ANALYSING THE IMPACT OF ELECTRONIC BANKING ON THE PAYMENT SYSTEMS AND THE INTERMEDIATION FUNCTION IN NIGERIAN BANKS

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ABSTRACT

Electronic Banking has made tremendous improvement on the payment function of the Nigerian Financial system on the one hand and on the intermediation function on the other. While the two functions are complementary in delivering efficient banking services, electronic banking has also aided a great departure from the traditional manual methods of service delivery methods over the last five decades. Apart from the efficiency recorded through the impact of electronic banking, other electronic features of service improvement through new products development that have been dependent on electronic banking, have facilitated a great value added banking service delivery and the level of efficiency within the industry. This additional product delivery includes internet banking, telephone banking, mobile banking, point of sale, ATM sharing through the interswitch company, accelerated local interbank settlement systems, accelerated clearing system (cheque truncation) and accelerated international settlement that hastens payments in international trade. All the above amongst others have been made possible through the impact of electronic banking on the payment systems and intermediation functions of the Nigerian banks. This is the main focus of this study.

The study discovered that the Nigerian financial regulators have not done enough in sensitizing the Nigerian populace about the relevance of the impact of electronic banking functionalities and it is evident from the result of the study that the level of illiteracy and ignorance of information technology constitute a great set back to the adoption and usage of electronic banking by over 60% of the Nigerian populace. The study thereby recommend amongst other things that financial regulators should stem up sensitization activities on installation, adoption and usage of electronic banking which can only be possible through improved awareness creation among the public on information technology. Moreover, the study also recommended an increase level of technical

education and improved training on information and communication technology amongst banking operators to enhance the application of the usage of electronic banking.

KEY WORDS: ELECTRONIC BANKING, PAYMENT SYSTEMS, INTERMEDIATION, BANKS AND INFORMATION TECHNOLOGY.

INTRODUCTION

In contemporary times, almost everything in the world has gone sophisticated, including the payment of cash. Over the course of history, different forms of payment systems have been in existence. In the course of time, new and increasingly abstract representations of value were introduced (Asaolu, et al 2011).

Before now, experts have predicted the emergence of a potentially superior substitute for cash or monetary exchanges; cashless society (Odior and Banuso, 2012) which resulted from a corresponding progression of value transfer systems, starting from barter, through bank notes, payment orders, cheques and later credit cards and has finally culminated in electronic payment systems. Echekoba and Ezu (2012) see such prediction as being motivated by the suggestion of bankers, technology specialists, entrepreneurs, and others who have advocated for the replacement of physical cash and the introduction of more flexible, efficient and cost effective payment system.
Moreover, Odior and Banuso (ibid) opined that an efficient and modern payment system is positively correlated with economic development and is a key driver of economic growth as it reduces the amount of currency outside the banking system for the advent of a more effective monetary policy management that brings about stability in price and interest rate, leads to expansion of banks credit capacity and encouragement of investment, traceability of unethical transactions and reduction of cost of banking services in Nigeria.

The form of payment system that was advocated by Odior and Banuso is aided by the advent of electronic banking which is a component of electronic commerce. This implies that electronic commerce is the most recent step in the evolution of business transactions as it replaces or augments the swapping of money or goods with the exchange of information from computer to computer in order to make payment/transfer of cash for transactions made (Slater, 2000).Stevens (2002) asserts that banks have over the time, been using electronic and telecommunication networks for delivering a wide range of value added products and services and they point out that the entire cash flow of most banks are linked to electronic systems.

With electronic banking, individuals can check their account balances and make payments without having to go to the banking halls. For example bank customers can pay for airline tickets and subscribe to initial public offerings by transferring the money directly from their accounts, or pay for various goods and services by electronic transfers of credit to the sellers account (Olorunsegun, 2010). Consequently, electronic banking has made banking transactions easier around the world and it is fast gaining acceptance in Nigeria.

STATEMENT OF RESEARCH PROBLEM

The Banking industry of the 21st century operates in a complex and competitive environment characterized by changing conditions and highly unpredictable economic climate. Information and Communication Technology (ICT) is at the centre of this global change curve of electronic banking system in Nigeria today (Olorunsegun, 2010).

1 The Lack of commitment on the part of banks and other financial institution on the implementation of the electronic banking and cash management in Nigeria

2 Due to the competitive nature of banking environment which is characterized by highly unpredictable and unchanging condition of Nigeria economy nature which has hindered the effectiveness implementation of electronic banking in Nigeria.

3 Bank and other financial institution are not individually willing to sufficiently invest in electronic banking in Nigeria due to different constraints.

OBJECTIVES OF THE STUDY

The general objective of this study is to investigate the impact of electronic banking on the payment system in the Nigerian Banks and their intermediation function and the following specific objectives:

1. Assessing the effectiveness of the implementation of electronic banking system in Nigeria;
2. Evaluates the economic importance of electronic banking in Nigeria;
3. Identifies the constraints in the implementation of electronic payment system in Nigeria; and Proffer solution to the constraints of electronic payment system in Nigeria.

RESEARCH QUESTIONS

To achieve the objectives of the study, answers shall be provided to the following research questions:

1. How effective is the implementation of electronic payment system in Nigeria?
2. What is the economic importance of electronic banking in Nigeria?

3 What are the constraints in the implementation of electronic payment system in Nigeria?

STATEMENT OF RESEARCH HYPOTHESES

In this study the following hypotheses will be tested:

Hypothesis one

Ho: The implementation of electronic banking system in Nigeria is not effective.

Hi: The implementation of electronic banking system in Nigeria is effective.

Hypothesis two

Ho: The benefits of electronic banking in Nigeria do not surpass the cost.

Hi: The benefits of electronic banking in Nigeria surpass the cost.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Davidson (1992) defined cash management as a term which refers to the collection concentration and disbursement of cash. It encompasses a company's level of liquidity, management of cash balance and short term strategies. Pindado (2004) also defines cash management as part of working capital that makes up the optimal level needed by a company. Bort (2004) noted that, cash management is of importance for both new and growing businesses. Companies may suffer from cash flow problems because of lack of margin of safety in case of anticipated expenses such that they experience problems in finding the funds for innovation or expansion. Weak cash flow makes it difficult to hire and retain good employees (Beranek, 2000).

Ross (2000) says that, it is only natural that major business expenses are incurred in the production of goods or the provision of services. In most cases, a business incurs such expenses before the corresponding payment is received from customers. In addition, employee salaries and other expenses drain considerable funds from most business. These make effective cash management an essential part of the business financial planning. According to Bort (2004) cash is the lifeblood of the business. The key to successful cash management lies in tabulating realistic projections, monitoring collections and disbursements, establishing effective billing and collection measures, and adhering to budgetary parameters because cash flow can be a problem to the business organization.

Cash collection

According to Ross (2000), cash collection is a function of accounts receivable, it is the recovery of cash from a business or individual with which the company is issued an invoice. Gitman (2008) and Vanhorne (2001),

offer theoretical positions drawn from their observations and consulting experience on the fact that a firm can improve its cash management efficiency by collecting accounts receivable as soon as possible. The most obvious way of bringing forward cash inflows, would be to press debtors for earlier payment although this policy will result in goodwill and problems with customers (Palom, 2001).

There will be very little scope for speeding up payments when the credit period currently allowed to debtors is no more than the norm for the industry. Myers (2004) defend the idea put forward by Palom (2001) and indicating that it might be possible to encourage debtors to pay more quickly by offering discounts for earlier payment. In order to improve cash management efficiency and enable more availability of cash the company can use this as an alternative solution. The objective of managing accounts receivable is to collect accounts receivable as quickly as possible without losing sales from high pressure collection techniques (Gitman, 2008).

Cash collection techniques

According to Gitman (2008), there are four cash collection techniques namely letters, telephone calls, personal visits and legal action. Letters are written communication of expressions, opinions and communication recorder for later reference (Palom, 2001). After a certain number of days, the firm sends a polite letter reminding the customer of the overdue accounts. If the account is not paid within a certain period after this letter has been sent a second more demanding letter is sent. A telephone call is a connection established over a telephone network between two parties (Chastain, 2008). If letters prove unsuccessful, a telephone call may be made to the customer to request immediate payment.

If a customer has a reasonable excuse, arrangements may be made to extend the payment period. Personal Visits involves sending the credit controller to confront the customer and this can be very effective. Payment can be made on spot. Legal action is a judicial proceeding brought by one party against the other for a wrong doing (Davidson, 1992). Legal action is the more stringent step, an alternative to the use of a collection agency

Cash Disbursement

According to Gitman (2008), cash disbursement is a function of accounts payable; it includes all outlays of cash by the firm during a given financial period. The objective of cash disbursement is to control payments and minimize the firm's cost associated with making payment. Vanhorne (2001), defends the idea put forward by Ross (2000), which says that the objective of cash disbursement is to delay payment as long as it is legally and practically

possible. In pursuing this objective the firm should not compromise its relationships with suppliers as this may withdraw trade credit.

According to McLaney (2006), negotiating a reduction in cash outflows may be done in order to postpone or reduce payments. This will be done by taking longer credit from suppliers. However, if the credit period allowed is already generous, creditors might be very reluctant to extent credit even further and any such extension of credit would have to be negotiated carefully. There would be a serious risk of having further supplies refused. The rationale for such a move is to have complete control of the cash and to provide greater investment opportunities with larger sums of money available as surplus, (Bort, 2004). Given the context of a company, cash disbursements are controlled through a policy of delaying payments to suppliers. However, failure to meet financial obligations by the company on time, owing to cash shortages mean loss of further supplies from injured suppliers. This is extremely damaging since some products would be vital to continuing business operations.

WAYS OF IMPROVING THE PAYMENT SYSTEM

Postponing capital expenditure

According to Moffet (2004), postponing capital expenditure is one method that can ease cash shortage hence, suggests efficient cash management. Kirkman (2006) states that, some capital expenditures are more important and urgent than others hence, it might be imprudent to postpone expenditure on fixed assets which are needed for the development and growth of business. On the other hand, some expenses are routine and might be avoidable without serious consequences. When a lot of cash is used to pay for fixed assets, the company may come up against a cash crunch that prevents it from paying suppliers, buying materials and even paying salaries. It's a good idea, to maintain a level of working capital that allows making through those crunch times and continuing to operate the business.

