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Articles

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A Conceptual Analysis of Global Human Resource Practices: Challenges and Prospects

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Abstract: With the advent of globalisation, all firms, large or small have become global, they ceased to be local. Even those organisations who consider themselves immune to transactions across geographical boundaries are connected to the wider network globally and this has encouraged many multinational companies to extend their operations to other countries by establishing subsidiary companies in other countries. For these companies to do well, sound human capital management practices must be embraced. This paper therefore examines the trends in global human resource management practices, as well as the functions and challenges. As a conceptual paper, it is based on review of scholarly articles with a focus on creating a local appeal without compromising the global identity; generating awareness of cross-cultural sensitivities among managers globally and hiring of staff across geographical boundaries; and upon cultural sensitivities, training and development for the host communities. It concludes that success lies in a firm's ability to build a unique competitive advantage against others. This competitive advantage will last longer if it is within the human capital of the organization rather than just a technology that others can buy. To become and remain competitive globally, it is recommended that a multinational enterprise acquaint itself with the various environmental settings that are likely to inhibit its success and design ways to beat them in advance.

Keywords: HRM, staffing policy, labour relations, inter-country differences, Global HR System

1.0 Introduction

Nigeria, with a population of over one hundred and seventy million people, is no doubt the giant of Africa. Despite this figure, the country appears to have been flooded with expatriates working in nearly all sectors of the economy ranging from oil and gas to telecommunication, construction and recently distribution with the entrance of the South African super mall, Shoprite, among others. Sagagi (2014) attributed this trend to lack of, or the poorly developed capacity of the indigenous companies as a result of so many factors which make the local products inferior in quality to those of their multinational's counterpart. A lot of multinational organizations do business successfully in Nigeria, some examples of such organisations include Chevron Nigeria and Mobil Producing Nigeria, both in the oil and gas sector; MTN Nigeria in the telecommunication sector and Julius Berger in the construction sector to mention a few.

When a multinational organization sends its employees to some other countries, it considers issues of human resource management seriously, as this may make or mar its success in the foreign country. For example, the functions of staffing, training and development as well as crucial cultural sensitivity and financial decisions are especially emphasized. They do not deal merely with the selection of the best employees for work in foreign countries but also have to be aware of the needs of the whole family that will accompany the employee to the new cultural environment. A lot of individuals taking on international assignments are unsuccessful since their spouses or families cannot adjust to their new surroundings. Hence, it is necessary to organize training in the foreign language for the employee and his family some months before departure. Everything necessary for the journey, including visas, has to be provided for on time. It is also necessary to prepare their residence in the new surroundings, as well as to assure health services and enrolment into schools for the children of the employees.

In view of the above, this paper therefore attempts to examine the conceptual analysis of managing global human resources. The different strategies for managing and staffing multinational subsidiaries as well as the prospects and challenges of international human resource management were also discussed.

2.0 Global Human Resources Management

Dessler (2013) sees Human Resource Management (HRM) as the process of acquiring, training, appraising and compensating employees and of attending to their labour relations, health and safety, and fairness concerns. Hill (2005) defines HRM as the activities an organization carries out to use its human resources effectively. He expatiated by saying that the activities include determining the firm's human resource strategy, staffing policy, performance evaluation, management development, compensation and labour relation. The human resource functions ensure that the organization has the right mix of skilled people to perform its value creation. It also ensures that people are adequately train, motivate and compensate to perform their value creation jobs.

Gupta, Gollakota and Srinivisan (2007) postulate that an organization requires high- commitment human resource strategy, that is, human resource practices that aim at getting more from workers by giving more to them. Its goal

is to develop dedicated and flexible workers, working with their head (high mental powers) as well as their hand (high muscular power). Without the right kind of people in place, organizational structure is just a hollow shell. Hill (2005) and Amit (2010) argues that formal and informal structures and controls must be congruent with a firm's strategy for the firm to succeed. The strategy and staffing policy must also be in agreement. These strategies range from the multi-domestic which emphasize local responsiveness, the international which premise on transferring core competencies overseas, the global firm which emphasizes realizing experience curve and location economies and the trans-national strategy which employs all the above three strategies simultaneously. For any chosen strategy to succeed there must be an effective development of staffing policy and corporate culture that are in accord with that strategy.

Wise authors such as Armstrong, (2009); DeCenzo & Robbins, (2010) however define International Human Resource Management (IHRM) as the set of distinct activities, functions and processes that are directed at attracting, developing and maintaining a multinational corporation's (MNCs) human resources. It is the aggregate of the various HRM systems used to manage people in the multinational corporation, both at home and abroad. Accordingly, IHRM research is often about studying various HR activities in MNCs, and how the relationship between the parent company and its subsidiaries affects each other and how HR policies and practices are managed across countries (Almond, Clark & Tregaskis, 2004). The organisation that manages people in different institutional, legal, and cultural circumstances has to be aware of not only what is allowed and what is not allowed in different nations/regions of the world, but also what makes cost-effective management practices, i.e. hiring individuals with requisite skills to do the particular job.

2.1 Approaches to Managing and Staffing Multinational Subsidiaries

Employers today, focus increasingly on managing human resource activities locally. Their main concern is on selecting, training, appraising and managing the in-country employees where they do business. However, deciding whether to fill local positions with local versus expatriate employees has been a major concern (Goodridge, 2001). Dessler (2013) notes that various factors like technical competence determined whether firms use locals or expatriates abroad, i.e. companies can apply one of the three (3) different approaches to managing and staffing their subsidiaries.

1. Ethnocentrism: The home country practice prevails with this approach. Headquarters from the home country makes key decisions, employees from the home country hold important jobs, and the subsidiaries follows home-country resource management practice. Reasons given for ethnocentrism staffing policies include lack of qualified host-country senior management talent, a desire to maintain a unified corporate culture and tighter control and the

desire to transfer the parent company's core competencies.

2. Polycentrism: Each subsidiary manages on a local basis. A local employee heads a subsidiary because headquarters' managers are not considered to have adequate local knowledge. Subsidiaries usually develop human resource management practices locally. Such policies may reduce the local cultural misunderstandings that might occur if it used expatriate managers.
3. Geocentrism: The company that applies the global integrated business strategy manages and staff/employees on a global basis. A geocentrism staffing policy seeks the best people for key jobs throughout the organization, regardless of nationality. This can let the global firm use its human resources more fully by transferring the best person to the open job wherever they are.

In the ethnocentric approach, the cultural values and business practices of the home country are predominant. Headquarters develops a managing and staffing approach and consistently applies it throughout the world. Companies following the ethnocentric approach assume the home country approach is best and that employees from other parts of the world can and should follow it. Managers from headquarters develop practices and hold key positions in the subsidiaries to ensure consistency.

2.2 Major Functions of International Human Resource Management revolves

Authors such as Gary, (2004); Kaur, (2011); Kulik, (2004); Mathis & Jackson, (2010) reviewed several literatures on global human resources, available data shows that, international human resource management revolves around the following functional areas: conducting job analysis; planning labour needs and recruiting job candidates; selecting the job candidates; managing wages and salaries (compensating employees); providing incentives and benefits; appraising performance; communicating; Onboarding, training & developing of new employees; & labour relations

2.2.1 Conducting Job Analysis for Employees Abroad

The job analysis may be conducted by Human Resources department. This analysis may be in conjunction with the job incumbent. There are many ways in which multinational companies perform their job analysis, but all require the cooperation of the employees holding the position. Various MNCs have their different steps for conducting analysis of a particular job. Among the steps is involving employees by asking them complete job analysis forms, asking them specific questions about their job duties and responsibilities, compare the job in the host country to other subsidiaries.

2.2.2 Planning labour needs and recruiting job candidates

It is necessary for MNCs to systematically identify and analyse what is needed in terms of size, type, experience, knowledge, skills and

quality of workforce to achieve its objectives. This is the process used to generate business intelligence to inform the organization of the current, transition and future impact of the external and internal environment on the organization enabling it to be resilient to current structural and cultural changes to better position itself for the future (Beardwell & Claydon, 2010).

In the light of this, there is the need to plan and make sure they have the right number of employees with the right skills to meet the anticipated plans of the organisation. According to Seth (2008), Derek, Laura and Stephen (2008), MNCs need to know the following things whilst planning their human resources; the labour market in the host country and subsidiaries and the type of workforce the company will need in order for them to reach their overall corporate objectives.

2.2.3 Recruitment and selection

Recruitment and selection are the processes through which an organization takes in new members. Recruitment involves attracting a pool of qualified applicants for the positions available. Selection requires choosing from this pool the candidate whose qualifications most closely match the job requirements (Fajana, Owoyemi, Elegbede & Gbajumo, 2011). In companies that function in a global environment, we have to distinguish different types of employees. Traditionally, they are classified as one of the three types (Bloom & Reenen, 2010; Sagagi, 2014):

1. Parent country national: The employee's nationality is the same as the organizations. For example, a United States citizen working for a United State company in Nigeria.
2. Host country national: The employee's nationality is the same as the location of the subsidiary. For example, a Nigerian citizen working for a United States company in Nigeria.
3. Third country nationa: The employee's nationality is neither that of the organization nor that of the location of the subsidiary. For example, a Ghanian working for a United States company in Nigeria.

Bratton and Gold (2007), emphasize that since staffing as the function of international human resource management becomes increasingly more complex, these classifications do not cover all employees. For example, within the European Union, citizens of member countries can work in other member countries without a work permit. He reported that in an international organization, the managing and staffing approach strongly affects the type of employee the company prefers. In a company with an ethnocentric approach, parent country nationals usually staff important positions at headquarters and subsidiaries. With a polycentric approach, host country nationals generally work in foreign subsidiaries while parent country nationals manage headquarters positions. An organization with a geocentric approach chooses the most suitable person for a position, regardless of type.

In its approach to recruitment and selection, an organization considers both headquarters' practices and those prevalent in the countries of its subsidiaries. Local culture always influences recruitment and selection

practices, and in some countries, local laws require a specific approach. For example, in international manufacturing and processing facilities in Mexico, companies recruit with a sign announcing job openings outside the facility or by employees introducing family members who are looking for jobs. Also in Hungary, where government attempts to combat unemployment have led to the requirement that an organization must get permission from the Ministry of Labour before hiring an expatriate.

In choosing the right candidate, different cultures emphasize different attributes in the selection process depending on whether they use achievement or ascribable criteria. When making a hiring decision, people in an achievement-oriented country consider skills, knowledge, and talents. In an ascribable, culture, age, gender, and family background are important, an organization selects someone whose personal characteristics fit the job.

2.2.6 Providing Incentives and Benefits (Compensating Employees)

Employers use various incentives in international compensation. Employers pay various incentives to encourage the employee to take the job abroad. While benefits cover better health care, the possibility of spending holidays in the company's holiday facilities at a favourable price are also other advantages. For example, Foreign Service Premiums are financial payments over and above regular based-pay. These typically range from 10% to 30% of based-pay, and appear as weekly or monthly salary supplements. Hardship allowances compensate expatriates for hard living and working conditions at certain foreign locations. For instance, United States diplomats posted to Iraq receive about a 70% boost in based-salary, among other incentives (Noe, Hollenbeck, Gerhart & Wright, 2012).

Balancing global consistency in compensation with local considerations starts with establishing a rewards program that makes sense in terms of the employers overall strategic needs. Then the employer can turn to more micro issues, such as, how we paying our employees abroad competitively? Are we basing our overseas pay decisions on credible and defendable market data?

2.2.5 Managing Wages and Salaries Abroad

Pay is the basic source of living of the employees. The decisions about remuneration may also enhance the ability of the employer to compete for employees on the labour market. The rewards warrants make the standing personnel want either to keep or quit their jobs (Kulik, 2004). There is logic in maintaining company-wide pay scales and policies so that, for example, the salary of a senior manager is usually higher than that of a supervisor, and each position should receive an amount within the local market range. The international organization must also consider the salaries of people who may transfer from other locations.

The availability of qualified local people to fill positions, prevailing wage rates, the use of expatriates, and local laws interact to influence the level of remuneration. For example, if there are few applicants available for positions,

the remuneration for those positions generally increases. To reduce expenses, the international human resources manager might then consider bringing in an expatriate (Daniel, Joseph & Hoose, 2008).

A company usually develops a policy, which could apply globally, to offer salaries and wages representing a specific market level. For example, a large successful multinational company that emphasizes the quality of its products and employees could have a global policy to pay the highest wages everywhere it operates. Another company could offer top salaries in the country where it does research and development, yet pay average wages in the country where it manufactures.

2.2.7 Appraising Performance Abroad

No single best practice global appraisal standard seems to exist given the diversity of country environments and firm specific differences involved (Armstrong, 2009; Dessler, 2013). However, in companies, the performance evaluation is most frequently carried out for administration or development intentions (Shapiro, 2002). Seth (2008) for management purposes, performance evaluation is called for when the decisions on work conditions of employees, promotions, rewards and/or layoffs are in enquiry.

According to Dessler (2013), in Western multinational companies, performance appraisals are usually done yearly and use a standarized evaluation form. Sometimes, the organization also requires supervisions to discuss the results of the appraisals with each employee. At the international level, the complexity is greater because the organization must evaluate employees from different countries working in different subsidiaries. The need for consistency across subsidiaries for performance comparisons conflicts with the need to consider the cultural background of employees to make the evaluation meaningful. For example, in Mexico, an individual's public image is important, and public criticism of an employee might be justification for leaving a company. Consequently, the delivery of a balanced performance review, including both strengths and weaknesses, requires tact and delicacy.

Thus, a company with an ethnocentric approach is likely to use the same performance evaluation process used at the headquarters for its subsidiaries. Some companies translate evaluation forms into local languages, whereas others use the original language everywhere. A company with a polycentric approach develops local procedures within each country. Finally, a company with a geocentric approach uses the same performance evaluation system worldwide, but it has universal applicability.

2.2.8 Communication

Good communication is always important and is a key driver for employee engagement (Treven, Mednarodno & Ljublijana, 2001). Certain practices can help as opined by Seth (2008) saying without the right climate of openness and transparency underpinning communication, sustained engagement cannot be achieved. Because communication is about behaviour and is not an output, it will only build trust if it is consistent. But

fundamentally, communication is about managing relationships and needs to be built into the fabric of organisational life.

Multinational Corporations (MNCs) use communications as a channel to discussing the guidelines, policies, notices and procedures of the organization. Communication between employers and employees base is important to sustain employee satisfaction and morale (Mayhew & Demand, 2015). When little or no communication between employers and the workforce exists, there is likely going to be a decline in productivity and performance because employees feel they are unappreciated and undervalued.

2.2.9 Training and Development

The overall aim of the development function is to provide that adequately trained personnel in a company are capable to fulfil their goals, as well as to contribute to better performance and growth with their work (Armstrong, 2009). According to Amit (2010), the development of employee scan is treated as a special field of human resource management that includes planned individual learning, education, organization development, career development and training.

At the international level, human resource development professionals are responsible for

1. training and development of employees located in subsidiaries around the world,
2. specialized training to prepare expatriates for assignments abroad, and
3. Development of a special group of globally minded managers.

Creation and transfer of international human resource development programs may be carried out in two ways: centralized and decentralized. With a centralized approach, training originates at the headquarters and corporate trainers travel to subsidiaries, often adapting to local situations. This fits the ethnocentric model. A geocentric approach is also centralized, but the training develops through input from both headquarters and subsidiaries staff. Trainers could be sent from various positions in either the headquarters or subsidiaries to any other location in the company. In a decentralized approach, training is on a local basis, following a polycentric model. When training is decentralized, the cultural backgrounds of the trainers and trainees are usually similar. Local people develop training materials and techniques for use in their own area.

Cited from Shapiro (2002), in North America, where power distance is small, relationship between the trainer and trainees tends toward equality. The trainer and trainees use first names, and the trainees feel free to challenge or question what the trainer says. In Malaysia, where power distance is large, a trainer receives greater respect students' use his surname and title.

2.2.10 Labour Relations Abroad

The concept of labour relations varies greatly in different parts of the world. In the United States, for instance, labour relations are often a formal relationship, sometimes antagonistic, between labour and management defined by a union contract. In Japan, the relationship between management and unions is cooperative, and management often

appoints union leaders (Noe, et al, 2012). However, union membership is now dropping in the United States, it is still relatively high in some other countries like Nigeria and unions abroad thus tend to be more influential.

In many countries, the government regulates labour relations practices. Consequently, in this function, an organization may have to be polycentric. However, even though labour relations are local level issues, it is good corporate strategy to coordinate a labour relations policy across subsidiaries.

2.3 Management of Expatriates

According to Cascio (2006), one of the most challenging tasks for any company operating internationally is to manage its expatriates. The statistics showing their efficiency on that matter are not encouraging. For example, the failure of United States expatriates (the percentage who return prematurely, without completing their assignment) is to be in the 20 – 40% range. In Japan, the failure rate is less than 5% for their expatriates. One of the reasons for the difference is that Japanese expatriates receive far more orientation and language instruction than U.S. expatriates do (CIPD, 2012).

2.3.1 The Reasons for Expatriate Failure

In international companies, it is important to understand the reasons behind expatriates' high failure rates so that preventive measures can be taken. Six factors account for most failures, although their relative importance varies by firm (Boxall & Purcell, 2003). These are: career blockage, culture shock, lack of cross-cultural training, an overemphasis on technical qualifications, a tendency to use international assignments as a way to get rid of problem employees, and family problems.

