Aims and Scope
Understanding Monetary Policy Series are designed to improve monetary policy communication as well as economic literacy. The series attempt to bring the technical aspects of monetary policy closer to the critical stakeholders who may not have had formal training in Monetary Management. The contents of the publication are therefore, intended for general information only. While necessary care was taken to ensure the inclusion of information in the publication to aid proper understanding of the monetary policy process and concepts, the Bank would not be liable for the interpretation or application of any piece of information contained herein.

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Central Bank of Nigeria

Mandate

- Ensure monetary and price stability
- Issue legal tender currency in Nigeria
- Maintain external reserves to safeguard the international value of the legal tender currency
- Promote a sound financial system in Nigeria
- Act as banker and provide economic and financial advice to the Federal Government

Vision

“By 2015, be the model Central Bank delivering Price and Financial System Stability and promoting Sustainable Economic Development”

Mission Statement

“To be proactive in providing a stable framework for the economic development of Nigeria through the effective, efficient and transparent implementation of monetary and exchange rate policy and management of the financial sector”

Core Values

- Meritocracy
- Leadership
- Learning
- Customer-Focus
MONETARY POLICY DEPARTMENT

Mandate
To Facilitate the Conceptualization and Design of Monetary Policy of the Central Bank of Nigeria

Vision
To be Efficient and Effective in Promoting the Attainment and Sustenance of Monetary and Price Stability Objective of the Central Bank of Nigeria

Mission
To Provide a Dynamic Evidence-based Analytical Framework for the Formulation and Implementation of Monetary Policy for Optimal Economic Growth
The understanding monetary policy series is designed to support the communication of monetary policy by the Central Bank of Nigeria (CBN). The series therefore, provides a platform for explaining the basic concepts/operations, required to effectively understand the monetary policy of the Bank.

Monetary policy remains a very vague subject area to the vast majority of people; in spite of the abundance of literature available on the subject matter, most of which tend to adopt a formal and rigorous professional approach, typical of macroeconomic analysis. However, most public analysts tend to pontificate on what direction monetary policy should be, and are quick to identify when in their opinion, the Central Bank has taken a wrong turn in its monetary policy, often however, wrongly because they do not have the data for such back of the envelope analysis.

In this series, public policy makers, policy analysts, businessmen, politicians, public sector administrators and other professionals, who are keen to learn the basic concepts of monetary policy and some technical aspects of central banking and their applications, would be treated to a menu of key monetary policy subject areas and may also have an opportunity to enrich their knowledge base of the key issues. In order to achieve the primary objective of the series therefore, our target audience include people with little or no knowledge of macroeconomics and the science of central banking and yet are keen to follow the debate on monetary policy issues, and have a vision to extract beneficial information from the process, and the audience for whom decisions of the central bank makes them crucial stakeholders. The series will therefore, be useful not only to policy makers, businessmen, academicians and investors, but to a wide range of people from all walks of life.

As a central bank, we hope that this series will help improve the level of literacy in monetary policy as well as demystify the general idea surrounding monetary policy formulation. We welcome insights from the public as we look forward to delivering content that directly address the requirements of our readers and to ensure that the series are constantly updated as well as being widely and readily available to the stakeholders.

Moses K. Tule
Director, Monetary Policy Department
Central Bank of Nigeria
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Introduction

1.1 Motivation and Objectives

Globally, the role of financial derivatives in the functioning of the capital markets and liquidity management is often not well understood due to its complex nature. There is no consensus on the effects of financial derivatives in liquidity management, there is need therefore, to review the pros and cons of the financial derivatives market, and discuss how it influences liquidity management. This is necessary because the re-emergence of inflationary pressures, posed by the liquidity surfeit in the banking system and the huge cost associated with the current liquidity management approach, has motivated the search for alternative approaches to liquidity management, including the use of financial derivatives. The liquidity surfeit has been partly blamed on the lack of variety in financial products in the capital market. It is widely believed that introduction of financial derivatives would reduce volatility of security prices and increase the volume of trading in the capital market. This present exposition is aimed at providing greater insight into the financial derivatives market and how it influences the trading in the underlying assets.

Specifically, the main objectives of this paper are as follows:

i. Discuss the key features of financial derivatives;
ii. Understand the operation of financial derivatives market from theoretical perspective;
iii. Increase our knowledge of the role of financial derivatives in liquidity management; and

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1This publication is not a product of vigorous empirical research. It is designed specifically as an educational material for enlightenment on the monetary policy of the Bank. Consequently, the Central Bank of Nigeria (CBN) does not take responsibility for the accuracy of the contents of this publication as it does not represent the official views or position of the Bank on the subject matter.

