presents literature review on the role of the financial institutions on entrepreneurial development first, the challenges faced by the entrepreneurs in accessing credit follows and finally literature review on the measures that can be taken to enhance credit access to the entrepreneurs.

**2.2.1 THEORIES OF ENTREPRENEURSHIP.**

ECONOMIC THEORY

According to economists’ entrepreneurship and economic growth will take place in those situations where particular economic conditions are most favourable. Papanek and Haris are the main advocates of this theory, according to them economic incentives are the main drive for the entrepreneurial activities. In some cases, it is not so evident, but the person’s inner drive has always been associated with economic gains. Therefore, these incentives and gains are regarded as the sufficient condition for the emergence of industrial entrepreneurships lack of vigorous entrepreneurship is due to various kinds of market imperfections and inefficient economic policies.

SOCIOLOGICAL THEORY

Sociologists argue that entrepreneurship is most likely to emerge under a specific social culture. According to them social sanctions, cultural values and role expectations are responsible for the emergence of entrepreneurship.

According to Cochran the entrepreneur represents society’s model personality. His performance depends upon his own attitudes towards his occupation, the role expectations of sanctioning groups and the occupational requirements of the job. Society’s values are the most important determinant of the attitudes and role expectations.

According to Weber religious beliefs produce intensive exertion in occupational pursuits, the systematic ordering of means to end, and the accumulation of assets. It is those beliefs which generate a drive for entrepreneurial growth.

According to Stokes socio-cultural values channel economic action. He suggests that personal and social opportunity of the presence of the requisite psychological distributions may be seen as conditions for an individual’s movement into industrial entrepreneurship.

PSYCHOLOGICAL THEORY

This theory of entrepreneurship focus on the individual and the mental or emotional elements that drives entrepreneurial individuals. A theory put forward by psychologist David Mcclelland, a Havard emeritus professor, offers that entrepreneurs possess a need for achievement that drives their activity. Julian Rotter, professor emeritus at the university of Connecticut, put forward a locus of control theory. Rotter’s theory holds that people with a strong internal locus of control believe their actions can influence the external world and research suggest that most entrepreneurs possess trait. A final approach, though unsupported by research, suggests personality traits ranging from creativity and resilience to optimism drive entrepreneurial behaviour.

THEORY OF CREDIT RATIONING AND CONTRIANT

Economic theory suggests that credit constraints may have significant negative consequence on income and welfare, especially low income firms Stiglitz (1981). Credit constraints prevents firms from undertaking desired activities and from realising profit maximizing investment levels. The banks credit rationing behaviour may theoretically be influenced by a number of factors which includes business experience, risk profile, earnings and loan characteristics like amount demanded, loan maturity, collateral offered interest rate (Stiglitz and Weiss 1981).

The value of the collateral offered by a firm also influences the credit rationing behaviour of the bank (Ghosh et al 1999) collateral serves as the last resort for recovery of the loan in case of default.

The credit markets in developing countries are challenged with the problem of information asymmetry thus it is difficult for banks to obtain accurate information about borrowers. Giving that banks incur high information cost to access the credit worthiness of small borrowers and low returns due to the small loan amount involved. Consequently, collateral requirement as a screening mechanism to minimise default risk was adopted by former lenders, hence rationing out the poor from the formal credit market. Borrowers are required to put up a physical asset the lender can seize if the borrower default as collateral. (Killick, 1999).

In some credit markets, borrowers might be denied access to certain credit instrument or rationed to loan amounts smaller than the amount requested by collateral requirement and other terms.

**ROLES OF FINANCIAL INSTITUTIONS IN ENTREPRENEURIAL DEVELOPMENT.**

INFORMATIONAL ROLES

Banks and financial institutions have at their disposal a lot of information which they can offer to their clients such information may be needed in making one decision or other in an organization. Among such informational roles are:

* Giving Information on Current Banking Regulations to their Customers: Various policies and laws of government meant to regulate the money market are usually transmitted to the populace, especially the banks customers, through the various banks. Thus, banks serve as an important channel of transmitting messages to the bank’s customers and the general public from government and other monetary authorities.
* Providing Credit Information by Nature of Bank’s Operations

It is quite possible for them to obtain credit information on various buyers and agents in many parts of the world. It is possible for an entrepreneur who wants to sell (export) his product/service to somebody overseas correspondent to inquire on the credit information from his bank(s). The bank will just request its overseas correspondent inquire on the credit worthiness of the intending buyer or agent. This is an extremely important role, because selling to an unknown buyer who may turn out to be an unreliable person, may easily spell doom for the entrepreneur, therefore, the credit information to be provided by the bank is an important piece of information necessary to decide whether or not one should deal with a buyer or agent.

FINANCIAL ROLE.

The working of the banking system is that the banks receive money from their customers for safe keeping. Since all the money will not be demanded by the customers at a time, there are usually surplus savings in the banks to individuals and organisations.

As such, many banks provide funds for finance of business operations such funds are what is regarded a debt equity capital of a business i.e. part of the capital of a business that is got through borrowing. Thus, this debt equity capital given by banks to their customers, especially, entrepreneurs, is an important financing role which the banks perform to help develop entrepreneurship of all types. The various methods by which banks can load money to entrepreneurs include:

* Over draft: A credit facility which allows a customer to draw more than what he has in his account. Such facility is usually extended to regular and reliable entrepreneurs with an interest calculated on a daily basis. An entrepreneur can use the facility to pay for current obligation.
* Short Term Loan Facility: Is also a credit facility granted to an entrepreneur for a short term duration such as three to six months or a year. This is usually effected by opening an account (known as a loan account) in the bank, which the amount of loan given is debited (with the interest) and the current account of the beneficiary is credited. Any repayment of the loan is debited to the current account and the corresponding credit entry made to the loan account. Such a loan may be obtained by an entrepreneur to buy an asset such as machines, equipment, raw materials etc. The revenue accruing from the use of the assets is then used to repay the loan.
* Medium and Long Term Loans: The medium term loan can also be given by the banks, it may be for a period such as one or two years, while that for long term period may` take up to five years, by the nature of the bank deposits, many banks do not want to lend money on long term. But it’s being encouraged in order to provide businesses with the necessary capital to operate, and adequate time is given to allow entrepreneurs use the money before repayment.

**CHALLENGES FACED BY THE ENTREPRENEURS IN ACCESSING** **CREDIT.**

INTEREST CHARGED

Interest rates as a cost of the loan have a significant effect on a company’s growth plan. They not only affect loan payments but they also have an impact on an enterprise funding (Ogolla, 2013). High interest rate reduces business earnings which ultimately hinders the business capacity to grow high interest rates also affects a business cash flow in that one has to set aside more money to repay the loans. This is the financial burden one has to incur to access a given financial accreditation, a bank of other financial institution (Gitari, 2012). On the other hand, Niskanen (2010) argues that cost of credit refers to the amount of money to entrepreneur has to pay in the process of accessing or borrowing a loan from a bank or any financial institution

COLLATERAL SECURITY

Collateral refers to an asset that a borrower uses to secure a loan from the lender. The lender gets a fall back in case of default where they can dispose the assets that they can use to secure their loans hence their borrowing is limited.

NUMBER OF FINANCIAL INSTITUTIONS

The number of financial institution offering credit in an economy has an impact on the overall growth of an economy. As observed by Schoof (2006) an adequate number of financial institution offering credit services to SME’s would constrain development when the number of small scale traders are many compared to the financial institutions (demand exceeds supply) the price of the loan will be high therefore not affordable which will cause low uptake by SME’s.

LITERACY LEVEL.

Financial literacy refers to the ability of an individual to understand how money works, how it’s earned, managed and invested. It is very important for any business entrepreneur to have knowledge on how to manage the business so that they can oversee its growth Andoh and Nunoo (2011). A literate entrepreneur understands the best time to make certain investment decision such as when to borrow and at what cost.

AVAILABILITY OF INFORMATION ON FINANCIAL.