2.3.2 Cross-cultural Adjustment

Garry (2004) opined that expatriates and their families need time to become familiar with their new environment and to become comfortable living there. When they arrive, the newness of the experience is exciting. A few months later, when they have had more experience with the culture, expatriates might begin to feel frustrated or confused as they try to make sense of their new living situation. This feeling is "culture shock." As expatriates get comfortable and understand more about the culture, usually three to six months after arrival, the culture shock will wear off, and they will experience a more normal feeling.

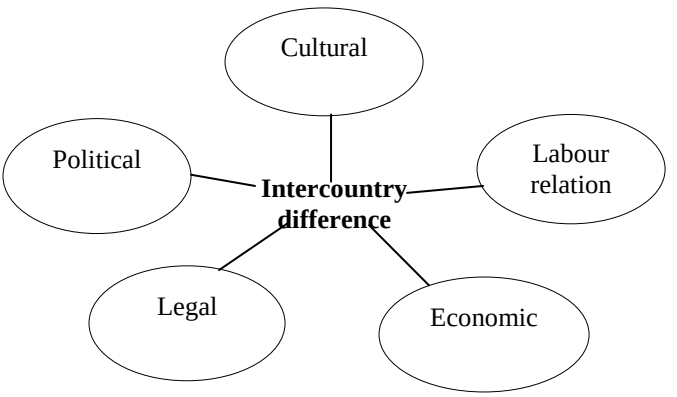
2.4 Challenges in Managing Inter-country Differences

Managing human resources internationally creates challenges. Differences in cultures, economic and legal systems influence employer HR practices from country to country. For example, how should we appraise and pay our local employees? How should we deal with the unions in our offices abroad? How do we identify and get the right talent and skills to where we need them?. The biggest issue is coping with the cultural, political, legal and economic differences among countries (Dessler, 2013). In China for instance, government backed unions are relatively high unlike Nigeria, and in Europe, firing and employee could take a year or more. The bottom line is that it's impossible to effectively manage human

resource activities abroad without understanding how countries differ culturally, economically, and legally (Dessler, 2013; Armstrong, 2009). For instance, minimum legally mandated holidays range from none in the United Kingdom to 5 weeks per year in Luxembourg. In Nigeria, every worker is entitled to at least six working days holidays after twelve months continuous service with full pay and while Italy has no formal requirements for employee, they are usually required in Denmark (Wiki, 2015).

Figure 1: Critical Inter-country Differences that influence International HR Practice

Figure 1: Critical Inter-country Differences that influence International HR Practice



Source: Dessler, G. (2013). Human Resource Management. (12th edition). Singapore: Pearson Limited

Cultural differences manifest themselves in differences on how people from different countries think, act, and expect others to act. For example, the likewise in Nigeria, South-African, U.S. managers tended to be most concerned with getting the job done. Chinese managers were most concerned with maintaining a harmonious environment and Hong Kong managers fell between these extremes. Different in economic systems of countries and in how hands off the government want to tend to translate into difference in human resource management policies. For instance, Eurozone countries tend to put more restrictions on things such as dismissing employees and allowable work hours per week. Nigeria workers average about 48.2 hours of work per week, Ghana workers average is about 47.8 hours/week, Russia 45 hours/week, Kuwait workers average 44.8 hours//week and German workers average 1,648 hours/annum (Wikipedia, 2015).

Employers going abroad must be familiar with the labour law systems in the countries they are entering. For example, in India, companies with more than 100 workers must get government permission to fire anyone. In Brazil, Spain, some labour laws stem from the labour code of pre-World War II Italy,

and can be fantastically costly to employers. Legal differences blindside even sophisticated companies. After spending billions expanding into Germany, Walmart discovered that Germany's commercial laws discourage adverts based on price comparisons.

Lastly, managing globally also requires monitoring political risks. Political risks are any governmental actions or politically motivated events that could adversely affect the long run profitability or value of the firm.

2.5 Creating Global Human Resource System (Prospects)

With employers increasingly relying on local rather than expatriate employees, transferring one's selection, training, appraisal, pay, and other human resource practices abroad is a top priority. But, given the cross-cultural and other differences, one could reasonably ask, Is it realistic for a company to try to institute a standardized human resource management system in its facilities around the world? But the important thing is how you implement the global human resource management system (Dessler, 2013; Amit, 2010; Sagagi, 2014).

In the study carried out by Bloom and Reenen (2010), the researchers interviewed human resource personnel from six global companies Agilent, Dow, IBM, Motorola, Procter & Gamble, and Shell Oil Co. as well as international human resources consultants. The study's overall conclusion was that employers who successfully implement global HR systems do so by applying several best practices. The basic idea is to **develop** systems that are **acceptable** to employees in units around the world, and ones that the employers can **implement** more effectively. The basic approach involves three steps:

a. Develop a more effective global HR system (by forming global HR networks and remembering that it s more important to standardize ends rather than specific methods). For example, IBM uses more or less standardized recruitment and selection process worldwide. However, details such as who conducts the interview (hiring manager vs. recruiter), or whether the pre-screen is by phone or in person, differ by countries.
b. Make the global HR system more acceptable (for instance, by taking a global approach to everything the company does, by investigating pressures to differentiate and determining their legitimacy, and by creating a strong company culture). For example, truly global companies require their managers to work on global teams and to identify, recruit, and place the employees they hire globally.
c. Implement the global system (by emphasizing continuing communications and by ensuring that adequate resources are available). For example, don't require the local human resource management offices to implement new job analysis procedures unless the head office provides adequate resources for these additional activities.

3.0 Conclusions and Recommendation

Managing global human resources is a very challenging front, subsidiaries companies are held together by global

HRM and different subsidiaries can operate coherently only when it enable by efficient structures and controlled. An organization's strategy on globalization strongly affects approach it takes to managing its human resource functions. The strategy influences the implementation of the major global human resource management functions. With employers increasingly relying on local rather than expatriate employees, it s important for managers to understand how to implement a global HR system. Therefore, success lies in a firm's ability to build a unique competitive advantage against others. This competitive advantage will last longer if it is within the human capital of the organization rather than just a technology that others can buy. To become and remain competitive, it is recommended that a multinational enterprise acquaint itself with the various environmental settings that are likely to inhibit its success and design ways to beat them in advance.

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Entrepreneurship Education: A Diversity Gateway towards the Development of Global Economy

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Abstract: Most successful economies are driven by high level of private sector participation alongside good government policies and programmes driving the framework. With this era of public sector dominance and shrinking economy in our country, a lot of attention needs to be focused on entrepreneurial skills acquisition that creates employment and growth which is lacking. Therefore, the aim of this paper is to discuss the need and importance of entrepreneurial skill in the development of a global economy. The strategies and benefits of a sound vocational awareness were x-rayed. Subsequently, conclusion was drawn and recommendations were made; Among which are that government should continue to encourage entrepreneurship culture as it relates to vocational and technical education in Nigeria. Also, as a developing nation government programmes and policies should be aimed at repositioning entrepreneurship to take a prominent place in the global economy.

Keywords: Entrepreneurship, Education, Employment and Global Economy.

1. Introduction

The concept of entrepreneurship has been around for a very long time, but its resurgent popularity implies a need for economics. Entrepreneurship is the driving force of a country's dream because it entail developments, innovations risk bearing, research and development through vocational education (Ashimolowo, 2006). Therefore, it is relevant that every economy must take up the challenge to build a sound and robust economy that can compete globally. Overdependence on public sector employment, today in Nigeria has led to increasing rate of poverty, unemployment, corruption, restiveness, riot, fanaticism and so many

other social problems which has become worrisome to government and well-meaning citizenry. A situation that left about 70% of the total population of Nigerians classified as poor (Ewhrudjakpor, 2008).

The UNESO (1978) defined Vocational Education as designed to prepare skilled personnel at lower levels of qualification for one or a group of occupations, trade or jobs. Vocational education usually provided at the upper (Senior) secondary technical school (or Technical College) includes several education, practical skills and related theories required by the chosen occupation. The proportions of these may vary considerably but their emphasis is usually on practical skill training. On the other hand, National Policy on Education (2004) defined technical education as those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. Technical and Vocational Education in addition mainly leads to acquisition of practical skills, know how, understanding necessary for employment in a particular occupation or trade (Nyerere 2009).

Several countries like Malaysia, Indonesia, India, etc developed their economics through the effective recognition and application of vocational and technical education because of the roles it plays in creating employment, capacity building, growth and development (Nyere, 2009). A development that ought to be driven by innovations, creativity and enterprise of the people who operate within a defined environment. Unfortunately, Nigeria has not been able to enact similar feats owing to poor linkage between knowledge and development, between the private and public sector economy (Adeniyi, 2010). This may have been due to lack of appropriate skills and sufficient entrepreneurial culture in the educational system. Education itself, as a means to an end, secures employment and emancipation of people through provision and, acquisition of necessary skill sources. This practically reduces unemployment, eradicates poverty, and boosts investments in infrastructure and human capital. A sound human capital development increases the wealth of the nation, with entrepreneurial minded human capital and self-sustained graduates. To this end, the educational content or the tertiary level reduces the economic imbalance in terms of poverty, unemployment etc, and develops a nation's economy towards self-sufficiency. (Adeniyi, 2010). It is pertinent to note that though entrepreneurship education has been receiving attention, (Akpomi, 2009), the needful was still necessary. In this regard the paper examines the efforts through technical and vocational education that will be made to sensitize and continuously mobilize entrepreneurial activities that will eradicate poverty, create jobs, encourage foreign investments and position the country globally among the committee of nations, (MDGs, report, 2007).

2. Education

Education is an instrument for national development; and fosters the worth and

development of the individual development for each individuals sake, and for the several development of the society. Thus the five main natural goals of Nigeria according to National policy on Education (2004) includes: a free and democratic society, a just and egalitarian society, a united strong and self-reliant society, a great and dynamic economy and a land full of bright opportunities for all citizenry

Education is the key to the growth and development of any economy and global economy at large hence, the development of education is first to none in the developments of all other sectors (Adeniyi, 2010). Similarly, education liberates the mind and improves the solid economic status of the people. It follows that proper training empowers individuals to escapes from poverty, boost investor's confidence, allows international trade to flourish, boost capacity and increase revenue and ratings of a country (Sule, 2004). The world economy is a global village that only admits economies that has the style and class of global industrialization. In view of this, various governments and international agencies should continue to make serious efforts to optimally develop education, the fulcrum of' global economy. Although a lot of achievements have been recorded in this regard, yet a lot of effort still needed to meet up with the ever increasing demands of present and of course future challenges. Millennium Development Goals (MDGs) and globalization, create new challenges for countries all the time (Adeniyi, 2010). Nigeria lacks complete global acceptance because of the myriad of socio-economic problems. If not checked, the Millennium Development Goal (MDGs) may not be met despite the efforts of Government through National Economic Empowerment and Strategy (NEEDS). Efforts should he made to encourage small business involvements, vacations that can drive that talent for internal capacity building and global standards so that our country should be seen as creators of jobs and not job seekers as they earlier believed.

3. Entrepreneurship

Entrepreneurship is the process of bringing together creative and innovation ideas and action with management and organization skills necessary to mobilize the appropriate people, money, and operating resources to meet an identifiable need and create wealth in the process. (Tibi, 2007). When the process is undertaken by a single individual or team of individuals, there is mounting evidence that growth-minded entrepreneurs possess not a creative and innovative flair but also sound management skills and business know-how. Entrepreneurship is sometimes called enterprises or organization. It consists of the organizing ability of the entrepreneur and their willingness to bear financial risk. It embraces labour, its control and management.

Most scientific, technological and socio-economic development are essentially dependent in entrepreneurship which is aimed of bringing out the best in individual (Tibi 2007). It is a clear manifestation of effective manipulation of human intelligence as demonstrated in creative performance.

3.1 Entrepreneurship Education

Entrepreneurship has been recognized, as an important aspect of organization

and economic (Dickson, 2008). Its contributions are immeasurable in creating jobs, wealth, poverty reduction, income generation and, foreign direct investments for both government and individuals. Entrepreneurship is very significant to the growth and development of economies as it stimulates and promotes industrialization. The understanding of the role of entrepreneurship has become apparent that careful investment is required towards having identified the positive relationship between education, entrepreneurship and economic development (Dickson, 2008). It is also imperative to note that these relationships provide an economy that allows free flow of investment and as such government should carry out more serious adjustments of policies, curriculum enabling environment in line with demand of the present times.

4. Concept of Global Economy

The key concept of Global economy refers to the economy of" the world comprising of" different economies of individual countries, with each economy related with the other in one way or the other (Okoh , 2004). A key concept in the global economy is globalization, which is the process that leads to individual economies around the world being closely interwoven such that an event in one country is bound to affect the state of other world economies. In the past century or so, the focus on globalization has intensified a lot (Lipiec, 2001). More and more trades have been done between different countries and restrictions of movement and business across border have been reduced a great deal and capital transfer unproved. Nigeria in the past 3 years attracted business investment worth over 3.2 trillion Naira, Ministry of Trade and Investment. Bulletin (2013). If such cash inflow is achieved under a predominantly, public sector economy, how much more would it have been in a private sector driven economy. Individuals and government would have enjoyed wider economic growth and development under a sound entrepreneurial environment with improved quality, growth and uniform standards irrespective of the negative effects that goes with it (Oledun, 2000).

4.1 Challenges of Entrepreneurship in a Global Economy

To compete Favorably amongst the committee of global economies that would offer graduates not only vocational education skill but incentive for thinking creatively and globally about an industry which would broaden their understanding to respond to change, such issues as; inadequate provision of ICE equipment, poor internet connectivity, power supply, level of educators competence, high cost of business in Nigeria and poor policy formulation and implementation are important;

4.2 Inadequate funding of ICT

Adequate funding is a major bane of utilizing new technologies in promoting global consciousness of human capital. Funding of ICT projects is capital intensive in School and technologically demanding.

4.3 Poor Internet (cruet Connectivity

Accessibility to internet connectivity is a difficult one. According to (Uyimadu 2012), this situation affects the smooth flow of information about global business opportunities, trends and development.

4.4 Irregular Power supply

Inadequate power supply is also a major challenge militating against the growth and development of entrepreneurship in our economy. Regrettably, the unavailability of power supply could lead to total failure of entrepreneurial activities as currently the country is still batting with the privatization of Power Holding Company of Nigeria.

4.5 Competence of Business Educators

The curriculum of business education in terms of competency had been restrictive and mechanistic in nature. That has nesated the need for the development of not just mastery learning skills, but also knowledge understanding and attitudes that will enable those who go through the learning experience to function effectively in various works, contexts, life roles and more so to advance their education whenever they wish –a lifelong process (Ekpenyong 1998). This trend has affected proper transfer of technical and vocational skills into students of our future.

4.6 Policy formulation and implementation

The federal government of Nigeria today is yet to develop a master plan in her economic roadmaps towards globalization that will promote the full integration of your entrepreneurs into the business world. Though such programme like "You Win", was introduced by the Goodluck Ebele Jonathan's administration. It is yet to impact on our economic development and Today, Nigerians are waiting for the Change Mantra of President Buhari.

4.7 Strategies for improving entrepreneurship towards fostering a Global Business Economy

In other to promote the effective entrepreneurial involvement and attain global standards that will eradicate poverty, Create employment, promote investment in a self-sustaining economy, the following strategies are required.

4.8 Adequate funding

Inadequate funding of technical and vocational education system has been a long standing issue, it is as a result of this ugly situation that the Universities in Nigeria under the umbrella of Academic Staff Union of Universities embarked on a long standing strike in 2014 that almost engulfed one full academic session. The Colleges of Education system has also had a fair share of this enigma. The poor state of vocational skill laboratories, acquisition of manpower, instructional materials and poor research culture gave rise to brain drain and partial accreditation status currently been experienced by most college of Education across the country. So this under funding has drastically affected implementation of entrepreneurship in the Colleges and University levels of education. Contributing to this, Onojeteh (2012) revealed that funding of these programme is a vital ingredient that can lead the successful implementation of entrepreneurship education programme in the 21st century global economy.

4.9 High Cost of equipment

The cost of equipment that promote successful entrepreneurship education are on the high side, if the self-sustaining economy agenda, eradication

of poverty job creation etc would be realized, entrepreneurship equipment has to be subsidized or reduced to an affordable price that can promote the dream.

4.10 Adequate training of Business education

With the emerging global economic trend, the methods of teaching and learning technical and vocation education have been transformed from the teacher lecture centered methods to student-centered approaches. Today, most teachers have difficulty in blending with the new trends and technologies. Based on this assertion, business educator should be adequately trained on how to use new technologies, especially power point and oother computer application package in lecturer presentation.

4.11 High cost of doing business in Nigeria

There is this problem of inconsistency in government policy without constitutional backing. The incidence of double taxations, tariffs infrastructure administrative issue, corruption etc is major challenges of investment. There is therefore a need to provide policies and programmes that will allow for investments that can stimulate growth and development of our economy.

4.12 Formation of new technical and vocational education policies

Government should see the urgent need for complete change in approach in this sector, particularly in our policy direction and decision making process, which will pave way for more realistic and attainable result. This would move our country from a natural resource based economy to a knowledge based economy.