Concentration Banking

According to Gitman (2008) concentration banking is a means of accelerating the flows of funds of a firm by establishing collection centers. The purpose of establishing collection centers is to shorten the time from the sale on credit until the payment becomes usable funds for the firm (Buckley, 2004).The average collection period has two parts the first part is the time from sales until the customer mails the payment. The second is the time from when payment is mailed until the firm has collected funds in the bank. The collection and cheque clearing process may be expedited through a number of strategies.

In order to enjoy the benefits of expeditious cheque, a lock box system may be used to replace the network of regional collection offices. Under this plan, customers are requested to forward their cheques to a post office box and the local bank picks up the cheques. The bank can then process the local cheques through the local clearing house for rapid collection and perhaps have the funds available for use in 24 hours or less (Beranek, 2000). Whether the corporate uses a collection system or less expensive lock box system, excess cash balances at the local banks are remitted to the corporate headquarters bank through a daily wire transfer or an automated clearing house that makes the funds immediately available for corporate use.

Cash operating cycle

Williams (2001) defined cash operating cycle as the period from payment of raw material is to receipt of money from debtors. The period represents the time that the cash is tied up in its operations. A lengthy cash operating cycle may be costly to the company and hence need to be shortened in order to have an effective cash management (Buckley, 2004). The basic strategy is to reduce the cash operating cycle as much as possible without adversely affecting the operations of the business.

Companies can actively consider ways of shortening the cash operating cycle to make the company more generative (Moffet, 2004). Gitman (2008), states that, a cost benefit analysis can be performed to determine whether it is worthwhile to employ more resources, additional staff or a new plant, for instance to speed up the production process and there by shortening the operating cycle. Delivery time to customers should be checked to ensure that there are no delays which could be easily avoided. The company can also consider giving customers discounts for prompt payments or reducing the period of credit given to all customers if this is unlikely to have detrimental effect.

McLaney (2006) argued that, for such schemes to be worthwhile, both the costs and benefits should be estimated in advance. For instance before offering a prompt payment discount, the cost of the early payment discount should be calculated less than the additional interest received on the cash from the earlier customer payments.

Palom (2001) points out that, the ‘cash cycle’ can be shortened by taking longer to pay suppliers. However, great care is required here as this may give the company a poor name in the market and suppliers may be unwilling to cooperate when the company needs urgent raw materials for a rushed contract. In the long term if suppliers become aware that a company is a persistent late payer, they may add an additional charge to the price they quote, to cover additional funding costs.

Cash Payment Models

There are two main cash payment models that is the Baumol –Allouis –Tobin (BAT) model (Tobin, 2006). The aim of this model is to calculate the optimal amount of securities to be liquidated whenever the concern requires cash. The level of securities will maximize interest received on marketable securities while minimizing the cost of selling marketable securities. However, according to Whalen (2004) the model has its weakness in that it does not apply in real life since the use and receipt of cash cannot be depicted through instantaneous replenishment and gradual use of cash.

Another cash payment model suggested by Miller *et al* (2001) is the Miller Orr Model, which is a stochastic model that aims at determining the amount of marketable securities to be sold or purchased whenever there is need for cash. A stochastic model is a model based on real life assumption that cash use is random. The model indicates that the firm sells marketable securities when a lower limit of cash is reached. Marketable securities are purchased when the upper limit of cash is reached as it becomes necessary to reduce cash. When there is no attempt to manage cash balances clearly the cash balance is likely to 'meander' upwards or downwards (Tobin, 2006). The Miller–Orr Model imposes limits to this meandering. If the cash balances reach an upper limit the firm buys sufficient securities to return the cash balance to a normal level (called the return point).

Whalen (2004) states that the cash balances reaches a lower limit, the firm sells securities to bring the balance back to the return point. The use of optimization models to assist management in the area of cash management dates back to the 1960s. Orgler [1969] presents a multi-period linear programming model for cash management. Decisions regarding payments, short-term financing, the cash balance, and securities transactions are variables in his model. He attempts to maximize revenues over the planning period subject to institutional business rules. One unique feature of his model is the use of unequal length planning periods. Hence, a one year model can begin with daily transactions and end with monthly transactions.

Constantinides [1976] uses stochastic calculus to analyze a special cash management problem with stochastic demand. He attempts to minimize the expected cost in the time interval as T goes to infinity. Several special cases are analyzed in his exposition. An extension of this work may be found in Constantinides and Richard [1978]. They formulate a cash management model for a single entity (such as a bank or retail outlet) where the demand for cash in a given time interval is given by a random variable. Their model uses fixed and variable costs for

transferring funds as well as a holding-penalty cost for maintaining the given cash balance. They provide a policy analysis for a manager who continuously monitors the cash position and only intervenes at optimal points in time.

Mensching et al. [1978] consider a cash management problem using techniques from inventory theory. Their model is a deterministic economic lot size model in which negative demands are allowed. They also use a linear inventory holding cost and fixed and variable costs for changing inventory levels. They present a forward algorithm to obtain the minimum cost solution to a t-period problem. More recent work in the area of cash management in fast growing firms may be found in Buzacott and Zhang [2004]. They address the complicated relationship between finance and production. They developed models that attempt to capture the complex trade-offs that must be addressed by these fast growing firms.

Brown and Rosenthal [2008] provide an excellent guide for using optimization to solve real-world problems such as the one described in this investigation.

Model and Theoretical approach to Cash Management

The research on the demand for money by firms concerns its special features compared with the other sectors of the economy. It investigates the decisions made in the cash management process. The basic theoretical results of monetary theory have been accepted in the areas of operations research and financial theory. Monetary theory, in turns utilizes many contributions reported, for example, in the theory of the firm, i.e. inventory theory, production theory, and agency theory.

Monetary theoretical approach to cash management*:* In the 1980s and 1990s there were many new developments in the area of the demand for money, which are not empirically examined on the firm level.

These research areas include an attempt to account for forward-looking behavior in a buffer stock framework (Cuthbertson and Taylor 1987), to explain shifts in the demand for money as a result of financial innovations (Roley 1985, Hezel and Mehra 1989, and Marquis and Witte 1989), to find an appropriate scale variable for the demand for money relationship (Mankiw and Summers 1986), and to utilize the new estimation techniques, such as co-integration and error correction procedures (Melnik 1990, Arestis and Demetriades1991, Hendry and Ericsson 1991, Hendry, Ericsson, Fleming, and Westphal 1991, Karfakis 1991, and Dutkowsky and Atesogly 2001). For the other theoretical and empirical research of monetary theory, see Harris (1981) and Cuthbertson (1988), Dixon (1997), and especially for stability research, Judd and Scadding (1982), Rasche (1987), Hoffman and Rasche 1989, and Muscatelli and Spinelli (2000). For example, the results for U.S. firms indicate that improvements in cash

management techniques have significantly altered the cash management behavior of firms (see Marquis and Witte 1989).

Recent studies have concentrated on the effects of such issues as financial innovations, new transaction technologies, value of time or welfare cost of inflation on demand for money. Dutkowsky and Atesoglu (2001) investigated dynamic micro foundations for the conventional static money demand equation. Attanasio, Guiso, and Japelli (2002) used microeconomic data on households to estimate the parameter of the demand for currency derived from a generalized Baumol-Tobin model. They model the demand for currency accounting for the adoption of new transaction technologies and the decision to hold interest-bearing assets. For other recent studies, see Lucas 2000, and Mulligan and Sala-i-Martin 2000.

Numerous theoretical approaches to the demand for money by firms have been presented in the literature, including the inventory theoretic approach (see e.g. Baumol 1952, Tobin 1956, Miller and Orr 1966, 1968, and Marquis and Witte 1989), production theoretic approach (see Nadiri 1969 and Coates 1976), and wealth models (see Meltzer 1963a). Empirical evidence of the demand for money by firms were presented in the 1960s by Meltzer (1963b), Frazer (1964), Whalen (1965), DeAlessi (1966), Vogel and Maddala(1967), Miller and Orr (1968), and Nadiri (1969), and in the 1970s by Coates (1976), Kanniainen (1976), and Hunter (1978), and in 1980s by Ungar and Zilberfarb (1980), Katzimbris and Miller (1982), Tuovila (1984), Kytönen (1986), Heinonen (1987) and Marquis and Witte (1989), and in the 1990s Kytönen (1990) and Mulligan (1997).

Recent studies of this area include Natke (2001), Robles (2002) and Kytönen (2003). In addition, there are some experimental investigations of the basic cash management models (see Beckman and Foreman 1988, and Ansic 1991). In the 1960s, most empirical studies on the demand for money by firms used cross sectional data and concentrated on the question of economies of scale. In the 1970s and 1980s researchers used aggregated time series data sets of the whole economy or of household or firm sectors. The controversy over the opportunity cost of money was one of the most important issues studied. Instead, the studies of firm-specific data sets are quite few.

However, at least five exceptions exist, i.e. DeAlessi (1966), Coates (1976), Ungar and Zilberfarb (1980), Natke (2001), and Kytönen (2003).

Operations research approach to cash management:

Numerous operational models have been developed to optimize the split between cash and marketable securities based on the firm's needs for cash, the predictability of these needs, the interest rate on marketable securities, and

the cost of a transfer to cash and vice versa. The studies concentrating on developing the so-called cash flow models can be classified by the area of operations research. The background for these models is the Baumol-Tobin model and the Miller-Orr model. Although first presented as contributions in monetary theory, they were later accepted as corporate finance literature (see e.g. Cooley and Roden 1991, Brealey and Myers 1998, Ross, Westerfield, and Jordan 1999). Linear programming models for short-term financial decisions have been developed, for example, by Robicheck, Teichroew, and Jones (1965), Archer (1966), Orgler (1974), Stone (1973), and Maier and Vander Weide (1982).

Network based models have been created by Srinivasan (1974), Golden, Liberatore, and Lieberman (1979), and Glover and Kim (1991). The earlier models approached only a limited segment of the cash balance management process and used procedures essentially based on an inventory control theory (see e.g. Gregory 1976). For a more recent development of cash management models, see Milbourne 1983, Bell and Parker (1985) Srinivasan and Kim (1986b), Smith (1989), Kamath, Khaksari, and Sharma (1991), Browne (1995), Milne and Robertson (1996), Tin (2000), Perry and Stadje (2000), Perry, Berg, and Posner (2001), and Hinderer and Waldmann (2001).