Information in business is extremely essentially not only enhancing business performance, access to customers and competitiveness, but also in access to credit by SMEs. To this Gangata and Matavire (2013) postulate that information concerning access to credit is very important for entrepreneurs who are starting business and those who have been in business, and are seeking additional funding. Therefore, one could argue that information on access to credit facilities and lending environments largely affects SMEs financing prospects. There is need therefore for financial institution to ensure that information is not only available within their operational environments but in areas that SMEs can get this information (Rambo, 2013). SMEs require information to use in evaluating and analysis the cost of credit, lack of this information inhibits entrepreneurs’ choice of credible financial provider. This means that an SME may not be aware that there are institutions that are financing their nature and kind of business concepts. Another reason why SMEs requires financial information is that it helps them evaluate risk component associated with accessing a given type of credit facility or collateral requirements. (OECD, 2015).

**MEASURES THAT CAN BE TAKEN TO ENHANCE CREDIT ACCESS BY ENTREPRENEURS**.

ROTATING AND SAVINGS ASSOCIATIONS (ROSCAs).

Rotating Savings and Credit Associations (ROSCAs) are an important source of credit for SMEs. According to Kiraithe (2015), entrepreneurship groups that embrace the use of ROSCAS hardly lack access from internal financing. ROSCA, work by contributing certain amount of funds and give to their members for a particular month or period so they can invest in their ventures. The rotation is done until each member within the group has received the credit. This ensures that there is adequate flow of finance to members who need additional operational financing for their organization (Rambo, 2013).

In most cases, ROSCAs, are mostly utilized both in rural and urban areas through registered group and provide credit facilities to other groups or SMEs that are not able to access credit from financial institutions and commercial banks (Mira & Ogollah, 2013). Lack of access to financial institution propelled both registered and unregistered groups to develop their own sources of accessing funding for their businesses. Savings are usually integrated into finance credit schemes that members and more members can borrow. As such, Nickanen (2010) contends that ROSCAs are important mechanisms that can be used to enhance access to finance by SMEs, particularly in Sub-Sahara Africa.

IMPROVED ACCESS TO CREDIT INFORMATION.

Improved access to credit information is essential in enhancing SMEs access to financial credit (Gangata & Matavire, 2013, Rambo, 2013). In Mozambique for instance, the government has taken initiatives on educating the community to know and use channels for facing SMEs. This forum brings together entrepreneurs, banks, and insurers to discuss finance constraints by SMEs (MIC, 2007). The Mozambique modal was adopted from the successes initiated by the Kenyan government is funding SMEs. The Banking Association South Africa study on SME financial literacy in South Africa stipulated the role of government as key in promoting, enhancing and implementing of a national SME access to financial credit and financial education (Vuvor and Ackar, 2011). According to Vera and Onji (2010), availability of relevant credit information and appropriation of suitable information technologies and system influence SME ability to access finance and to exploit prime opportunities. Similarly, Obura and Matuvo (2016) argue that by enhancing access to adequate information, SME, and financial institutions will have a better working relationship and thus, able to access credit on favourable terms.

GOVERNMENT INTERVENTION

Government all over the world have designed a number of support services for SMEs which include the policy initiatives and support programmes for the purpose of creating and developing the SMEs sectors. Support programmes are designed to assist SMEs in other to linked them to the larger developmental vision of the nation, with the main focus being poverty reduction and growth of the small firms (Charbonneau and Menon, 2013).

**2.3 EMPIRICAL REVIEW**

Using correlation analysis Muratha (2015) examined the factor affecting young entrepreneur case of Family Bank Limited. He collected data from 220 respondents through open- ended and close-ended questionnaires which were distributed by a stratified sampling method based on the segments of classification as per the business type. The researcher adopted descriptive survey research design. It was found that there was an insignificant positive relationship between the two variables-interest rate charged and credit accessibility. His choice of research design was appropriate for the study since the data collected was both structured and semi structured. Use of stratified sampling was also appropriate since the data needed to be representative of all the business segment.

Kalya (2013) studied how supply side factors by commercial banks in Kenya related to lending to SMEs. This study used both secondary and primary data from commercial banks and applied the descriptive research design in 44 commercial banks. Secondary data came from the Central Bank of Kenya on the interest charged between 2004 and 2013 as well as from the questionnaires distributed. Regression and correlation analysis was used to analyse this data. The study found that there existed an inverse significant relationship between the banks lending and interest rate.

Gangata and Matavire (2013) studied the challenges facing MSEs with access to finance from financial institution and establish that the main reason why most MSEs are turned down on their request to access funding for the financial institution if failing to meet the set lending requirement, most importantly being the provision of collateral security.

Kira and He (2012) examined the impact of a firm’s characteristics on accessing finance by SMEs in Tanzania. Primary data were collected using 163 questionnaires which were distributed in the coastal zone of Tanzania. Logistic regression and Pearson correlation were used to establish if there was a relationship between variables and to determine whether multi collinearity problems existed among the independent variable. The availability of collateral security coefficient indicated a significant relationship with access to finance.

Mulandi (2013) studied the factor affecting credit access for Biogas sub sector in Kenya. Primary data were collected from 48 firms by random sampling technique and secondary data was also getting from the published report on Biogas industry. Among the determinant of access to credit studied were age, size, capital investment, financial records, information access and risk preference. Capital investment (security) was measured using an amount that respondents were asked to indicate the worthiness. The results of the study showed that all the aforementioned (independent) variables were statistically significantly positively correlated with the level of access to credit.

As Mensah & Agbekpornu (2015) analysed the determinants of agribusiness in Kumasi (Ghana) in accessing credit. A sample of 151 respondents was questioned. This study classified these determinants as under socio-economics, management and firm characteristics. Access to credit dichotomous whether one had access credit or not and therefore a logit model was used to analysis the relationship between these variables. Results indicated that 55% had ever applied for loan before. Though in contrast to previous studies, most financial institutions did not “strictly demand collateral security.” Many institutions focused more on the relationship and nature of transactions in the past in granting credit. Logit model also indicated that for every 1% increase collateral would lead to a probability of 30% increase in access to credit. Finding also revealed a significant relationship between the collateral security and access to credit. The outcomes of this research coincided with Fatoki & Odeyem (2010).

Avortri, Bunyaminu, & Wereko (2013) examined factors that affect SMEs in Accra metropolis, Ghana. Stratified sampling technique was adopted in the administration of questionnaires based on consumables, wares and cosmetics, motorcar spare parts, constructional material and stationaries/ pharmaceuticals. Regression analysis and descriptive statistics were used to establish an interrelationship between the dependent variable and other independent variables. Chi square test was used and revealed that there was a positive linear relationship between the number of financial institutions and ease of access to credit. Further the study pointed that this could be due to competition. However, this study erred in choosing 20 respondents in each stratum while these strata were not of equal size, hence the principle mechanism of stratified sampling was not observed. This could have been resolved by using cluster sampling, where groups or clusters are selected for inclusion rather than individual. In this case sample size is often larger than in the simple random sample to increase the level of accuracy (Kothari, 2007). As observed by Schoof (2006) an inadequate number of financial institutions offering credit services to SME’s is a constraint to the development of this sector.

Mwongera, 2014 observed that there were many small scale while the financial institutions with the services customized for them are few. Essayed (2005) noted that require off loan in small businesses are different from those of large businesses. There exist very few studies that have tried to find the relationship between the number of lending institutions and access credit and this study therefore is aimed at filing this gap by extending the study of the lending institution in Murang a County and finding their relationship.A study was carried to determine access to credit by small holder farmers in Kenya in the Western region (Bungoma and Siaya counties) and Eastern region (Embu, Meru and Tharaka Nithi) by (Kiplimo, Ngenoh, Koech, & Bett (2015). This study used primary and secondary data where 613 smallholders in both regions were randomly sampled according to the total number of households in each division. They used logistic regression model to determine the factors influencing credit access. Access to credit was measured by actual receipt of credit, financial service from any given source. The result indicated that education level (literacy) in years had significant positive effects on access to credit. This concurred with Hussein, (2007). The choice of binary logit model was appropriate since the dependent variable was categorical.Andoh and Nunoo, (2014) studied whether the financial literacy matter in four districts of the Great Accra Region of Ghana. They randomly administered questionnaires. Primary data was collected from 556 SMEs. Financial literacy was measured by two ways; (1) adding the answer to question covering knowledge on interest rate, inflation savings and insurance, (2) owners characteristics such as level of education, age, sex of the entrepreneur and number of times the entrepreneur had received financial education. The study applied Ordinary Least Square (OLS) revealed that sex of the proprietor ,level of education ,and financial education received were significant in explaining literacy. Utilization of financial services was used to measure credit access. Researcher using 2-stage probit regression found that there is a positive significant relationship that firms whose owners were financially literate were more likely to utilize financial services for example by taking micro credit.