5. Teaching method

Many methods of teaching are available and many more are yet to be evolved since research in human learning is a continuous one. Methods to be used by the teachers should be those that will suit the age, class or level, characteristics and number of learners, the nature of tasks, in addition to the instructional objectives and available curriculum materials. To this end, such teaching methods according to (Ughammadu, 2007) includes: Lecture, discussion, demonstration, field trip, assignment, project and discovery method etc can be applied

5.1 Lecture Method

This method has been in use for many years as primary methods of transmitting information. It is often regarded as the commonest method of teaching particularly at the tertiary level. A lecture is usually a talk, address, or other forms of verbal presentation to a group of students by a teacher or guest speaker. Lecture method can be referred to as the technique that involves the teacher in complete verbal instruction or exposition. The teacher in this method, tells his class what he feels they should know. But not in the Paulo ferrie's banking concept (Ekpenyoung. 1998) where the teacher engages himself in speaking and reading and often times, some form of media is used. The students are always passive, listening and taking points while the teacher is active. The lecture method is more appropriate for higher level students

5.2 Discussion Method

This is a student-centered method of teaching since students participate actively and. viewpoints sought on any

area of subject matter under review. The method is usually characterized by the learners active participation and interaction unlike is the case with the lecture method of teaching.

In simple term, discussion means talking over subject matter or any issue of interest from various points of view. The role of the teacher is that of a moderator. In the discussion method there is flow of information or communication from the teacher to the students; from the students back to the teacher and also from one student to another. Thus both teacher and students can learn from one another.

To some people, it might sound curious that a teacher can learn from students during discussion. But if we remember that since in a classroom situation, there may be students who are likely to read books not known to their teacher, have home expert teacher for extra lessons, watch educational television programme not watched by the teacher visit places not yet visited by the teacher, etc. it then follows that teacher-student active interaction in discussion will be of benefit

5.3 Demonstration.

This method involves showing, by offering example of how something works or the steps involved in a process. The demonstration method can also be referred simply as displaying something. If a teacher shows his students how to set up and use an overhead projector with transparencies, he is involved in demonstration. The method is very much used in science teaching. Most times, demonstrations are carried out by the classroom teachers while the class students watch or observe. But there are cases where students are allowed to demonstrate, and this should be encouraged. Good students can be allowed to demonstrate some activities while others observe.

5.4 Field Trip

Field trip is a very valuable method of teaching as it provides the the most realistic means for the study of real things and real processes. Field trip is an outdoor or field work or learning exercise undertaken by teachers and students in certain aspects of a subject so as to give the students the opportunity to acquire knowledge. It can also be referred to simply as trips to various place to obtain Information directly by seeing things as they really are. According to Abdullahi (1982), field trip is an excursion taken outside the classroom for the purpose of making relevant observations and also for obtaining some specific information. Well planned field trips, afford the students the opportunity to become actively engaged in observing, collecting, classifying, studying relationships and manipulating objects.

5.5 The Dalton plan Or Assignment Method

This is a method of teaching where the content of a course is analysed and broken down into monthly units and then weekly and daily activities and given to the class. The class members-are given all the directions, instructions, books, other equipment and materials and asked to start off working on the activities. The students usually work at their own pace or speed; Usually after a period of time, a test is administered so as to see how far each child has done in the assignment. Any student who completes his assignment is given

another one while the other who did not finish will continuous to work on them.

5.6 Project Method

This is a method of teaching, whereby learners are involved in a comprehensive study of certain topics. Project by definition is referred to as a task or large-scale exercise given to the students which they may work over an extended period of time. There are two main functions that a project may perform. They include:

(i) Helping the students to learn through problem solving and

(ii) Providing the teacher a basis for assessing students learning originality and creativity.

To carry out a project, the purpose of the project should be identified. After this, strategies to be used are thought out and possible problems to be encountered in the execution of the project are identified. Once project has been executed it should then be evaluated the teacher.

6. Conclusion

The wide spread and acceptance of entrepreneurship education is a clear indication of its usefulness and importance in the present realities. The development of entrepreneurship will go a long way in providing the necessary impetus for economic growth and development which technical and occasional education intend to achieve. It will boost productivity, increase competition and innovation, open up the market, create employment and prosperity as well as revitalize the economy (Uyimadu, 2011)

7. Recommendations

There is a seeming consensus on the role of entrepreneurship of a developed country in ameliorating some socio-economic problems especially poverty, unemployment, and all sorts of social vices in the society. An understanding that have created a new world order of developed, developing and undeveloped economics in the global prospective. In the light of the above, the following recommendations should be put into operation.

- Government should allocate substantial amount of resources towards technical and vocational training that emphasizes opportunities for entrepreneurship education strategies to meet the special needs of targeted populations and promote vocational equity for all students.
- Government should encourage opportunities that would drastically reduce cost of importation, in other words, import-substitution strategy that would allow for importation of such relevant equipment at reduced cost.
- There should be good teacher-in-service workshops to encourage the infusion of entrepreneurship education offered as allocation to teachers as part of their conference in same discipline within the vocational education context.
- Efforts should be made by government to allow globalization play its major role in development and sustaining our economic balance because global economics thrives on global standards.
- Government should provide adequate and operable polices that would promote the involvement of vocational programme instructors in any business management

instruction initiators across all programme area.

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- Appropriate teaching method should be applied in reaction to needs and environment of a school or system.

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Impact of Banks' Size and Efficiency in Financing Real Sector Growth in Nigerian Economy

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Abstract: In spite of the implementation of several banking sector reforms, the real sector of the Nigerian Economy is still bedevilled with inadequate access to finance especially from the deposit money banks that hold about 90% of the total financial sector assets. Nominal interest rate is high causing many firms to avoid bank-borrowing. These myriad financing challenges facing the real sector call for the assessment of finance-growth nexus in Nigeria. In this regard, this study examined the long run relationship between some selected financial development indicators and real sector growth in Nigeria over the period 1970-2014. Based on the nature of the study, correlational research design was adopted while secondary data were mainly employed. Johansen and Juselius (1990) approach to cointegration and Vector Error Correction Modelling (VECM) was used to determine the extent of the relationship between the variables. The findings of the study revealed that in the long-run and liquid liabilities of deposit money banks exert statistically significant and negative influence on real sector growth, conversely, credit to the private sector, level of investment and interest rate spread exert statistically significant and positive influence. The policy implications are these; financial reforms and policies should focus on formulating policies that liberalise the interest rate and enhance financial intermediation will result in high economic growth, moreover, government should direct their borrowing towards encouraging and financing entrepreneurs which prove to increase investment and in turn real sector growth.
Keywords: Size, Efficiency, Financing, Real sector

1.0 Introduction

An economy is usually compartmentalized into four distinct but interrelated sectors. These are the real, external, fiscal or government and financial sectors (CBN, 2013). The Real sector (consisting of agriculture, manufacturing industry, building and construction and services) is strategic for a variety of reasons. First, it

produces and distributes tangible goods (as well as invigorate the service sector) required to satisfy aggregate demand in the economy. Its performance is therefore, a gauge and an indirect measure of the standard of living of the people. Secondly, its performance can be used to measure the effectiveness of macroeconomic policies. Government policies can only be adjudged successful if they impact positively on the production and distribution of goods and services which raise the welfare of the citizenry. Thirdly, a vibrant real sector, particularly the agricultural and manufacturing activities, create more linkages in the economy than any other sector (Oluitan, 2014) and, thus, reduces the pressures on the external sector. Lastly, the relevance of the real sector is manifested in its capacity building role as well as in its high employment and income generating potentials.

The real sector invigorates the service sector; hence its importance cannot be over emphasized. The capital intense nature of manufacturing and related activities like processing, agriculture etc has made financing needs of the real sector one of the major obstacles to its growth. Though capital and money markets exists to service its financing needs, size of these markets are mostly inadequate to meet the financing needs of the real sector. Banks are major and preferred means of obtaining financing for the sector (Watanabe, 2015).

The banking institution occupies a vital position in the stability of the nation's economy. It plays essential roles on deposit mobilization, credit allocation, payment and settlement system as well as monetary policy implementation. In performing these functions, it must be emphasized that banks in turn promote their own performance and health (Adegbite, 2016). In other words, deposit money banks usually mobilize savings and extend loans and advances to their numerous customers bearing in mind, the three principles guiding their operations, which are profitability, liquidity and safety.

In the last two decades, a vast movement of concentration and restructuring of the banking sector has characterized almost all developed countries and many developing countries including Nigeria. In this field, merger operations of banks supported by economic policy makers and managers of banks have imposed a new scale of size-based banks. They constitute a specific response to the decrease in profitability charged by firms on traditional intermediation activities and the erosion of their charter values induced by deregulation and increased competition from both banking and non-banking institutions (World Bank, 2016). Also, there is an obligation for banks to grow at the same rate as large companies they are funding. But more importantly, it is expected that through these acquisitions – mergers, banks will be able to achieve better cost structures benefiting from economies of scale and scope provided by their size and therefore improving the efficiency of their production (World Bank, 2016).

An assessment of the National Accounts of Nigeria indicates that the real sector constitutes over 60.0 per cent to the gross domestic product (GDP), but attracts less than 37.0 per cent of total

credit (Adewunmi, 2016). Emecheta and Ibe (2015) asserted that agriculture which contributes over 40.0 per cent of the GDP attracts less than 2.0 per cent of total credit while the share of manufacturing in total credit to the economy fell sharply, from 16.9 per cent in 2006 to 10.6 per cent in 2007, before rising to 12.6 per cent in both 2008 and 2009 while Manufacturing average share was 13.2 per cent and had the highest credit allocation. Adegbite (2016) further agreed that agriculture and manufacturing attracts an average total credit of 18.7 percent and 19.6 percent respectively for the period of 2010 to the third quarter of 2015.

Despite the strategic importance of the real sector, and the size of the deposit money banks as reflected by its deposits and capital base given the stronger banks that emerged after the consolidation and other reforms which is expected to enhance its efficiency in credit allocation, has not impacted positively on the real economy as much as anticipated. This was not reflected in the flow of credit to the real economy, as the growth rate of credit fell during the periods 2006 and 2014 and while actual credit did not reflect the proportionate contribution of the sector to the GDP (Ajayi, 2015). Also, credit flow from the deposit money banks to the real economy has been grossly inadequate in addition to high interest rates, high cost of energy and stringent government policies. Thus, Nigeria's banking sector is still characterized by a high degree of fragmentation and low levels of financial intermediation (Umejiaku, 2014).

The capital intensive nature of the real sector has imposed frequent funds requirements. The "Mega banks" that emerged after Nigerian Banking reform would suggest availability of credit/fund to the vital sector. Though funding enhances the sector's growth, but the reality of the Nigerian context is that the real sector is bedevilled with scarcity of loanable funds for growth and expansion of the sector.

It is against this background of financing issues and challenges identified here that this study is aimed at filling this gap by examining finance – growth relationship using size and efficiency of deposit money banks in financing real sector growth in Nigerian economy using a different econometric tool, the Johansen and Juselius (1990) cointegration approach as against the correlation coefficient and regression analysis mostly used in the literature.

2.0 Literature Review

2.1 Financial intermediation and Economic growth

Financial intermediation is the process through which financial institutions transfer financial resources from surplus units of the economy to deficit ones. However, for financial institutions to discharge this role effectively, they have to be developed in terms of liquidity, variety of financial assets and efficiency in credit allocation (Ayadi, Adegbite & Ayadi, 2015). Rajan and Zingales (2002) concisely reasoned that a developed financial sector should reflect the ease with which entrepreneurs with sound projects can obtain financial resources, and the confidence with which investors anticipate adequate returns. The system should also be able

to gauge, subdivide, and spread difficult risks, letting them rest where they can best be borne and should be able to do all these at low cost. With this, more savings, investment and high productivity will be ensured and hence economic growth.

However, despite these potentials of financial development in influencing economic growth, economists and policy makers seemed to have neglected it, until when Schumpeter (1952) observed that financial markets (banks in particular) play a significant role in the growth of the real economy by channelling funds from savers to borrowers in an efficient way to facilitate investment in physical capital, spur innovation and the 'creative destruction process'. He contends that entrepreneurs require credit in order to finance the adoption of new production techniques and banks are viewed as key agents in facilitating these financial intermediating activities and promoting economic development. Therefore, the creation of credit through the banking system was an essential source of entrepreneurs' capability to drive real growth by finding and employing new combinations of factor use (Allen and Ndikumana, 1998; Blum, Federmair, Fink & Haiss, 2002).

The notable early works on finance and development along the Schumpeterian lines include Gurley and Shaw (1955) and Goldsmith (1969). They argue that development of a financial system is crucially important in stimulating economic growth and that under-developed financial systems retard economic growth (Adegbite, 2016). The policy implication of this viewpoint is that it is important to formulate policies aimed at expanding the financial system in order to foster growth. However, this view had little impact on development policy making in the early post-war decades, partly because it was not presented in a formal and logical manner, and somewhat because of the dominant influence of the Keynesian doctrine and its financial repression tendencies (Ang, 2015).

The works of McKinnon (1973) and Shaw (1973) marked the first formal and logical argument for the role of financial development in economic growth, in separate works, both argued that economic growth is severely hindered in a repressed financial system by the low level of savings rather than by the lack of investment opportunities. Their central argument is that, interest rate ceiling, directed credit policies and high reserve requirement; lead to low savings, credit rationing and low investment. According to their models financial saving responds positively to the real rate of interest on deposits as well as the real rate of growth in output, on the other hand, investment is negatively related to the effective real rate of interest on loans, but positively related to the growth rate of the economy (Blum, Federmair, Fink & Haiss, 2002). This way an increase in saving relative to the real economic activity leads to an increase in the level of financial intermediation and consequently leads to an increase in investment, thus any control of nominal interest rate is an attempt to slow capital accumulation because it leads to a reduction in the real rate of return on bank deposits which discourages saving (Ayadi, Adegbite & Ayadi, 2015).

Based on this, financial liberalization policy was suggested by McKinnon (1973) and Shaw (1973), in order to attain economic growth. Although many criticisms were levelled against financial liberalization especially in economies characterized by inflation and excessive fiscal deficits, many developing countries embraced it particularly after the international financial crisis of Latin America in the early 1980s.

It is against this background that respective governments and monetary authorities of developing countries put in place various structures and pursued designated policies and programs aimed to enhance the efficiency and effectiveness with which the financial intermediaries, namely banks and other financial institutions, carry out their financial intermediation function; and to align same with the dictates of growth and development of their economies (Ezirim & Muoghalu, 2015).

2.1 An Overview of the banking sector reform

Notable phases of banking sector reforms have taken place in Nigeria. The first occurred during 1986 to 1993, when the banking industry was deregulated in order to allow for substantial private sector participation. Nigeria implemented the Structural Adjustment Program (SAP) in 1986, and the Central Bank of Nigeria (CBN) deregulated the financial sector, new banks proliferated, largely driven by attractive arbitrage opportunities in the foreign exchange market (Hesse, 2007). The second phase was the re-regulation era of 1993-1998, following the deep financial distress. The third phase was initiated in 1999 with the return of liberalization and the adoption of the universal banking model. The fourth phase commenced in 2004 with banking sector consolidation as a major component and was meant to correct the structural and operational weaknesses that constrained the banks from efficiently playing the catalytic role of financial intermediation. Following from the exercise, the aggregate capital of the consolidated banks rose by 439.4 per cent between 2003 and 2009, while deposit level rose by 241.8 per cent (Mamman & Hashim, 2014).

It is expected that the size of the deposit money banks as reflected by its deposits and capital base will enhances their efficiency (as proxied by liquid liabilities and interest rate spread respectively) and credit availability to the real sector (as proxied by private credit) given the stronger banks that emerged after the consolidation and other reforms is expected to enhance its efficiency in credit allocation. A developed financial sector should reflect the ease with which entrepreneurs with sound projects can obtain financial resources, and the investors should anticipate adequate returns (Agbada & Osuji, 2015). The system should also be able to gauge, subdivide, and spread difficult risks, letting them rest where they can best be borne and should be able to do all these at low cost (Adegbaju & Olokoyo, 2015). With this, more savings, investment and high productivity will be ensured and hence economic growth.

2.2 Related Empirical Literature

Kar and Pentecost (2000) examine the causal relationship between financial development and economic growth in

Turkey from 1963-1995 using co-integration based on vector error correction methodology (VECM) and Granger causality tests. The results showed that when financial development is measured by the money to income ratio the direction of causality runs from financial development to economic growth, but when the bank deposits, private credit and domestic credit ratios are alternatively used to proxy financial development, growth is found to lead financial development. On balance, however, growth seems to lead financial sector development. This implies that Turkey is a transition economy where developed equity market dis-intermediates fund mobilization and allocation from banks, so banks are merely responding to the needs of the real sector.

Similar results were found by Güryay and Şafakli (2007) who examined the relationship between financial development and economic growth in Northern Cyprus from 1986 to 2004 by employing Ordinary Least Square Estimation Method (OLS). The result showed that there is a negligible positive effect of financial development on economic growth. On the other hand, Granger causality test showed that financial development does not cause economic growth, whereas economic growth was found to cause development of financial intermediaries. However, the central argument of the role of financial development in influencing economic growth is that financial liberalization will deepen the financial sector and thus enhance financial intermediation and growth. Therefore, studies on finance and growth are supposed to take this into consideration.

In this regard, Ang and Mckibbin (2007) examine whether financial liberalization and development leads to economic growth in Malaysia. Using time series data from 1960 to 2001 and co integration and causality tests, the empirical evidence suggests that financial liberalization has a favourable effect in stimulating financial sector development and that financial depth and economic development are positively related.

Nigeria which has had financial liberalization in the past, Azege (2004) empirically investigated the relationship between the level of development of financial intermediaries and economic growth in Nigeria from 1970-2003. Using a non-parametric statistical tool, the correlation coefficient established that a moderate positive relationship exists between aggregate deposit money banks credit over time and Nigeria's corresponding GDP.