Monetary theory approach to cash management

Monetary economists are interested in the cash management of firms. The objective has been to describe the mechanism of the demand for money by firms, because it differs from the behavior of other economic agents. Researchers have tried to find a stable relationship between the quantity of money and its determinants in order to forecast demand for money. A narrow definition of cash management consists of financial transactions, which means the purchasing or selling of financial securities or borrowing or repaying of capital. Many behavioral models describe especially the behavior of these operations.

Inventory theory approach to cash management

Numerous theories have been said to explain the cash management behavior of firms. Almost all of these theories can be generalized into a proposition of the existence of a stable relationship between a few important independent variables and the stock of money demanded (Harris 1981 and Cuthbertson 1988). The two basic transaction models most commonly accepted in the financial literature are the deterministic Baumol-Tobin and the stochastic Miller- Orr inventory models. These models are presented in monetary theory and are consistent with the theory of the firm. (Baumol 1952, Tobin 1956, and Miller and Orr 1966)

Baumol (1952) suggested that cash balances could be treated in the same way as inventories of goods. A stock of cash is its holder's inventory, and like an inventory of a commodity, cash is held because it can be given up at the appropriate moment, serving then as its processor's part of the bargain in an exchange. The firm is presumed to hold the amount of money, which minimizes the interest cost by holding money rather than investing it in short-term investments and the transaction costs associated with transferring between securities and cash.

In this framework the firm is assumed to finance its expenditures by selling securities or by borrowing and the firm has a steady stream of expenditures but has no receipts. In practice, the behavior is more complicated and the cash balances are the result of the imperfect synchronization of expenditures and receipts, which are often uncertain. This uncertainty is included in the stochastic cash management model derived by Miller and Orr (1966). This approach permits net cash flows to fluctuate in a completely stochastic way. Unfortunately, this feature is offset by the fact that the model is only capable of dealing with two types of assets – cash and marketable securities – and does not incorporate payables.

Both models referred to above imply that there are economies of scale in the use of money or, equivalently, that the elasticity of the demand for money with respect to transactions is less than one. In these models the scale operator is transactions volume, mostly measured by sales. There are, however, also alternative measures presented in the demand for money literature, such as wealth, production, and market capitalization.

In their model, Attanasio *et al.* (2002) measured transaction costs with the time costs. The cash manager is assumed to need time to make transactions and that money is a way of saving on transaction time, and optimal money balances are chosen in order to trade off the time cost of transactions against the cost of holding money instead of an interest bearing asset yielding a nominal return per period. The cash manager chooses money to minimize the sum of the cost of transaction time and forgone interest, subject to a transaction technology.

Economies of scale in cash management

The results reported by Melzer (1963b) suggested strongly that the cross-section demand for money by firms is a function of sales, to a first approximation linear in the logarithms and unit elastic. A more detailed analysis, however, revealed that there are economies – and sometimes diseconomies – of scale in particular industries. Frazer (1964) concluded that the effect of increasing firm size is to reduce bank indebtedness as a percentage of assets, weaken the precautionary motive for holding cash relative to other assets, and transfer cash as a percentage of assets to securities. DeAlessi's (1966) analysis supported similar findings by Meltzer in the United

States. The results of British firms suggested that money, defined as currency plus demand deposits, yields a meaningful demand function that is unit-elastic in wealth and is stable over time.

Vogel and Maddala (1967) emphasized the difficulties in distinguishing between wealth and transaction models. Contrary to Meltzer's conclusions, a strong argument could be made for economies of scale in money demand. As manufacturing corporations increase in size, they appear to substitute short-term securities for cash. Vogel and Maddala (1967) attributed a downward trend in relative money balances to rising rates and innovations in financial management.

Nadiri's (1969) results indicated substantial economies of scale with respect to holding real cash balances. This result was independent of the choice of measure of the scale variable of the model. Coates (1976) stated that questions about economies of scale in cash holdings can be answered very differently depending upon one's conception of the inventory theoretic approach.

Ungar and Zilberfarb (1980) made an empirical investigation of the cash management function of firms in a dramatically changing money market environment in Israel. There appeared to be no economies of scale in the money holdings of individual firms. The sales elasticity was close to unity, while the wealth elasticity was less than one but not significantly so. Marquis and Witte (1989) concluded that the improvements in cash management techniques in recent years have significantly altered firms' demand for money. An exogenous change in a money demand variable that tends to increase transactions requirements or their variability also creates an incentive to utilize a higher level of cash management services, which will in turn reduce money demand.

Their results suggested that understanding money demand requires separate consideration of firms' money demand. Natke's (2001) study of manufacturing firms in Brazil found that economies of scale in liquid asset holdings do exist for multinational subsidiaries but not for Brazilian firms.

Financial theory approach to cash management

Both academic researchers and financial professionals have paid less attention to liquidity management that its importance would merit. Researchers of finance have focused on the relationships between firm value and capital structure. Financial policymaking is also mainly geared towards the firm's capital structure and its dividend policy. However, liquid assets present a substantial portion of the firm's assets financed with short-term debt, often at high rates. Thus efficient cash management is just as important as the other financial policy variables in creating shareholder value.

As a representative for the liquidity management, cash management can be linked to financial theory by considering its importance in an imperfect market. This can be done, by adding it to the financial theoretic models, such as the Capital Asset Pricing Model (*CAPM*) or the Modigliani-Miller (*M&M*) model. The effects of the inclusion of cash balances in these theoretical models show the importance of liquid assets for the value of a firm (through the systematic risk component) and for the optimal capital structure (through the liquidity slack concept).

In addition of the reasons for cash balances presented in monetary theory (and accepted in financial theory), financial theory considers some strategic reasons closely related to the Keynesian speculation motive of money. This literature considers the importance of liquidity slack and its effect, for example, on firm value and capital structure. (See for example Jensen 1986, Ang 1991, Bhattacharyan and Gallinger 1991, and Opler *et al.* 1999) In financial theory, researchers have been interested in how cash and other liquid assets affect firm value and the optimal capital structure of a firm. Cash management is expected to play a key role in creating stockholder value. That is why it is important to find new evidence of cash management behavioral dimensions that cause the creation or destruction of shareholder value. Morris (1983) integrated operating cash flow activities into the risk and return framework. In this statement, the cash management policy of the firm was assumed to be of the Miller- Orr type. Sartoris and Hill (1983) integrated short-run cash inflows and outflows into the net present value model. They showed that the changes in cash management policies have a direct effect on the value of the firm.

Strategic reasons for holding cash balances have been studied, for example, by Jensen (1986), Ang (1991), Bhattacharya and Gallinger (1991), Opler, Pinkowitz, Stultz, and Williamson (1999), Dittmar, Mahrt-Smith and Servaes(2003). Shin and Shoenen (1998, 2001) investigated relationship between liquidity and profitability.

Baumol model of cash management

This helps in determining a firm's optimum cash balance under certainty. It is extensively used and highly useful for the purpose of cash management. As per the model, cash and inventory management problems are one and the same. William J. Baumol developed a model (The transactions Demand for Cash: An Inventory Theoretic Approach) which is usually used in Inventory management & cash management. Baumol model of cash management trades off between opportunity cost or carrying cost or holding cost & the transaction cost. As such firm attempts to minimize the sum of the holding cash & the cost of converting marketable securities to cash.

Relevance

At present many companies make an effort to reduce the costs incurred by owning cash. They also strive to spend less money on changing marketable securities to cash. The Baumol model of cash management is useful in this regard.

Use of Baumol Model

The Baumol model enables companies to find out their desirable level of cash balance under certainty. The Baumol model of cash management theory relies on the tradeoff between the liquidity provided by holding money (the ability to carry out transactions) and the interest foregone by holding one's assets in the form of non-interest bearing money. The key variables of the demand for money are then the nominal interest rate, the level of real income which corresponds to the amount of desired transactions and to a fixed cost of transferring one's wealth between liquid money and interest bearing assets.

Assumptions

There are certain assumptions or ideas that are critical with respect to the Baumol model of cash management:

- The particular company should be able to change the securities that they own into cash, keeping the cost of transaction the same. Under normal circumstances, all such deals have variable costs and fixed costs.
- The company is capable of predicting its cash necessities. They should be able to do this with a level of certainty. The company should also get a fixed amount of money. They should be getting this money at regular intervals.
- The company is aware of the opportunity cost required for holding cash. It should stay the same for a considerable length of time.
- The company should be making its cash payments at a consistent rate over a certain period of time. In other words, the rate of cash outflow should be regular.

Baumol Model of Cash Management:

- **Holding Cost** = k(C/2)
- **Transaction Cost** = c(T/C)
- **Total Cost** = k(C/2) + c(T/C)

- **Where T is the total fund requirement**

  C is the cash balance,

  k is the opportunity cost and

  c is the cost per transaction.

Limitations of the Baumol model:

1.It does not allow cash flows to fluctuate.

2. Overdraft is not considered.

3. There are uncertainties in the pattern of future cash flows.

Miller and Orr Model of Cash Management

The Miller and Orr model of cash management is one of the various cash management models in operation. It is an important cash management model as well. It helps the present day companies to manage their cash while taking into consideration the fluctuations in daily cash flow.

Description of the Miller and Orr Model of Cash Management

As per the Miller and Orr model of cash management the companies let their cash balance move within two limits - the upper limit and the lower limit. The companies buy or sell the marketable securities only if the cash balance is equal to any one of these.

When the cash balances of a company touches the upper limit it purchases a certain number of salable securities that helps them to come back to the desired level.

If the cash balance of the company reaches the lower level then the company trades its salable securities and gathers enough cash to fix the problem.

It is normally assumed in such cases that the average value of the distribution of net cash flows is zero. It is also understood that the distribution of net cash flows has a standard deviation. The Miller and Orr model of cash management also assumes that distribution of cash flows is normal.