A study was conducted in Gujranwala District, Pakistan by Hussain (2012) to examine factors influencing demand for credit from formal and informal sources. A cross-sectional data from 313respondents to questionnaire were randomly selected and analysed by using multiple regression. It was found that the level of education (literacy level) had a positive significant relationship with demand for credit from the banks, which lend at low interest rates while literacy level had an insignificant positive relationship with demand for credit from the arties (informal sources).The study failed in the inclusion of the loan that was only applied and received. Applied loan could be turned down and therefore hinder accessibility to credit. Therefore, it was not sufficient to their inclusion. As Atieno (2001) observed that there was a difference between the amount applied for and amount received from the credit market.As Pandula (2011) examined the case of emerging economies (Sri Lanka). This researcher tested whether the determinants of access to credit were statistically different among those rationed firms and those not rationed firms using Chi square statistic. Data was collected using questionnaires. Findings revealed that, entrepreneur education and belonging to business association, even merely as a member was associated with access to bank finance. Somewhat surprisingly, all the other determinants identified did not show any association with access to credit.

Muturi & Ogubazghi, (2014) examined effects of age and owners/ manager education level of access to loan in the Asmara city (Eritrea). A proportionate systematic sampling was used to collect primary data from 87 respondents. Data was analysed using descriptive and logit regression model. Findings indicated that the education level of the owner / manager was positive and statistically significant. This agrees with Fatoki & Odeyemi, (2010) who discovered the education level is not important in determining SME’s access to bank loans. Contrary to (Zarook, Rahman, & Khanam, 2013) who had observed a significant impact on a bank loan.

Zarook, Rahman and Khanam, (2013) and Slavec & Prodan, (2012) in their study discovered a significant positive correlation with access to bank loans. This study concurred with Ahmed & Hamid, (2011) study where the top manager’s level of education as a measure of the quality of human capital and findings showed that there was a significant positive correlation between education level (literacy level) and the probability of accessing bank finance. There is no standard framework in all this literature review, variable changes from one study to another general focus has been to access to finance rather than to bank loan (credit). Therefore, further investigation needs to conduct to assess factors influencing SMEs to access credit.

A study Obamuyi (2007) examined the exploratory insights into the level of loan delinquency among the small and medium enterprises (SMEs) in Ondo State of Nigeria, and the lending practices of the country’s bankers towards the SMEs. The study used a sample of 9 commercial bank managers and 115 SMEs that have been borrowers and those who had active loans from the banks. The study findings revealed that several factors were responsible for banks’ altitude of not expanding loan portfolio, principal of which are poor credit worthiness, lack of collateral security and the constraint imposed on banks’ capital by regulations. The study also established that loans delinquency rate was low among SMEs in the Ondo State, which could be attributed to the fact that sound lending policy demands that for those small and medium enterprises that the bankers believe they have high probabilities of default, loan applications are not approved.

In addition, Torre, Peria and Schmukler (2008) investigated the factors banks perceive as drivers and obstacles to finance small and medium enterprises with particular attention to the role of competition, institutions, and macroeconomic factors. The study used a survey of banks in Argentina and Chile. The study established that despite differences in the countries’ environments, SMEs are strategic segment for most banks in both countries. Further, the study found out that given significant competition in the corporate and retail sectors, banks have come to perceive the SME market as highly profitable, large, and with good prospects. However, the study revealed that although institutional and macroeconomic factors still matter, banks are developing coping mechanisms to overcome the particular obstacles present in each country and to compete for SMEs. Banks’ interest in SMEs, which is not based on government programs in the two countries, was found to be yet policy action that might help to reduce the cost in providing financing, especially long term lending.

Agyapong, and Darfor (2011) investigated the criteria for assessing Small and Medium Enterprises’ Borrowers in Ghana. The study focused on developing an insight into the decision making process which lenders employ in granting loans to SME borrowers. Questionnaires were used to collect data from the selected bank branch managers of conventional banks, rural banks and savings and loans companies. The study findings indicated that when loan managers are deciding on whether to accept or reject an SME loan application, the intended purpose of loan, repayment of previous loan, repayment schedule, type of business activity, size of loan relative to size of business and availability of collateral, ranked highest on their criteria list. Conversely, the study established that Curriculum Vitae of clients, government guarantee of loans, charges on assets and gearing ranked lowest on the criteria list in terms of importance. The study revealed that lenders took particular interest in risk when dealing with SMEs.

Hwarire (2012) analysed loan repayment and credit management of Small, micro and medium enterprise in a South African financial institution. Factors such as age, bank balance, relationships (personal, business and new customer), interest rate, loan size, loan term, product type, gender and race were analysed to determine their relationship and impact on default. The dichotomous nature of the dependent variable (default) led the researcher to use the binary Logit model to assess the relationship and impact of the determinant factors affecting loan repayment. The study analysed 169 loans granted to small businesses by a South African commercial bank. The study findings established that 39 per cent of loan repayments by SMMEs were not made on time, while 28 per cent actually defaulted. In addition, the study established that race, gender and negative bank balance were found to be statistically significant in relation to defaults in loan repayment and credit management. Nguyen (2014) explored the use of soft and hard information for bank lending decisions to small and medium enterprises (SMEs) in Vietnam. The study aimed at investigating to what extent different types of information were used for loan approval, whether the two types of information were used in a complementary manner, and what factors determined the banks’ lending decisions. Descriptive statistics for was used for overall assessment, principal component analysis and confirmatory factor analysis to establish and test the scales, and logistic regression to examine determinants of lending decisions. The study findings indicated that although collateral based lending was the most widespread method and could substitute for other lending technologies, usually a combination of lending information types were utilized in the decision making process. This suggests that both complementarity and substitutability were found in the use of the various information types by Vietnamese banks for such decision-making.Abdesamed and Wahab (2014) examined financing of small and medium enterprises. The study aimed at determining which factors influence SMEs to apply for a bank loan and to develop a bank loan model based on applicability. The model was developed using quantitative methods coupled with a hypothetical – deductive testing approach applied on primary data on loan applications gathered from questionnaires. Logistic regression tests indicated that business experience of the firm’s owner has no significant relation with the firm’s tendency to apply for a bank loan. However, the study found that educational 21 background of the owner; firm size; collaterals and loans with interest were negatively related to its tendency to apply for bank loans.

Gondwe et al (2014) investigates empirically if social capital affects access to formal finance for small and medium enterprises using the case of Malawi. The study used a sample of 115 micro, small and medium enterprises in the cities of Blantyre and Lilongwe, an ordered probit model was used to analyse factors affecting the likelihood of getting credit from a bank when a person is known personally by the bank personnel. The study findings indicated that both entrepreneurs and bank officers perceive that when a person is known personally the likelihood of getting a loan changes positively. In addition, firm characteristics and social capital were found to affect perceptions of SMEs.

Muchiti (2009) examined the institutional risk management strategies applied by commercial banks in lending to SMEs. The study used an exploratory survey and focused on all commercial banks in Kenya who have well established SME products. Data was collected using questionnaires, which were emailed and drop picked to sample credit officers. The study findings established that there were three distinctive institutional risk management strategies that are applied by Kenyan banks in lending to SME borrowers. These are risk-pooling strategies, the risk control strategies and risk avoidance strategies. The research indicated that the institutional context in Kenya has determined how the banks handle the three risk strategies. Omboi and Wangai (2011) analysed factors that may influence demand for credit among the small-scale entrepreneurs in Meru Central District, Kenya. The study used sample survey data collected from Meru Central District, descriptive statistics and logistic regression models were used to analyse the data. The study established that education level of an entrepreneur, the number of dependants, and household income are significant factors that influence small-scale entrepreneurs to borrow credit from formal credit institutions. Further, the study revealed that the demand for credit among women entrepreneurs in the MSE sector was found to be lower compared to their male counterparts. The study recommended that MSE operators can improve their participation in credit market by improving their business skills and knowledge plus maintaining proper accounting and book-keeping systems.