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The paper is structured as follows. Section one explains the context of the paper giving the motivation, a broad overview of financial derivatives and the need for financial derivatives. Section two, which is the conceptual framework, contains the features of financial derivatives, forms of financial derivatives and the merit and demerits of financial derivatives from a purely theoretical perspective. Section three focuses on the role of financial derivatives in liquidity management. It contains literature on the role of derivatives in liquidity management in both advanced and emerging market economies as well as in Nigeria. A conclusion is presented in Section four.

1.2 Background

1.2.1 What is Financial Derivative?
Financial Derivatives refer to a variety of financial transactions and contracts of different structure, purpose and use. Financial derivatives refer to a class of financial instruments whose value is derived from some future events. These events may be associated with a financial asset or delivery of commodities to take place at some future date. In other words, a financial derivative refers to a special class of contingent claim, traded in the financial market as separate financial instrument, for example, forwards, futures, options and Swaps, among others too numerous to mention. Typically, this class of financial securities derive their value from future events, such as commodity delivery expected to take place at a future date, or some other financial instruments expected to mature some time in future (Poitras, 2002).

In specific terms, the US General Accounting Office has defined a financial derivative as: ‘a financial contract whose value depends on the values of one or more underlying assets or indices of asset values’. Generally speaking, the market value of derivatives depends on the volatility in the values of the underlying financial security or index that a given contract is tied to (Johnson, 2005).

1.2.2 The Growth of Financial Derivatives Market
In spite of the heavy losses suffered by some corporations in the financial derivatives market, trading in financial derivatives has witnessed phenomenal increase in the recent times. The rapid growth in financial derivative contracts, is largely due to their special appeal and their usefulness in hedging against risks, and engagement in speculation in relation to fluctuations in the rates, prices or indices of the underlying assets such as foreign currencies, interest rates, commodities or equities, amongst others. In addition, information technology (IT)
revolution has increased the efficiency of structuring and pricing of complex products, and enhanced prompt processing of collaterals both at the clearinghouses and the clearing brokers. Thus, making it possible for new sets of financial derivatives to be created, to hedge against the more risky financial assets introduced in the modern financial markets (Poitras, 2002; Shaik, 2014).

1.2.3 Why do we need Financial Derivatives?

The assessment of liquidity management in Nigeria has become imperative, in view of the continued persistent liquidity overhang, and its implication for monetary policy implementation and the achievement of price stability objective of the Central Bank. Efficient liquidity management by the monetary authorities, is essential for the achievement of the price stability goal along with other secondary objectives, including sustainable exchange rate stability, high GDP growth, amongst others. Aside from risks associated with high and unstable inflation rate, excess liquidity has become a major threat to the foreign exchange market. Excess liquidity exerts pressure on the value of the currency in the spot foreign exchange market, which should not be allowed to persist, if the monetary authority is to achieve its key mandate of price stability and create an enabling environment for economic growth.

Globally, liquidity management is an overwhelming task that requires multi-pronged approach and a variety of instruments to mitigate the risk of liquidity misalignment. The failure of direct control instruments of monetary policy to fully address the problem of persistent excess liquidity, has prompted the search for alternative instruments such as short term securities, including financial derivatives like repos and swaps. Traditionally, financial derivatives trading helps to increase the speed of monetary policy transmission to financial asset prices. The liquidity of the underlying asset determines price and efficiency of pricing derivatives. Derivatives could be veritable instruments for monetary policy because of the information content of their price. However, central banks scarcely use derivatives for monetary policy because of the perception of their high risk and uncertainty, when not appropriately regulated (Muraleedharan, 2009 cited in Tule, 2014). However, when adequately regulated by relevant authorities in normal economic environment, derivatives can be used as alternative instrument of monetary policy.
SECTION TWO

Concept of Financial Derivatives

2.1 Features of Financial Derivatives

Broadly, a derivative in common usage, refers to anything whose worth or value originates or stems from another object or thing. As a financial market concept, a derivative refers to a financial security whose value depends on other primary security, known as the underlying instrument. The underlying instruments may be financial instruments (such as stocks, bonds, exchange rates, interest rates), or commodities such as precious metals, agricultural products and commodity indices, or even other derivatives.