Application of Miller and Orr Model of Cash Management

The Miller and Orr model of cash management is widely used by most business entities. However, in order for it applied properly the financial managers need to make sure that the following procedures are followed:

- Finding out the approximate prices at which the salable securities could be sold or bought
- Deciding the minimum possible levels of desired cash balance
- Checking the rate of interest
- Calculating the SD (Standard Deviation) of regular cash flows

Cash management as a part of liquidity management

Financial management is an extremely important area for a firm's success. Survey evidence has shown that financial planning and budgeting and working capital management are the activities on which chief financial officers spend most of their time (Gitman and Maxwell 1985). Cash management is a main area of working capital management. Other parts of it are inventory management, credit management and management of short-term liabilities. According to Lee (2001), cash management involves the administration of liquid assets and liabilities, and the raising of funds to finance a business. Cash-flow control is therefore crucial to ensuring that a business remains liquid and able to meet payment obligations. This is carried out through the effective management of cash receipts and payments, cash balances and cash transfers between the different parts of a business.

At the organizational level the *responsibilities* of a chief financial officer can be presented as follows (Teigen 2001):

- capital management
- risk management
- strategic planning
- investor relations

- financial reporting

In large firms these responsibilities may be divided into two areas, i.e. accounting and treasury. The controller is the company's chief accounting executive and responsible for the first area, i.e. for accounting principles, auditing standards, and cash control and processing. Treasurer, on the other hand, is responsible for the second area, i.e. the receipt, custody, investment and disbursement of funds, and advice accounting of changes in the cash balance. As presented by Teigen (2001), the working relationship between the managers of these two financial functions must be very close and ethical. Treasury can be regarded as a staff service function that supports many different areas of the organization. Its responsibilities and the advice it provides are (advice areas in parenthesis):

- capital management (cost of capital)
- risk management (risk analysis and mitigation)
- relationship management (the effects of the team's action on vendors, customers or investors)

The cash management problem is closely related to the concept of liquidity problem as discussed in the corporate finance literature (e.g. Cooley and Roden 1991, Brealey, Myers 1998, Scherr 1989, Maness and Zietlow 1998, and Ross, Westerfield, and Jordan 1999). In fact, depending upon the definition one chooses for cash management, the liquidity planning problem can be viewed more or less as general. As will later be shown, there exist several differing definitions of cash and treasury management in the financial management literature.

Teigen (2001) defined cash management as a part of treasury management, which is defined as a part of the main responsibilities of the central finance management team. The specific tasks of a typical treasury function include:

- cash management
- risk management
- hedging and insurance management
- accounts receivable management
- accounts payable management
- bank relations
- investor relations

This definition is consistent with the Srinivasan and Kim (1986a) classification of cash management areas as presented below (but risk management is not included). According to them the responsibilities of cash management can be divided into the five decision processes:

- cash balance management
- cash gathering
- cash mobilization and concentration
- cash disbursement
- banking system design

In their specification of the notion "cash balance management" includes

- management of cash position
- short-term borrowing
- short-term investing
- cash forecasting

In this context the management of the firm's cash position could include managing accounts receivable, improving cash flow, transferring funds, and controlling cash disbursements. Teigen's (2001) "cash management" concept in turn includes the development and compliance with cash and investment policy and processes, and the control and care of the cash assets and liabilities of the organization, i.e. the selection of

- banks and bank accounts
- investment vehicles
- investment brokers
- methods of borrowing
- cash management information systems

It is noteworthy that in these classifications "cash management" (Teigen 2001) and "cash balance management" (Srinvasan and Kim 1986a) are closely-related concepts. In both specifications, the cash management concept includes so-called financial transactions as a part of the cash management process. The early short-term financial management research of the 1960s focused on the specific activities of working capital management such as (Gentry 1988):

- cash management

- accounts receivable management
- inventory management
- short-term borrowing
- cash budgeting

The early research in this area was conceptually based on balance sheet information (on the early evolution of short-run financial management research, see Smith 1973). In the 1970s the short-run financial management research was developed in a more dynamic direction examining all of the components affecting the inflow and outflow of cash through a firm (on the major directions of short-run financial management researching the1970s and 1980s, see Gentry 1988).

Compared with Teigen's definition, Kendal and Sheridan (1991) defined the treasury function somewhat differently including an additional area of international taxation as follows:

- financial risk management
- insurance risk
- undertake short-term investments
- inter-group borrowing and lending
- bank relations, credit facilities operations
- international taxation

The treasury function must work with all operations within the organization. The operational functions they work with should consider treasury as an internal consultant with expertise in risk and finance. Teigen (2001)

In real business there may be many differing targets between cash management and other departments, such as marketing, purchasing, inventory management, production, and human resource management. It is therefore evident that there will be *conflicts* between these departments. Although financial executives know how important effective cash management can be to a company's bottom line, it is not so clear for other managers.

Boer (1999) suggested that financial people could use such a simple concept as "*cash gap*" to convince operating managers to pay sufficient attention to cash flow. The cash gap is the number of days between a business's payment of cash for goods and services bought and the receipt of cash from its customers for goods or services sold. That interval must be financed. The longer the time lag, the more interest a company must pay. Even when interest rates are low, the cost of financing can add up quickly.

Cash Management Transactions and Systems

Following Graber (2002), most of the daily transactions are enacted to complete an activity generated from internal units of the corporation; the payment of an invoice to a supplier, the receipt of a payment from a customer, the maturation of a security or the draw down on a bank line of credit.

In the present study the cash transactions are divided into two groups. The first group includes commercial cash flows (*operating transactions*), such as cash inflows from sales and cash outflows of purchases and the second financial cash flows (*financial transactions*), and such as cash flows from money market operations. The latter flows are of special interest in this study. Cash management is responsible for the cash flows through a firm.

CONCEPTUAL ISSUES IN ELECTRONIC BANKING

Payment systems have passed through a lot of ages. Prior to 700 BC when cowries were introduces in Asia Minor, barter remained the only medium of exchange. With the introduction of coins and notes, the era of cash as payment system emerged. In AD 1000, the first bank notes appeared in China. This was later followed by the use of cheque as written instructions to transfer precious metal coins from one holder to another. Other written instructions such as credit transfers, postal orders, money orders, and travellers' cheques have also been used. The next great age of payment system that followed paper instructions is electronic payments. Some payments are now being automated and absolute volumes of ash transactions have declined under the impact of electronic transaction brought by the adoption of Information and Communication Technology (ICT) to the payment system, especially in the developed countries (Abiodun, *et al*., 2006).

Ige (1995) defined ICT as the modern method of handling information by electronic means which involves access to, storage of, processing, transportation or transfer and delivery. Lucey (1987) also defined as the acquisition, processing, storage and dissemination of vocal, pictorial, textual and numerical information by a micro-electronic based combination of computing and telecommunications. The focus of ICT is on telecommunication and computerisation (Lucey, 1987). It implies the convergence of computing and communication (telecommunication) technologies and its uses or application for global Internet, Intranet, Extranet, World Wide Web (WWW), Visual reality, Cyberspace-the New Digital Mentality and Culture (Uwaje, 2000).

Communication Technology comprises the physical devices and software that link (connect) various computer hardware components and transfer data from one physical location to another (Laudon and Laudon; 2001). Connectivity has facilitated the use of electronic delivery channels. Distances and geographical locations are no

longer barriers to financial transactions.

The ability of Nigerian banks to satisfy and retain their customers in the present post-consolidation era will no doubt depend largely on the development of their ICT infrastructure. In the bid to catch up with global developments and improve the quality of their service delivery, Nigerian banks have invested much on technology, and have widely adopted electronic and telecommunication networks for delivering a wide range of value-added products and services. They have, in the last few years, transformed from manual to automated systems.

OVERVIEW OF INTERNET USAGE IN BANKING

Agboola (2003) discussed the dimensions of automation (technology) in Nigeria Banking Industry and they include:

Electronic Banking (e-Banking)

E-banking can be referred to as the system whereby all the banking services are concluded via electronic medium. Such banking services include money depositing and withdrawals, checking account balance and many more. The banks are characterized by the use of Virtual Private Network (VPN) to connect other branches. Elaborately, the local branches of the bank are connected via Very Small Aperture Terminal (VSAT), a satellite communication system. In this case of e-banking, the network is referred to as Extranet.

An extranet is the use of internet technology outside a company's premises to share commercial and operational information and tasks with customers (Nwosu, 2005; Greenstein *et al*, 2002). Alternatively, it is a private network outside a business, where the internet is a worldwide, public network. No one outside the permitted customer group can see the extranet. It is securely protected. Customers are able to transact on the bank's website in a secured environment by using Secured Socket Layer (SSL). This makes data transmitted between the client (that is the customer's computer) and the web server to be encrypted hence it requires understanding the keys to retrieve the data. Usually, the client uses the public key while the private key remains with the server. This encryption technique is called Asymmetric Encryption (CIW Study Guide, 2004).

Few banks carry out e-banking in Nigeria; among them are First Atlantic Bank (now First Inland Bank Plc) and Standard Trust Bank (now United Bank for Africa Plc).

Internet Banking

The numerous advances in internet technology have made considerable impact in business environment and have in particular brought about a shift in banking operations. This has necessitated the adoption of internet banking

by banks. With the application of the Internet to banking, banks are able to work effectively and make high profits. The chief driving forces of internet banking among customers include better access to the services, better prices and higher privacy. Through internet banking, customers can transact banking operations at the comfort of their homes and office anywhere, anywhere.

Today's Nigerian banks use VSAT for communication among their branches, what is referred to a Intranet. An intranet is the use of internet technology inside a company. Emphatically, only staff shares customer and operational information as well as tasks (Nwosu, 2005; Greenstein *et al*, 2002). It has made it possible for someone to deposit or withdraw money from any of the branches of his bank. Laudon and Laudon (2001) point out that the world's largest and most widely used network is the Internet. Internet is the main vehicle for Public Access Computing (PAC). Internet offers an excellent environment for banks to experiment with the delivery of home banking (Bill, 1996). It has been used to develop virtual reality bank branches in the United States of America. A prototype of this is the Electronic Courtyard developed by the Global Payment System Visa and the US software firm Worlds Inc.

It allows customers to cheque account balances, transfer funds and apply for loans. It uses three-dimensional graphics to enable customers to move into different rooms and communicate with virtual bank tellers, loan arrangers and financial advisers. It uses visas remote banking subsidiary, visa interactive, to link banks with customers and provide secure technology for the safety of account data transferred.