Barasa (2013) examined competition among lending institutions and accessibility to credit by small and medium enterprises in Nakuru, Kenya. Using a survey study of banking institutions and SMEs in Nakuru town, this study sought to determine the impact of recent competition on Kenyan SMEs. The study objectives were to determine the rate of interest charged by financial institutions, types of products and to evaluate how competition among lending institutions have influenced availability of credit to the SMEs. A sample of 30 financial institutions and 50 SMEs were selected using stratified random sampling technique to obtain a representative sample. The study established that MFIs and SACCOs were the preferred sources of credit for SMEs. further, the study found that access to long term credit in banks is still very low and their exists a positive significant correlation between recent competition in financial market of Kenya and access to credit in SMEs which has led to favourable rate of interest, lending policies and increased credit products and services.

**CHAPTER THREE**

**3.0 RESEARCH METHODOLOGY**

The Ordinary Least Square (OLS) is employed in obtaining the numerical estimates of the coefficient parameters. The OLS is chosen because of its properties (BLUE ‘Best Linear Unbiased Estimator’), according to (Gujarati 2009). OLS method have some very attractive statistical properties that has made it one of the best and most powerful method of regression. Its computational procedure is fairly simple and it is also an essential component of most other estimation techniques. The Stata regression software package will also be employed in this analysis to estimate the numerical coefficient of the parameters of the model.

* 1. **MODEL SPECIFICATION**

According to Jhingan (1997) an economic model is an organized set of relationship that describes the functioning of an economic identity under a set of assumptions from which the conclusion or set f conclusions is logically derived.

In the course of this work we shall be considering the research topic ‘Access to finance and Entrepreneurial Development’.

We shall build a multiple regression model and make use of econometrics procedure in estimating to relationship between the economic variables.

The functional form of the model specified as:

Entr = f (Intr, Rgdp, Fin, Unempl,) (3.1.1)

The econometric form of the model is specified as:

µt (3.1.3)

where



* 1. **METHOD OF EVALUATION**

The estimated result will be evaluated subjected to three criteria;

* Preliminary Test
* Economic Criteria
* Statistical Criteria
* Econometrics Criteria

**3.2.1 PRELIMINARY TESTS**

**Stationarity (Unit Root) Test:** The importance of this test cannot be over emphasized since the data to be used in the estimation are time-series data. In order not to run a spurious regression, Augumented Dickey Fuller (ADF) test was conducted to ascertain whether the variables in the model are stationary or not. The model is specified as follows:

µt

* **Decision Rule:** If the ADF test statistic is greater than the MacKinnon critical value at 5% (all in absolute term), the variable is said to be stationary. Otherwise it is non stationary.
  + 1. **ECONOMIC CRITERIA**

This will be based on the regression coefficient of the algebraic signs of the parameters. It is a test that will be based on evaluating the conformity of the relationship between the variables on economic theory.

* + 1. **STATISTICAL TEST OF SIGNIFICANCE. (FIRST ORDER TESTS)**

These are determined by the statistical reliability of the estimates of the parameters of the model, the most widely used statistical criteria is the square of correlation (coefficient of determination R2), t-test and F-test of significance.

TEST FOR GOODNESS OF FIT.

The coefficient of multiple determination (R2) is used to determine the proportion of variation dependent variable that is attributable to variation in explanatory variable. The value of R2 ranges between 1 and 0 (i.e 0< R2<1), the closer to 1 the better, otherwise, the worse the fit.

T-TEST OF SIGNIFICANCE

The test for statistical significance of individual regression coefficient., t- statistic is used. A two-tailed test will be conducted at 5% level of significance. The null hypothesis H0 will be tested against the alternative hypothesis H1.

DECISION RULE (t-TEST)

The computed (t\*) will be compared with the critical t-value (t0.05). If t\* > t0.05, the H0 will be rejected, otherwise, H0 is accepted and H1 is rejected.

F-TEST OF SIGNIFICANCE

F-test statistics is used to test the overall statistical significance of the independent variables. A one tail test will be conducted at 5% level of significance.

DECISION RULE (F-TEST)

If f\* > (t0.o5), we say the regression is statistically significant but if otherwise, it implies that it is statistically insignificant.

Note: F\* - computed f value

T0.05 - tabulated f value

* + 1. **ECONOMETRIC TEST OF SIGNIFICANCE (SECOND ORDER TESTS)**

AUTO CORRELATION TEST

The aim of this test is to evaluate the reliability of the expected numerical estimates, the Durbin-Watson (D-W) statistics at 5% will be used to test for the presence of autocorrelation problem. The region of no correlation is:

du <d\* < (4-du)

Where

du - upper Durbin-Watson

d\* - computed Durbin-Watson.

DEISION RULE (AUTO CORELATION TEST)

If the computed value of Durbin-Watson lies within the regions, it means there is no presence of auto correlation problems, but if the Durbin-Watson computed value lies outside the regions there is the presence of auto correlation problem.

NORMALITY TEST

The normality test will be carried out to ascertain if the residuals of the model are normally distributed or not.

DECISION RULE (NORMALITY TEST)

The basis of the decision will be based on the value of the Jaque-Barra (JB). If the JB statistics yields a value close to or equal to zero, we accept the null hypothesis of the normal distribution, but if otherwise, we reject the normal distribution hypothesized values.

HETEROSCEDASTICITY TEST

The essence of this test is to see whether the error variance of each observation is constant or not. Non-constant variance could cause the estimated model to yield a biased result.

DECISION RULE (HETEROSCEDASTICITY TES)

If the computed chi-square (X2) exceeds the tabulated (X2), we conclude that there is the presence of heteroscedasticity in the residuals but if otherwise, we conclude that there is presence of homoscedasticity in the residual series.

* 1. **DATA REQUIRED AND SOURCES**

The data required in this research is time series data for the period of 1992-2016.This shall be sourced from the central Bank of Nigeria statistical bulletin 2016, other sources include relevant internet materials.

**CHAPTER FOUR**

* 1. **PRESENTATION AND ANALYSIS OF REGRESSION RESULTS**

The result of the Ordinary Least Square regression is presented below.

The estimates of the regression result are subjected to various economic, statistical and economic tests thus; the hypothesis will be evaluated based on the empirical result below.

**4.1.1 UNIT ROOT TEST RESULTS**

The Augmented Dickey-Fuller (ADF) was used to test for the unit root in the individual variable. The test was done based on the following hypothesis;

H0: variable is non-stationary

H1**:** variable is stationary

The results from the Augmented Dickey-Fuller test for unit root are summarized below;

**Table 4.1 : ADF Test For Unit Root**

|  |  |  |  |
| --- | --- | --- | --- |
| **VARIABLES** | **ADF test**  **Statistics** | **5% critical**  **value** | **Order of**  **integration** |
| LNENTR | -7.447504 | -2.893589 | I(I) |
| INTR | -3.214917 | -2.891234 | I(0) |
| LNRGDP | -13.72542 | -2.893230 | I(2) |
| LNFIN | -8.733970 | -2.893589 | I(I) |
| UNEMPL | -3.126722 | -2.894332 | I(I) |

From the tabular illustration, the log of ENTR is stationary at first difference, INTR is stationary at level form, the log of RGDP is stationary at second difference, the log of FIN is stationary at first difference, and UNEMPL is stationary at first level. Not having a stationarity time series data indicates not having a short run relationship among the individual time series data, this result is expected since most macro- economic time series data are known to exhibit such behaviour. Since four out of our five variables are not stationary at level form, there is no need to conduct a co-integration test based on Engle and Granger. Thus the study estimated the model based on the level of integration of the respective variable as below.