The distinguishing features of financial derivatives include the following:

i. Financial derivative contracts have a life span; that is, it has a starting date and may last until some later date with one or multiple settlements during the period.

ii. The mode of settlement involved, either financially (cash payment) or physical delivery, is usually stated in derivative contracts.

iii. Unlike other financial instruments, which often require upfront investment, financial derivatives require only a nominal investment (such as an initial margin), even when the face amount or notional value of the contract is large.

iv. Unlike other financial instruments, which carry unilateral credit risks, financial derivatives carry bilateral credit risks. At different points over the life of the derivative contract, each party involved in the contract may be exposed to credit risk because the value of the derivative may swing to either side.

v. Most financial derivatives also have two-way cash flows.

2.2 Historical Evolution of Financial Derivatives

Trading in derivative securities is not a new development. It dates back to the 14th century Florentine mons, which provided for it to be redeemed at 28 per cent of par value, though such provision was rarely applied (Poitras, 2002). Different contingent securities existed in the past that exhibited the features of the modern day financial derivatives. For instance, the ‘to arrive’ contracts transacted on the Antwerp bourse in the 16th century, might serve as the first modern example, where an unbundled contingent claim was bought and sold as a distinct security.
on an exchange. Also, there was in the 16th century, a bill of exchange that joined a loan with a forward foreign exchange contract. By the mid-17th century, trade in options and forward contracts was an essential transaction on the Amsterdam bourse (de la Vega, 1688 cited in Poitras, 2002).

Active trading in derivative securities appeared in London around 1688. Trading in both options and forward contracts were introduced in the mid-17th century on the London’s Exchange Alley, and by the end of the century, it was already an essential activity on the Exchange (Houghton, 1694 cited in Poitras, 2002). However, derivative trading activities was associated with abuses calling for severe attempts to curtail stockjobbing. The first English stock market debacle of the mid-1690s, prompted the passing an Act in 1697 to control the number of brokers and stockjobbers, as well as their foul practices in the English financial markets. The Act limited trading to only licensed brokers and restricted the number of licensed brokers to 100. Other early legislation in the English financial market include the 1733 Act titled: ‘An Act to prevent the infamous practice of stock-jobbing’ also known as Barnard’s Act. The Act followed the collapse of the English financial market of the 18th century known as the South Sea Bubble of 1720. The Act was aimed at regulating those aspects of stock dealings connected with excessive speculation. Other developments in the 18th century, include the introduction of life annuity that contained conditions of maturity dependent on specific life contingency provisions, which were trading in some financial markets (Poitras, 2000).

In the United States (US), financial derivatives trading in the early days was carried out exclusively by the early European colonizers of North America. Derivative securities such as ‘to arrive’ contracts, time bargain, and options were all in use by the end of the 18th century. However, a great revolution in derivative securities occurred during the 19th century. It was driven largely by the American’s high appetite for speculation. Although speculation increased incentive and ability to manipulate financial markets, it also enhanced market liquidity and the efficiency of the financial market, when well regulated.

On April 3, 1848, a major landmark was made with the introduction of futures contracts and founding of the Board of Trade of the city of Chicago, with 82 pioneer members (Poitras, 2002). In 1865, a number of rules were adopted by the Board to curb abuses. The rules, which were known as the General rules of the Board of Trade (BOT), unequivocally recognized futures, and had close semblance of the key features of a modern futures contract, such as standardized contract terms, limitation of futures contract dealing to exchange members, margin deposits to guarantee performance and standardized procedures for delivery, among others. Since 1865, the Chicago BOT has progressed dramatically, leading to the formation of the Chicago Produce
Exchange in 1874, the Chicago Butter and Eggs Board in 1898, and the Chicago Mercantile Exchange (CME) in 1919. In terms of global ranking, the Chicago BOT and CME are currently among the most significant futures exchanges.

Renewed interest in derivatives securities during the 1990s, emanated principally from the high-profile and expensive losses associated with derivative security trading. The large volume of losses in absolute sense, has been attributed to consistently increase use, availability and complexity of derivative products. A review of the various derivatives debacles in the past, would reveal that most of the high profile failures and great disasters were the products of trading manipulations, speculative excesses and lack of transparency in financial derivative transactions. For instance, Isaac le Maire and a group of eight other traders on the Amsterdam Bourse conducted ‘bear raid’ around 1608, which resulted in the first substantive legislation to limit stock market manipulation in 1610, and the prohibition of sales of securities not owned by the seller. Private sanctions were also imposed on le Maire (Poitras, 2002). The recent financial crisis of 2008, and the consequent Great Recession, has provoked strong criticism against the use of derivative instruments as it undeniably present potential risk and increased vulnerability of the financial market. The progressive relaxation of restriction on financial derivative security trading in the US, propelled enormous expansion in the range of derivative securities being transacted in both the OTC markets, and on the floors of exchanges, and these culminated in multiple leveraging. The experience of the 2008 crisis has prompted the call for more understanding of financial derivatives, and proper regulation of financial derivatives, to reap the benefits without suffering the pains.