A study conducted by Fadare (2010) explore the effect of banking sector reforms on economic growth in Nigeria over the period 1999 - 2009.Using the ordinary least square regression technique, he found that interest rate margins, parallel market premiums, total banking sector credit to the private sector, inflation rate, inflation rate lagged by one year, size of banking sector capital and cash reserve ratios account for a very high proportion of the variation in economic growth in Nigeria. Although there is a strong and positive relationship between economic growth and the total banking sector capital other indicators of financial development have wrong signs. This revealed that for financial reform to boost growth there

ought to be other conditions, such as macroeconomic stability in terms of stable prices and manageable budget deficit. Even though this study used a variety of financial development indicators, it however, suffered by small sample bias as it covers only ten years.

All along the emphasis has been on the effect of financial development on aggregate output suggesting that all the industries in the real sector are uniformly affected by financial development. This cannot be readily accepted since the industries in the real sector have varying financial needs and attitudes towards sources of finance; hence the need for industry level studies on finance and growth. Responding to this need, Fafchamps and Schündeln, (2011) using regression analysis test whether firm expansion is affected by local financial development in Moroccan manufacturing enterprises from 1998 to 2003. The results revealed that local bank availability is robustly associated with faster growth for small and medium-size firms in sectors with growth opportunities. Furthermore, evidence suggests that, access to credit was used by pre-existing firms to mobilize investment funds in order to reduce labour costs. This indicate that financial intermediation enable firms to adopt capital intensive techniques of production. However, using bank availability as the only financial development measure is inadequate as the mere presence of banks does not mean they are mobilising savings and efficiently allocation same to productive investments.

Examining the impact of credit to private sector (CPS) on the real sector of Nigeria with a view to assess the significant contribution of CPS to real sector growth in Nigeria, Hashim and Mamman (2014) using multiple regression (total assets and the growth of the real sector (proxy by the Gross Domestic Product [GDP]),broad money supply [M2] and CPS) and based on the coefficient of determination (R square), the study revealed a 96.1% variation between the CPS and real sector growth in Nigeria. The study concluded that there is a statistically significant impact of credit to private sector on the real sector of Nigeria. Moreover, Emecheta and Ibe (2015) investigates the impact of bank credit on economic growth in Nigeria applying the reduced form of vector autoregressive (VAR) technique using time series data from1960 to 2011. Current gross domestic product (GDP) is the dependent variable and proxy for economic growth while bank credit to the private sector (CPS) to GDP ratio and broad money (M2) to GDP ratio were proxies for financial indicator and financial depth respectively. A major finding of the study is there is a significant positive relationship between bank credit to the private sector, broad money and economic growth.

2.3 Theoretical literature

There is vast literature generally on finance economic relationship, these literatures follow many strands of arguments with varying and often contradicting views. This resulted in the formation of four major hypotheses in the finance-growth literature. The possible link between the financial sector and the real sector received less attention from economists until the early twentieth century when the German

economist Schumpeter ([1911] 1952) observed that, the financial market, especially the banks play a significant role in the growth of the real economy. He argued that, banks mobilize and channel funds efficiently which, provide the necessary credit to entrepreneurs to finance investment in physical capital, adopt new production techniques thereby spurring technological innovation and setting stage for the creative destruction process, all these sum up to economic growth (Allen & Ndikumana, 1998; King & Levine, 1993). This study is anchored on the demand-following hypothesis.

2.3.1 Demand-following Hypothesis

The above realities prompted some economists to come up with the demand-following hypothesis pioneered by Robinson (1952). The proponents of the demand-following hypothesis postulate that economic growth is a causal factor for financial development. According to them, growth in the real sector stimulates the financial sector (Gurley & Shaw, 1967). Robinson (1952), states that economic activities propel banks to finance enterprises, thus, where enterprises lead, finance follows. Similar view is held by some researchers including Goldsmith (1969), Lucas (1988), Muhsin and Eric (2000) and Favara (2003).

In a subsequent research, Demetriades and Hussein (1996) investigate 16 less developed countries between 1960 and 1990 with the aid of time series technique. They uncover a long run relationship for indicators of financial development and per capita GDP in 13 countries. However, they find bi-directional causality in six countries and reverse causality in six countries while South Africa showed no evidence of causation between the variables. Similar views are expressed by Odedokun (1998), Demetriades and Andrianova (2004), Shan and Jianhong (2006), recent researches on the finance and growth nexus report broken link. Demetriades and James (2011) in a study of eighteen Sub-Saharan African countries reports that the link between credit and growth is altogether absent while finance does not lead growth in the long run. Similar views are reported by Estrada, Park andKamayandi (2010) and Kumar (2011).

This hypothesis regards financial development as endogenously determined by the real economy or its needs, meaning that as the economy grows the demand for financial services and assets emanate. In this regard all a country needs to do is to promote economic growth and financial development will automatically follow. Nevertheless, this view is regarded as a temporary situation that may persist only under special circumstances, such as transition to a market economy (Blum, Federmair, Fink & Haiss, 2002), thus, it cannot be generalised to highly regulated economies.

3.0 Methodology

This study adopts correlational research design which by implication involves the use of inferential statistics considering the objective of the study and the nature of data. The dependent variable for the study will be the measure of the real sector growth, that is, the real GDP. The independent variables of this study are four selected financial development indicators in the

banking sector. They are as follows: Liquid liabilities (RLG), Private credit (RCG), Interest Rate Spread (IRS) and Level of investment (GFCF).

The study is basically secondary in nature. The study used annual time series data covering the period from 1970 to 2014, which is obtained from the statistical bulletin of the Central Bank of Nigeria. To examine the dynamic relation between the variables of this study a cointegration vector-error correction model (VECM) is used; these techniques are used to establish long-run relationships between variables and an equilibrium relationship is said to exist when the variables in the model are cointegrated.

In order to conduct the cointegration test base on VECM the following steps are followed;

i. The first step is the unit root and stationarity test which is necessary in identifying the stationarity status of the variables (i.e. I(0) or I(1)) in order to ascertain their order of integration before cointegration test can be conducted; the variables that are integrated of the same order may be cointegrated. The augmented Dickey-Fuller (ADF) and the Phillips and Perron (PP) stationarity tests are performed. These tests are conducted on the variables in level and first differences.
ii. The second step involves the determination of lag lengths to be included in the cointegration test and subsequent VECM. The choice of lag length is determined by using the Akaike information criterion (AIC) and Schwartz Bayesian criterion (SBC).
iii. The next step is the cointegration test and in this study the Johansen Full Information Maximum Likelihood (FIML) procedure due to Johansen and Juselius (1990), Johansen (1991) is used. Some of the advantages of the Johansen's procedure are that it permits the testing of cointegration as a system of equations in one step; do not carry over an error from one step into the rest and it does not require the prior assumption of endogenity or exogenity of the variables (Bashir, 2003). The VECM provides a means whereby a proportion of the disequilibrium in the short run is corrected in the long run; thus, error correction mechanism is a means to reconcile the short-run and long-run behaviours of the variables (Gujarati and Porter, 2009). The size of the error correction term indicates the speed of adjustment of any disequilibrium towards a long run equilibrium state. In addition to this, the VECM also enables the determination of the short and long run Granger causalities between the cointegrated variables; the channels of causality are the coefficients of lagged first-differenced variables and that of the error correction term for short and long run causalities respectively.

3.1 Model Specification

Accordingly, the VECM for this study is specified below:

$$\Delta \ln(GDP)_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta \ln(GDP)_{t-i} + \sum_{i=1}^{p} \beta_2 \Delta \ln(RCG)_{t-i} + \sum_{i=1}^{p} \beta_3 \Delta \ln(RLG)_{t-i} + \sum_{i=1}^{p} \beta_5 \Delta \ln(GFCF)_{t-i} + \sum_{i=1}^{p} \beta_6 \Delta(IRS)_{t-i} + \delta ECT + \eta_t$$

Where Δ is the difference operator, p is the optimal lag length, ln is natural logarithm sign. GDP= Real GDP, RCG= ratio of private credit to GDP, RLG= ratio of banking sector liability to GDP, GFCF= gross fixed capital formation. IRS is the interest rate spread which is not logged because it is a rate, ECT is the error correction term and δ is its coefficient and finally η is the error term of the model. Since VECM is based on VAR, similar models were also specified for all the variables in the study.

VECM is employed for this study because it provides both short-run and long-run relationship between the dependent and independent variables; it creates stationarity of a variable even when they are non-stationary through a combination of the stochastic equations under cointegration (Adewunmi, 2016).

4.0 Data Analysis and Result Discussion

4.1.1 Stationarity Test of Variables Data

The test type in this study is Augmented Dickey-Fuller test suggested by Dickey and Fuller (1979) and the Phillips-Perron test recommended by Phillips and Perron (1988) have been used to test the stationarity of the variables. From these tests, if the ADF is greater than the critical value at defined percentage, usually between 1 and 5 then the time series data is stationary otherwise it is not. The augmented Dicky-Fuller (ADF) and the Phillips and Perron (PP) tests for unit root and stationarity on all the variables at levels and first difference is presented in appendix.

The result shows that all the variables have a unit root; implying they are not stationary at their levels. However, the tests showed that the first difference of the variables has no unit root and the null hypothesis was rejected at 5% level of significance, indicating that all the variables are integrated of the same order, that is I(1).

4.1.2 Johansen's Cointegration Tests

Johansen and Juselius (1990) procedures uses two tests to determine the number of cointegration vectors: The Maximum Eigenvalue test and the Trace test. The Maximum Eigenvalue statistic tests the null hypothesis of r cointegrating relations against the alternative of r+1 cointegrating relations for r = 0, 1, 2…n-1. In some cases, Trace and

Maximum Eigenvalue statistics may yield different results and indicates that in this case the results of trace test should be preferred (Alexander, 2015).

Both lag length selection criterion, that is the AIC and SBC revealed that the optimal lag length for the models is one (see Appendix); hence it is used in the subsequent cointegration test and VECM.

Table 4.1.2: Johansen's Cointegration Tests Result

Hypothesized No. of CE(s)	**Trace Statistic**	**5%Critical Values**	**Max-Eigen Statistic**	**5%Critical Values**
None * (r = 0)	126.0735*	125.6154	48.02579*	46.23142
At most 1 (r ≤ 1)	78.04776	95.75366	26.16539	40.07757
At most 2 (r ≤ 2)	51.88237	69.81889	20.74444	33.87687
At most 3 (r ≤ 3)	31.13792	47.85613	13.56351	27.58434
At most 4 (r ≤ 4)	17.57442	29.79707	10.86512	21.13162

Max-Eigen and Trace Statistic tests indicate 1 cointegrating equation at 5% level.
* denotes rejection of the hypothesis at the 5% level of significance.

The Johansens' cointegration test results are given in Table 4.2; The Trace Test indicates the existence of one cointegrating equation at the 5% significance level. This cointegrating equation means that one linear combination exists between the variables that force these indices to have a relationship over the entire time period. The Maximum Eigenvalue Test also shows one cointegrating equations at the 5% level confirming the Trace Test. Therefore, the trace test and the maxEigen test revealed that there is one cointegration equation at 5% level of significance, or r = 1; thus the study concludes that the variables in the model have a long-run equilibrium relationship.

4.1.3 Vector Error Correction Model

If cointegration exists a longrun equilibrium relationship is said to exist between the Variables, VECM is applied in order to examine the short run properties and the adjustment to the longrun of the cointegrated series. In case of no cointegration VECM is no longer required. Table 4.3 summarizes the VECM results for the MGDP model.

Table 4.1.3: Results of the VECM for the MGDP model

Results of the VECM for the MGDP model					
Dependent Variables	D(LGDP)	D(LRCG)	D(LRLG)	D(LGFCF)	D(IRS)
Independent Variables	**Coefficients (t-statistics in parenthesis)**				
ECTt-1	-0.010211	-0.015978	-0.009544	-0.006731	-0.139587
	[-1.95007]	[-1.88925]	[-1.11893]	[-1.43473]	[-1.98956]
D(LGDP(-1))	0.712117	-0.248238	-0.503025	-0.084042	-4.295853
	[1.01478]	[-0.34165]	[-0.68645]	[-0.20852]	[-0.71269]
D(LRCG(-1))	-0.689037	0.839380	0.379128	0.116638	3.150481
	[-1.46907]	[1.72844]	[0.77408]	[0.43299]	[0.78200]
D(LRLG(-1))	1.381248	-1.070239	-0.843328	-0.168116	-7.207765
	[1.93307]	[-1.44661]	[-1.13024]	[-0.40966]	[-1.17438]
D(LGFCF(-1))	-0.124801	0.346760	0.236263	0.238816	-0.991248
	[-0.43895]	[1.17793]	[0.79578]	[1.46252]	[-0.40589]
D(IRS(-1))	-0.018185	0.032262	0.007415	0.012370	-0.306556
	[-0.83456]	[1.43001]	[0.32586]	[0.98850]	[-1.63792]
Constant	-0.009019	0.085988	0.156574	0.066253	2.161990
	[-0.05096]	[0.46927]	[0.84724]	[0.65183]	[1.42225]
R-squared	0.645686	0.197087	0.104594	0.370941	0.414780
F-statistic	0.639489	0.920494	0.438046	2.211288	2.657847

The presence of cointegration between variables suggests a long term relationship among the variables under consideration. Since VECM is based on VAR, similar models were also specified for all the variables in the study (that is, a model is made on each variable as a dependent variable). But for the purpose of this study, the model for the GDP as the dependent variable (as indicated in chapter three) is interpreted and discussed below.

The results in table 4.3 indicated that the growth in the real sector of the Nigerian economy is predicated by the variables GDP, RCG, RLG, TGE, IRS, GFCF and TTR with a coefficient of determination of 64.5% (R2 = 0.645686). Thus, implying that these variables significantly account for 64.5% variation in real sector growth in Nigeria for the period under study (1970-2014). The remaining 44.5% is as a result of other factors outside the model which were depicted as Ut (error term).

The LRLG and LTTR are statistically significant and LRCG, LTGE, IRS and LGFCF are statistically insignificant to the GDP in the short run according to the coefficients and t values shown.

The coefficients are interpreted as follows:

i. The private credit LRCG has a negative coefficient of -0.689037 and its statistically insignificant that is, a 1% increase in the LRCG leads to a 0.69% decrease in the LGDP in the short run.
ii. The interest rate spread IRS has a negative coefficient of -0.018185 and its statistically insignificant, that is, a 1% increase in IRS leads to 0.02% decrease in the LGDP in the short run.
iii. The level of investment LGFCF also has a negative coefficient of -0.124801 and its statistically insignificant, that is, a 1% increase in GFCF leads to 0.12% increase in the LGDP in the short run.

Moreover, The LRLG have positive relationship. The appreciations of the GDP are related to increasing LRLG, thus, the estimated model was able to produce a consistent result. Thus, 1% appreciation of the LRLG is likely to increase GDP by 1.38% and this estimate was significant The ECT coefficients indicate the adjustment to the long run as well as long run causality are discussed below.

The apriori expectation is they are supposed to have negative and significant coefficients. However, the result indicates that the GDP, RCG and IRS models have negative and significant coefficients; indicating that the adjustment to the long run is taking place in these models.

The coefficients are interpreted as follows:

i. The GDP model has a negative ECT coefficient of -0.010211 and its statistically significant as indicated by the t value, that is, the estimated coefficient indicates that about 1.0 per cent of the disequilibrium is corrected between 1 year, indicating that the adjustment to the long run is taking place in these model.
ii. The RCG Model has a negative ECT coefficient of -0.015978 and its statistically significant that is, about 1.6 per cent of the disequilibrium is corrected between 1 year, indicating that the adjustment to the long run is taking place in these model.
iii. The interest rate spread IRS Model has a negative coefficient of -0.018185 and its statistically significant, that is, about 1.8 per cent of the disequilibrium is corrected between 1 year, indicating that the adjustment to the long run is taking place in these model.

This is contrary to the GFCF and RLG models which have correct sign but are statistically not significant.

Table 4.1.4: The normalized cointegrating equation

Variables	LGDP	LRCG	LRLG	LGFCF	IRS
coefficients	1.00000	-0.55130	0.56209	-0.14702	-0.30298
t- statistics		(6.764)	(6.644)	(3.379)	(6.313)

Since the existence of one cointegrating equation was identified, a stable equilibrium relationship is present. The results are normalized on the LGDP.
The results indicated The RCG, GFCF and IRS have the expected signs and are statistically significant according to the coefficients and t values shown.

The coefficients are interpreted as follows:
The private credit RCG has a negative coefficient of -0.55130 and its statistically significant that is, a 1% increase in the RCG leads to a 0.5513% increase in the LGDP in the long run. This finding agrees with the hypothesis of German economist Schumpeter ([1911] 1952) and the findings of Allen and Ndikumana (1998) and King and Levine (1993). They argued that, banks mobilise and channel funds efficiently which, provide the necessary credit to entrepreneurs to finance investment in physical capital, adopt new production techniques thereby spurring economic growth. Similarly, Beck, Cull and Jerome (2005) in their study also observed private credit as a good predictor of economic growth while the recent study by Crowley (2008) also supported this position. The research work by Hashim and Mamman (2014) and Emecheta and Ibe (2015) also concluded that there is a statistically significant impact of credit to private sector on the real sector of Nigeria.