**ACCESS TO FINANCE AND ENTREPRENEURIAL DEVELOPMENT IN NIGERIA: AN** **EMPIRICAL INVESTIGATION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: DLNENTR | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 07/11/18 Time: 13:19 | | |  |  |
| Sample (adjusted): 1992Q3 2016Q4 | | | |  |
| Included observations: 98 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | -0.344300 | 0.269304 | -1.278480 | 0.2043 |
| INTR | 0.018535 | 0.014690 | 1.261755 | 0.2102 |
| DDLNRGDP | -0.104931 | 0.393568 | -0.266615 | 0.7904 |
| DLNFIN | 4.273678 | 0.458418 | 9.322666 | 0.0000 |
| DUNEMPL | -0.050169 | 0.141388 | -0.354833 | 0.7235 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.823960 | Mean dependent var | | -0.057795 |
| Adjusted R-squared | 0.816389 | S.D. dependent var | | 0.955142 |
| S.E. of regression | 0.409277 | Akaike info criterion | | 1.100825 |
| Sum squared resid | 15.57823 | Schwarz criterion | | 1.232711 |
| Log likelihood | -48.94042 | Hannan-Quinn criter. | | 1.154170 |
| F-statistic | 108.8225 | Durbin-Watson stat | | 2.801245 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

To analyse the result as shown above, we subject the parameter estimates to various theoretical, statistical and econometric tests.

* 1. **EVALUATION BASED ON ECONOMIC CRITERIA**

The result above shows how credit access affects entrepreneurial development. The result suggests that finance is positively related to entrepreneurial development and significant; this means that the level of financial intermediation deepening will significantly improve entrepreneurship in the long-run and short run ie one per cent increase in finance will bring about 4.27% increase in entrepreneurship. This is not surprising as finance constitute a major source of financing entrepreneurship in Nigeria (Ubom, 2003). Interest rate has a positive relationship with entrepreneurial development as shown in the result but it is not significant, this implies that Interest rate has no significant impact on entrepreneurial development, and the RGDP as well as Unemployment has a negative relationship with entrepreneurial development but they are both not significant.

* + 1. **SUMMARY OF THE SIGNS**

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Expected sign | Realised sign | Remark |
| DLNRGDP | Positive | Negative | Does not Conform |
| DLNFIN | Positive | Positive | Conforms |
| INTR | Negative | Positive | Does not conform |
| DUNEMPL | Positive | Negative | Does not conform |

* 1. **EVALUATION BASED ON STATISTICAL CRITERIA.**

**Coefficient of determination (R2)**

This measures the goodness of fit of the regression model. from the table above, R2= **0.823960.** This implies that about 82% variations in the economic growth is being accounted for by changes in Real GDP, finance, interest rate, and unemployment.

**STUDENT t–TEST**

This test the explanatory powers of the independent variables.

The result shows that financial intermediation at the macro level (Fin) has a significant impact on entrepreneurial development. This is because the absolute t-statistic of 9.39 is greater than the critical t- statistics of 2.021 at 5% level of significance. This suggests that a rise in finance will lead to an increase in entrepreneurial development. Therefore, we reject the null hypothesis. Real gross domestic product (Rgdp), and unemployment (Unempl) has a negative relationship with entrepreneurship while interest rate has a positive relationship with entrepreneurship which does not conform to the expected sign.

**F-STATISTIC**

The F- statistic is used to determine the overall significance of all the variables in the model. The calculated f-statistic is 108.8225. This implies that the entire variables joined together are significantly different from zero.

* 1. **EVALUAION BASED ON ECONOMETRIC CRITERIA**

The econometric criteria are applied to check the reliability of the parameter estimates. To do that, we apply the following test: auto correlation, normality and heteroscedasticity.

**AUTOCORRELATION TEST**

This test whether the error is correlated with one another. To do that, we apply the Durbin Watson the test with the hypothesis as below

|  |  |  |
| --- | --- | --- |
| Null Hypothesis | Decision | If |
| No positive autocorrelation  No positive autocorrelation  No negative correlation  No negative correlation  No autocorrelation positive or negative | Reject  No decision  Reject  No decision  Do not reject | 0<d<dL  dL ≤ d≤ dU  4-dL<d<4  4-dU≤d≤4-dL  dU<d<4-dU |

From the Durbin Watson table, dL= 1.592 and dU= 1.758 and the estimated d-statistic=2.81012. Since 4-dL=2.408 <d=2.81012 < 4, d lies in the indecisive zone, we apply the modified d test in which we reject the null hypothesis of no negative correlation if 4-dL<d<4, From our result, d=2.81012< 4 and hence we reject the null hypothesis conclude the residuals are negatively correlated.

**HETEROSCEDASTICITY TEST**

This is conducted to check if errors have constant variance or not. The null hypothesis is that the errors are homoscedastic (no heteroscedasticity). Note that this test follows chi-square distribution. Since the probability value of the estimated chi square statistics is 0.0000, which is less than 5 percent level of significance, we reject the null hypothesis and conclude that the errors are not homoscedastic.

**NORMALITY TEST**

This test is to know if the error term is normally distributed. The null hypothesis is that the error term follows normal distribution. From our result the Jarque Bera statistic of 1231.409 has probability value of 0.0000 which is less than 5%level of significance. This means that the error term is not normally distributed, we accept the null hypothesis.

**CHAPTER FIVE**

**SUMMARY OF THE FINDINGS, POLICY RECOMMENDATIONS AND CONCLUSION**

**5.1 SUMMARY OF THE FINDINGS**

In this study, we set out to empirically investigate access to finance and entrepreneurial development in Nigeria between 1992-2016. Secondary data were used; the source of data include CBN Statistical Bulletin (2016). In other to achieve the objective of the study, an econometric model was formulated using ordinary Least Square (OLS). Entrepreneurship was regressed on Real GDP, Finance, Interest Rate and unemployment. Findings from the summary include:

1. Among the variables whose influence were examined in the analysis only finance is significant. The implication is the fact that this variable shape the level of entrepreneurial development in Nigeria.
2. The result also revealed that Real GDP, Interest Rate, and Unemployment were insignificant, this means they have no joint influence on entrepreneurial development.

**5.2 CONCLUSION**

In this study, we examined access to finance and entrepreneurial development in Nigeria from 1992-2016. From our findings finance is positive and significant to entrepreneurial development and shown to have great impact on entrepreneurial development. Also, Interest Rate has shown to be positive though it has an insignificant influence on entrepreneurial development, but the variables, Real GDP and Unemployment have a negative relationship with entrepreneurial development and is also insignificant. The general conclusion is that finance is utmost in entrepreneurial development.

**5.3 RECOMMENDATIONS**

1. The Nigerian government must develop measures to counteract the effects of the financial crisis in entrepreneurship financing. Furthermore, any solution to stimulate the Nigerian economy should include easing SME and entrepreneurship access to finance. There is also the need for macroeconomic policy to be specifically targeted to entrepreneurship financing and growth. A multiplicity of agencies and institutions must be looked into with a view to protecting entrepreneurship and MSMEs. By this, the potentials of entrepreneurship and MSMEs in term of employment, industrial production and its impact on economic growth can be felt.
2. Efficient financial policy and the establishment of a strong institutional structure to strengthen the financial institutions process that will bring informal financial institutions into the mainstream of the financial system are suggested. This will not only enhance monetary stability, but also expand the financial infrastructure of the country to meet the financial requirements of entrepreneurship and MSMEs in Nigeria.