The level of participation on the web varies among banks. Many banks do not go beyond putting up a sign (company logo and contact telephone number) on the web. Some banks go a little further by offering information about them and their products (annual report, description of their products, loan products, and card products) to allow customers access to information in a single place instead of scattering them in many records and documents. This has been described as shop window. Only very few banks have gone beyond the shop window level to include a range of extra elements. Some offer general financial advice with a level of interactivity. A good example is Toronto Dominion Bank in Canada, which offers Wealth Allocation Models that allows customers to answer questions about themselves to test their tolerance for risk and receive advice on how best to allocate their assets. Some banks have gone as far as selling financial products on the internet. A local bank in Kentucky, America called Security First Network Bank has attracted significant attention in using the net to offer everyday transactions such as balance enquiry, transfer between accounts and bill payment. During the banks first two weeks on the internet, 750 people

from 32 states opened accounts with it, a third of them from California. About 12 million people were estimated to be using Internet in 1995, and by the year 2000, 22 million households had internet connection in the home (Lunt, 1995).

Payment through the internet will continue to expand in the next because it is very cheap and fast, some only cost the electricity that they use. Lynda (1999) wrote that the transaction costs of serving customers could be reduced, sometimes dramatically, by conducting transactions over the Internet. Laudon & Laudon (2001) observed that internet is reshaping the way information systems are used in business and daily life. By eliminating many technical, geographic and cost barriers obstructing the global flow of information, the Internet is accelerating the information revolution, inspiring new uses of information systems and new business models.

One major attraction of internet banking devices is that they have facilitated Electronic Home and Office Banking (EHOB). Lynda (1999) defines EHOB as a subset of the business to consumer segment of electronic commerce. This device enables customers to carry out transactions with their banks through connection between the customers terminals in their homes and/or offices and the banks computer system through VSAT (Very Small Aperture Terminal) VSAT is a satellite communications system that serves home and business users. Customers with such terminals are able to contact the bank for any form of information required. Information on bank balances, deposits into and withdrawals from accounts etc may be gotten through this medium. EHOB thus allows customers to keep a very firm grip on their financial transactions. With EHOB, customers can do their banking not only when but also from the convenience, comfort, privacy and security of their homes.

Mobile Banking (m-banking)

With the advent of Global System of Mobile Telecommunication (GSM), we now have very few banks using it as a medium of conducting some of their services. An example is The Sapphire Flash Club by First Inland Bank Plc (Nwosu, 2005). The Sapphire Flash Club is a bank account based on a GSM phone number. Literally, when one signs up for a Sapphire Flash Club, his phone number becomes the bank account number. And it becomes possible to transfer cash to anyone who owns a GSM phone anywhere in Nigeria (Nwosu, 2005). Also with such account, the owner can perform other transactions like buying any of the bank's e-products such as recharge cards for cell phones.

Telephone Banking

This is the most familiar of the Tele-banking devices and it allows customers to transact banking business

over the phone. Telephone links are used in electronic banking for direct connection either as private networks such as direct dial-in using leased or dedicated telephone lines or public networks. It can be used as an alternative to the traditional branch banking or in conjunction with it. Astonishingly, some banks still use what is referred to as Telephone banking. An example is Co-operative Bank Plc (now Skye Bank Plc). One branch of the bank calls another where the customer's account domiciles to confirm if the account is valid before performing the task of depositing or withdrawal.

Automated Teller Machines (ATM)

Banks have explored a new technology brought about by the convergence of telephoning and computing power to bring the virtual branch into people's homes. This is based on Tele-banking which means telecommunications-based banking. It is an authorized banking service that allows the customer to access, instruct, and receive cash payment using the ATM as a prime link (Stan, 1997). ATMs enable cardholders to withdraw cash, make deposits or transfer funds between accounts. To use the ATM, a Smartcard is inserted and a PIN (Personal Identification number) is entered to give the customer access to cash all day long.

Interactive Television

Interactive television is now being developed as a means of entering customers households to sell product and services (financial products inclusive). It requires an intelligent decoder, which acts as a computer attached to the cable of television network. It is also possible to combine satellite TV with the telephone network to enable interaction outside the cable network. This helps to provide sales and loan information on the screen. The first bank to use interactive television for banking services is Natwest, which provided it to about 2,500 homes in Ipswich and Colchester in 1995. It made use of Home-link concept pioneered by Nottingham Building Society Bank of Scotland but updated to the advantage of technological development (Stan, 1997), its use with branch service for its business customers while Halifax decided to extend its use to areas other than where current accounts exist (Stan, 1997).

Tele-banking

Tele-banking is capable of broadening the customer relationship, retain customer loyalty and enable banks to gain commanding height in market share (Callendar 1999) if their attendant challenges are taken care of. Fraud and insurgence of virus have posed serious threats to internet banking. The use of familiar hardware like television appears sound and attractive but the system may be expensive and cumbersome. In Britain, personal users are faced with a monthly subscription of up to six thousand and five hundred pounds. AVR could have gained a wider spread

use due to its simplicity, quick service and convenience but only tone phones can be used directly for it. Person-to person delivery channel has been found to be more successful.

Flexibility and variety of delivery channel is vital to the ability of banks to acquire, retain, and expand their customers. This approach will allow customers to deal with banks the way they wish. They must have freedom to change their minds and choose whichever channel is momentarily convenient. For customers to be able to decide on the most appropriate channel they need to be guided by making information available to them. Many major banks offer different types of delivery channels to different customers. The objective is to optimize profit from each of them. Telephone services can be used for high valued customers while ATMS and centralized low-cost telephone services can be used for low value customers. It is also possible to integrate person-to-person and AVR where the customers have the option of a fully automated enquiry or a personal contact.

There is an in-built ability that allows the system to switch from one device to the other. A customer would require a personal computer (PC) equipped with a modem for connection to a digital telephone to enjoy full home or electronic banking services, and the bank which provides this service must implement a secure electronic banking software, integrated to its core banking applications software (Irechukwu, 2000)

Debit Card

Uji (2006) defined Debit and credit cards as multipurpose electronic products. A debit card is a card associated with a current/savings account. When the card holder uses it for payments, cash withdrawals on the ATM or transfers, the corresponding amount is debited from the cardholders savings/current account. It is more convenient and safer to carry than cash or cheques. A debit card enables its holder to have purchases directly charged to funds on his or her account at a deposit money bank. A debit card also allows the user access to funds and information in his/her account on an on-line real-time basis. The point of access could be through an ATM for cash withdrawal, balance enquiry, and funds transfer or through a POS terminal to make payments for goods and services. Currently, there are no fewer than 12 million debit card holders in Nigeria. Some examples of debit cards in Nigeria include Value card, Smart pay, Union Bank's Easy Cash Card, First Bank's First Cash, United Bank for Africa's Serve Yourself Card, Zenith Bank's Easy Card and a host of other similar card products being offered by other banks. Although credit cards are very popular in the developed world, it is not so in Nigeria yet; although a number of initiatives by banks are in the pipeline to commence the issuance of credit cards in Nigeria.

Credit Card

A credit card enables the holder to make purchases as well as withdraw cash up to a pre-arranged limit. A credit card is associated with a 'card account' and a credit line. When the holder uses it to make payments or obtain cash advances, part of the benefits is a form of credit line of the extended by the issuer. It allows the holder to buy now and pay later. Currently, there are three million credit card holders in Nigeria.

Digital cash

It entails the use of a digital wallet (a plug-in web browsers) where invoice or receipt of payment is kept and cash is withdrawn (Cumming, 1991). Advantages are that the transaction is completed immediately, anonymity during transaction is possible. That is, it does not require personal or contact details of the buyer.

Micropayment

Micropayment is a term used for amounts as low as one cent and it allows vendors to sell content, information, and services over the internet at very low unit process. Several companies offer micropayment solutions such as IBM Micropayments and Compaq's alternative, the Millicent (Chaudbury *et al*, 2002)

Money Orders

Money orders are similar to certified cheques, as a known third party such as the U.S Postal Service, American Express, Western Union, or a bank guarantees the value. The transaction cost is small and the advantage is that it can be sent to the named receiver. The payment still carries some degree of anonymity. If the issuer preserves the privacy of both the seller and the buyer, the transaction is well protected. (Chaudbury *et al*, 2002)

INTERNET USAGE AND THE LEVEL OF ADOPTION BY BANKS IN NIGERIA

Banks have traditionally been in the forefront of harnessing technology to improve their products, services and efficiency. They have, over a long time, been using electronic and telecommunication networks for delivering a wide range of value added products and services. The delivery channels include direct dial – up connections, private networks, public networks etc and the devices include telephone, Personal Computers including the Automated Teller Machines, etc. With the popularity of PCs, easy access to Internet and World Wide Web (WWW), internet is increasingly used by banks as a channel for receiving instructions and delivering their products and services to their customers. This form of banking is generally referred to as internet banking, although the range of products and services offered by different banks vary widely both in their content and sophistication.

Ovia (2003) posited that the hype of e-commerce, e-banking and e-everything is gradually being embraced by Nigerian financial institutions who are poised to be in the vanguard of narrowing the digital divide. In its survey

on the extent of e-banking adoption by Nigerian banks, the Central Bank of Nigeria (CBN), in September 2002, found out that of the 89 licensed banks in the country, only 17 were offering Internet Banking, 24 were offering basic telephone banking, 7 had ATM (Automated Teller Machines) services while 13 of the banks were offering other forms of e-banking. This implies that as of then, 19.1 percent of the banks were offering internet banking, signifying that internet banking was yet to take centre stage despite its widely acclaimed benefits against the traditional branch banking practice (Ezeoha, 2005).

David (1982) confirms that there has been a very modest move away from cash. Patrick (1985) also contends that the advantages of cash diminish as the value of transactions increases. Consequently, the use of non-cash payments rises with increasing value. All these have been brought about by the advancement in IB. IB has streamlined the processes for cash lodgements (deposits) and withdrawals locally and internationally. Tellers are today equipped to issue receipts (deposit slips) for cash deposits. The service of ordering bank drafts or certified cheques made payable to third parties has also been increasingly automated (Irechukwu, 2000).

Writing on new technologies and performance enhancement in the banking industry, (Ovia, 1997) states that the new technologies have created unparalleled wired economy. The transfer of money from point to point has resulted in turning the actual money into bits and bytes through satellite transponders, fibre optic cables or regular telephone lines. Bill (1996) contends that for banks, the new technologies present not only a challenge to adapt but also many opportunities to utilise. Aragba-Akpore (1998) wrote on the applications of ICT in Nigerian Banks and pointed out that ICT is becoming the back-bone of Nigerian banks regeneration.

A statement by the bank said that the product was designed to remove the hassles of taking deposits to banking halls by customers. This it said would enable them concentrate on their businesses and engagements. The statement added that the bank, through accredited agents and with the aid of electronic device Point of Sales terminals, would take deposits from customers in their offices, markets, homes or at any location daily, weekly or monthly depending on their preferences. It also said that each deposit would be immediately captured in the customer's account database while an SMS alert would be sent to the depositor's GSM handset.

Cleopas (2008) set the tone for Finance and IT Summit (FITS) when he said that the reforms in the banking sector was aimed at evolving a strong and robust banking sector that will be able to stand tall in the league of global banks, offer seamless services to the citizenry and be able to withstand attacks from fraudsters and hackers. He stated that one of the steps to be taken to ensure the realization of these goals is the integration of ICT platforms of

banks to such an extent that the customer is shielded from the complexities of having to deal with different platforms, different solution providers, and inhibit successful fraudulent practices among others. He and noted that the widespread adoption of ICT has precipitated rapid growth in the area of electronic payment (e-payment) thus reducing to some extent the temptation to carry cash around. Full online, real-time capabilities have revolutionized electronic transfer of funds.

Electronic fund transfer (EFT) is an electronic oriented payment mechanism. It allows customers' accounts to be credited electronically within 24 hours (Ugwu, et al., 1999).

Mark (1975) classified the basic elements of EFT system into three: Clearing network characteristics, remote service or point of sale characteristics and pre-authorized debit and/ or credit characteristics.

The first one (clearing network characteristics) deals with automated clearing service and this manifest in the use of (MICR) Magnetic Ink Character Reader in Nigeria. The remote service or point of sale characteristics address the units of banking activities that transfer funds from one bank current or savings account to another banks current or savings account. The transfer is always authorized and the record is kept on file of that authorization.

There is also a second-generation remote service unit that is capable of electronically placing a third party into the customer-financial institution communication link. This is known as POS (Point of Sale terminals). POS terminals handle cheque verifications, credit authorization, cash deposit and withdrawal, and cash payment. This enhances electronic fund transfer at the point of sale (EFTPOS). EFTPOS enables a customer account to be debited immediately with the cost of purchase in an outlet such as a supermarket or petrol station (Ugwu, et al., 1999). It consists of the accumulation of electronic payment messages by the retailer, which are subsequently passed on to appropriate institutions for processing. The purchase price is debited on the buyers account and credited on the sellers account. The basic components of every EFTPOS system are Recognition, Authorization, Message-Entry and Message-Processing.

By 1985, many major banks had embraced EFTPOS on line system accepting all types of visa and master card (Patrick 1985).

Pre-authorized debit and/ or credit characteristics of the EFT manifest in the use of cards. Plastic cards are used to identify customers and pass same to machines to initiate a paper or electronic payment. It is a mechanism by which personal customers could interface with electronic banking industry (Steve, 1996). Electronic cards are microchips that store electronic card, which is only cheque guaranteed (Ugwu, et al., 1999). Financial institutions issue credit

cards in order to provide credit facilities to their customers and debit cards to ease payment system. Credit cards are used as means of borrowing or as a convenient method of payment. Debit Card is a charge card designed as a convenient method of payment in place of cash or cheque.

Electronic fund transfer has also been variously designed to ease international transfer of money. In 1977, the international payment system known as SWIFT (Society for Worldwide Inter-bank Financial Telecommunication) became operational. SWIFT enables user banks to use electronic mode to transfer international payments, statements and other banking messages. In Nigeria, first Banks Western Union, Monogram of United Bank for Africa among others performs international funds transactions.

Chiemeke (2006) reports on the experience of First Atlantic Bank of Nigeria as it embarked on the implementation and introduction of Internet and mobile banking services. The author noted that, being a first mover (the bank pioneered Internet banking in Nigeria in November, 2000) in a given market can be crucial, not necessarily because of the immediate commercial benefits, but more because of the opportunity for developing customers trust in order to ensure the success of future innovation.

IMPACT OF ELECTRONIC CARDS (E-CARDS) ON NIGERIAN BANK PAYMENT SYSTEM

E-Cards Heighten Competition Among Banks.

An e-payment card is a payment instrument usually in the form of a plastic card, provided by the 'issuer' (issuing institution) to the card holder so that he, by accessing a telecommunications network based on an account associated with the card, may purchase goods or services, make payments, withdraw cash and conduct other transactions. It is been pointed out that e-payment cards the easiest and quickest way to make payments and are easily accessible forms of financial transaction.

The introduction of electronic cards by banks has changed the face of financial transactions among banks in Nigeria Banking System. Competition has heightened in the banking industry with the introduction of electronic cards to further ease business transactions in line with global trends. The cards, as displayed by banks, in a way under pin the efficient technology a banks has over another. Some banks currently have a lot of cards in their kitties to convince their customers of the efficiency and up-to-date nature of their electronic systems. With the array of cards that dot the electronic banking system of the country, there have been concerns over the danger associated with e-cards especially now that banks advise that all transactions within certain limited amounts should be done

with the cards. In 1951, electronic banking was introduced in the United States of America and since then the plastic cards have been accepted.

Since the introduction of payments cards in Nigeria, all forms of electronic payment channels ranging from ATM's, P.O.S terminals, cards transactions, internet banking as well as mobile banking have been on a steady rise.

Prior to the introduction of electronic cards by banks, Nigerians were used to carrying huge sums of money from one place to the other. Most banks make use of the technologies of MasterCard International, VISA Card International and Interswitch to dispense each to their customers. Interswitch is an online electronic transaction processing payment infrastructure that connects different payment channels to the payment processors and enablers. This platform is connected to the banks, GSM operators, utility companies, card operators and other end-users through a communication and network.

Even though e-cards are not widely used, banks are trying to encourage the use of the cards by charging extra for across the counter transactions in banking halls because electronic cards are a way of moving the country from a cash system to a cashless system. Instead of people carrying cash around, they will carry a single card in which they can receive money from the ATMs at banks or POS terminals. Also, electronic cards provide a convenience way of financial transactions among other things; they do not expose the users to risk of attacks by hoodlums or thieves.

Finally, e-cards are part of the technologies with which banks compete and that any bank with the easiest way of dispensing cash will attract more customers and that banks survival depends on competition and any bank with an array of products that could reduce time and facilitate fast and reliable services will be the choice of customers.

But in the event of a default, our legal system (the law courts) does not recognize any evidence associated with e-payment i.e. what the injured party have to tender to the court; it is the ATM machine that wrongfully deducted his account balance or did not payment on demand, the credit card etc.

CONSTRAINTS AND REGULATION OF ELECTRONIC BANKING

Bickersteth (2005) attributed the slow pace of development of e-payment to lack of adequate infrastructure, low internet penetration, absence of open standards/trust among banks and providers as well as absence of adequate legislation or national policy on ICT development.

According to Olesin (2006) and Ezeoha (2006), image problem was another issue. The Advance Fee Fraud

code-named 419, is one of the most popular Internet frauds and it probably had its origin from Nigeria. Lately, the country has been very prominent among the list of fraudulent nations. Consequently, there has been outright rejection of payment cards issued by Nigerian banks on the international arena. Generally, Denny (1998) attributed e-payment problems to the issues of customer identification and account verification of online purchaser. Another issue is lack of security. There is need to put in place effective security measures to safeguard the client, server as well as the media of transmission (Ghosh, 1997).

Spong (2000) illustrated that "electronic banking, by speeding up transactions, creating new competitors and services, altering banking operations and support functions, and dramatically expanding the reach of financial institutions, is leading to many significant changes in our deposit and payments system; and have joined to raise several issues for banking regulation and its objectives of depositor protection, monetary stability, an efficient and competitive banking system, and consumer protection". Again, given the inherent nature of Internet banking in eliminating paper documentation and traditional identity verification processes, there are clear reasons to believe that new dimensional risks are created (Wright, 2002) and that new regulatory and supervisory challenges are thrown open to national and international governments.

Apart from the above changing dynamics brought by the growing reliance on Internet, other issues that have joined to increase regulatory concerns for Internet banking include the prevalence of frauds in the Internet environment. As is posited by Williams (2002), organized crimes have increased in line with the increased use of Internet. Hence in a country like Nigeria where cases of fraudulent uses of Internet are rampant, regulating internet banking becomes not only a national concern, but also attracts some international attentions. At the same time, the capacity of the existing regulation to adequately address the complexities created by this mix-up remains very doubtful (Ezeoha, 2005). In which case, using the conventional banking laws and policies to address cyber transactions is thus inconsistent. This has been mainly so because most of the existing national banking laws were designed and formulated before the advent of Internet (Wallsten, 2003).

In effect, much of the current regulatory and supervisory apparatus governing the operations of banks were designed based on physical location, as against the remote (and sometimes virtual) system of Internet banking. Even at present, there are no enforceable cyber crime regulations in most of the developing African countries, Nigeria inclusive, and where such laws exist they are hard to enforce (Udotia, 2005). For some countries therefore, the elementary stages of Internet development evolved without any definite regulatory structure on ground.

Generally, regulating internet banking encompasses three major issues: how bank customers are to be protected; how banks are to be protected; and how the country would be protected against the negative publicity associated with the spread of Internet frauds. Whereas bank customers may be concerned with being able to get Internet banking services at more convenient, speedy, safe and cost efficient way (Awamleh et al. 2003), the concern of banks generally is on how to get the best out of Internet banking in terms of cost efficiency, competitive advantage and enhanced profitability, especially in comparison with the opportunity cost of similar services and investments in conventional banking system.

On the other hand, the focus of national government is to ensure that there is organized and structured developments in the entire electronic banking system in such a way that such development would contribute optimally to the stability of the financial system and the development of the economy in general. Regarding the latter, regulatory appeals also cover the issue of protecting the national financial system against global leakages that may be caused by financial and economic crimes that are known to be perpetrated through the internet.

Most of the claims are however questionable at least in part, given the growing reputation of Nigeria as a safe haven for ICT fraudsters. With these mixed developments, it is clear that the country needs adequate regulatory cover to face the global Internet development train. Expectedly, emphasis to this effect should be to first update the existing national regulations on banking and finance in line with international standards; develop structures and agencies capable of enforcing these laws; get the citizens well educated on the intricacies of Internet usage and frauds, as well as the regulatory implications of wrong/fraudulent uses of the Internet; ensure that all the major background problems such as poverty, corruption and bad governance are fully addressed and; ensure adequate interface and collaborations between our local law enforcement agents and the various international agencies that are presently pursuing the course for safe Internet cyber community.

RESEARCH METHODOLOGY

DATA PRESENTATION

There are two sources of data analysed for this work; the primary and secondary data as expressed below:

PRESENTATION OF PRIMARY DATA (ANALYSIS OF RESPONSE TO QUESTIONNAIRE)

The following frequency analysis of data collated as responses to the Sections A and B of the instrument stated above was imported from the SPSS analysis. They are presented in tables below:

Analysis of Section A

Table 1: The Department of Respondents

		Frequency	Percent
valid	Marketing	24	24
	Administrative	42	42
	Operation	18	18
	ICT	16	16
	Total	100	100

Source: Field survey, 2013

Comment

The table above show that more of the respondents are from the Administrative Department followed by the Marketing Department, Operation and ICT Departments. It is so because these are the core departments relevant to the area of study.

Table 2: Gender Distribution of Respondents

		Frequency	Percent
	Male	56	55
	Female	44	45
	Total	100	100

Source: Field survey, 2013

Comment

Out of the 100 respondents, there are more males than female respondents.

Table 3: Age Distribution of Respondent

		Frequency	Percent
valid	below 20 years	22	22
	20-35 years	46	46
	36-60 years	28	28
	Above 60 years	4	4
	Total	100	100

Source: Field survey, 2013

Comment

The table above shows that large amount of respondents (i.e. 46% of the total) are within the age brackets of 20-35 years. This is active age required for the industry being examined.

Table 4: Marital Status of Respondents

		Frequency	Percent
Valid	Single	40	40.0
	Married	60	60.0
	Total	100	100.0

Source: Field survey, 2013

Comment

Out of the 100 respondents, 60 respondents, i.e. 60%, are married. This could owe to the fact that the remuneration, work environment and job responsibility are favourable to married employees.

Table 5: Educational Qualifications of Respondents

		Frequency	Percent
Valid	A-Level/ NCE/OND	30	29
	HND/BSc or equivalent	50	50
	Post graduate certificate/degree	20	20
	Total	100	100

Source: Field survey, 2013

Comment

The table above reveals that 50 of the respondents fall under the category of HND/B.Sc. or equivalent holders, while 20 respondents have post graduate certificates/degrees. This is an indication of an educationally and the professionally qualified workforce.

Table 6: Job Position of Respondents

		Frequency	Percent
Valid	Director/Senior Management	14	14
	Supervisor/Middle management	42	42
	Junior/full time operation staff	30	30
	Casual/contract staff	14	14
	Total	100	100

Source: Field survey, 2013

Comment

A large number of the respondents belong to the supervisor/middle manager cadre, followed by junior/full time operation staff, the casual/contract staff. These are the cadres most accessible for the investigation study.

Table 7: Working Experience of Respondents

		Frequency	Percent
Valid	Below 5 years	4	4
	5-15years	30	30
	16-35years	62	62
	Above 35years	4	4
	Total	100	100

Source: Field survey, 2013

Comment

The table above indicates that the working experience of 15 respondents fall within 5-15 years while 31 of the respondents have experience of 16-35 years.

Table 8: Educational Specialisation/Area of Regular Duties.

Educational specialisation	Frequency	Percentage
Accounting /finance/Audit	36	36
Secretarial /clerical services	4	4
General Administration / Management	32	32
Technical/ Engineering work	4	4
Social work training/ Teaching services	0	0
Commerce/Agricultural services	0	0
Legislative/political office	6	6
Legal/judiciary affairs	0	0
Others	18	18
Total	100	100

Source: Field survey, 2013

Comment

A large number of the respondents are specialised in the area of Accounting /finance/Audit, followed by General Administration / Management which consists of 36% and 32% respectively. These are the cadres that are knowledgeable for the investigation and the subject matter of the study.

Analysis of Section B

Question 10: Does your organisation do a lot of in-house cash management procedure?

Table 9

Strongly yes	4	32	128	32.0
Simply yes	3	52	156	52.0
Emphatic No	2	0	0	0.0
Simply no	1	0	0	0.0
Not sure	0	16	0	16.0
Total	**2.84**	**100**	**284**	**100**

$$AWP = \frac{TW}{TR}$$

Where:

AWP = Average Weighted Point

∑TW = sum of Total Weight

TR = Total Response

$$AWP = \frac{284}{100} = 2.84 \approx 3$$

Comment

The Table above affirms that the firm do a lot of in-house cash management procedure

Question 11: Does your organization collect some of it cash through informal means (e.g., lunch with customer, Talks with trade partners

Alternatives	Points	No. Of Respondents	Total Weight	Percentage
Strongly yes	4	0	0	0.0
Simply yes	3	2	6	2.0
Emphatic No	2	49	98	49.0
Simply no	1	30	30	30.0
Not sure	0	19	0	19.0
Total	**1.34**	**100**	**134**	**100**

Table 10

$$AWP = \frac{TW}{TR}$$

Where:

AWP = Average Weighted Point

∑TW = sum of Total Weight

TR = Total Response

$$AWP = \frac{134}{100} = 1.34 \approx 1$$

Comment

The table above simply shows that organisation do not collect some of their cash through informal means (e.g., lunch with customer, Talks with trade partners

Question 12: In your opinion, would you say that your firm periodically review the likely effects of Changes in their cash collection (e.g., regulation) from customers.

Table 11

Alternatives	Points	No. Of Respondents	Total Weight	Percentage
strongly yes	4	22	88	22
simply yes	3	38	114	38
simply No	2	30	60	30
Emphatic No	1	0	0	0
Not sure	0	10	0	10
Total	**2.62**	**100**	**262**	**100**

$$AWP = \frac{262}{100} = 2.62 \approx 3$$

Comment

The table above simply affirms that the firm periodically review the likely effects of Changes in their cash collection (e.g., regulation) from customers.

Question 13: Can you say that there are a lot of informal cash collection' tactics or strategies among employees in your organisation?

Table 12

Alternatives	Points	No. Of Respondents	Total Weight	Percentage
strongly yes	4	2	8	2
simply yes	3	4	12	4
simply No	2	42	84	42
Emphatic No	1	44	44	44
Not sure	0	8	0	8
Total	**1.48**	**100**	**148**	**100**

$$AWP = \frac{148}{100} = 1.48 \approx 1$$

Comment

The table above simply indicates that there is no any informal cash collections' tactics or strategies among employees in the organisation.

Question 14: How would you describe the effect of cash management process on your organisations in term of turnover?

Table 13

Alternatives	Points	No. Of Respondents	Total Weight	Percentage
Excellent	5	22	110	22.0
Simply Good	4	58	232	58.0
Simply Bad	3	0	0	0.0
Terrily Bad	2	0	0	0.0
About collapse	1	0	0	0.0
Can't Comment	0	20	0	20.0
Total	**3.42**	**100**	**342**	**100**

$$AWP = \frac{342}{100} = 3.42 \approx 3$$

Comment

The table simply reveals the effect of cash management process on your organisations in term of turnover is acceptable and strong.

Question 15: We have interdepartmental meetings at least once a quarter to discuss cash disbursement/collection trends and developments in order to make effective cash management plan.

Table 14

Alternatives	Points	No. Of Respondents	Total Weight	Percentage
strongly yes	4	26	104	26
simply yes	3	58	174	58
simply No	2	12	24	12
Emphatic No	1	0	0	0
Not sure	0	4	0	4
Total	**3.02**	**100**	**302**	**100**

$$AWP = \frac{302}{100} = 3.02 \approx 3$$

Comment

The organisations have interdepartmental meetings at least once a quarter to discuss cash disbursement/collection trends and developments in order to make effective cash management plan**.**

Question 16: Can you describe the performance of your organisation in the last few years in Nigeria to be satisfactory?

Table 15

Alternatives	Points	No. Of Respondents	Total Weight	Percentage
strongly yes	4	58	232	58
simply yes	3	38	114	38
simply No	2	0	0	0
Emphatic No	1	0	0	0
Not sure	0	4	0	4
Total	**3.46**	**100**	**346**	**100**

$$AWP = \frac{346}{100} = 3.46 \approx 4$$

Comment

The above table strongly reveals that the performance of the organisation in the last few years in Nigeria to be satisfactory.

Question 17: How would you compare the effectiveness of cash management in some decades back with the present situation in Nigerian Banks?

Table 16

Alternatives	Points	No. Of Respondents	Total Weight	Percentage
Above 100%	4	50	200	50
Exact 100% or there about	3	34	102	34
Alittle below 100%	2	12	24	12
Terribly below 100%	1	0	0	0
Can't comment	0	4	0	4
Total	**3.26**	**100**	**326**	**100**

$$AWP = \frac{326}{100} = 3.26 \approx 3$$

Comment

The effectiveness of cash management in some decades back with the present situation in Nigerian Banks is strong and reliable.

Question 18: Does your organisation adopt any special internal policy regarding cash management efficiency and in turn enhance performance?

Table 17

Alternatives	Points	No. Of Respondents	Total Weight	Percentage
strongly yes	4	28	112	28
simply yes	3	50	150	50
simply No	2	18	36	18
Emphatic No	1	0	0	0
Not sure	0	4	0	4
Total	**2.98**	**100**	**298**	**100**

AWP = $\frac{298}{100}$ = 2.98≈3.0

Comment

The table simply reveals that the organisation do adopt some special internal policy regarding cash management efficiency that in turn enhance performance.

Question 19: The cash management strategies of your organisation will in the long run enhance its ability to survive

Table 18

Alternatives	Points	No. Of Respondents	Total Weight	Percentage
strongly agree	4	28	112	28
agree	3	50	150	50
Disagree	2	18	36	18
strongly disagree	1	0	0	0
uncertain	0	4	0	4
Total	**2.98**	**100**	**298**	**100**

Comment

The above table reveals that the cash management strategies of the organisation will in the long run enhance its ability to survive. **Question 20:** Type of account held with the bank**?**

Table 19

Code	Frequency	%
Savings Acc	45	45
Current Acc	35	35
Deposit Acc	20	20
Total	**100**	**100**

Comment

The result indicates that 45%. Of the total population open savings account, 35% open current account while others open Deposit account

Question 21: How long have you been a customer of this bank?

Table 20

Code	**Frequency**	**%**
1 - 5 years	25	25
6 - 10 years	24	24
11 - 15 years	12	12
16 - 20 years	26	26
Above 20 years	13	13
Total	100	100

Comment

The table above simply reveals that the majority of the population spent less than 20 years.

Question 22: Is this bank involved in e-banking?

Table 21

Code	Frequency	%
Yes	82	82.0
No	14	14.0
No Response	4	4.0
Total	100	100

Comment

The table above simply affirms that the bank involved in e-banking.

Question 23: How do you rate customer service in this bank before the advent of e-banking?

Comment

Code	Frequency	%
Excellent	0	0
Very Good	0	0
Fairly	0	0
Poor	88	88
Very Poor	12	12
Total	100	100

This table simply reveals that rate customer service in this bank before the advent of e-bankingwas very poor.

Question 24: How do you rate customer service after?

Table 23

Code	**Frequency**	**%**
Excellent	37	37
Very Good	56	56
Fairly	7	7
Poor	0	0
Very Poor	0	0
Total	**100**	**100**

Comment

This table simply reveals that rate customer service in this bank after the advent of e-bankingwas very good.

Question 25 How do you rate banking operations efficiency before the advent of e-banking?

Table 24

Code	Frequency	%
Excellent	0	0
Very Good	0	0
Fairly	11	11
Poor	78	78
Very Poor	11	11
Total	100	100

Comment

The above analysis simply reveals that the banking operations efficiency before the advent of e-banking was very poor.

Question 26: How do you rate banking operations efficiency after advent of e-banking?

Table 25

Code	**Frequency**	**%**
Excellent	42	42
Very Good	53	53
Fairly	5	5
Poor	0	0
Very Poor	0	0
Total	**100**	**100**

Comment

This table simply reveals that rate customer service in this bank after the advent of e-bankingwas very good.

Question 27: The implementation of electronic banking system in Nigeria is effective

Table 26

Alternatives	Points	No. Of Respondents	Total Weight	Percentage
strongly yes	4	28	112	28
simply yes	3	50	150	50
simply No	2	18	36	18
Emphatic No	1	0	0	0
Not sure	0	4	0	4
Total	**2.98**	**100**	**298**	**100**

AWP = 298 = 2.98≈3.0
100

Comment

The table simply reveals that the implementation of electronic banking system in Nigeria is effective

Question 28: The benefits of electronic banking in Nigeria surpass the cost

Table 27

Alternatives	Points	No. Of Respondents	Total Weight	Percentage
strongly yes	4	32	128	32
simply yes	3	51	153	51
simply No	2	12	24	12
Emphatic No	1	0	0	0
Not sure	0	5	0	5
Total	**3.05**	**100**	**305**	**100**

AWP = 305 = 3.05
100

Comment

The table simply reveals that the benefits of electronic banking in Nigeria surpass the cost

Question 29: In the view of cash policy on the cashless economy, do you think the effort you are putting in the cash management will be relevant after the full implementation of the cashless economy?

Table 28

Alternatives	Points	No. Of Respondents	Total Weight	Percentage
strongly yes	4	22	88	22
simply yes	3	38	114	38
simply No	2	30	60	30
Emphatic No	1	0	0	0
Not sure	0	10	0	10
Total	**2.62**	**100**	**262**	**100**

AWP = 262 = 2.62
100

Comment

The table simply reveals that the effort that the organisation is putting in the cash management will be relevant after the full implementation of the cashless economy.

Question 30: With the advent of the cashless economy policy, your investment in cash management will become unnecessary or irrelevant?

Table 29

Alternatives	Points	No. Of Respondents	Total Weight	Percentage
Strongly yes	4	5	20	5.0
Simply yes	3	1	3	1.0
Emphatic No	2	46	92	46.0
Simply no	1	32	32	32.0
Not sure	0	16	0	16.0
Total	**1.47**	**100**	**147**	**100**

AWP = $\frac{147}{100}$ = 1.47 ≈ 1

Comment

The table above simply shows that with the advent of the cashless economy policy, the organisation investment in cash management will not become unnecessary or irrelevant?

HYPOTHESIS TESTING

The first hypothesis that will be tested for this study will employ the use of T-test and it is aimed at examining if implementation of electronic banking system in Nigeria is not effective. The hypothesis that was set is.

Hypothesis one

Ho: The implementation of electronic banking system in Nigeria is not effective.

Hi: The implementation of electronic banking system in Nigeria is effective. The result obtained from the Question 27(table 26) and it analysis from SPSS result is shown below:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Electronic banking system	4.8333	100	.37582	.04852
	Nigerian banking industry	4.4500	100	.50169	.06477

Source: Author's survey 2013

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Electronic banking system & Nigerian banking industry	100	.405	.001

Source: Author's Survey, 2013

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Significant role and utilisation of Electronic banking system in Nigerian banking industry	.38333	.49030	.06330	.25668	.50999	6.056	59	.000

Source: Author's survey, 2013

Based on the result, it is clear that the paired samples statistics standard deviation shows a low values with 0.37582 and 0.50169. The error mean also was low with 0.04852 and 0.06477. However, from the result, the t value shows a value of 6.056 this was above the tabulated value of 2.304. The confidence interval was at 95% with lower and upper limit with a degree of freedom of 59. Since the t calculated is greater than the t-tabulated i.e. 6.056>2.304 we therefore reject the null hypothesis (H0) and accept (H1) alternative hypothesis concluding that the implementation of electronic banking system in Nigeria is effective.

Hypothesis II

The second hypothesis tested is to examine if the benefits of electronic banking in Nigeria surpass the cost. In order to test this hypothesis, we set the null hypothesis against the alternate hypothesis

Hypothesis two

Ho: The benefits of electronic banking in Nigeria do not surpass the cost.

Hi: The benefits of electronic banking in Nigeria surpass the cost.

In order to examine this, the study makes use of correlation. The result obtained is prescribed below

Correlations

		Electronic Banking cost	Firm's growth
Electronic banking	Pearson Correlation	1	-.784**
	Sig. (2-tailed)		.000
	N	100	50
• cost	Pearson Correlation	-.784**	1
	Sig. (2-tailed)	.000	
	N	100	50

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Author's survey, 2013

From the result, it is clear that electronic banking cost was significantly correlated with firm's growth. The result shows that correlation was significant at 0.01 levels (90%) with a 2-tailed test. Based on this result, we reject H0 and accept H1concluding that the benefits of electronic banking in Nigeria surpass the cost.

SUMMARY OF RESULT

In the analysis of Section A of the instrument revealed the following characteristics: more of the respondents were from the Marketing and Administrative departments of companies, more males, and active workforce (age), mostly married, well educated, and well educated and experienced. The Section B revealed that the benefits of electronic banking in Nigeria surpass the cost. The hypotheses tested revealed that there is a significant impact of electronic banking on the payment system and intermediation function of Nigerian Banking. The implication of the findings of the study was that Banks should invest more in electronic banking system.

SUMMARY

This study aimed at an analysing the impact of electronic banking on the payment system and the intermediation function of Nigerian Banks. Therefore research questions on whether there is any significant role and utilisation of the recent advent of electronic banking on payment system and the intermediation function of

banks guided the study. The hypotheses tested include the implementation of electronic banking system in Nigeria is not effective and the benefits of electronic banking in Nigeria do not surpass the cost.

The study used the conclusive research design and descriptive research. Both primary and secondary data were gathered. The study population was from staff of companies numbering 1,600 but 105 was the sample size. The sampling technique was simple random selection of the subject of the 105 respondents for the study, 100 returned filled and return their questionnaires which brought the response rate to 98%. The study established that there is a significant relationship between electronic banking and the payment system and financial intermediation function of Nigerian Banks.

CONCLUSION AND RECOMMENDATIONS

Business firms, especially those in the financial sector are fraught with decision-making related problems that impact negatively on their profitability. Beside, inability of the banks to make the necessary cash management decision-making affected the company's operations and in many cases affected its reputation too. Lack of this on the other hand may force a bank to miss the confidence given by the depositors or creditors.

Based on the above, the study deemed it necessary to present the following recommendations:

1. The migration of our payments system towards a electronic banking would require some reform and a lot of effort and sensitization especially for low income customers, who are currently deeply rooted in using cash and see it as a convenient and easy way of receiving and making payments. The sensitization exercise would require the combined effort of various stakeholders, including government, financial institutions and non-bank providers of payment services.
2. The Electronic banking idea was well received by the majority of Nigerians, but with some concerns/challenges which can hamper its success and must be addressed by providers.
3. There is a need for the regulatory authorities to ensure that the policy was properly enforced, through the use of moral suasion to drive it home. Coercive measure should be out of it. On the long run, the economy will be better for it.
4. The transformation from a cash-centric economy to a plastic one would need more than one year, this is because the introduction should be gradual with the fundamental structures; first put into place.

5. Regulatory authorities should ensure that all service providers who have been licensed should start operations because the number of Point of Sale (POS) terminals in the country is very few. Penalties should be imposed on those providers who have failed to go into the market.

6. Hence before cashless system of payment can be widely accepted and used, consumers must trust and have full confidence in the system, which entails:

• Clear and practical communication.

• High level of security in the system – difficult for scammers/fraudsters.

• Simple and easy processes especially for low income customers.

• The various payment options should be made more user friendly and easily accessible for all and

• The charges for Electronic Banking should be minimal to encourage users and attract those outside the banking system to begin to bank their money.

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