2.3 Segmentation of Financial Derivatives Market
The market for financial derivatives can be broadly classified into two sub-markets: the listed and over-the-counter (OTC) submarkets (Shaik, 2014). This distinction is based on the nature of products traded in each market and the regulatory and operational requirements.

2.3.1 Listed Derivative Market
The listed market, is also known as the exchange or regulated market, because the products traded in this market are standardized contracts with specific delivery, clearly specified position limits, and settlement terms, set by the exchange and regulators. The traders initiating the contract, use the exchange clearing house as the counterparty to their trade. Thus, trading is not exposed to credit risk similar to those often associated with bilateral OTC derivatives. Trading takes the form of floor-based auction and often, though not always, supplemented with electronic platform in modern times. There is greater price transparency because trading prices are publicly available and lower transaction
FINANCIAL DERIVATIVES

costs. Examples of listed derivatives include stock options, interest rate swaps, futures contracts, amongst others. However, there may be limited listed derivatives to meet certain needs.

2.3.2 Over-the-Counter (OTC) Derivative Market

OTC derivatives refer to financial derivative transactions that do not take place on a regulated exchange. They are derivatives that are customized by large financial entities such as commercial banks, investment banks, insurance corporations and similar large institutions. OTC varies in complexity from “plain vanilla” interest rate swaps to more complicated derivatives, such as “credit derivatives”, and other derivatives, involving equities and commodities to hedge against risks of various kinds. The most common structures of OTC derivatives include swap, cap, floor, collar, corridor and option. OTC derivatives market is more flexible and unstandardized. The contract amount, time frame and other terms of this form of derivatives are usually market determined and dependent on the negotiation between the parties. Trading is often decentralized and settlements are directly between the two parties. One distinctive advantage of this group of derivatives is that it can be designed to manage any risk, whether it is the risks associated with interest rates, inflation, liquidity, credit or currency rate for any duration. Consequently, OTCs attract less transaction costs than a multiple of standardized contracts.

Most recent, owing largely to the influence of information technology revolution, electronic trading platforms have been developed and central counterparties have evolved to clear a wide range of OTC derivatives. This set of OTC derivatives is most appropriately described as Cleared OTC derivatives. These derivatives possess characteristics similar to listed derivatives, such as standardized products and settlement of contracts through a clearinghouse.

2.3.3 Classification of Financial Derivatives

There are four common classes of financial derivatives: futures, forwards, options and swaps.

Futures: is a standardized derivative contract traded on exchanges. Futures have standardized contract amount, limited price movement restrictions, subject to the provisions of the exchange rules. Trading in futures is centralized in an exchange floor and executed by open outcry between exchange participants. Clearing is done through the exchange clearinghouse. Settlements are often, though not always, done through daily marking-to-market using a margin system mechanism. Deliveries are also sometimes undertaken by specialized traders.
**FINANCIAL DERIVATIVES**

**Forwards:** is a derivative contract between relevant parties to trade at some future date at a stated price and other specified terms. Forwards are usually customized to suit the individual client needs and traded in an OTC market (Tule, 2014; Shaik, 2014). The contract amount and price movements are unrestricted and determined by market forces of demand and supply. Simply put, the terms of this contract depends on the negotiation between the parties (buyer and seller). Market location is decentralized and there is neither separate clearing mechanism nor specific legislation guiding its trading, but it is self-regulated, and guided by contract law and general securities law.

**Options:** An option is a financial derivative contract between two parties, which give one party the right, but not obligation to buy or sell an underlying asset at a fixed price in the future as specified by the contract terms. They are usually in two forms, the ‘call options’ and ‘put options’. A call option grants one the right to buy, while the put option confers on the holder the right to sell. The party undertaking the right (buyer) is usually known as the option holder, and the premium paid at the start of the contract, is called the option price. The seller of the option is normally known as the option writer. A distinctive characteristic of option is that it functions more like an insurance policy against adverse market fluctuations. In the event that the option is not exercised, the option holder loses the premium paid. On the other hand, when the option is exercised the option writer becomes liable for covering the costs of any fluctuation in the value of the underlying asset. There are two broad sets of options: those with basic features known as vanilla options and those with additional and more complex features known as exotic options (Shaik, 2014). Options may also be classified into European, American or Bermuda style varieties, depending on whether the holder possesses the right to exercise it at the expiry date, anytime between the purchase date and the expiry date, or on a few specific dates before the expiration (Tule, 2014, Shaik, 2014).