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TIME SERIES DATA ON ENTR, INTR, RGDP, FIN, UNEMPL RANGING 1992-2016

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| quarter | fin | entr | unempl | rgdp | intr | rgdp1 |
| 1992q1 | 0.485076 | 0.246289 | 4.99825 | 19697.14 | 26.93 | 84.52506 |
| 1992q2 | 0.485751 | 0.222223 | 5.0065 | 19774.09 | 24.06 | 84.1182 |
| 1992q3 | 0.486427 | 0.198157 | 5.01475 | 19851.04 | 21.19 | 83.9665 |
| 1992q4 | 0.4844 | 0.270355 | 4.99 | 19620.19 | 29.8 | 84.67887 |
| 1993q1 | 0.499042 | 0.166369 | 5.03175 | 19940.78 | 18.99 | 85.9202 |
| 1993q2 | 0.510982 | 0.158648 | 5.0405 | 19953.56 | 19.66 | 85.42091 |
| 1993q3 | 0.522922 | 0.150927 | 5.04925 | 19966.34 | 20.33 | 85.35461 |
| 1993q4 | 0.487102 | 0.174091 | 5.023 | 19927.99 | 18.32 | 85.84475 |
| 1994q1 | 0.533763 | 0.147062 | 5.066 | 20072.64 | 20.795 | 86.35747 |
| 1994q2 | 0.532664 | 0.150917 | 5.074 | 20166.16 | 20.59 | 86.15101 |
| 1994q3 | 0.531565 | 0.154773 | 5.082 | 20259.68 | 20.385 | 86.18844 |
| 1994q4 | 0.534862 | 0.143206 | 5.058 | 19979.12 | 21 | 86.53154 |
| 1995q1 | 0.525475 | 0.160468 | 4.94775 | 20559.38 | 20.06875 | 88.34173 |
| 1995q2 | 0.520484 | 0.162307 | 4.8055 | 20765.56 | 19.9575 | 88.06164 |
| 1995q3 | 0.515493 | 0.164147 | 4.66325 | 20971.74 | 19.84625 | 88.10505 |
| 1995q4 | 0.530466 | 0.158628 | 5.09 | 20353.2 | 20.18 | 88.1378 |
| 1996q1 | 0.504486 | 0.157285 | 4.37325 | 21330.72 | 18.18688 | 92.12301 |
| 1996q2 | 0.49847 | 0.148584 | 4.2255 | 21483.51 | 16.63875 | 91.72939 |
| 1996q3 | 0.492453 | 0.139882 | 4.07775 | 21636.3 | 15.09063 | 91.73174 |
| 1996q4 | 0.510502 | 0.165986 | 4.521 | 21177.92 | 19.735 | 91.63395 |
| 1997q1 | 0.48781 | 0.127209 | 3.77975 | 21925.04 | 14.73 | 94.71655 |
| 1997q2 | 0.489182 | 0.123238 | 3.6295 | 22060.98 | 15.9175 | 94.44004 |
| 1997q3 | 0.490555 | 0.119266 | 3.47925 | 22196.92 | 17.105 | 94.45202 |
| 1997q4 | 0.486437 | 0.131181 | 3.93 | 21789.1 | 13.5425 | 94.22219 |
| 1998q1 | 0.487532 | 0.112539 | 3.17725 | 22362 | 19.04938 | 97.53153 |
| 1998q2 | 0.483138 | 0.109784 | 3.0255 | 22391.14 | 19.80625 | 97.11555 |
| 1998q3 | 0.478743 | 0.107028 | 2.87375 | 22420.27 | 20.56313 | 97.13302 |
| 1998q4 | 0.491927 | 0.115295 | 3.329 | 22332.87 | 18.2925 | 96.68801 |
| 1999q1 | 0.463177 | 0.097142 | 2.57175 | 22759.13 | 20.485 | 98.09948 |
| 1999q2 | 0.452007 | 0.090012 | 2.4215 | 23068.85 | 19.65 | 98.39412 |
| 1999q3 | 0.440836 | 0.082882 | 2.27125 | 23378.56 | 18.815 | 98.54673 |
| 1999q4 | 0.474348 | 0.104272 | 2.722 | 22449.41 | 21.32 | 98.06684 |
| 2000q1 | 0.425919 | 0.072335 | 1.95825 | 24083.1 | 18.05813 | 103.2012 |
| 2000q2 | 0.422172 | 0.068918 | 1.7955 | 24477.91 | 18.13625 | 103.1829 |
| 2000q3 | 0.418426 | 0.0655 | 1.63275 | 24872.73 | 18.21438 | 103.2344 |
| 2000q4 | 0.429665 | 0.075752 | 2.121 | 23688.28 | 17.98 | 102.7135 |
| 2001q1 | 0.413239 | 0.068273 | 1.57275 | 26190.08 | 19.93188 | 108.0998 |
| 2001q2 | 0.4118 | 0.074464 | 1.6755 | 27112.63 | 21.57125 | 108.0932 |
| 2001q3 | 0.41036 | 0.080654 | 1.77825 | 28035.17 | 23.21063 | 108.0837 |
| 2001q4 | 0.414679 | 0.062083 | 1.47 | 25267.54 | 18.2925 | 107.5065 |
| 2002q1 | 0.390765 | 0.08387 | 1.9835 | 29645.64 | 23.815 | 112.633 |
| 2002q2 | 0.37261 | 0.080896 | 2.086 | 30333.58 | 22.78 | 113.3282 |
| 2002q3 | 0.354455 | 0.077921 | 2.1885 | 31021.51 | 21.745 | 113.0961 |
| 2002q4 | 0.40892 | 0.086844 | 1.881 | 28957.71 | 24.85 | 112.7284 |
| 2003q1 | 0.338383 | 0.065258 | 2.393 | 32537.22 | 20.3275 | 124.0368 |
| 2003q2 | 0.340466 | 0.055569 | 2.495 | 33365 | 19.945 | 123.9287 |
| 2003q3 | 0.342548 | 0.045879 | 2.597 | 34192.77 | 19.5625 | 123.7826 |
| 2003q4 | 0.3363 | 0.074947 | 2.291 | 31709.45 | 20.71 | 123.259 |
| 2004q1 | 0.340082 | 0.033505 | 2.79925 | 35634.15 | 18.8725 | 114.6176 |
| 2004q2 | 0.335534 | 0.030819 | 2.8995 | 36247.75 | 18.565 | 123.7029 |
| 2004q3 | 0.330985 | 0.028134 | 2.99975 | 36861.35 | 18.2575 | 142.3736 |
| 2004q4 | 0.344631 | 0.03619 | 2.699 | 35020.55 | 19.18 | 146.8819 |
| 2005q1 | 0.316182 | 0.02155 | 3.062 | 38105.09 | 17.7775 | 120.0489 |
| 2005q2 | 0.305928 | 0.017652 | 3.024 | 38735.23 | 17.605 | 128.7555 |
| 2005q3 | 0.295674 | 0.013753 | 2.986 | 39365.37 | 17.4325 | 153.9336 |
| 2005q4 | 0.326436 | 0.025449 | 3.1 | 37474.95 | 17.95 | 159.1934 |
| 2006q1 | 0.27326 | 0.009522 | 2.811 | 40727.23 | 17.17938 | 128.5798 |
| 2006q2 | 0.2611 | 0.00919 | 2.674 | 41458.96 | 17.09875 | 135.4386 |
| 2006q3 | 0.248939 | 0.008858 | 2.537 | 42190.68 | 17.01813 | 162.4988 |
| 2006q4 | 0.28542 | 0.009855 | 2.948 | 39995.5 | 17.26 | 169.3044 |
| 2007q1 | 0.223529 | 0.006827 | 2.27525 | 43694.93 | 16.48698 | 135.7749 |
| 2007q2 | 0.21028 | 0.005129 | 2.1505 | 44467.46 | 16.03647 | 142.7635 |
| 2007q3 | 0.19703 | 0.003431 | 2.02575 | 45239.99 | 15.58595 | 173.0675 |
| 2007q4 | 0.236779 | 0.008526 | 2.4 | 42922.41 | 16.9375 | 182.6182 |
| 2008q1 | 0.184039 | 0.001723 | 1.775 | 46973.41 | 16.09928 | 142.0714 |
| 2008q2 | 0.184298 | 0.001713 | 1.649 | 47934.31 | 17.06313 | 150.8622 |
| 2008q3 | 0.184556 | 0.001703 | 1.523 | 48895.2 | 18.02698 | 183.6788 |
| 2008q4 | 0.18378 | 0.001732 | 1.901 | 46012.52 | 15.13543 | 195.5901 |
| 2009q1 | 0.187177 | 0.001611 | 1.27 | 51045.14 | 18.63953 | 149.1915 |
| 2009q2 | 0.18954 | 0.001529 | 1.143 | 52234.18 | 18.28823 | 162.1012 |
| 2009q3 | 0.191902 | 0.001447 | 1.016 | 53423.22 | 17.93692 | 197.0843 |
| 2009q4 | 0.184815 | 0.001693 | 1.397 | 49856.1 | 18.99083 | 210.6004 |
| 2010q1 | 0.191667 | 0.001429 | 0.74675 | 55336.96 | 17.19454 | 160.117 |
| 2010q2 | 0.189071 | 0.001494 | 0.6045 | 56061.65 | 16.80347 | 174.734 |
| 2010q3 | 0.186474 | 0.001559 | 0.46225 | 56786.35 | 16.41239 | 212.7717 |
| 2010q4 | 0.194264 | 0.001364 | 0.889 | 54612.26 | 17.58562 | 228.7095 |
| 2011q1 | 0.181742 | 0.00155 | 0.31875 | 58115.75 | 16.21356 | 171.2659 |
| 2011q2 | 0.179607 | 0.001476 | 0.3175 | 58720.47 | 16.40581 | 187.8331 |
| 2011q3 | 0.177471 | 0.001402 | 0.31625 | 59325.18 | 16.59806 | 228.4548 |
| 2011q4 | 0.183877 | 0.001624 | 0.32 | 57511.04 | 16.02131 | 246.4471 |
| 2012q1 | 0.182927 | 0.001362 | 0.31625 | 60752.1 | 16.77344 | 182.1194 |
| 2012q2 | 0.190519 | 0.001397 | 0.3175 | 61574.31 | 16.75657 | 199.8316 |
| 2012q3 | 0.19811 | 0.001431 | 0.31875 | 62396.51 | 16.7397 | 243.2631 |
| 2012q4 | 0.175336 | 0.001328 | 0.315 | 59929.89 | 16.79031 | 263.6789 |
| 2013q1 | 0.206319 | 0.001447 | 0.31975 | 64202.24 | 16.67922 | 194.0634 |
| 2013q2 | 0.206938 | 0.001429 | 0.3195 | 65185.75 | 16.63561 | 212.1824 |
| 2013q3 | 0.207556 | 0.001411 | 0.31925 | 66169.27 | 16.592 | 259.8394 |
| 2013q4 | 0.205701 | 0.001465 | 0.32 | 63218.72 | 16.72283 | 284.0287 |
| 2014q1 | 0.201691 | 0.001253 | 0.31975 | 67620.57 | 16.6234 | 15438.68 |
| 2014q2 | 0.195208 | 0.001113 | 0.3205 | 68088.36 | 16.69842 | 16084.62 |
| 2014q3 | 0.188725 | 0.000973 | 0.32125 | 68556.14 | 16.77343 | 17479.13 |
| 2014q4 | 0.208174 | 0.001393 | 0.319 | 67152.79 | 16.54839 | 18150.36 |
| 2015q1 | 0.175447 | 0.000818 | 0.3245 | 68750.76 | 16.85342 | 16050.6 |
| 2015q2 | 0.168653 | 0.000802 | 0.327 | 68477.58 | 16.85839 | 16463.34 |
| 2015q3 | 0.161858 | 0.000787 | 0.3295 | 68204.41 | 16.86336 | 17976.23 |
| 2015q4 | 0.182242 | 0.000833 | 0.322 | 69023.93 | 16.84845 | 18533.75 |
| 2016q1 | 0.366297 | 0.250578 | 0.499 | 50948.68 | 12.90125 | 15943.71 |
| 2016q2 | 0.577532 | 0.500385 | 0.666 | 33966.12 | 8.934167 | 16218.54 |
| 2016q3 | 0.788766 | 0.750193 | 0.833 | 16983.56 | 4.967083 | 17555.44 |
| 2016q4 | 0.155063 | 0.000771 | 0.332 | 67931.24 | 16.86833 | 18213.54 |