The interest rate spread IRS has a negative coefficient of -0.30298 and its statistically significant, that is, a 1% increase in IRS leads to 0.3030% increase in the LGDP in the long run. This finding agrees with McKinnon and Shaw (1973) and Ayadi, Adegbite and Ayadi (2015), they proposed financial liberalisation which will allow the real rate of interest to rise thereby raising the financial savings and increase in saving relative to real economic activity leads to an increase in financial intermediation which in turn leads to an increase in productive investment and economic growth.

The policy implication of this viewpoint is that formulating policies that liberalise the interest rate and enhance financial intermediation will result in high economic growth. However, in reality, the failure to record any meaningful success by most of developing countries who implemented these policies raises many questions on the viability of this assertion.

The level of investment GFCF also has a negative coefficient of -0.14702 and its statistically significant, that is, a 1% increase in GFCF leads to 0.1470% increase in the LGDP in the longrun. Adegbite (2016) and Adewunmi (2016) establish the importance of Capital formation in generating growth within the economy. They find that a rise of one percentage point in the ratio of Capital formation to GDP increases income per person by at least one-half percent. This they believe happens because Capital formation appears to raise income by motivating the accumulation of physical and human capital; thereby increasing output for given levels of capital. Several other previous studies support this assertion (Arvai, 2005; Duenwald, Gueorguiev & Schaechter, 2005).

Moreover, The LRLG have positive signs and negative relationship with the GDP. The depreciations of the GDP are related to increasing RLG, thus, the estimated model was able to produce a consistent result. Thus, 1% appreciation of the RLG is likely to reduce the GDP by 0.5620%. This finding is contrary to the observations of Hashim and Mamman (2014) and Emecheta and Ibe (2015), the major finding of their studies

is there is a significant positive relationship between liquid liabilities and economic growth. Moreover, it agrees with Aziakpono (2003) that asserted that liquid liabilities are the sum of demand deposit, savings and time deposits; it provides an alternative to the broad money ratio especially when dealing with developing countries. This is because in developing countries, a large component of the broad money stock is currency held outside the banking sector. Therefore, a rising ratio of broad money to GDP may reflect the more extensive use of currency than an increase in the volume of bank deposits and reduces the availability of bank credit for intermediation as such reduces economic growth.

5.0 Summary and Policy Implications of the Findings

5.1 Summary of Findings

This study employs the VECM based approach to cointegration to explore the dynamic relationships between financial development of the Nigerian banking sector and real sector growth. The results revealed that the credit to private, government expenditure, level of investment and interest rate spread exert positive influence on real sector growth in the long run. This might be as a result of the fact asserted by McKinnon and Shaw (1973) that financial liberalisation which will allow the real rate of interest to rise thereby raising the financial savings and increase in saving and credit availability relative to real economic activity and leads to an increase in financial intermediation which in turn leads to an increase in productive investment and economic growth.

5.2 Policy Implications of findings

The policy implication of these results is this, financial reforms and policies should focus on formulating policies that liberalise the interest rate and enhance financial intermediation will result in high economic growth and government should direct their borrowing towards encouraging and financing entrepreneurship development which prove to increase investment and in turn real sector growth.

5.3 Conclusions

The banking sector in any economy is strategically important to the growth and development of all other sectors in that economy hence, the continuous desire for the banking sector to remain healthy, sound and stable through satisfactory performance.

From the analysis of in the preceding section, it can be concluded that within the period under review in the long-run, ratio of liquid liabilities to GDP and trade openness has a statistically significant and negative influence on real sector growth and there is a statistically significant positive relationship between real sector growth as represented by GDP and ratio of credit to private sector to GDP; level of investment, total government expenditure and interest rate spread. This has confirmed the assertion by McKinnon and Shaw (1973) that financial liberalisation which will allow the real rate of interest to rise thereby raising the financial savings and increase in saving and credit availability relative to real economic activity and leads to an increase in financial intermediation which in turn leads to an

increase in productive investment and economic growth.

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A Systematic Review of Consumer Behaviour Prediction Studies

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Abstract: Due to the importance of Customer behaviour prediction, it is necessary to have a systematic review of previous studies on this subject. To this effect, this paper therefore provides a systematic review of Customer behaviours prediction studies with a focus on components of customer relationship management, methods and datasets. In order to provide a comprehensive literature review and a classification scheme for articles on this subject 74 customer behaviour prediction papers in over 25 journals and several conference proceedings were considered between the periods of 1999-2014. Two hundred and thirty articles were identified and reviewed for their direct relevance to predicting customer behaviour out of which 74 were subsequently selected, reviewed and classified appropriately. The findings show that the literature on predicting customer behaviour is ongoing and is of most importance to organisation. It was observed that most studies investigated customer retention prediction and organizational dataset were mostly used for the prediction as compared to other form of dataset. Also, comparing the statistical method to data mining in predicting customer behaviour, it was discovered through this review that data mining is mostly used for prediction. On the other hand, Artificial Neural Network is the most commonly used data mining method for predicting customer behaviour. The review was able to identify the limitations of the current research on the subject matter and identify future research opportunities in customer behaviour prediction.

Keywords: Consumer Behaviour, Prediction, Statistics, Data Mining, Dataset, Customer Relationship Management, Literature Review

1. Introduction

Consumer behaviour can be defined as the study of individuals, groups or organizations in a bid to understand the process of their selecting, securing, using and disposing the products, services, experiences or ideas (Raorane & Kulkarni, 2011). Consumer behaviour in the context of this research also includes consumer's loyalty and customer churn. Consumer loyalty can be defined, according to East et al. (2005) as repeat patronage behaviour which is the combination of attitude and behaviour. In industrial and service marketing, behavioural loyalty is viewed as retention of the brand (Reichheld 1996; Reinartz and Kumar 2000). Customer churn, also known as customer attrition or customer turnover, is the loss of existing customers to another company or service provider (Kerdprasop et al., 2013).

It is important to predict customer behaviour because; the knowledge of a customer's loyalty would be useful for improving CRM. It will also help in customer model-building process and evaluating the results of CRM-related investments (Buckinx, 2007). Furthermore, it will help to improve the success rate of acquiring customer, increasing sales and establishing competitiveness (Qiu, 2014).

There are some literature reviews in the field of customer behaviour studies which include the following: In 2009, Ngai et al., carried out an academic literature review of the application of data mining techniques to CRM. Their study was able to classify Customer Relationship Management along the following dimensions; Customer Identification, Customer Attraction, Customer Retention and Customer Development. They also identified Association, Classification model as the most commonly used model for data mining in CRM. Brosekhan in 1995 did a review on the consumer buying behaviour to reveal two broad paradigms, the positivist and the non-positivist. The positivist paradigm encompasses the economic, behavioural, cognitive, motivational, attitudinal, and situational perspectives, while the non-positivist paradigm, envelops the interpretive and postmodern perspectives. A study to investigate the relationship between customer complaints behaviour, complaint handling mechanisms and customer loyalty was carried out by (Komunda, 2013) . It was discovered that a growing body of literature suggests that customer loyalty has positive impact on client retention.

In 2003, a systematic review on online consumer behaviour was carried out by Cheung et al., and a research framework with three key building blocks (intention, adoption, and continuance) was proposed. The findings show that factors affecting intention of buying from the web is the main focus on the existing research using TRA (Theory of Reasoned Action) and its related theories as the method. (Dahiya &Talwar, 2015) performed a state-of-art review of various methods and researches involve in churn prediction and concluded that Customer churn has

been identified as a major problem in Telecom industry and aggressive research has been conducted in this by applying various data mining techniques.

Looking through all the systematic reviews in literature till now, there has not been much attention paid to review of literature on predicting consumer behaviour holistically. In order to fill this gap and because of the importance of customer behaviour prediction, this paper is carrying out a systematic review on customer behaviour prediction studies with a focus on components of customer relationship management, methods and datasets.

2. Research Questions

RQ1 Which journal is dominant in the field of customer behaviour prediction?

The main motivation for this is to discover most important customer behaviour prediction journal

RQ2: What are the datasets mostly used for customer behaviour prediction?

RQ3: What kind of datasets are the most used for customer behaviour prediction after year 2010?

The main motivation behind RQ2 and RQ3 is to discover which dataset is used to predict customer behaviour and if there is change in dataset in the most recent times.

RQ4: What kind of methods are the most used for customer behaviour prediction?

RQ5: What kind of methods are the most used for fault prediction after year 2010?

The motivation for this question is to discover trends and opportunities for prediction method focus before and after 2010

RQ6: What kind of component of CRM is focused on when performing customer behaviour prediction?

RQ7: What kind of component of CRM is focused on when performing customer behaviour prediction after year 2010?

The motivation behind this is to discover the most predicted components of CRM so that future research can explore other components.

RQ8: What is the percentage of publications published after year 2010?

RQ9. What are the limitations of current research in Customer behaviour prediction?

3. Methodology

3.1 Inclusion Criteria

Consumer loyalty can also be defined, according to (East, 2005) as repeat patronage behaviour which is the combination of attitude and behaviour. Also, Predicting churn, i.e. if a customer is about to leave for a competitor, is an important application of analysing customer behaviour (Eichinger, 2006).

Due to this definition, this systematic review on consumer behaviour prediction includes publications on predicting loyalty, churn and consumer behaviour. Therefore, the literature search was based on the descriptor, 'customer behaviour prediction', 'customer loyalty prediction" and churn prediction. Two hundred and thirty

articles were identified and reviewed for their direct relevance and seventy four were subsequently selected, reviewed and classified.

Papers directly related to the search criteria was included. Position proceedings and papers which do not include experimental results were excluded. Papers with respect to their years, datasets, customer relationship management component and method have been examined.

3.2 Classification method

The result of predicting consumer behaviour is an input to improving customer relationship management. During the review, it was discovered that the purpose of customer behaviour prediction papers falls in either one or a combination of the following dimensions of CRM; Customer Identification, Customer Attraction, Customer Retention and Customer Development. This was further validated in existing literature (Kracklauer etal., 2004), (Ngai et al., 2009). Based on this, the first classification criteria is the dimension of CRM. The second classification criterion is the dataset in which this prediction experiments were based on. Finally, the last classification criteria is the method implemented in the prediction.

3.2.1 Classification framework – CRM dimensions

The first classification framework used in this study is based on CRM dimensions. According to (Ling & Yen, 2001), the four dimensions of the CRM cycle are essential efforts to gain customer insight. Gaining customers insight on the order hand is the purpose of customer behaviour prediction. For this purpose, this review classifies papers based on their purpose, which is customer identification, attraction, retention and development.

1. Customer Identification: Customer identification also known as acquisition has to do with targeting the population who are most likely to become customers. It includes target customer analysis and customer segmentation.

2. Customer Attraction: After the market has been segmented, customer attraction then helps organizations to direct effort and resources into attracting the target customer segments..

3. Customer Retention: Customer retention can be defined as the activity that an organization undertakes in order to reduce customer defections. To be successful, customer retention starts with the first contact an organization has with a customer and continues throughout the entire lifetime of a relationship involves loyalty programs, one to one marketing and complaints management (Singh, & Khan, 2012) (Ngai et al., 2009).

4. Customer development is the consistent expansion of transaction intensity, transaction value and individual customer profitability. IT involves Customer lifetime value, up/cross selling and market basket analysis(Ngai, 2009).

3.2.2 Classification framework – Implementation method

The classification framework-implementation method contains 10 categories which is described below.

Statistics: In this research, this classification group is contains techniques such as auto regression,

logistic regression, linear regression, structural equation modelling and so on.

Clustering: K means clustering mostly used in this category works as follows; given a set of points in a Euclidean space and a positive integer k (the number of clusters), K means split the points into k clusters so that the total sum of the (squared Euclidean) distances of each point to its nearest cluster center is minimized(Lloyd., 1982)

Classification: This includes the following: Naïve Bayes; Bayesian classifiers assign the most likely class to a given example described by its feature vector (Rish, 2001).

Bayesian Network, Decision Tree (DT), Support Vector Machine (SVM) are all components of the classification category.

Psychological prediction Models: These classifications involve the group of prediction models which has its foundation in the psychological field of study.

boosting algorithms: The boosting algorithms used in this classification includes Real AdaBoost, Gentle AdaBoost and Modest AdaBoost (Shao et al, (2007)

Particle Swarm Optimization used in this classification is an evolutionary data mining technique (Liu and Chen (2012).

Neuro-Fuzzy: This classification is a combination of neural network and fuzzy logic technique in data mining.

Graph Mining Technique: Graph mining is a technique used to extract characteristic patterns from a variety ofgraph structured data (Inokuchi, 2002).

The remaining category in the method classification includes Artificial Neural Network (ANN) and Association Rule Mining,

3.2.3 Classification framework – Dataset

One of the greatest threat to the validity of customer behaviour prediction studies nature of data used for the prediction.

The Classification framework using Dataset is based on the following sources of the dataset used for the experiment.

1. Questionnaire survey
2. Public data repository
3. Organisational dat a
4. Unknown (not stated by the author)

Questionnaire survey: This includes data gotten by the researchers conduction a questionnaire survey or interview of the individual or environment researched.

Public data repository: this includes commercially available public data, publicly downloaded data

Organisational data: this contains data collected from an organizational database, organisational information system, for example, their website log details etc. it also includes company transactional data, data purchased from a company.

3.3 Threats to Validity

The authors of this review paper are academic researchers in the field of data mining, text mining, customer relationship management and marketing. They have also published paper in the mentioned field.

There was no bias in choosing the papers reviewed. The papers were not searched based on issue-by-issue or manual reading of titles of all published

papers in journals, but based on the following steps

1. Online database search.
2. Initial classification by first researcher.
3. Independent verification of classification results by second researcher;
4. Final verification of classification results by third researcher and fourth researcher.

Conference papers were not excluded because it contains experience reports.are mostly published in conference proceedings.

4.0 Results

53 journal papers out the 74 papers reviewed were journals and the rest includes conference proceedings, white paper, manuscript, advance science and technology letters. Publication years of papers are between year 1992 and 201. Fig. 4.1 is a bar chart of publication year on the x-axis and the number of papers published in that year on the y-axis for papers in review. 72 %percentage of papers are journal papers and the rest fall within 28%.

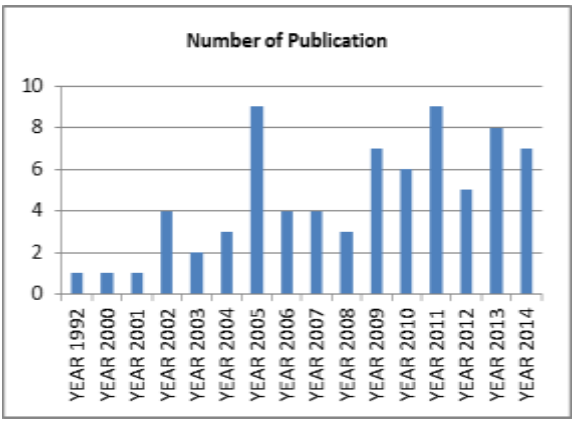


Figure 4.1

The research questions is being addressed by the following section respectively

4.1 Which journal is dominant in the field of customer behaviour prediction?

Table 4.1 Most important customer behaviour prediction journals.

Rank	Journal	Number	Proportion
1	Elsevier Journal (Expert system with applications)	17	20%
2	Advanced Science and Technology Letters	2	3%
2	International Journal of Computer Applications	2	3%
2	European Journal of Operational Research	2	3%

According to the table above, the most dominant journal gotten from the review literatures is the Expert Systems with Applications journal. This journal has been consistently publishing customer behaviour prediction articles as featured in the review between 2005 and 2011.

4.2 What are the datasets mostly used for customer behaviour prediction?

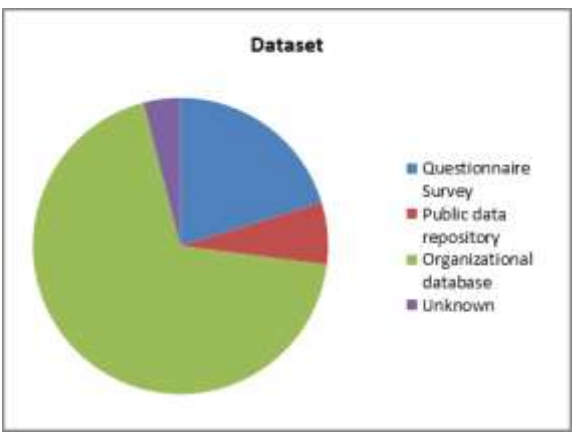


Figure 4.2

According to the pie chart in Figure 4.2, the Organizational database(69%) has been the main source of data for customer behaviour prediction since 1992, followed by the data gotten from the questionnaires administered to relevant respondents(20%). Public data repository (7%) is not often used, this is due to the nature of the prediction focus.

Customer behaviour prediction system is always interested in using data that is directly related to the organization in question.

4.3 What kind of datasets are the most used for customer behaviour prediction after year 2010?

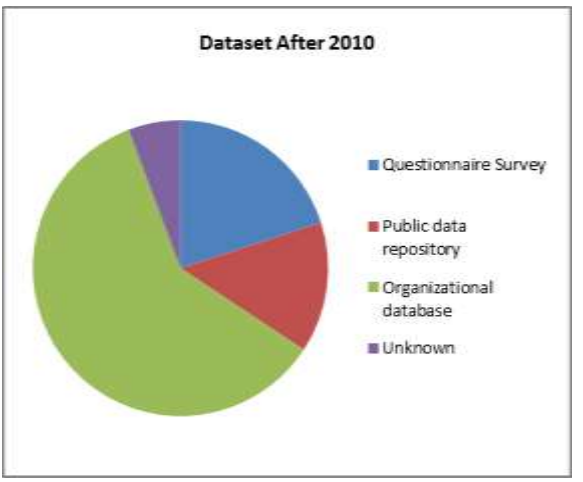


Figure 4.3

Figure 4.3 also shows a consistency in the type of dataset used for customer behaviour prediction. The organisational dataset (60%) does not loose its value for prediction purposes in recent times i.e. between 2010 till date.

4.4. What kind of methods are the most used for customer behaviour prediction?

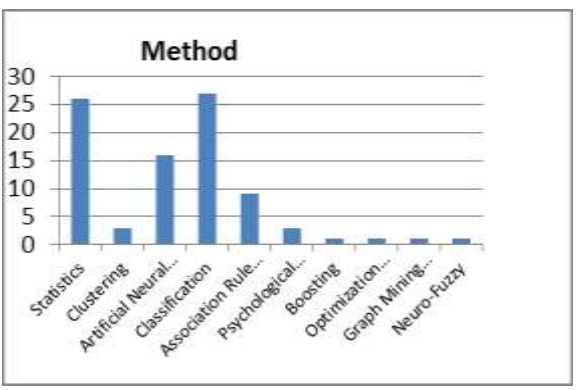


Figure 4.4 Bar chart of number of publications against method.

Form figure 4.4 above, classification technique (combination of Support Vector Machine (SVM), Naïve Bayes, Bayesian Network and Decision Tree (DT) is the prediction method with the highest count, followed by statistics in the predicition method, it should also be noted that statistics is a combination of auto regression, linear

regression, structural equation modelling and logistic regression. Comparing figure 4.4. with figure 4.5, it is observed that the trend in which the method is being adopted still remains the same even after the year 2010.

Table 4.2

Method	Method(Details)	References
Statistics	auto regression, linear regression, structural equation modelling, Logistic Regression	Vijayalakshmi et al,(2013,Ngamkroeckjoti et al, (2011)Sharad et al, (2010), Khan, (2012), Sadasivan et al, (2011),Barrios and Lansangan (2012),Banerjee and Pawar (2013) Baumann et al, (2006), Hamilton-Gibbs et al, (1992) Keiningham et al, (2007),Yang et al, (2011) Sandy et al, (2013) , Flint et ak, (2010) Rauyruen and Miller (2007), Coussement et al (2010)b, Teo andYeong (2003), Poel (2003) Mauser et al,(2004), Coussement et al, (2010) Thorleuchter et al, (2012), Malmarugan (2008). Glady (2006), Clemente et al, (2010) Buckinx et al, (2002) Buckinx (2005), Coussement and Poel (2009)
Clustering	k means clustering	Vijayalakshmi et al,(2013) Hosseini et al.,2010, Liu and Chen (2012)
Artificial Neural Network (ANN)		Abbasimehr et al, (2014),Mauser et al,(2004), Sharma and Panigrahi (2011) Buckinx et al, (2007),Zheng et al, (2012) Aghaie (2009). , Zhang et al, (2008) Shaaban et al, 2014, Glady (2006) Clemente et al, (2010) Buckinx et al, (2002) Hsieh and Chu (2009). Yan et al 2005, Buckinx (2005) Cho et al,(2005),Baesens et al, (2002)
Classification	Support Vector Machine (SVM)	Abbasimehr et al, (2014) Coussement and Poel (2008) Zheng et al, (2012) Qiu (2014) ShaCoussement and Poel (2009)Aban et al, 2014
	Naïve Bayes	Kirui et al,(2013),Mauser et al,(2004),Buckinx et al, (2002)
	Bayesian Network	Kirui et al,(2013),Qiu (2014)

	Decision Tree (DT)	D'Haen et al,(2013),Abbasimehr et al, (2014), Wei and Chiu (2002), Rho J. J., (2004), Shaaban et al, 2014, Eichinger et al, (2006), Glady (2006) Clemente et al, (2010), Miller et al (2009) Gang et al,, (2011) Hsieh and Chu (2009). Buckinx et al, (2007), Larivie`re and Poel (2005) Burez and Poel (2009) Mu et al, (2013)Buck inx (2005)
Association Rule Mining	Apriori Algorithm, market base analysis etc	Haastrup et al,(2014), Zhang and Zhao (2014),Raorane and Kulkarni (2011),Qiu (2014), Chen et al, (2005),Kerdprasop et al, (2013), Giudiciand Passerone (2002) Haastrup et al,(2014) Verbeke et al, (2011)
Psychological Prediction Model		Taubinsky (2013) Ibrahim and Vignali (2005) Carvalho
Boosting	boosting algorithms	Shao et al, (2007)
Optimization Technique	Particle Swarm Optimization	Liu and Chen (2012)
Graph Mining Technique		Yada et al,(2005)
Hybrid of Clustering and Fuzzy Logic	Neuro-Fuzzy	Abbasimehr et al, (2011

4.5 What kind of methods are the most used for customer behaviour prediction after year 2010?

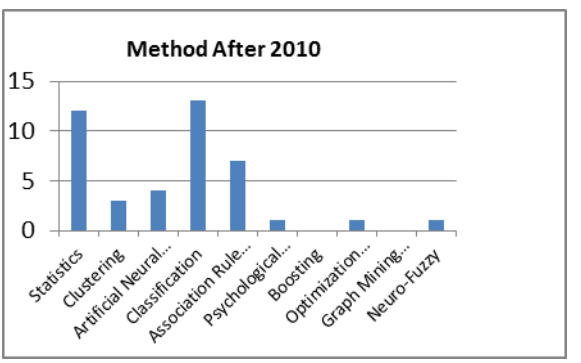


Figure 4.5 Bar chart of number of publications against method after year 2010

In order to have a detailed explanation of the references of the methods described in figure 4.4 and 4.5, Table 4.2 list the methods discovered from the review against the reference of the publications which used this method. This classification is based on their application in the reviewed publication. In table 4.2, the classification techniques can be broken down to Support Vector Machine (SVM) with 5 publications, Naïve Bayes with 3 publications, Bayesian network with 2 publications and Decision Tree (DT) with 11 publications.

4.6 What kind of component of CRM is focused on when performing customer behaviour prediction?

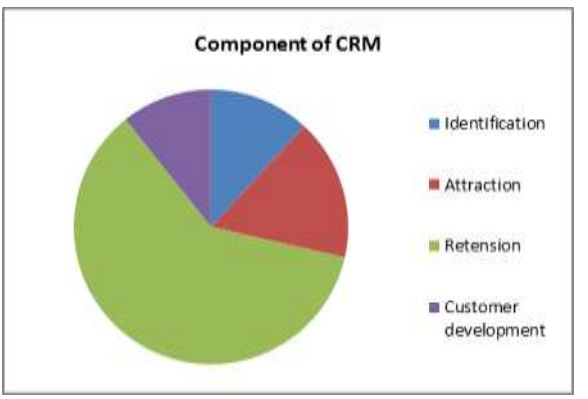
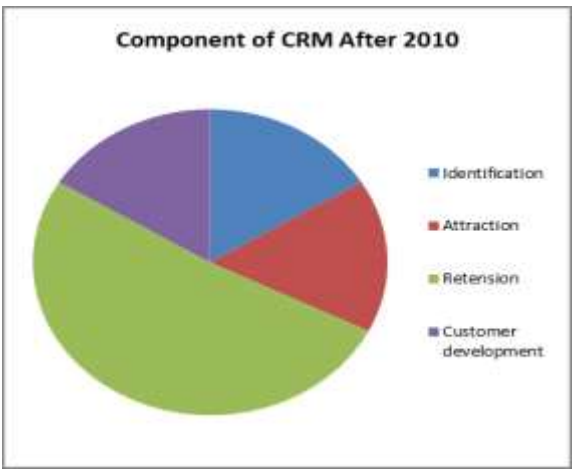


Figure4.6

From Figure 4.6, it is obvious that the most predicted component of customer relationship management is retention (60%). This shows that organizations spend more resources in researching to retain customers, because this contributes directly to their profit. Even after the year 2010, Figure 4.7, retention (51%) is still the most researched component of CRM. As from 2010 upwards, the identification (from 12% to 16%) and customer development (11% to 16%) component of CRM is seen to gain more focus.

4.7 What kind of component of CRM is focused on when performing customer behaviour prediction after year 2010?



4.8 What is the percentage of publications published after year 2010?

In this review, the percentage of publications used which their publication year falls between the year 2010 and 2014 is 47%.

4.9 What are the limitations of current research in Customer behaviour prediction?

The limitation of the current research, which gives opportunity for future research in customer behaviour prediction, includes the following;

- There is need to continuously explore new mining methods, in order to make prediction models more precise and more informative (Yihua et al., 2014).
- Using k-means approach for predicting customer behaviour still requires an extensive evaluation in order to detect if there is over fitting by means of cross validation or bootstrap methodologies (Vijayalakshmi et al, 2013)
- There remains unexplored aspects of churn prediction which has to do with prediction when possible churners are likely to quit, also there is need to improve the prediction rates. Also in churn prediction, there is need to solve the class imbalance problem, where the class we are interested in, is the minority (Kirui et al, 2013)
- Also, there is need for further research in investigating whether web data can be implemented in customer acquisition models (D'Haen et al, 2013)
- Lastly, there is need to make the customer acquisition process more targeted by integrating more textual information in the prediction process(Thorleuchter et al, 2012).

5. Conclusion

In this study, a comprehensive systematic review and analysis of paper published in journals and conference

proceedings in the area of customer behaviour prediction for 15 years were conducted. The aim was to provide a comprehensive literature review and a classification scheme for articles on this subject base on customer relationship management, methods and datasets. Through the review the following were observed:

- Research on predicting customer behaviour is ongoing and is of most importance to organisation.
- Most studies investigated customer retention prediction and this was done mostly using organizational data as dataset for prediction.
- Also, data mining methods were used more often in predicting customer behaviour, as compare to the statistical approaches and the most commonly used data mining method is Artificial Neural Network.

The above observations imply a very rich research opportunity in the area of customer behaviour prediction and also, reflect a good relationship between the research community and industries. To this effect, this study identified limitations of current researches on the customer behaviour prediction studies and identifies future research opportunities.

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An Evaluation of the Financial Market Transmission Channel in Nigeria

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Abstract: *The increasing integration and interdependence of the money and capital market has been observed in developing economies like Nigeria as it has been in developed economy but the roles, importance, sizes, effects and signs of the linkages is crucial for policy debate. This study identifies and validates the existence of some channels of financial market transmission in the Nigerian context. Secondary data covering the periods of 1980 to 2013 was used to estimate the Vector Auto-regression (VAR) model. The cholesky dof adjusted method was employed to set the ordering of the variables and a standard deviation shock was given to the residuals in the VAR model to establish the transmission channel. The result shows that money market and capital market react to each other. Overall, the results underline the importance of the understanding of the financial market linkages and identify the existence of the credit and the asset price channel in the Nigerian context. Some of the policy recommendations are that policymakers should ensure (i) An improved institutional environment and encourage healthy competition in the banking sector. (ii) Loan contracts should be protected and financial intermediation should be conducted through the financial markets among others.*

Keywords*: Financial Market, Transmission Channel, Vector Auto-Regression, E-views, Nigeria.*
JEL Classification: G10, G17

1. Introduction

Financial markets comprising of the money and capital market, in less developed economy, are becoming increasingly integrated and interdependent as it has been observed in the developed economy. The mode of the interdependence and the channel of transmission of the effects are, however, still not well understood and researches are ongoing to further provide evidence for the transmission channel. In the literature on financial market interdependence, a strand identifies the exclusive spillovers across different domestic capital markets, whereas another strand concentrates on money market spillovers.

Ehrmann and Fratzscher (2004) opined that the money and capital market are becoming more and more closely linked domestically and internationally. In the same vein, Tahir (2012) observed that monetary transmission mechanism is already a complex issue in closed economy but the openness of economies makes it a more complex phenomenon. The reason is simply because different channels of transmission work simultaneously and with varying lags. Despite these problems there is consensus among economist that monetary policy has at least a short term effect on consumption and investment (Taylor, 1997). It therefore seems important to model the transmission of financial market shocks not merely within money market and capital market variables, but also it is relevant to analyse the resulting domestic cross-financial-market transmission channel.

According to Ehrmann, Fratzscher and Rigobon (2004), the understanding of the role and importance of the transmission channels, their sizes and signs, is crucial for policy reasons, in particular for a better understanding of how monetary policy and other types of financial shocks can be transmitted not only domestically but also internationally. The identification of the channel is crucial because asset price changes may trigger very different, and possibly even opposite responses in other asset prices, depending on the ultimate origin of the shock.

Therefore, in other to understand the workings of financial linkages, it is important to identify the source or cause of shocks that drive asset prices. In principle, a change in the price of an asset may be explained by three (3) factors: First, by relevant macroeconomic fundamentals, or common shocks that affect all asset prices; this is also known as the "fundamental based" financial hypothesis. Second, by a shock to another asset price; and third, by relevant information on the asset price itself. The second and the third channels are known as the "contagion" hypothesis also refers to as cross-market hedging (Kashyap & Stein, 1995; Kodres & Pritsker, 1999 and Mishra, Montiel & Spilimbergo, 2013).

In order for Central Banks to be able to implement stabilization policy, the policy instruments at their disposal must be effective in influencing aggregate demand. But for various reasons, the link between monetary policy instruments and aggregate demand – the monetary transmission mechanism – may be significantly weaker in low-income countries (Nigeria inclusive) than it is in advanced and emerging economies **(**Mishra & Montiel, 2012).

The financial structure of low-income countries suggests that the bank lending channel is likely to be the dominant channel of monetary transmission, but its effectiveness depends on the domestic institutional framework, structure of the

banking system, and the internal stability of the domestic macroeconomic environment (Alfaro, Franken, Garcia, & Jara, 2003; Bordon & Weber, 2010; Minella & Souza-Sobrinho, 2009; Mukherjee & Bhattachariya, 2011; Rigobon & Sac, 2003; among others). According to Li, Iscan and Xu (2007), stock markets are notoriously sensitive to changes in monetary policy. But this sensitivity may vary across different economies. Therefore, the exact financial market transmission channel and in particular any estimate of their quantitative impact are still subject to considerable uncertainty, thus placing primary responsibility for domestic macroeconomic stabilization on central banks may be misguided as such assessing the empirical evidence of the channel of transmission in financial market is an important topic for research.

As a result of the forgoing discussions, the objective of this paper is to investigate the nature of financial markets interdependence by finding the transmission channel between capital market and money market variables in Nigeria. The paper presents a framework through which shocks are transmitted in the Nigerian financial market, explains the quantitative findings (predictions) and shows where the existing theories fit within the Nigerian financial market framework for policy consideration and implementation.

Many of the studies seen so far laid emphasis on single financial market transmission channel by studying either the credit channel; the interest rate channel; the exchange rate channel or the asset price channel (Kashyap, 1995; Uchendu, 1996; Kumhof & Evan, 2005; Mishra, Montiel & Spilimbergo, 2010; among others). So the contribution of this study is; firstly, it takes into account two (2) channels simultaneously i.e the interest rate channel and the asset price channel and uses Vector Autoregression (VAR) to rank the financial market transmission. Secondly, this study uses money market variables and capital market variables; the reason is theoretical in nature, as it is to examine both the interest rate channel (money market) and the asset price channel (capital market) transmission in the Nigerian financial market.

The empirical model used annual data over the periods of 1980-2013, consisting of minimum rediscount rate/monetary policy rate, average deposit rate and average lending rate as proxies for money market to capture the interest rate channel while average coupon on Government bond, average coupon on corporate bond and average yield on equity are used as proxies for capital market to capture the asset price channel.

The study employs the Vector Autoregression (VAR) and modeled the impulse response in the channel of transmission, after modifying the methodology developed in Ehrmann and Fratzscher (2004). In essence, the methodology used is based on identifying the impulse response and channel of transmission which enables us to identify separate channels, based on the behaviour of the underlying results, the movements of an individual financial market variable can be ascertained. The importance of such interdependence has been stressed in the

literature on financial linkages (Engle 2002).

2 Review of Related Literature

2.1 Conceptual review

Literatures on financial linkages have identified two separate strands; one of these strands focuses on the *domestic* transmission and its determinants, the other focuses on *international* transmission. According to Mishra and Montiel (2012) transmission across financial markets is assumed to operate mostly through four mechanisms: the interest rate channel, the asset channel, the exchange rate channel, and the credit channel. The central bank policies aimed at changing bank reserves in the form of money-market rate affect the interest rate charged on lending by commercial bank, and arbitrage on the maturity horizon transmits the effects to the rate of return on long-term bonds. This represents the interest rate channel. The asset price channel comprises of the arbitrage between long-term bonds, equities and real assets, which affects stock market values and real asset prices, which in turn affect household wealth and consumer spending. The exchange rate channel is the arbitrage between assets denominated in domestic and foreign currencies and the effects on the real exchange rate, which alters the composition of consumption and investment spending between domestic and foreign goods. Lastly, the credit channel is about the frictions in credit market, created as a result of some borrowers having access to external funds only through bank credit, while other borrowers pay a premium over the risk-free rate depending on their net worth. Therefore, the credit channel comprises of the dual effects of changes in the supply of banking system reserves on aggregate demand as a result of changes in the terms on which bank customers have access to loans (the credit channel) as well as through changes in the external finance premium (the exchange rate channel).