**Swaps:** are financial derivative products that permit two parties to exchange certain financial obligations at specified periodic intervals with predetermined terms. The financial obligations may involve simple cash flows, assets, liabilities, currencies, securities or commodities. For instance, companies in different countries could swap to take advantage of differences in interest rates. The incentive for the swap stem from the comparative advantage in interest rates, which the investor could gain. Essentially, swaps enable holders to change the cash flow characteristics of their assets or liabilities without necessarily liquidating. To illustrate further, an investor holding a common stock can exchange the returns from that investment for a lower-risk, fixed-income cash flow under a swap contract without liquidating his/her stock. In this event, the investor owns the stock, but his returns are separated from the variable stock returns, as he enjoys
the fixed income cash flows from the swap contract. Thus, the investor now holds two positions in his portfolio: stock and swap contract (Shaik, 2014). Swaps constitute a large segment of the OTC contracts; hence the OTC market is sometimes called the swap market. The major players in the swap market include bond portfolio managers, financial corporations and large firms. Swaps are usually classified according to the underlying assets, examples include currency swaps, interest rate swaps, equity swaps or commodity swaps.

2.3.4 Classes of Underlying Assets

Financial derivatives can also be classified according to the underlying asset concerned. Broadly, we have: interest rate derivatives, currency derivatives, equity derivatives, credit derivatives and commodity derivatives.

i. Interest rate derivatives: are financial derivatives whose underlying value is influenced by the interest rates. Interest rate derivatives are usually used by end-users to hedge against risk of movements in interest rates. Most end-users use over-the-counter derivatives such as swaps, floors, swaptions, option on bond futures and caps to hedge the interest rate risk that an end-user takes on when it borrows on a variable rate basis. A popular interest rate derivative product used by most end-users is plain vanilla interest rate swap. Plain vanilla swap involves an agreement between parties to exchange periodic payments, computed as the product of the notional amount of the transaction and a pre-agreed rate, price or index. Dealers also use a number of OTC derivatives such as caps, floors, collars and corridors, among others.

ii. Currency derivatives: these set of financial derivatives are aimed at enabling a party to hedge against volatility and uncertainty in the value of a currency and minimize their financing cost. The first popular currency derivative involved a currency swap between the World Bank and IBM in the early 1980s (Johnson, 2005).

iii. Commodity derivatives: They are derivatives with different commodities such as precious metals, agricultural products, oil and gas, among others, as the underlying asset. These derivatives are designed to minimize interest rate and market risk often associated with swings in commodity prices. The extreme volatility in commodity prices, make OTC derivatives a natural choice to mitigate or reduce such risks.

iv. Equity derivatives: financial derivatives whose underlying asset is an equity product such as the price of stock or the stock index. Examples include equity swaps, equity forwards and equity options among others. With equity derivatives, an investor can protect the value of his stock
against movement in prices. He or she can protect against a loss in share value by purchasing a put option.

v. **Credit derivatives;** these financial derivatives are designed to protect the holder from credit default risk. The common practice involved in credit derivatives, is for a lending party to strike an agreement with a counterparty (usually another lender) for a specified fee, to cover any losses incurred in the event of a default by the borrower. If the borrower defaults, the counterparty will pay the amount equivalent to the sum due from the borrower. On the other, if the borrower does not default, the counterparty retains the fee as profit from the contract. For instance, Bank A may enter into a credit derivative with Bank B to cover any loss, which it may incur from granting a loan of N100 to Mr C at the rate of 10 per cent over 5 years for an annual fee of N50. If Mr C defaults, Bank B will pay Bank A the full amount of the loan and the interest due over the period depending on the contract terms. If Mr C does not default, Bank B will pay nothing and earn the annual fee of N50 for the 5 years for the services rendered. Lastly, it is worthy to mention that credit derivatives were created basically to reduce credit risk for the debt of governments, municipalities and collections of corporate debts.

2.4 **The Uses of Financial Derivatives**

Globally, financial derivatives have played a major role in providing avenues for the transfer of manifold forms of business risk; creating price discovery mechanism for financial assets/commodities; promotion efficient financial markets and minimization of transaction costs among corporations. Among many others uses, financial derivatives provide the following key services.

2.4.1 **Hedging**

This is a common financial practice, whereby a party uses derivatives to manage risks associated with some future events. Many large corporations, financial institutions and other financial market participants use derivative contracts to protect themselves, and gain from market risk originating from uncertainty in the future prices of raw materials, exchange rates and interest rates. Investors in the stock markets also hedge against fluctuations in the prices of equities. For instance, Bond traders could enter into interest rate swap contracts to manage the risk associated with the probability of losses arising from changes in bond prices as a result of unfavourable interest rate movements (Tule, 2014). The protection provided by the use of derivative contracts, offers a form of incentive for people who would otherwise, not engage in the transactions to do so, and encourages those already in the transaction to increase their investment, given the guarantees provided by the use of financial derivatives.
2.4.2 Risk Trading
The use of financial derivatives offers financial market participants an opportunity to buy and sell credit, market, liquidity and other forms of risk. Some derivatives, such as credit derivatives decompose the transaction into two different components: the credit risk element and the core investment element, permitting institutions to transact in just the risk element. In this way, derivative contracts provide rewards for the investment, while at the same time helping in the preservation of the capital.

2.4.3 Price Discovery
Prices of assets and commodities in both the financial and commodity markets depend on certain factors that determine the supply and demand for them. Financial derivatives such as futures contracts, generate prices that are reflection of the market conditions, and are used as protective mechanism for the current or spot price of the underlying asset or commodity (Shaik, 2014).

2.4.4 Speculation
The use of derivatives allows market participants to expand their investment opportunities through speculation activities. It allows participants to take position on either side of the market. In this way, it enhances the liquidity of the market by enabling investors to make profit either from correctly anticipating movements in the prices of assets, or interest rates, or from accurately predicting when credit events will take place. Speculators deliberately take the risks related to movements in commodity prices and other market parameters for the sake of making gains or profits. In addition, speculation promotes price discovery and enhances the efficiency of the financial market, when properly regulated.

2.4.5 Insurance
Derivatives can also be useful in mitigating the risk of non-payment of claims by an insurance company. Insurance derivatives provide an avenue for insurers to use the global financial markets to protect themselves from huge losses, in event where such an occurrence causes unanticipated amounts of damage. The values of such derivatives are usually based on a selected index or characteristic of an event related to insurance-related statistic (Tule, 2014).

2.5 Negative Side of the Use of Derivatives
In spite of the various uses and advantages of financial derivatives, financial derivatives could pose a severe threat to the health and stability of the financial system and the entire economy.

i. The speculative activities often associated with trading in financial derivatives can cause sharp movements in the value of underlying assets,
and exacerbate the vulnerability of the entire financial system, especially when the activities result in the failure of major market participant.

ii. Many derivative products are highly complex and opaque, exposing investors to irresponsible marketing and insufficient understanding of the products.

iii. Although derivatives are used to manage the risk, a derivatives contract itself can also create risk exposure. Failure to effectively assess and hedge that exposure may lead to major losses.

iv. Due to lack of transparency and the complexity of products, it is usually quite difficult to efficiently regulate and supervise the derivative markets, especially the OTC derivatives markets.

v. Derivatives transactions involve high level of leverage, coupled with lack of transparency, may result in multiple-fold and increase systemic risk.
SECTION THREE

The Role of Financial Derivatives in Liquidity Management

3.1 In Advanced Economies
The positive impact of the derivatives market has been acknowledged by many authors in the literature. According to Deutsche Börse Group (2008), the global derivatives market through the provision of facilities for effectively hedging risks and reducing uncertainty about future prices, act as the pillar of the international financial system in particular, and the entire economy. The derivatives trading leads to greater liquidity, less volatility, better price discovery, information assimilation and market depth in the underlying asset markets. Thus, it contributes immensely to the efficient working and growth of the capital market, and the economy as a whole.

An empirical study of US banks by Minton et al (2005), found that banks in the US use credit derivatives as risk management technique to manage the credit risk of their loans. Credit derivatives are bilateral financial contracts with payoffs linked to a credit related event ranging from a default, credit downgrade to outright bankruptcy. In principle, credit derivatives are veritable instruments for more efficient management of the portfolio of credit risks by banks. Statistical data from the Bank for International Settlements (BIS), indicate that trading in credit derivatives has expanded dramatically in recent years. The notional amount of credit derivatives increased from $698 billion at the end of June 2001 to $4,664 billion by the end of June 2004, an annual growth rate of 88% (Tule, 2014).

Another empirical study by Chen (2011), show that derivatives use in US Hedge Fund industry is associated with lower fund failure risk (e.g. market risk, downside risk, and event risk) even in austere market conditions. Gay et al (2010), found that the cost of equity to derivative users is lower than non-users, implying that derivatives is employed to reduce financial distress risk. This is consistent with the general perception that the use of derivatives by a firm is connected with the need to mitigate the risk of financial distress, as revealed in previous studies (see, Berkman and Bradbury 1996; Howton and Perfect 1998; Graham and Rogers 2002 and Bartram, Brown and Fehle, 2009).

With regards to foreign currency derivatives, Sinkey, J. and Carter (2000), found that the use of interest-rate derivatives are associated with greater interest rate risk exposure compared with non-users. While Brewer et al (2000), found that risk and derivatives usage are adversely related, based on US data.
3.2 Emerging Markets/Frontier Economies

Studies have also revealed the fast growth of financial derivatives market in emerging markets/frontier economies. A study by Sheh and Srinivasan (2010), show that derivatives transactions in India has exceeded cash segment in terms of turnover and number of traded contracts over the period 2000 to 2009. Indeed, India has one of the most vibrant market for exchange trade derivatives. Vashishtha and Kumar (2010), found that the equity derivatives market in India provided a major catalyst for achieving price discovery in India. They pointed out the vital factors driving the growth of financial derivatives market in India to include: increased financial asset prices fluctuations; growing integration of domestic financial markets with global markets; development of more complicated risk management procedures; broader choice of risk management strategies to economic agents and innovations in financial engineering.

A study by Aysun and Guldi (2011), on a group of emerging market/frontier economies revealed that derivative usage is adversely related to risk exposure. Using Brazil, Chile, Israel, Korea, Mexico and Turkey data, they revealed that declining trend in firms’ exchange rate exposure in emerging market economies was due principally to the utilization of derivatives products.

Lien and Zhang (2008), observed the usefulness of commodity derivatives markets to emerging market economies that depend heavily on commodity exports. They noted that most frontier economies depend heavily on a single or few commodities for export earnings, exposing macroeconomic conditions to volatility in the prices of those commodities. For such countries, commodity derivatives trading would aid in price discovery and offer a more effective method of hedging against price volatility. Among other market based instruments, commodity futures and options could minimize or eliminate in its entirety, the short term price exposure of commodities such as agricultural products. Commodity swaps, on the other hand, could be useful in minimizing long term price exposure related to commodities such as precious metals, oil and gas, among others (Masuoka, 1990; Morgan, 2001)

3.3 The Financial Derivatives Market in Nigeria

The financial derivatives market is a recent development in the Nigerian financial market. Financial derivatives such as FX options, Forwards (outright and Non-deliverable), FX swaps and cross-currency interest rate swaps were introduced into the Nigerian financial market as part of post crisis reforms in 2011. Several guidelines on risk management products were also released for the purpose of deepening the inter-bank foreign exchange market.
The interbank offer rate on is modeled on Libor, with a panel of 10 banks contributing to a daily average funding rate (Tule, 2014). The market also provides rates at maturities of seven days, one month, three months, six months, nine months and 12 months.

3.4 Obstacles to Use of Financial Derivatives in Nigeria

In spite of the tremendous efforts towards the development of the derivatives market, an exchange-traded derivatives market is yet to be established, and some key products such as overnight indexed swap (OIS) market, are still missing. In addition, the financial infrastructure has not yet been fully developed to cope with the essential requirements for effective introduction of some derivatives. The regulatory framework for financial derivatives market in Nigeria is also quite deficient. Until recently, there was no guideline for banks trading on over-the-counter derivatives. Moreover, the extent and depth of knowledge in derivative trading in the country is still rudimentary. Lastly, the underlying markets upon which derivatives are anchored are themselves not fully developed.
SECTION FOUR

Conclusions

The growth of financial derivatives markets in both developed and emerging market economies have been phenomenal over the years. In USA, there are several exchanges such as NASDAQ, NYSE amongst others, which offers standardized derivative products like options and futures as well as customized derivative markets. These could not have been achieved without the full development of the underlying markets and the provision of highly developed financial infrastructure. Traders in options and futures are able to trade even from the convenience of their homes, using the internet. As the derivatives and equity markets are at advanced stages of development, investors do not hold huge liquidity in their accounts or have high liquidity holdings to be able to take position. These developments reduce demand pressure for liquidity in the financial market, and enable the monetary authorities to get a handle to effectively manage the liquidity in the economy (Tule, 2014).

The main lesson for Nigeria from the foregoing is that the effectiveness of financial derivatives market as instrument for liquidity management depends on the provision of some basic conditions or requirements. First, there must be an organized derivatives exchange. Government should collaborate with the organized private sector to speed up the process of establishing a derivatives exchange in Nigeria. Second, the basic regulatory framework should be provided. Most importantly, a dedicated regulatory body for derivatives trading should be established. Third, skills needed in managing derivatives transactions must be acquired through training and capacity building. Lastly, more efforts should be committed to developing a robust and deeper capital market, money market, commodities market and market for other underlying instruments (IMF, 2003).
FINANCIAL DERIVATIVES

Bibliography


**Glossary of Terms**

**American options:** are options that can be exercised prior to the stated expiration date.

**At-the-money:** is when the exercise price of an option is approximately equal to the underlying asset or commodity price.

**Call option:** A call option gives the option buyer the right to purchase the underlying asset or commodity from the option seller at a given price.

**Dealers:** acts as the middleman between thousands of end-users on both sides of the OTC derivatives. The dealer takes one side of a trade with one end-user and then enters into an offsetting trade with another end-user. Dealers gain through fees and the spread that they earn by acting as intermediary between the different end-users needing OTC derivative products.

**End-users:** are customers to dealers, who enter into over the counter contracts for specific purpose such as hedging a particular risk or managing their assets and liabilities.

**European options:** are options that can only be exercised on the expiration date.

Exercise price (or strike price): is the contractually specified price at which the purchaser is allowed to buy (for a call) or sell (for a put) the underlying asset or commodity.

**Future contract:** is an exchange traded agreement between two parties, guaranteed by the clearing house, that commits one party to sell a standardized grade and standardized quantity of a commodity, asset or security to the other party at a given price and specified location at a future point in time.

**In-the-money:** when the exercise price is below the current underlying price, the call option is said to be in the money. Alternative, when the exercise price is above the current underlying price, the put option is said to be in the money.

**Long position:** A long position involves the purchase of a commodity for future delivery. In options market, a long position refers to the purchase of a call or put option. A long position in the spot commodity would involve a current cash outflow in exchange for possession of the physical commodity.

**Mark-to-market:** is the process of accounting for changes in the value of futures contract over time. It is a process of trading in derivatives security where if the value of the derivative security decreases then the buyer of the future contract must pay the futures exchange a sum equivalent to the value of the price
change. It aids in reducing the risk of default from one of the parties by distributing any gain or loss relatively evenly over the contract’s existence. The practice involves writing a new futures contract at the start of every trading day with all gains or losses settled through a margin account at the end of trading for that day. Due to marking-to-market feature of futures contract, it usually involves a stream of payments over time.

**Open interest:** represents the number of contracts that are being carried from one trading day to another. Because every futures contract that is created requires a long and a short position, open interest can only increase if both a new long and a new short positions are created. If both long and short positions are being closed out, open interest will decrease. But if a new long (short) position is created with a short (long) position that is closing out a previous position, open interest is unchanged.

**Option premium:** is the payment made to the option writer by an option purchaser. Once the premium has been paid, the purchaser has no further liability.

**Option writer:** is the seller of the option.

**Options:** is an agreement between two parties in which one party, the writer, grants the other party, the purchaser, the right but not the obligation to either buy or sell a given security asset or commodity at a future date under stated conditions.

**Out-of-the-money:** when the exercise price is above the underlying price, the call option is out of the money or put differently when the exercise price is below the underlying price, the put option is out of the money.

**Put option:** a put option gives the option buyer the right to sell the underlying asset or commodity to the option seller at a given price.

**Scalpers:** is a participant in futures exchange floor who attempts to profit from the bid/offer spread, sometimes called the edge, in effect playing the role of market maker.

**Short position:** A short position involves the sale of a commodity for future deliver. In options market, a short position refers to the writing of a call or put option. In a spot commodity market, a short position involves borrowing the commodity under a short sale agreement which is then sold in the spot market, generating a cash inflow.
Speculators: are OTC market participants that use OTC derivatives to take positions on the movement of various rates, prices and indices. They may include dealers or end-users attempting to profit from market movements.

Swap: is a specialized derivative contract that possesses cash flows which can theoretically be replicated with a bundle of forward contracts. A swap is an exchange of cash flows deemed to be of equal value at the time the swap is initiated. In forex markets, the swap involves combining spot and forward FX transactions; for example, at time t=0 domestic funds are exchanged for foreign funds with an additional agreement that the foreign funds will be exchanged for domestic, at the current swap rate, at time t=1.

Warrant: a warrant is an option issued by a corporation granting the purchaser the right to acquire a number of shares of its common stock at a given exercise price for a given time. Given the long expiration dates, warrant exercise prices are usually set more than slightly above the current stock price.