***SOURCE: CENTRAL BANK OF NIGERIA STATISTICAL BULLETIN***

**APPENDIX II**

**STATIONARITY TIME SERIES DATA ON ENTR**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: DLNENTR has a unit root | | | |  |
| Exogenous: Constant | | |  |  |
| Lag Length: 2 (Automatic - based on SIC, maxlag=11) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | | | -10.24620 | 0.0000 |
| Test critical values: | 1% level |  | -3.499910 |  |
|  | 5% level |  | -2.891871 |  |
|  | 10% level |  | -2.583017 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation | | | |  |
| Dependent Variable: D(DLNENTR) | | | |  |
| Method: Least Squares | | |  |  |
| Date: 07/05/18 Time: 16:17 | | |  |  |
| Sample (adjusted): 1993Q1 2016Q4 | | | |  |
| Included observations: 96 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| DLNENTR(-1) | -1.953125 | 0.190619 | -10.24620 | 0.0000 |
| D(DLNENTR(-1)) | 0.991575 | 0.161044 | 6.157177 | 0.0000 |
| D(DLNENTR(-2)) | 0.975196 | 0.115338 | 8.455093 | 0.0000 |
| C | -0.061260 | 0.075006 | -0.816742 | 0.4162 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.626778 | Mean dependent var | | -0.074909 |
| Adjusted R-squared | 0.614607 | S.D. dependent var | | 1.183447 |
| S.E. of regression | 0.734684 | Akaike info criterion | | 2.262021 |
| Sum squared resid | 49.65794 | Schwarz criterion | | 2.368868 |
| Log likelihood | -104.5770 | Hannan-Quinn criter. | | 2.305210 |
| F-statistic | 51.50062 | Durbin-Watson stat | | 2.104960 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**APPENDIX III**

**STATIONARITY TIME SERIES DATA ON INTR**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: INTR has a unit root | | | |  |
| Exogenous: Constant | | |  |  |
| Lag Length: 1 (Automatic - based on SIC, maxlag=12) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | | | -3.214917 | 0.0220 |
| Test critical values: | 1% level |  | -3.498439 |  |
|  | 5% level |  | -2.891234 |  |
|  | 10% level |  | -2.582678 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation | | | |  |
| Dependent Variable: D(INTR) | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 07/05/18 Time: 16:21 | | |  |  |
| Sample (adjusted): 1992Q3 2016Q4 | | | |  |
| Included observations: 98 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| INTR(-1) | -0.277923 | 0.086448 | -3.214917 | 0.0018 |
| D(INTR(-1)) | -0.362848 | 0.109315 | -3.319295 | 0.0013 |
| C | 4.894565 | 1.598173 | 3.062600 | 0.0029 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.298297 | Mean dependent var | | -0.073384 |
| Adjusted R-squared | 0.283525 | S.D. dependent var | | 2.630270 |
| S.E. of regression | 2.226388 | Akaike info criterion | | 4.468772 |
| Sum squared resid | 470.8965 | Schwarz criterion | | 4.547904 |
| Log likelihood | -215.9699 | Hannan-Quinn criter. | | 4.500780 |
| F-statistic | 20.19249 | Durbin-Watson stat | | 2.028830 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**APPENDIX IV**

**STATIONARITY TIME SERIES DATA ON RGDP**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: D(LNRGDP,2) has a unit root | | | |  |
| Exogenous: Constant | | |  |  |
| Lag Length: 5 (Automatic - based on SIC, maxlag=12) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | | | -13.72542 | 0.0001 |
| Test critical values: | 1% level |  | -3.503049 |  |
|  | 5% level |  | -2.893230 |  |
|  | 10% level |  | -2.583740 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation | | | |  |
| Dependent Variable: D(LNRGDP,3) | | | |  |
| Method: Least Squares | | |  |  |
| Date: 07/05/18 Time: 16:37 | | |  |  |
| Sample (adjusted): 1994Q1 2016Q4 | | | |  |
| Included observations: 92 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D(LNRGDP(-1),2) | -20.21162 | 1.472569 | -13.72542 | 0.0000 |
| D(LNRGDP(-1),3) | 18.92794 | 1.602320 | 11.81283 | 0.0000 |
| D(LNRGDP(-2),3) | 18.10096 | 1.594817 | 11.34986 | 0.0000 |
| D(LNRGDP(-3),3) | 13.05835 | 1.278705 | 10.21217 | 0.0000 |
| D(LNRGDP(-4),3) | 8.847082 | 0.911665 | 9.704308 | 0.0000 |
| D(LNRGDP(-5),3) | 4.091518 | 0.416458 | 9.824568 | 0.0000 |
| C | -0.007907 | 0.011130 | -0.710459 | 0.4794 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.875988 | Mean dependent var | | 0.022630 |
| Adjusted R-squared | 0.867235 | S.D. dependent var | | 0.288754 |
| S.E. of regression | 0.105213 | Akaike info criterion | | -1.592616 |
| Sum squared resid | 0.940938 | Schwarz criterion | | -1.400740 |
| Log likelihood | 80.26031 | Hannan-Quinn criter. | | -1.515173 |
| F-statistic | 100.0700 | Durbin-Watson stat | | 2.087288 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**APPENDIX V**