Monetary policy is a developmental economic reform instrument applied to inject or mop-up liquidity in an economy with the aim of achieving price stability. Stock market is a market for equities and financial assets like bonds. Corporate organizations and governments at national, state and local levels can raise fund in the stock market to finance their businesses or developmental infrastructural projects. Tahir (2012) wrote that the relationship between stock prices and monetary policy cannot be over emphasized and has received attention in different countries. This is because no economy is stagnant and studies of this nature need to be done from time to time in order to follow up the changing behavior of these variables. This can be said to be important because of the implications of the findings on the effect of monetary policy on investors' portfolio and vice versa. Therefore, policy makers and participants in both money market and capital market should be aware of the relationship between monetary policy and stock market performance in order to have a good understanding of the effects of policy shifts.

2.2 Theoretical Review

According to Pritsker (2000), assets that are traded on the financial market of a country are claims on the cash flows of the real sector. In perfect markets, the price of the assets should depend only on how the cash flows co-vary with

consumption, and there should be no need for financial intermediaries. However, because there are market imperfections, intermediaries play an important role in lending funds (banks), underwriting security issues (investment banks), providing liquidity in markets (securities broker/dealers and market makers), and in spreading risks towards those investors most willing to bear them (Non-Bank Financial Market Participants (NBFMP) such as hedge funds and mutual funds) and assumed that the prices and liquidity of financial markets are potentially affected by the capital position of these intermediaries relative to their risks.

Kodres and Pritsker (1999) identify four separate channels of financial market contagion.

2.2.1 Correlated information channel: This channel identifies that if there are common macroeconomic influences that determine assets values in more than one country because of real linkages, then the real linkage causes financial markets to be linked. More specifically, if there is a publicly observable negative real shock in country *i* and through real linkages, this shock is transmitted to the real sector of country *j*, then the stock markets of countries *i* and *j* will respond to the real shocks. Though, country *i* can experience many types of real shocks; some publicly observable real shocks will affect country *i* and its stock market, but will not be transmitted to the real sector of country *j* or *j*'s stock market. Because of this, shocks in the real sector of country *i* that directly affect the real sector of country *j*, will be fully reflected in the financial markets of both countries, and shocks in *i* that have no implications for the real sector *j* will not be reflected in the prices of financial market *j*.

In an imperfect public information market, these illustrations are different. Suppose that real shocks in *i* are not publicly observable, but are privately observable to some financial market participants in country *i*. Then a negative real shock in country *i* will lower prices in *i*'s financial market, but financial market participants in market *j* will not be able to discern whether the price decline in market *I* reflects information that is relevant for market *j*, but because of the possibility that it is relevant, a price decline in market *i* will cause a price decline in market *j*. The information that market participants are trading on in country *i* might be relevant for country *j*; i.e. the information participants trade on in country *i* is unconditionally correlated with the value of real assets in country *j*. Thus, the contagion from the correlated information channel is consistent with the notion of contagion base on price movements that are excessive relative to full-information fundamentals.

2.2.2 Correlated liquidity channel: This is when a financial market participant experiences an idiosyncratic shock that forces the participant to liquidate his portfolio holding, and does so in a number of markets. In addition to this step, the participant might rebalance their portfolio across markets because they follow portfolio strategies that involve the chasing of price trends, regardless of beliefs about market fundamentals (feedback trading). Considered in a single market, feedback trading would occur if a participant makes buy/sell decisions based on past

price movements, for example buying after prices rise (low price), or selling after prices has fall (high price). In a multiple market setting, participants can possibly engage in cross-market feedback trading in which participants respond to a price change in one market by altering their positions in other markets, causing contagion.

2.2.3 Cross-market hedging channel: This channel occurs as result of investor's response to shocks by readjusting their hedges to macroeconomic risks. Cross-market hedging can transmit shocks between two countries whose macroeconomies share no macroeconomic risk factors in common provided, that both countries share risk factors with a third country.

2.2.4 Wealth shocks channel: If investors experience shock to their wealth, it may be optimal to alter their portfolio holdings. For example, investors with decreasing relative risk aversion may optimally choose to move their portfolios toward less risky assets as their wealth declines. This behavior can cause contagion that is analogous to a correlated liquidity shock. The main difference is that investors responding to the wealth shock choose to liquidate, whereas investors responding to the correlated liquidity shock are forced to liquidate.

2.3 Empirical review

Ioannidis and Kontonikas (2006) opined that monetary authority is faced with the dilemma of whether to react to stock price movements or the standard response to inflation and output developments. This provides an impetus as to the importance of studying monetary policy and stock market transmission channel.

In a study by Rigobon and Sack (2003a), used the VAR method noted that monetary policy responds to information in equity markets, in another work by Bernanke and Kuttner (2004), Ehrmann and Fratzscher (2004) also used VAR methodology asserted that equity prices react strongly to monetary policy shocks in the United States. In a simultaneous analysis by Rigobon and Sack (2003b) employed the Granger causality methodology, used bond prices, short-term interest rates and equity prices noted that causality of the transmission process may run in several directions, giving an instance, the correlation between United States short-term interest rates and equity prices may change from positive to negative depending on the dominant asset price in the particular periods.

Gudmundsson (2007) used Vector Error Correction Model (VECM), the result indicated some evidence of weakening of interest rate channel and overburdening of exchange rate channel exists. In another study by Catao and Pagan (2010) using expectation-augmented Structural Vector Auto-Regression (SVAR) noted that bank credit channel plays an important role in the financial market. Furthermore, the study also added that the impact of monetary policy in Brazil and Chile are quite similar to that of the advanced economies. Mukherjee and Bhattacharya (2011) conducted a study for 9 industrial and 17 emerging and developing countries concluded that adoption of inflation targeting did not significantly alter the traditional Keynesian interest

rate channel in inflation targeting emerging market economies.

According to Patelis (1997), stocks are claims on future economic output therefore, if monetary policy has any real economic effects, then stock markets should be influenced by monetary policy position. Osuagwu (2009), employed Vector Error Correction Model (VECM) noted that changes in stock market index are largely influenced by monetary policy variables in the long run and the short run. In another study, Jensen et al. (1996), asserted that monetary environment affects investors' required returns and that predictable variation in stock returns depends on monetary policy as well as business conditions, with expected stock returns higher in tighter monetary policy periods than in ease monetary policy periods.

A study which looks at the dynamic long run relationship between stock returns, inflation and interest rates in Nigeria using Error Correction Model (ECM) technique by Ogbulu (2010) concluded that there is positive long run significant relationship between inflation and interest rate, negative long run significant relationship between inflation and stock returns and a negative long run relationship between interest rates and stock returns in Nigeria. Another study by Okpara (2010) showed that a change in the central bank of Nigeria's rediscount rate (MRR/MPR) can affect other short term interest rates, long term interest rates, foreign exchange, and stock prices, and that monetary policy is a significant determinant of long run stock market returns in Nigeria. Thorbecke (1997) noted that expansionary monetary policy have large statistical significant positive effect on monthly stock returns.

Ajayi (2007), used the impulse response functions from the estimated Vector Auto-regressions (VAR) asserted that monetary policy transmission channel differs in different economies because the channel depends partly on the institutional structures. However, the differences are minimal and involve the importance of different channels and not the existence of the channels themselves. Giovannetti and Velucchi (2013) used a synthetic index, volatility spillover balance that distinguishes between volatility "creators" and "absorbers" of United States, United Kingdom and China financial market on African financial market, the findings revealed that South Africa and United States' financial market shocks statistically and significantly affects African financial markets, and that China has recently become more interconnected to the African financial market. Also, while United States, Kenya and Tunisia are "net creators" of volatility spillovers, South Africa and China are net "absorbers". Ishioro (2013) used Granger causality approach concluded that three channels is functional in Nigeria; the interest rate, exchange rate and the credit channels.

Finally, from the various works reviewed, it can be deduced that studies on financial market transmission have different objectives as specified in their models and this can be seen in the variables for the measurement been different from studies to studies. However, the objective of this paper is to investigate the nature of financial markets linkages by finding the

transmission channel between capital market variables and money market variables in Nigeria, this will inform the policy measures to be adopted by monetary policy managers and capital market authority, and predict the transmission findings for policy consideration and implementation.

3 Methodology

In this section, the paper discusses the empirical strategy employed for assessing the channel of transmission in the Nigerian financial market on a range of financial market variables from the capital and money market. It start with the section that outlining the dataset, in particular the variables that will be used to test the transmission channel in the Nigerian financial market.

3.1 Data

To ascertain the transmission channel, secondary data were sourced and extracted from the Central Bank of Nigeria (CBN) statistical bulletin (2013) and the Nigerian Stock Exchange fact book (2010 & 2013). The time period covered in the dataset range is 1980 to 2013 using a set of six (6) financial market variables from both the money and capital market of the Nigerian financial system. The variables are Minimum Rediscount Rate / Monetary Policy Rate (MRR), Average Lending Rate (ALR) and Average savings Deposit Rate (ADR) all as proxies for money market while Average Coupon of listed Government Bonds (ACGB), Average Coupon of listed Corporate Bond (ACCB) and Average Dividend Yield on Equities (ADYE) all as proxies for capital market.

3.2 Model Specification

Studies in the literature have utilized the Vector Auto-Regressive (VAR) model or its variant as the basis for estimating financial market transmission channel (Ajayi, 2007; Catao & Pagan, 2010; Ioannidis & Kontonikas, 2006; Mishra, Montiel, Pedroni, & Spilimbergo, 2014; Rigobon & Sack, 2003a; Saxegaard, 2006; Uanguta & Ikhide, 2002; among others). Therefore, to evaluate the transmission channel in the Nigerian financial market, the following Vector Auto-Regresion (VAR) model is developed to show the relationship and identify the link and direction of financial market variables response in Nigerian context.

$$ACCB = \beta_1 + \beta_2 ACGB_{t-i} + \beta_3 ADR_{t-i} + \beta_4 ADYE_{t-i} + \beta_5 ALR_{t-i} + \beta_6 MRR_{t-i} + \beta_7 ACCB_{t-i} + \mu_1$$
$$ACGB = \beta_8 + \beta_9 ACCB_{t-i} + \beta_{10} ADR_{t-i} + \beta_{11} ADYE_{t-i} + \beta_{12} ALR_{t-i} + \beta_{13} MRR_{t-i} + \beta_{14} ACGB_{t-i} + \mu_2$$
$$ADR = \beta_{15} + \beta_{16} ACCB_{t-i} + \beta_{17} ACGB_{t-i} + \beta_{18} ADYE_{t-i} + \beta_{19} ALR_{t-i} + \beta_{20} MRR_{t-i} + \beta_{21} ADR_{t-i} + \mu_3$$
$$ADYE = \beta_{22} + \beta_{23} ACCB_{t-i} + \beta_{24} ACGB_{t-i} + \beta_{25} ADR_{t-i} + \beta_{26} ALR_{t-i} + \beta_{27} MRR_{t-i} + \beta_{28} ADYE_{t-i} + \mu_4$$
$$ALR = \beta_{29} + \beta_{30} ACCB_{t-i} + \beta_{31} ACGB_{t-i} + \beta_{32} ADR_{t-i} + \beta_{33} ADYE_{t-i} + \beta_{34} MRR_{t-i} + \beta_{35} ALR_{t-i} + \mu_5$$
$$MRR = \beta_{36} + \beta_{37} ACCB_{t-i} + \beta_{38} ACGB_{t-i} + \beta_{39} ADR_{t-i} + \beta_{40} ADYE_{t-i} + \beta_{41} ALR_{t-i} + \beta_{42} MRR_{t-i} + \mu_6$$

Where $ACCB_{t-i}$ is the period(s) lag of Average Coupon on Corporate Bond, $ACGB_{t-i}$ is the period(s) lag of Average Coupon on Government Bond, ADR_{t-i} is the period(s) lag of Average savings Deposit Rate, $ADYE_{t-i}$ is the period(s) lag of Average Dividend Yield on Equities, ALR_{t-i} is the period(s) lag of Average Lending Rate, and MRR_{t-i} is the period(s) lag of Minimum Rediscount Rate/Monetary Policy Rate. The lag length will be determined by adopting lag lengh criterion such as the Akaike Information Criterion (AIC),

Final Prediction Error (FPE), Hannan-Quinn Information Criterion (HQ), etc. μ_1, μ_2, μ_3, μ_4, μ_5, and μ_6 are the residuals of the models and they are used to measure the responses of the variables in the system to establish the channel of transmission.

The Vector Auto-regression (VAR) model is employed to show the response of the variables to a unit standard deviation shock to the error terms. It can be deduced from the Vector Auto-regression (VAR) system above that a unit shock in μ_1 will affect the Average Coupon on Corporate bond (ACCB) and all other ACCB in the system will in turn affects the dependent variables. In the same vein, any innovation in μ_2 will affect Average Coupon on Government Bond (ACGB) and ACGB in other models will in turn affect the dependent variables in the system. Therefore, a shock or change in μ_1, μ_2, μ_3, μ_4, μ_5, and μ_6 will affect the whole Vector Auto-regression (VAR) system meaning that a shock in the residuals of the Nigerian financial market will affect the whole financial system.

There is contentious issue of whether to estimate Vector Auto-regression (VAR) using the data at level or difference. In literature there are three options; (i) To transform the data to stationary by taking the difference, (ii) Follow the Sims et al. (1990) who posit that "The common practice of attempting to transform data to stationary form by difference or co-integration operators whenever it appear likely that data are integrated in many cases is unnecessary" (pp-136) that is, converting the data to stationary is not so important, the data can be used at level, (iii) Use Vector Error Correction Model (VECM) by applying co-integration technique. Sims et al. (1990), Bernanke and Blinder (1992), Sims (1992), Levy and Halikias (1997), Peersman and Smet (2001), Tahir (2012) estimate Vector Auto-regression (VAR) at level. Monticelli and Tristani (1999), use stationary variables in the VAR model. The use of stationary or non-stationary data in a Vector Auto-regression (VAR) model is a debatable point. This study will estimate Vector Auto-regression (VAR) using the data at level. Needless to say that differencing brings the loss in information; secondly, by estimating Vector Auto-regression (VAR) model at level allow for implicit co-integration in the data as explained by Peersman and Smet (2001).

4. Empirical Findings

This section presents the findings from the Vector Auto-regression (VAR) model as indicated in the methodology section to estimate the financial market transmission channel in Nigeria. The result is expected to show the direction and the size of responses to positive shock by the variables in the financial market by applying a unit standard deviation shock to the variables. This method of measuring responses of the variables implies that the effects of shock can be estimated and predicted. This section will consists of the lag selection criteria, the VAR model result, the model appropriateness test and the transmission result.

4.1 Lag selection

Table 1: VAR Lag Order Selection Criteria

Lag	Log L	LR	FPE	AIC	SC	HQ
0	-511.866	NA	13040610	33.4107	33.6883	33.50118
1	-423.567	136.721	468282.9	30.0366	31.9794*	30.66988
2	-386.728	42.7809	588788.6	29.9824	33.5905	31.15859
3	-320.108	51.5768*	196329.5*	28.0070*	33.2803	29.7259*

*indicates lag order selected by the criteria
***SOURCE**: Eviews output run by the author, 2015*

The issue of lag selection is important when using the Vector Auto-Regression (VAR) model because different lag selection criteria provide different lag order. In this study, the VAR lag order selection criteria (Table 1) indicates that the sequential modified Likelihood Ratio (LR) test, the Final Predictor Errors test (FPE), the Akaike Information Criterion (AIC) and the Hannan-Quinn Information Cretion (HQ) suggests 3 lags, while the Schwarz Information Criterion (SIC) suggest 2 lags. Based on the lag order selection criterion, 3 lag is used for this study.

4.2 Model appropriateness tests

There are some features that the VAR model should satisfy before it can be used for prediction, such conditions includes normality of the residuals, absence of autocorrelation, and no serial correlation, among others. These tests were conducted on the residuals to decide if this model is robust. The residual tests adopted for this study are the serial correlation test, normality test and the auto correlation test.

4.2.1 Serial correlation test

Table 2: VAR Residual Serial Correlation LM Tests

Lags	LM-Stat	P Value
1	50.154	0.058
2	83.139	0.000
3	47.904	0.089

Probs from chi-square with 36 df
***SOURCE**: Eviews output run by the author, 2015*

The serial correlation test according to Tintner (1965) in Gujarati and Porter (2009) is the lag correlation between two different series. That is, correlation between $\mu_1, \mu_2, \mu_3, \mu_4, \mu_5$ and μ_6.

The result (Table 2) indicates that the P value at 3 lag is more than 5% meaning that null hypothesis cannot be rejected. Therefore, the result indicates that the residuals are not serially correlated and this is desirable for an appropriate VAR model.

4.2.2 Normality test

Table 3: VAR Residual Normality Tests

Component	Skewness	Kurtosis	Jarque-Bera
1	0.15**	2.18**	0.98**
2	0.64**	3.88**	3.15**
3	-0.14**	4.02**	1.46**
4	-0.33**	2.34**	1.27**
5	-0.24**	2.61**	0.49**
6	1.04*	5.49*	13.60**
Joint	8.80**	12.01**	20.81**

*indicate significant at 5%

**indicate significant at 10%

***SOURCE**: Eviews output run by the author, 2015*

The normality test ascertains if the residuals are normally distributed. In this paper, the Jaque-Bera test statistics is used, which is a joint hypothesis of the skewness and kortosis at 0 and 3 respectively, under the null hypothesis that the residuals are normally distributed.

The skewness of the variables (Table 3) indicates that individually the residuals are normally distributed with their P values of more than 5% except component six (6), but jointly they are multivariate normal with a joint P value of more than 5%. In the same vein, the P values of the kurtosis also shows that all the components are individually normal except component six (6), but jointly they are multivariate normal with a P value is more than 5%. The skewness and kortosis indicates that the null hypothesis cannot be rejected showing that the residuals are normally distributed.

Finally, the Jarque-Bera statistics which combines the skweness and kortosis shows that the P values of the components are individually more than 5% which mean that the null hypothesis cannot be rejected, indicating that the residuals of the component individually are normally distributed. Again the joint P value is also more than 5%, indicating that the residuals are multivariate normal which is desirable for the VAR model.

4.2.3 Autocorrelation test

The auto correlation test shows the lag correlation of a given series with itself, lagged by a number of time units (Tintner (1965) in Gujarati and porter (2009)). That is, one period lag correlation between μ_1, μ_2, μ_3, μ_4, μ_5 and μ_6.

The graphical representation of the autocorrelation test (see Appendix, Figure 1) with 3 lags shows that just a few of the spikes in the graphs are lying outside the margin at the top and bottom of the graphs. This indicates that the residuals of the Vector Auto-regression (VAR) model do not have autocorrelation.

Therefore, from the three (3) tests conducted to ascertain the appropriateness of the Vector Auto-regression (VAR) estimate of the model,

all the tests indicates that the model is appropriate to measure the transmission channel and the response of the financial market variables to one another in the Nigeria financial system.

4.3 Transmission channel

In other to measure the transmission channel of financial market variables used in this paper, the impulse response function is adopted. The cholesky dof adjusted method is used to set the ordering of the variables and a positive shock of one standard deviation is given to the residuals in the Vector Auto-regression (VAR) model to see the reactions of the variables. The model is forecasting for 5 periods response of the variables.

Figure 2 in the Appendix depicts the impulse response of the variables to a standard deviation shock in μ_1, μ_2, μ_3, μ_4, μ_5, and μ_6. When a standard deviation shock is applied to μ_1 as a measure of the response of ACCB indicates an identical response to ACGB and ADR with a positive response, the response to ADYE is negative for the first two periods and positive in the third period then become negative in the fourth and fifth periods. The response to ALR is positive in the first two periods and become zero in the third period and thereafter become negative and the response to MRR is negative throughout the periods.

This shows that an increase in MRR will lead to a decline in ACCB to attract investible funds to corporate bond, while an increase ACGB and ADR will lead to an increase in ACCB which is not appropriate for corporate bond attractiveness to investors. Response of ACCB to an Increase in ADYE will be negative for only a slight positive in the third period, which may be as a result of the same company participating in the bond market and equity market. Increase in ALR will lead to an increase in ACCB for the first two periods and then start to decline afterwards as a result of investors taking the advantage of the increase in coupon of corporate bond and then opting out in subsequent years to reduce their portfolio risk.

The transmission channels of shock from ACCB, ADR, ADYE and ALR to ACGB which is a measure of shock in μ_2 are identically positive except for negative in the fourth period from ACCB, third period from ADR and the first two periods in ADYE but positive through the periods for ALR. The response to MRR is negative for first three periods and positive in the fourth and fifth periods.

This shows that an increase in MRR will lead to a decline in ACGB for first three periods and then increase afterwards in order for government bond to be attractive to investors or the reaction of the bond market participants. Increase in ACCB, ADR, ADYE and ALR will lead to a similar transmission or relatively positive response from ACGB may be as a result of the risk free nature of government bond.

The transmission channel of shock in the residual (μ_3) to ADR is positive from ACCB, negative from ACGB, negative in the first three periods from ADYE then positive in the fourth period and become zero in period five. The transmission is negative from both ALR and MRR.

This shows that increase in MRR and ALR will lead to a decrease in ADR

because the ADR do not always respond to movement in MRR and ALR in the Nigeria banks. Increase in ACCB will lead to increase in ADR as a result of the activities of the banks to mobilize deposit, while an increase in ACGB will lead to a decline in ADR as a result of investor's preference for government bond. An increase in ADYE will lead to a decline in ADR except for the fourth period because equity investment is attractive than deposit from investor's perspective.

When an innovation is introduce to the variables through μ_4, the response of ADYE is positive to ACCB, negative to ACGB, while the response is negative in the first period but become positive and zero afterwards to ADR. The response is negatively constant to ALR and the response is positive for the first two periods to MRR, negative in the third period and positive again in the fourth and fifth periods.

This shows that an increase in MRR and ACCB will lead to an increase in ADYE may be because the corporate firm is also listed in the equity market and the equity market participant is responding to the MRR. An increase in ACGB will lead to a decline in ADYE because of investor's preference for government bond and risk free nature. Increase in ADR will lead to a fluctuating response of negative and near zero in ADYE, this may be as a result of the risky nature of the equity market and the less risky nature of deposits in the bank. Increase in ALR will lead to decrease in ADYE because an increase in ALR will not encourage borrowing for investment in the equity market.

The response of ALR to changes in μ_5 is negative to ACCB in the first year but become positive in the second year and remains positive throughout the years. The response to ACGB is negative, while the response to ADR is positive in the first year and zero response in the second and third year, negative in the fourth year and zero in the fifth year. The response to ADYE is negative in the first year then become positive in the second year and become zero afterwards while the response to MRR is slightly above zero for the first three years and positive in the fourth and fifth years.

This shows that an increase in MRR will lead to an increase in ALR this may be as a result of the relationship between MRR and ALR. Increase in ACCG will initially lead to a decrease in ALR but begin to increase afterwards; this may be as a result of investors' attitude to study the cause of event in the corporate bond before responding. An increase in ADR will lead to no significant response from ALR for most of the period and this shows the insensitivity or the disparity between the ADR and ALR in Nigerian banks. Increase in ADYE will lead to almost no significant change in ALR this may be as a result of the disconnection between the time horizon of bank lending (short term) and equity investment (long term).

The transmission channel from μ_6 to MRR is positive from ACCB, negative from ACGB, positive in the first two periods from ADR and negative in the third period then become positive in the fourth period and negative in the fifth period. The response to ADYE is negative for the first two periods and positive in the third and fourth periods

then become negative in the fifth period. The response to ALR is positive and constant from the second period throughout.

This shows that an increase in ACCB will lead to an increase in MRR while an increase in ACGB will lead to a decline in MRR this may be as a response of the regulatory authority's response to control the flow of investment between corporate bond and government bond. Increase in MRR will lead to an initial increase in ADR and then a fluctuating response follows this may be as result of banks trying to make savings attractive in order to ward-off the effect of an increase in MRR in the economy. Increase in ADYE will lead to a fluctuating response in MRR for two (2) alternate periods starting with a decline. Increase in ALR will lead to a constantly positive response from the MRR this is as result of the direct relationship between ALR and MRR.

The transmission of and response to shock in the variables are of different magnitude in relation to the financial market variables but the transmission are shown to exist over the period which is in support of Bernanke and Kuttner (2004), Ehrmann and Fratzscher (2004), Mishra, et al (2010), Mishra et al (2014), Rigobon and Sack (2003b), Saxegaard (2006). Ranking the responses and the magnitude of transmission, the Average Lending Rate (ALR) has the highest response at 10 basis point, Minimum Rediscount Rate/Monetary policy Rate (MRR) and Average savings Deposit Rate (ADR) is next with 4 basis point, Average Coupon on Corporate Bond (ACCB) and Average Coupon on Government Bond (ACGB) has 3 basis point while Average Dividend Yield on Equity (ADYE) has the least response at 2 basis point.

In conclusion, this paper has shown that there exist channels of transmission between the financial markets variables with different direction in respect to the variables used. It has also establish that the credit and the asset price channel exist in the Nigerian system, therefore for any policy formulation to contrast or expand the financial market, this paper provide a glimpse of what direction and responses of financial market variable movement can be over a period of time.

5 Concluding remarks

The paper seeks to assess the responses of the Nigeria's financial market to innovations using data over a period of 1980 to 2013. The financial market variables used are the Average Coupon on Corporate Bond (ACCB), Average Coupon on Government Bond (ACGB) and Average Dividend Yield on Equities (ADYE) as proxies for capital market while Average savings Deposit Rate (ADR), Average Lending Rate (ALR) and Minimum Rediscount Rate/Monetary Policy Rate (MRR) all as proxies for money market. The study employs the Vector Autoregression (VAR) methodology.

The paper provides a glance of the response or the transmissions of shock in the financial market from one variable to the other in the financial system. For example, the system model of Average Coupon on Corporate bond for instance shows that Average Coupon on Corporate bond will be in the positive region moving up then reducing but still positive as a response to shock affecting Average coupon on

Government Bond. The Average Coupon on Corporate bond will exhibit a similar response to shock affecting Average Deposit Rate but at a lower rate compare to Average Coupon on Government Bond. The Average Coupon on Corporate bond will respond negatively to shock affecting Average Dividend Yield and Monetary Policy Rate but respond positively to shock in Average Lending rate for the first two periods and then become negative. Responses of other variables to shocks can be read from the response function as shown in figure 2.

The study found that the Average Lending Rate shows the highest response to shocks in the system followed by Average Deposit Rate and Minimum Rediscount Rate / Monetary Policy Rate followed by Average Coupons on Government and Corporate Bonds with same response while Average Dividend Yield response is the lowest. The natural interpretation of this finding is that Nigeria has weaker institutional environments, less developed financial structures, reduced role of securities markets, and less competitive banking system where monetary policy shocks do not get transmitted to interest rates as a result of non-stable asset prices, low level of savings and lending to investors, this is consistent with the findings of Mishra, et. al (2012), Mishra, et.al (2014) and Saxegaard (2006), Uanguta and Ikhide (2002) that those links should operate primarily through the bank lending channel.

This study has shown that the credit channel and the asset price channel of financial market transmission exert serious impact in the Nigerian financial market. The result is in contrast with the findings of Abaenewe and Ndugbu (2012) that monetary policy has not made significant influence over the prices of stocks in Nigeria and that there appears to be a disconnection in the Nigerian financial market. However, the result is in line with Omotor (2007) and Ishioro (2012) that financial transmission channel exist in Nigeria and that policy target at the financial market should fundamentally aimed at achieving stable asset prices, enhance savings and lending to investors is essential for the purpose of economic growth.

The results underline the existence of domestic spillovers within asset classes in the financial market. A key finding of the paper is that there are substantial domestic financial market linkages which underline the argument that a better understanding of the linkages requires the modeling of financial market linkages, which so far has been scanty in the literature.

The paper has addressed the issue of how to model financial market linkages and, in particular, how to address the endogeneity of financial market variables in the Nigerian financial market context as well as the identification of the transmission channels of financial market shocks. This analysis is important in order understand the role, sizes and sign of the different financial market transmission channels for policy purposes, in particular for a better understanding of how monetary policy and financial shocks are transmitted domestically in the Nigerian financial market.

Still, lots of open questions and avenues for further research remain though, especially in obtaining a better understanding of the underlying economic factors, and possible time variations in financial linkages, which are only briefly touched in this paper, are important issues for further research.

One key policy implication is that monetary policy may not be a reliable instrument with which to pursue macroeconomic stabilization in Nigeria because of the poor institutional environment, less developed financial structures, reduced role of securities markets, and less competitive banking system where monetary policy shocks do not get transmitted to interest rates as a result of non-stable asset prices, low level of savings and lending to investors, this give rise to the question of how the Central Bank of Nigeria (CBN) should operate in such an environment.

This paper also shows that asset price is an important element of the financial market transmission mechanism. This provides a rationale for why financial market authorities should also pay attention to the asset prices in the conduct of policy. The major issue here is that asset price fluctuations depends on the nature of the shocks to asset prices and the degree of permanence of the shocks.

In order to answer the questions and issues raised above, the Nigerian financial market environment should be characterized by some of these recommendations as provided by Mishra, et al (2010):

(i) A strong institutional environment where loan contracts can be protected and financial intermediation should be conducted through the financial markets.
(ii) The Central Bank of Nigeria should be independent in its true sense in order for it to perform its monetary and developmental roles effectively
(iii) A well-functioning and highly liquid interbank market for reserves should be encouraged and monitored by the independent Central Bank of Nigeria
(iv) A well-functioning and highly liquid secondary market for government securities should be encouraged and investors should be attracted to the market.
(v) Well-functioning and highly liquid markets for equities, commodities and real estate should be established and properly monitored by the Securities and Exchange Commission to boost capital inflow.
(vi) A high degree of international capital mobility financial environment for profitable and secure investment should be encouraged.
(vii) A floating exchange rate regime where market forces determine the value of currency should also be encouraged not a managed foreign exchange market.

Other policy implications are that since financial market participants buy in for surprises or shocks in monetary policy pronouncements as shown by the responses of the tree (3) money market variables (Average Lending Rate, Average Deposit Rate and the Monetary Policy Rate), therefore, policymakers should declare realistic and achievable monetary targets.

Policies should also be targeted at maintaining a low lending rate that will lead to low level of inflation through a realistic and robust inflation target framework that will increase output and employment.

Since capital market responses are found to exist after the money market responses, investors (local and international) should be encouraged to invest in the capital market because the market has low transaction cost, large access to securities and low information asymmetries, and this will improve liquidity in the capital market.

Investors' confidence should be boosted by putting in place a transparent legal framework and adequate implementation without fear or favour in both the money market and the capital market.

Therefore, for the efficiency and effectiveness of policies, target at the financial market, variables that are implicitly or explicitly related to the credit channel and asset price channel should be adequately incorporated in order to stimulate sectoral structural reorientation and economic growth. These will go a long way in promoting stability and confidence desired in the financial market.

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Appendix

Figure 1: Autocorrelation Graphical Representation

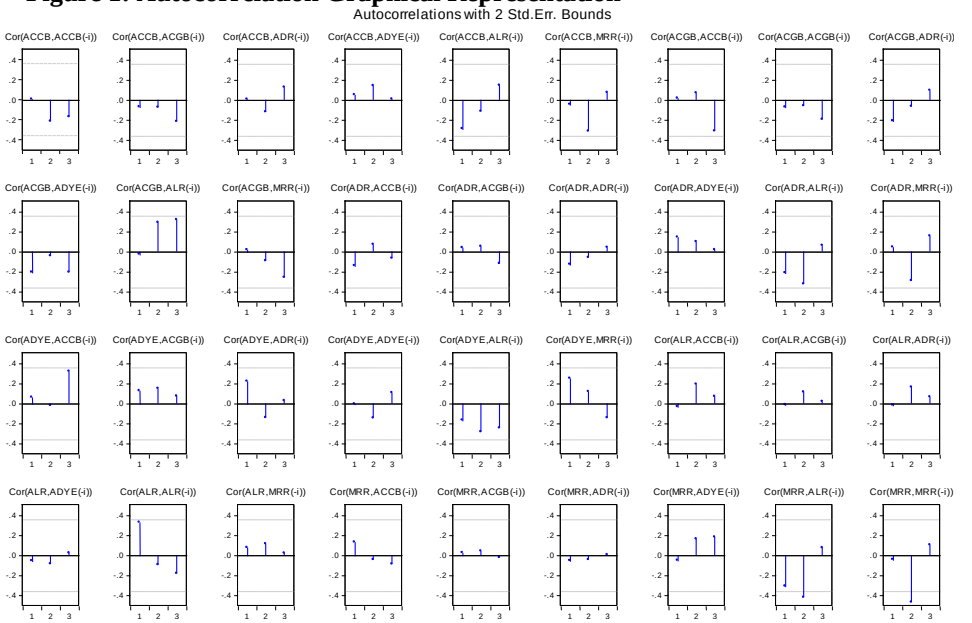
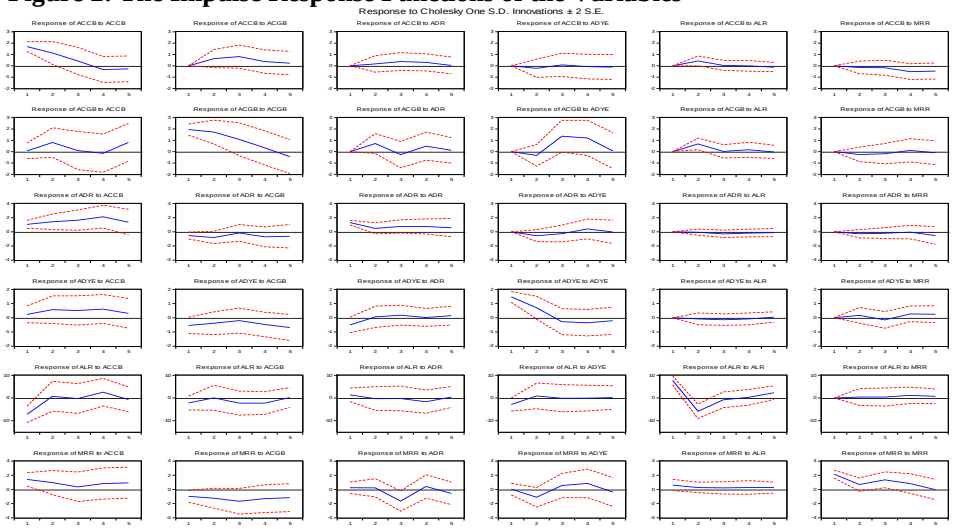


Figure 2: The Impulse Response Functions of the Variables



***SOURCE**: Eviews output run by the author, 2015.*