**STATIONARITY TIME SERIES DATA ON FIN**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: D(LNFIN) has a unit root | | | |  |
| Exogenous: Constant | | |  |  |
| Lag Length: 6 (Automatic - based on SIC, maxlag=12) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | | | -3.304127 | 0.0175 |
| Test critical values: | 1% level |  | -3.503049 |  |
|  | 5% level |  | -2.893230 |  |
|  | 10% level |  | -2.583740 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation | | | |  |
| Dependent Variable: D(LNFIN,2) | | | |  |
| Method: Least Squares | | |  |  |
| Date: 07/05/18 Time: 16:43 | | |  |  |
| Sample (adjusted): 1994Q1 2016Q4 | | | |  |
| Included observations: 92 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D(LNFIN(-1)) | -2.794815 | 0.845856 | -3.304127 | 0.0014 |
| D(LNFIN(-1),2) | 2.046817 | 0.835423 | 2.450036 | 0.0164 |
| D(LNFIN(-2),2) | 1.887670 | 0.826714 | 2.283341 | 0.0249 |
| D(LNFIN(-3),2) | 0.445157 | 0.788981 | 0.564217 | 0.5741 |
| D(LNFIN(-4),2) | -0.228696 | 0.644013 | -0.355110 | 0.7234 |
| D(LNFIN(-5),2) | -0.704948 | 0.467048 | -1.509370 | 0.1350 |
| D(LNFIN(-6),2) | -0.731381 | 0.256852 | -2.847479 | 0.0055 |
| C | -0.023280 | 0.017724 | -1.313510 | 0.1926 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.668631 | Mean dependent var | | -0.016910 |
| Adjusted R-squared | 0.641017 | S.D. dependent var | | 0.244233 |
| S.E. of regression | 0.146332 | Akaike info criterion | | -0.922931 |
| Sum squared resid | 1.798707 | Schwarz criterion | | -0.703645 |
| Log likelihood | 50.45481 | Hannan-Quinn criter. | | -0.834425 |
| F-statistic | 24.21342 | Durbin-Watson stat | | 1.960832 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**APPENDIX VI**

**STATIONARITY TIME SERIES DATA ON UNEMPL**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: D(UNEMPL) has a unit root | | | |  |
| Exogenous: Constant | | |  |  |
| Lag Length: 9 (Automatic - based on SIC, maxlag=12) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | | | -3.126722 | 0.0281 |
| Test critical values: | 1% level |  | -3.505595 |  |
|  | 5% level |  | -2.894332 |  |
|  | 10% level |  | -2.584325 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation | | | |  |
| Dependent Variable: D(UNEMPL,2) | | | |  |
| Method: Least Squares | | |  |  |
| Date: 07/05/18 Time: 16:45 | | |  |  |
| Sample (adjusted): 1994Q4 2016Q4 | | | |  |
| Included observations: 89 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D(UNEMPL(-1)) | -0.719141 | 0.229999 | -3.126722 | 0.0025 |
| D(UNEMPL(-1),2) | -0.974751 | 0.229531 | -4.246717 | 0.0001 |
| D(UNEMPL(-2),2) | -1.283139 | 0.257381 | -4.985370 | 0.0000 |
| D(UNEMPL(-3),2) | -1.216454 | 0.287998 | -4.223826 | 0.0001 |
| D(UNEMPL(-4),2) | 0.038359 | 0.309119 | 0.124092 | 0.9016 |
| D(UNEMPL(-5),2) | 1.009201 | 0.311125 | 3.243718 | 0.0017 |
| D(UNEMPL(-6),2) | 1.455651 | 0.324905 | 4.480241 | 0.0000 |
| D(UNEMPL(-7),2) | 1.358872 | 0.284333 | 4.779162 | 0.0000 |
| D(UNEMPL(-8),2) | 0.775116 | 0.217867 | 3.557750 | 0.0006 |
| D(UNEMPL(-9),2) | 0.265369 | 0.116624 | 2.275429 | 0.0256 |
| C | -0.033308 | 0.021611 | -1.541286 | 0.1273 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.909416 | Mean dependent var | | -0.005719 |
| Adjusted R-squared | 0.897803 | S.D. dependent var | | 0.533511 |
| S.E. of regression | 0.170554 | Akaike info criterion | | -0.584264 |
| Sum squared resid | 2.268921 | Schwarz criterion | | -0.276679 |
| Log likelihood | 36.99974 | Hannan-Quinn criter. | | -0.460285 |
| F-statistic | 78.30812 | Durbin-Watson stat | | 1.951052 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**APPENDIX VII**

**REGRESSION TEST RESULT**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: DLNENTR | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 07/11/18 Time: 13:19 | | |  |  |
| Sample (adjusted): 1992Q3 2016Q4 | | | |  |
| Included observations: 98 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | -0.344300 | 0.269304 | -1.278480 | 0.2043 |
| INTR | 0.018535 | 0.014690 | 1.261755 | 0.2102 |
| DDLNRGDP | -0.104931 | 0.393568 | -0.266615 | 0.7904 |
| DLNFIN | 4.273678 | 0.458418 | 9.322666 | 0.0000 |
| DUNEMPL | -0.050169 | 0.141388 | -0.354833 | 0.7235 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.823960 | Mean dependent var | | -0.057795 |
| Adjusted R-squared | 0.816389 | S.D. dependent var | | 0.955142 |
| S.E. of regression | 0.409277 | Akaike info criterion | | 1.100825 |
| Sum squared resid | 15.57823 | Schwarz criterion | | 1.232711 |
| Log likelihood | -48.94042 | Hannan-Quinn criter. | | 1.154170 |
| F-statistic | 108.8225 | Durbin-Watson stat | | 2.801245 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |

**APPENDIX VIII**

**NORMALITY TEST RESULT**

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**APPENDIX IX**

**HETEROSKEDASTICITY**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Heteroskedasticity Test: White | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| F-statistic | 151.3000 | Prob. F(14,84) | | 0.0000 |
| Obs\*R-squared | 95.22378 | Prob. Chi-Square(14) | | 0.0000 |
| Scaled explained SS | 799.7267 | Prob. Chi-Square(14) | | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Test Equation: | |  |  |  |
| Dependent Variable: RESID^2 | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 07/05/18 Time: 16:51 | | |  |  |
| Sample: 1992Q2 2016Q4 | | |  |  |
| Included observations: 99 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | -0.163765 | 0.495146 | -0.330741 | 0.7417 |
| INTR^2 | -0.000152 | 0.001208 | -0.126201 | 0.8999 |
| INTR\*DLNRGDP | 0.222191 | 0.126278 | 1.759535 | 0.0821 |
| INTR\*DLNFIN | -0.061401 | 0.112376 | -0.546392 | 0.5862 |
| INTR\*D(UNEMPL) | -0.003642 | 0.025879 | -0.140733 | 0.8884 |
| INTR | 0.011706 | 0.049185 | 0.237993 | 0.8125 |
| DLNRGDP^2 | 3.440197 | 2.489789 | 1.381722 | 0.1707 |
| DLNRGDP\*DLNFIN | 27.41717 | 2.870402 | 9.551681 | 0.0000 |
| DLNRGDP\*D(UNEMPL) | 2.844429 | 0.994796 | 2.859310 | 0.0054 |
| DLNRGDP | -4.374735 | 2.204992 | -1.984014 | 0.0505 |
| DLNFIN^2 | 22.62781 | 1.051335 | 21.52293 | 0.0000 |
| DLNFIN\*D(UNEMPL) | -1.014334 | 0.735241 | -1.379595 | 0.1714 |
| DLNFIN | 1.692763 | 1.945690 | 0.870006 | 0.3868 |
| D(UNEMPL)^2 | 0.305740 | 0.118793 | 2.573707 | 0.0118 |
| D(UNEMPL) | -0.004864 | 0.484108 | -0.010046 | 0.9920 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.961856 | Mean dependent var | | 0.154511 |
| Adjusted R-squared | 0.955499 | S.D. dependent var | | 0.670323 |
| S.E. of regression | 0.141406 | Akaike info criterion | | -0.935632 |
| Sum squared resid | 1.679641 | Schwarz criterion | | -0.542432 |
| Log likelihood | 61.31379 | Hannan-Quinn criter. | | -0.776543 |
| F-statistic | 151.3000 | Durbin-Watson stat | | 1.523835 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |