

Uncertain Supply Chain Management

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The impact of cash management on the performance of manufacturing companies in Nigeria

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ABSTRACT

This study examined empirically the impact of cash management on the performance of manufacturing companies in Nigeria-A study of Cadbury Nigeria Plc. The researcher used both secondary and primary data for data collection. For clear analysis, the study centres on two broad variables; the dependent variable which is performance and the independent variable which is Cash management. Two different hypotheses were formulated and tested using descriptive statistics and correlation coefficients techniques respectively in order to establish whether there is a significant relationship between cash management, performance and liquidity. The results of the study suggested that a significant relationship exists between cash management on performance of manufacturing companies in Nigeria. It was also discovered that mere availability of cash (liquidity) without proper management does not necessarily translate into favorable performance for manufacturing companies. Hence, need for effective cash management for better performance.

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1. Introduction

No business operation is isolative of cash management. Cash is regarded as the most important current asset for the operation of business (Olowe, 1998). Cash is the basic input required to keep the business running on a continuous basis and it is also the ultimate output expected to be realized by selling the services or products manufactured by the firm (Pandey, 2010). Cash management is imperative in every business organization as cash is said to be the life blood of any business (Chartered Institute of Management Accountant (CIMA), 2002). The essence of cash management is to ensure positive cash flow for smooth business operation. Adetifa (2005) argued that cash management has been professionalized because of the importance of managing corporate cash. The question that will then come to mind will be, how important is cash management to the running of a company or an organization? Or of what importance is cash management in ensuring an effective, reliable and positive fund flow system of a manufacturing company?

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Basically, the process of managing cash today has been significantly influenced by the growing developments in the business world over the years (Kesseven, 2006). These developments include; the change in the corporate banking relationship from buyer's to a seller's market, the globalization of the world business which includes the creation of the economic monetary union in Europe with its single currency and the proposed adoption of a single currency in the west region of Africa; the emphasis on new treasury structures to better manage resources on a worldwide basis; the developing interest in e-commerce for business-to-business transactions which changes how data and funds flow greatly reduces working capital cycle time; the emergence of the "new economy" with its orientation to information and cash, driving finance into every area of a company (Marsh, 2009). Based on all these developments, effective cash management has become fundamental to business survival and success.

However, for the sake of simplicity, cash management centres on how a firm manages its cash flow cycle or operating cycles as this defines the timing of cash inflows and cash outflows. The pattern of the cash and operating cycles varies per industry but in a general term, the pattern involves the provision of cash as capital for firm's initial outlay, the procurement of raw material in manufacturing companies and finished goods in marketing companies, distribution of the finished goods to obtain immediate cash or create debtors when goods are sold on credit term. (Akinbuli, 2009). Furthermore, the process of managing corporate cash has become a major challenge for most companies, because of its significant impact on the results of a company (Ekwere, 1993). The determination of problems in cash management involves identifying areas that are unique to solving cash problems in an organization.

One of the problems faced by finance managers in managing cash is determination of appropriate source of fund for the company either to be used as the initial or working capital. Other challenges are identification of right investment opportunity for idle funds, non-cash planning, and determination of the optimal level of cash to be maintained by the company. Kesseven (2006) submitted that most managers are faced with the challenge of achieving a desired trade-off between liquidity and profitability in maximizing the value of the firm. He therefore warned that too much focus on profitability may cause asset-liability mis-match resulting in increased profitability in the short run at a risk of insolvency. Pandey (2010) however, is of the opinion that finding a trade off between sufficient and insufficient cash to be held has been a major problem faced by many organizations, while Olowe (1998) advised that cash must be obtained from appropriate source in order to avoid the problem of fund mismatch in investment decisions.

Soenen et al. (1989) surveyed and compared cash and foreign exchange management practices in large companies located in the United Kingdom, the Netherlands, and Belgium. They are of the opinion that the problem of the relationship between liquidity and profitability has been considered in some studies, such as Kytonen (1993) and Shin and Soenen (1998, 2000) respectively.

Kytonen (1993) presented some preliminary evidence regarding relationships between cash management and a firm's performance. He investigated cash management behaviour using the ratios of financial statement analysis as explanatory variables in the firms' demand for money function in addition to some macro-variables. The direction of the coefficient of the profitability variable indicated that the hypothesis of the increasing profitability as an explanation for more efficient cash management must be rejected.

Also, in their earlier study Shin and Soenen (1998) investigated the relationship between firm's efficiency of working capital management and its profitability. Although cash management is only a part of working capital management, the results concerning the latter could be valuable in analyzing cash management behaviour. They used the net trade cycle (*NTC*) to measure the efficiency of managing the firm's working capital. *NTC* was used as a proxy for the cash conversion cycle (*CCC*). According to the evidence of their study, Shin and Soenen (1998) found that a strong negative

association exists between the firm's *NTC* and its profitability. In their later study, Shin and Soenen (2000) found that, contrary to traditional belief, Ifa firm has larger sales with a generous credit policy, which extends the cash cycle, the longer *CCC* can result in higher profitability.

Subsequently, Morris (1983) tried to connect cash management to the valuation framework of the Capital Asset Pricing Model (CAPM). He showed how cash balances affect the systematic risk of a firm's stock. He concluded that if a firm carries too little cash, the costs of cash management will have higher expected value and, because they are uncertain, they may add to the firm's systematic risk. Mauchi et al (2001) also sought to evaluate the effectiveness of cash management policies at Hunyani Flexible Products (HFP) using data from 2000-2010. From their findings, a high deficiency of an effective cash management policy was discovered although some attributes of an effective management system were present. The study found that there is a positive relationship between the level of cash flow and the profitability of the company. The research concluded that, cash management is a culture that forms part of the strategy of companies and depends more on managers themselves than the characteristics of companies.

Traditionally, much has been written in corporate finance literature on long term investment and financing decisions. However, investment in short term assets has attracted less attention by researchers. Both academic researchers and financial professionals have paid less attention to cash (liquidity) management and its importance to business. Researchers of finance have focused more on the relationships between firm value and capital structure than cash, despite its central role in real business, very little is known about the practical issues of cash management. Of more concern is the dearth of research on cash management in Nigeria, although working capital is well researched but little has been done on cash management as a component of working capital management in Nigeria. However, cash in prior researches have been largely discussed in different contexts by financial experts, academic scholars, and international organizations with an attempt to add to the knowledge of actual corporate practices of cash management.

Because of these contradictory results, the question of whether cash management improves or worsens performance in a business organisation is still worthy of further research such as the one being undertaken in this study. In addition, despite the existence of these studies, very little attention has been given to the manufacturing industry. This means that the impact of cash management on the performance in the manufacturing industry has not received adequate research attention in Nigeria. Thus, there is a major gap in the relevant literature on Nigeria, which has to be covered by research. Consequently, this research aim at examining liquidity and other cash management problems faced by most manufacturing companies in the country which has led to the near collapse status of manufacturing sector in Nigeria, with a view of proffering solutions that can assist in resuscitating the sector towards achieving economic development. This research therefore attempts to fill this gap by studying the situation and providing more empirical evidence on the impacts of cash management on the performance of manufacturing companies in Nigeria.

2. Literature review

Cash generally can be said to be liquid money in form of coins, notes and other related means of instant exchange. According to Pandey (2010), cash refers to money which an organization or firm can disburse immediately without restriction. The term cash includes coins, currency and cheques held by the firm and balances in its bank account. He asserts that sometimes, near cash items such as marketable securities or bank time deposits are also included as cash. Akinbuli (2009) defined cash as liquid money in form of coins, notes and other related means of instant exchange. He opined that cash is absolutely essential to business stressing that without cash; operations will grind to a halt. Cash has also been described as the basic input necessary to start and keep a business running, the ultimate

output expected to be realized by selling the services or products manufactured by the firm. (Pandey, 2010; Olowe, 1998).

International Accounting Standard 7 (IAS 7) defined cash and cash equivalent as follows; ‘Cash comprises cash on hand and demand deposit’. ‘Cash equivalents are short term, highly liquid investment that are readily convertible to known amounts of cash and which are subject to an insignificant risks of changes in value’. This definition was also adopted by the Nigerian Statement of Accounting Standard 18 (SAS 18). However, according to Van Horne (1974) “Cash Management involves managing the money of the firm in order to attain maximum interest income of idle funds”. CIMA (2002) opined that cash management is concerned with optimizing the amount of cash available to the company and maximizing the interest on any spare funds not required immediately by the company. While Allman-Ward et al (2003) described cash management as the art and the science of managing a company’s short term resources to sustain its ongoing activities, mobilize funds and optimize liquidity. According to them, the key characteristics of an effective cash management include the followings:

- Utilizing a firm’s current assets and current liabilities effectively throughout each phase of the business operating cycle.
- Planning, monitoring and managing a firm’s collections, disbursement and account balances systematically.
- Gathering and managing information to effectively use available fund, while also identifying relevant risks.

Pandey (2010) asserted that Cash management is concerned with managing of, Cash flows in and out of the firm, Cash flows within the firm, and Cash balances held by the firm at a point in time by financing deficit or investing surplus cash. He further stated that objectives of cash management include maintaining adequate control over cash position, keeping the firm sufficiently liquid and to ensuring usage of excess cash in profitable ways.

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. Cash management covers the management of the company’s cash in the normal course of business i.e. making sure the company always has enough cash on hand to meet its bills and expenses, and investing any surplus cash (CIMA, 2002). Considering all descriptions and definitions above, it can be summarized that cash management entails all actions and activities necessary to maintain appropriate levels of cash to meet operational requirements of a company. 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 (Bragg, 2004).

2.1 Theoretical approaches to cash management

Kytonen (2004) identified three theoretical approaches to cash management as listed below:

- Monetary theoretic approach to cash management.
- Operations research approach to cash management.
- Financial approach to cash management.

2.1.1 Monetary theoretic approach to cash management

According to Kytonen (2002) monetary economists are interested in the cash management of firm; their objective has been to describe the mechanism of the demand for money by firms, because it differs from the behaviour of other economic agents. He is of the opinion that researchers have tried to find a stable relationship between the quantity of money and its determinants in order to forecast

demand for money. He further stressed that in monetary theory, the demand for money is one of the most intensively investigated areas. Both long and short run behaviour have been examined on the macro and micro level. He asserts that demand for money investigates decisions made in the cash management process. He explained how Attanasio et al (2002) used microeconomic data on households to estimate the parameter of the demand for currency derived from a generalized Baumol-Tobin model.

2.1.2 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 (Kytönen, 2002). The two basic transaction models most commonly accepted in the financial literature are the deterministic Baumol-Tobin (1952) and the stochastic Miller-Orr inventory models (1966).

2.1.3 Financial theoretic approach to cash management

Kytönen (2002) opined that in financial theory, researchers are interested in how cash and other liquid assets affect firm value and the optimal capital structure of a firm. Financial theory considers the cash management problem in the framework of the evaluation and capital structure of a firm. He suggested that, cash management as a representative for the liquidity management, can be linked to financial theory by considering its importance in an imperfect market. According to him this can be done, by adding cash balances 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).

2.2 Motives for holding cash

According to the notable economist, Keynes, there are three main motives for holding cash and they are as follows:

2.2.1 Transactionary Motive

This is the major reason why corporate bodies hold cash. Cash is held in the ordinary course of business for day to day operation. This motive requires a firm to hold cash to conduct its business, the need to hold cash for this purpose rests on the fact that there is no perfect synchronization between cash receipts and payments.

2.2.2 Precautionary Motive

Cash is held to provide cushion or buffer to withstand unexpected emergency cash outflows. It is the need to hold cash to meet contingencies in the future. Cash held serves as safety margin against occasional unforeseen but compelling contingent payments in the future. Holding cash under this motive is to provide cushion to withstand unexpected emergency cash flows (Olowe, 1998).

2.2.3 Speculative Motive

The speculative motive relates to holding of cash to seize an advantage of investment opportunities which may arise from time to time. Cash is required for taking advantage of unusually profitable opportunities which may suddenly occur. According to Van Horne (2002), firms must decide the quantum of cash to be held for motives identified above. Amount of cash to be held is influenced by the following factors;

- The expected cash flow.

- The degree of variation between the expected and actual net cash flow.
- The maturity structures of the firms liabilities.
- The firm's ability to borrow at a short notice in event of any emergency.
- The philosophy of management regarding liquidity and risk of insolvency.
- The efficient planning and control of cash.

Igbinosun (2002) asserted that since business firms do not engage in speculations, motives to hold cash and marketable securities are mainly Transactionary and precautionary motive. He stated the following as factors determining the company's level of cash requirements; efficient planning and control of cash, company's expected cash flow, company's borrowing capacity, company's management attitude to risk, debt repayment schedule, size of the organization and cost of capital.

2.3 Factors of cash management

According to Pandey (2010), there is need for proper management of cash, since it is the most important current asset for the operation of business. The firm should keep sufficient cash, neither more or less. Cash shortage will disrupt the firms operations, while excessive cash will simply remain idle, without contributing anything towards the firm's profitability. He suggested the following as facets of cash management;

- Cash planning,
- Managing cash flows,
- Optimum cash levels,
- Investing surplus cash.

2.3.1 Cash Planning and Budgeting

Cash planning is a technique to plan for and control the use of cash. It protects the financial conditions of the firm by developing a projected cash statement from a forecast of expected cash inflows and outflows for a given period. Thus, cash planning helps to anticipate future cash flows and needs of the firm thereby reducing the possibility of idle cash (which lowers firms profitability) and cash deficit (which can cause firm's failure). According to Udojung et al. (2010), Cash planning is not a science but rather an on-going, iterative process that involves many parts of the organization. It can be done on daily, weekly, or monthly basis. The period and frequency of cash planning depends on the size of the firm and the philosophy of management. Bragg (2004) stated that "A cash forecast, or cash plan, or cash budget, is a projection of the anticipated cash receipts and disbursements and the resulting cash balance within a specified period". While Tuller (2008) describes cash management as the basic tool of running a business and cash forecast as the working tool of cash management.

Olowe (1998), defined cash budget as a summary statement of the firm's expected cash inflows and outflow over a projected period of time. While Igbinosun (2002) also referred to Cash budget as a financial statement that mirrors cash flows of an organisation incorporating the timing of such cash flows. Cash budget gives information on the timing and magnitude of expected cash flows and cash balances over the projected period. This helps to determine the future cash needs of the firm, plan for the financing of its asset needs and exercise control over the cash and liquidity of the firm. Cash forecast are however needed to prepare cash budgets. Cash forecasting may be done on short term or long term basis. According to Allman-Ward et al. (2003), Cash forecasting is used to estimate the liquidity position of the company for periods ranging from the current day up to one year." The purpose of a forecast can be determined by its length. A short term forecast of 0 – 3 months is used for liquidity management, while operational forecast of 1 – 12 months is used for medium term working capital and financing requirements, and long term forecast of 1 – 5 years is used for planning strategic financial goals. Bragg (2004) is of the opinion that whether short term or long term, the

basic purpose for forecasting is to plan so that the business will have necessary cash. This he noted as being more of general than specific.

2.3.2 *Managing Cash flows*

Once cash budget has been approved, and appropriate net cash flow established, the financial manager should ensure that there does not exist a significant deviation between projected cash flows and actual cash flows. To achieve this, there will have to be proper control of cash collections and disbursements. According to Pandey (2010) Cash management in the modern corporation involves two simple rules:

- ✓ Speed up cash collection (Cash Inflow) – minimize collection float,
- ✓ Slow down cash disbursement (Cash Outflow) – maximize disbursement float.

Ross et al. (1991) stated that the objective of cash management in cash collection is to speed up collections and to reduce the lag time between the time consumer pays their bills and the time the cheques are collected. While the objective of cash management in disbursements is to control payments and minimize the cost associated with making payments. The rule is to accelerate collections and delay disbursement. Therefore it can be concluded that objective of management of collection and disbursement is to collect it faster, keep it longer and spend it slower.

2.3.2.1 *Cash Collection*

To accelerate collections and reduce collection time; lock boxes, concentration banking and electronic fund transfer are techniques majorly used. Lock Boxes - Allman-Ward et al. (2003) explained that the lock boxing techniques started after Second World War when banks identified a business opportunity in managing the collection of float for companies. This technique was developed to reduce the involvement of corporate clients in the handling of incoming cheques. It requires company to organize different receipts of cash centers where they have their customers through lock up boxes at different post offices nearer to the customers. This is a special post office boxes set up to intercept and speed up account receivable collection. According to Allman-Ward et al, lock boxing involves; receiving mails (cheques) in a bank-controlled post office box, picking up mails (cheques) at several times in a day, taking mails (cheques) back to the bank processing site, opening and sorting mails, determining if any cheques received should not be deposited based on instructions from the company. Such cheques may be with wrong payee, postdated cheques etc., taking copy or image of cheques approved for deposit, depositing all acceptable cheques received, assigning availability and clearing deposited cheques and sending electronic information about the remittances to the company with physical copies of cheques, cheques not deposited and the remittance documents.

Bank / Cash Concentration - This is similar to lock boxes with the exception that different local banks are appointed as collection centres. It refers to the practice of moving cash from multiple banks into the firm's main account. Pandey (2010) described this as a system of operating through a number of collection centres instead of a single collection centre centralized at the firm's Head office. While Bragg (2010) explained that concentration is an excellent solution to solving the problem of inefficient management of treasury where with subsidiaries and branches maintain individual banks accounts resulting into serious tracking and reconciliation problem by the head office. He further explained that with cash concentration, cash in multiple accounts is pooled either through physically sweeping or notional pooling. Allman-Ward et al (2003) also stated that deposit reporting services, company-initiated concentration, standing instructions and maintaining zero balance accounts are options available to a company to move funds into the concentration account. They argued that to

have an effective concentration system, the following cost element must be considered; the cost of the transfer mechanism, the value of the funds in the bank and the opportunity cost of local accounts.

Electronic fund Transfer - Electronic transfer is another method of effectively managing the collection of cash. It is a process whereby funds are transferred from one bank account to another bank account through computer terminals. Electronic transfer of cash takes few minutes and the cash becomes available to the company upon receipt of transfer notice (Brealey et al, 2004). According to Bragg (2010), a wire transfer sends funds to the recipient's bank account more rapidly than any other form of payment and is the standard form of international payment.

Van Horne (2000) identified two methods of transferring fund as follows:

- Wire Transfer: Funds are immediately transferred from one bank to another.
- Electronic depository transfer cheque: An electronic cheque image is processed through an automatic clearing house.

He further stated that the use of electronic fund transfer to enhance the process of cash collection will result in instantaneous receipt of payment and availability of cash to the company. It will also shortens cash cycle and results in more usable fund.

2.3.2.2 Cash Disbursement

Objective in disbursement as a cash management strategy is to slow down disbursement as much as possible. By delaying payments, firm makes maximum use of trade creditors as a source of fund, as source which is interest free. This can be achieved through increasing disbursement float and maintaining controlled disbursement accounts.

Van Horne (2001) defended the idea put forward by Ross (2000) that the objective of cash disbursement is to delay payment as long as it is legally and practically possible. He however warned that in pursuing this objective the firm should not compromise its relationship with supplier as they may withdraw credit. According to Allman-Ward et al (2003), a disbursement system must be managed to reduce idle balances while providing timely disbursement information. Slowing down payments can increase disbursement float, but it may not be ethical or optimal to do this in the light of its associated costs as stated above – Vendor or employee ill will. They further explained that disbursements can be controlled with the operation of the following accounts;

- Zero-balance accounts: Where a master account funds the disbursement account which have experienced payments during the day. The aim is to return the disbursement account to zero at the close of each business day.
- Controlled Disbursement Account: A specialized form of zero balance account arranged with a bank where the account is funded at the beginning of each business day to cover the cheques presents for each day. This approach is to eliminate the need for companies to leave balances to cover clearing items.

Pandey (2010) proposed that firms should make use of credit terms to the fullest extent as there is no advantage in paying sooner than agreed. He however warned that, although delaying disbursement results in maximum availability of fund, firms that delay in making payment may endanger their credit standing. Thus a firm should pay within the terms offered by supplier.

2.3.3 Determining the target cash balance

According to Pandey (2010) one of the primary responsibilities of a financial manager is to maintain a sound liquidity of the firm so that dues may be settled in time. He should be able to determine the appropriate amount of cash balance to be held by the company. Such a decision is influenced by a

trade-off between risk and returns. Gallagher (2000) opined that cash management involves a trade-off between the need for liquidity and desire for profitability. The more cash a firm holds, the more liquid it becomes, however piling up funds to sustain liquidity will prevent fund from being invested in long term, high return producing assets.

The trade-off between benefits and cost of liquidity is one essential part of cash management. If the firm maintains a small balance, its liquidity position becomes weak and it will suffer paucity of cash to make payments. It may have to sell marketable securities, if available, or borrow and this involves transaction cost. On the other hand, if the firm maintains a higher level of cash balance, it will have a sound liquidity position, but forego the opportunity to earn interest. The potential interest lost on holding large cash balance involves an opportunity cost to the firm. Thus, the firm should maintain an optimum cash balance, neither a small nor a large cash balance. The cash balance will be at its optimum position when the transaction cost and risk of a small cash balance is matched or equals the opportunity cost of too large a balance. The target cash balance can be set by the use of Baumol model and other theoretical models but this may not be relevant practically as most companies make use of Monte Carlo simulation by setting their target cash balances based on some 'safety stock' of cash that holds the risks of running out of money to some acceptable low level. (Tuller, 2008). Sophisticated models have been developed to aid companies and managers in determining the target (optimal) cash balances by establishing the optimum cash management strategy that will reduce cost. The most prominent ones are *Baumol and Miller – Orr Cash management models which are explained below.*

2.3.3.1 Baumol cash management model

Jarrad (2000) explaining the treatment of cash management problem by Baumol in 1952, noted that Baumol treated cash management problem as an inventory management problem where he applied techniques developed for inventory optimization to the problem of covering transactions demand for cash. Having optimal cash balance basically involves a trade off between the opportunity costs of holding too much cash and the transaction costs of holding too little cash. Ross et al (1991) stated that the Baumol model can be used to determine the target cash balance that a firm should hold at any given time. The optimal (target) cash balance is found where the opportunity costs equal the trading costs. The working of this model is comparable to the Economic Order Quantity (EOQ) model in stock control.

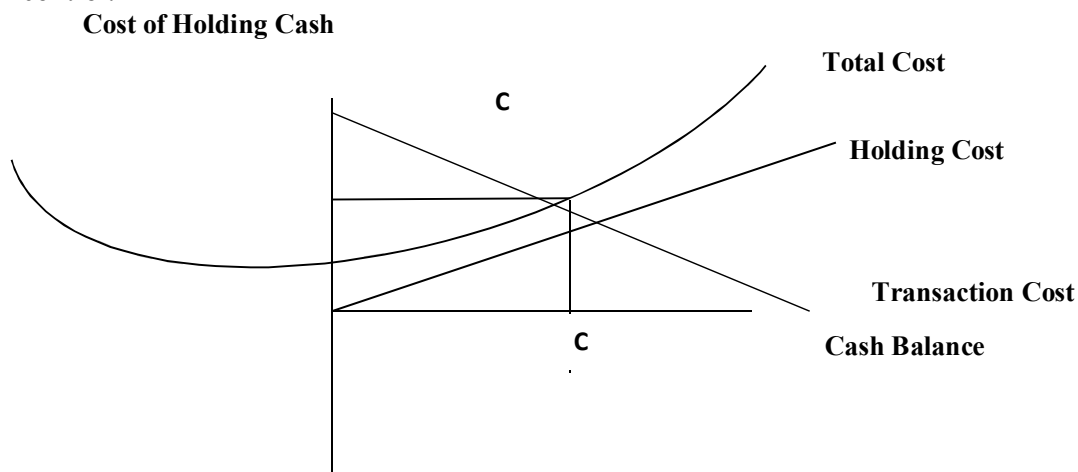


Fig. 1. Optimal cash balance graph

Source: (Pandey, 2010) Financial Management

$C^* = \sqrt{(2TF)/R}$ Where;

C^* is the optimum cash balance

T is the total amount of new cash needed

F is the fixed cost of selling securities to raise cash

R is the opportunity cost of holding cash. This is the interest rate of marketable securities.

The optimal cash balance 'C' is found where the opportunity costs equal the trading or transaction costs. Ultimately, if the company set optimal cash balance, it will assist in reducing the liquidity costs associated with paying for daily transactions and maintaining a precautionary level against unforeseen fluctuations in cash flows.

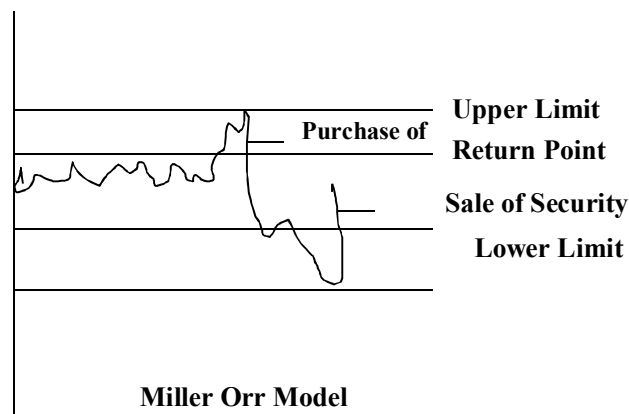
Marsh (2009) acknowledged that although the model is simple to use and understand, it might be difficult to accurately predict cash required over future periods as the model assumes that firm faces a constant demand for cash. He is also of the opinion that the model provides no allowance for a buffer of cash and that if company run out of cash, it could be expensive and damaging to the business and lastly. Pandey (2010) also stressed that the major limitation of the Baumol model is that it does not allow the cash flows to fluctuate. In practice, firms does not use their cash balances uniformly neither are they able to predict daily cash inflow and outflows.

2.3.3.2 Miller-Orr Cash Management model

Pandey (2010) stressed that Miller Orr model overcame the shorting comings of Baumol model as it allows for daily cash flow fluctuation and assumes that net cash flow are normally distributed .Unlike the Baumol Model, this model allows for uncertainty cash flows and safety stocks (precautionary balance). According to Marsh (2009), “The Miller-Orr model imposes upper and lower limits which trigger buy/sell actions in order to bring cash balances back to an optimal ‘return point’ ”. In doing this, it constrains the upward and downward movements of cash to within ‘acceptable limits’. The model allows the company to set the lower control limit while the model determines the higher control limit and the average cash balance.

Marsh further explained that an organization will either buy or sell securities for cash to return its cash balance to a normal return point. When the cash balance reaches the upper limit, an organization will buy securities in order to lower the cash balance to the return point. Likewise also, when the cash balance reaches the lower limit, an organization will sell securities to have the cash balance back at the return point.

Jarrad (2000) also explained that the approach of Miller and Orr in 1966 was to assume that the underlying problem facing the manager is to keep enough cash on hand to meet daily transactions demand, while minimizing the opportunity cost of not holding a return yielding asset. He further explained that Miller and Orr focused their model on maintaining two boundaries; the upper and lower boundaries. If the upper boundary is crossed, it will trigger a transfer out of cash into an interest bearing asset and if the lower boundary is crossed, it will trigger a transfer into the cash account.



Source: (Pandey, 2010) Financial Management

The Optimal cash balance is $Z^* = \sqrt[3]{((3Fs^2)/4K) + L}$.where;

The upper limit is $H^* = 3Z^* - 2L$

The average cash balance is $(4Z^* - L)/3$

S^2 is the variance of net daily cash flows

L is the lower control limit

F is the fixed cost of selling securities to raise cash

K is the opportunity cost of holding cash. This is the interest rate of marketable securities.

2.3.4 Investing Idle Cash

Companies may have surplus or idle fund. Surplus fund are those that may not be required for immediate use. Pandey (2010) described surplus cash as excess amount of cash held by firm to meet its variable cash requirement and future contingencies and advised that such money should be temporarily invested in marketable securities. Once the firm has determined the optimal cash balance, the residual asset (surplus cash) should not be left idle. It should be properly invested to earn profit for the company. It can be invested in short term investments, marketable securities or government securities like treasury bills, commercial papers. Berk et al. (2011) also advised that once a firm need to hold cash is reduced, funds should be invested in short term investment securities.

According to Marsh (2009), the objective of investment of short-term surplus cash is to ensure security, maintain liquidity and maximize interest or return. He further stated that the purpose of investing surplus cash is to retain security and required liquidity at a good rate of interest. However, Allman-Ward and James (2003) noted that the cash manager has three objectives when investing funds in short term instruments, which are; retaining value, raising cash quickly and realizing income. They stated that cash surplus may arise from; variable sales pattern, sale of assets or investments, raising capital or debt. They further categorize the instruments for short term investing in three as follows;

- Government instruments: Treasury bills, bonds, revenue securities, general obligation securities etc.
- Bank instruments: Time deposits, Certificates of Deposit (CD), Bankers Acceptance (BA), repurchase agreements and sweeps.
- Corporate instruments: Commercial paper (CP), preferred stock and Money mutual funds

3. Research methodology

This study used a descriptive survey design to collect detailed and factual information that describes an existing phenomenon (Azika, 2009). The focus population is the entire members of staff (factory workers inclusive) of Cadbury Nigeria Plc. A Judgemental sampling technique was used to select 100 personnel while 45 questionnaires were returned. A structured questionnaire was used for the collection of data on the study. The questionnaire was specifically designed to accomplish the objectives of the study. The first section of the questionnaire collected biographical information of the respondent. The second section contained twenty (20) statements formulated with reference to the hypothesis to establish the impact of cash management on the performance of manufacturing companies in Nigeria using Likert format of 5 scale approaches. A descriptive statistics and correlation coefficients technique were used in analyzing the data.

3.1 Test of hypotheses

At this juncture, it is important to test the validity or otherwise of the hypotheses postulated with the available data, which are analyzed and the information gathered in this study. Two hypotheses are formulated to guide this study. Each hypothesis was, however, tested separately to determine its relevance in the light of the available evidence from both the primary and the secondary data analyzed in this study.

Hypothesis 1

H₀: There is no significant relationship between cash management and performance of manufacturing companies.

Hypothesis 2

H₀: There is no significant relationship between liquidity and performance.

Hypothesis 1

H₀: There is no significant relationship between cash management and performance of manufacturing companies.

Correlation Results for the Test of Hypothesis One (1)

		Cash Management	Performance
Cash Management (x variables)	Pearson Correlation	1	.426**
	Sig. (2-tailed)		.004
	N	45	45
Performance (y variables)	Pearson Correlation	.426**	1
	Sig. (2-tailed)	.004	
	N	45	45

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

a. Predictors: (Constant), Cash Management

b. Dependent variable: Performance

Source: SPSS Printout, 2013

From the test statistics in Table above, the correlation analysis shows a correlation coefficient of .426 and a Prob. value of 0.004 (i.e. p-value < 0.01). X variables are significantly positively correlated with Y variables at 1% level of significance using two-tailed. Hence, the null hypothesis is hereby rejected and the alternative hypothesis accepted, concluding that there is a significant positive relationship between Cash management and performance. In other words employment of effective cash management strategies will lead to improvement in performance of manufacturing companies.

Decision Rule:

The decision rule according to Frederick and Larry (2003), states that when $P < \alpha$, it implies there is a significant relationship, but when $P > \alpha$, it infers there is no significant relationship. That is, when the calculated P value is less than 0.05 level of significance, then the null hypothesis is rejected and the alternative hypothesis is accepted. But when the reverse is the case, the null hypothesis is accepted. Therefore, from table above, null hypothesis is hereby rejected and the alternate hypothesis accepted which states that: There is a significant relationship between cash management and performance.

Analysis of the secondary data to test hypothesis Two (2)

Hypothesis 2

H₀: There is no significant relationship between liquidity and performance.

YEARS	LIQUIDITY	PERFORMANCE
2002	1.4022	0.4004
2003	1.5111	0.3745
2004	0.9421	0.3893
2005	1.3575	0.3636
2006	0.5655	0.3875
2007	0.3559	0.2538
2008	0.2173	0.3087
2009	0.8898	0.2669
2010	0.9094	0.3318
2011	1.3648	0.3500

Source: Annual financial Statement (Cadbury Nigeria Plc, 2002-2011)

Correlation Results for the Test of Hypothesis One

		CASH MANAGEMENT	PERFORMANCE
LIQUIDITY	Pearson Correlation	1	.566
	Sig. (2-tailed)		.088
	N	10	10
PERFORMANCE	Pearson Correlation	.566	1
	Sig. (2-tailed)	.088	
	N	10	10

a. Predictors: (Constant), Cash Management

b. Dependent variable: Performance

Source: SPSS Printout, 2013

From the test statistics in Table above, the correlation analysis shows a correlation coefficient of about .566 and a Prob. value of 0.088 (i.e. p-value > 0.05). This implies that although X variables were positively correlated with Yi variables, the relationship is not significant at 5% level of significance using two-tailed. Hence, the alternate hypothesis is hereby rejected at 95% confidence level and the null hypothesis accepted, concluding that there is no significant relationship between liquidity and performance. In other words liquidity might not necessarily result in better performance.

Decision Rule:

The decision rule according to Frederick and Larry (2003), states that when $P < \alpha$, it implies there is a significant relationship, but when $P > \alpha$, it infers there is no significant relationship. That is, when the calculated P value is less than 0.05 level of significance, then the null hypothesis is rejected and the alternative hypothesis is accepted. But when the reverse is the case, the null hypothesis is accepted. Therefore, from table above, alternate hypothesis is hereby rejected and the null hypothesis accepted which states that: There is a no significant relationship between liquidity and performance. This decision is based on the calculated P value of 0.088 as shown in Table above.

From the analysis above it can be concluded that although cash management has significant impact on performance and corporate survival, mere availability of cash (liquidity) without proper management does not necessarily translate into favourable performance for manufacturing companies. Hence, need for effective cash management for better performance.

4. Conclusion

It is obvious from the study that cash management is an important aspect of management function and its importance cannot be over-emphasized. When companies understand and implement the concept of efficient cash management, business success will be achieved. However, shortage or bad management of cash may result in loss of cash discount, loss of reputation due to non-payment of obligation on due dates and insolvency which may result in operational shut down of the company (Tuller, 2008).

This study has revealed that the company's decision on what amount to hold as cash balance, the choice of the source of short term finances, the approach adopted for the management of its collections and disbursements, its cash forecasting strategy and investment attitude towards idle fund form the major basics for ensuring an efficient and effective cash management system. As suggested by Gallagher (2002), implementation of a good cash management system will ensure better control of financial risk, increase the opportunity for profit, strengthen the company's balance sheet, ensure increased confidence in the company and improve operational efficiency.

A critical analysis of the subject matter of this research has been carried out and several discoveries have been made. Research results showed that there is a positive relationship between the efficiency of cash management policies and the overall business performance. This is in agreement with a study carried out by Mauchi et al (2011) in Zimbabwe. The study found that there is a positive relationship between the level of cash flow and the profitability of the company. The results are also consistent with a study carried out by Platt (2003) in Europe which sought to evaluate the impact of cash management on the overall company performance.

Therefore, based on the foregoing, this research concludes that for any business organisation to maintain liquidity and ensure better performance, its system of cash management must be effective and efficient.

5. Recommendations

Based on the findings of this research, it is obvious that there is need for manufacturing companies to improve on their present efforts towards ensuring an effective and efficient cash management system. To this end, the researcher will recommend that effort should be made to improve on existing banking relations. The finance manager should strive to be constantly aware of the range of services available from banks. The rates and charges of the banks should be regularly evaluated to ensure that the company is best served and to justify the need to continue banking relationship with the banks.

As a component of implementing an effective cash management program, finance manager should always prepare a cash budget and cash flow statement for effective cash planning and control. He should also make sure that the cash management process is in compliance with applicable laws, regulations, and professional and ethical standards.

Receivable processing should be improved such that bills and invoices are done promptly and accurately. Invoices should be dispatched faster to aid prompt payment, while also offering small discounts for prompt payment. This is primarily to ensure a continuous inflow of cash from the company's business activities.

Manufacturing companies should also identify appropriate software solution for their cash management. This will go a long way in tracking cash balance, monitoring payments, receivables, and performing liquidity management functions thereby ensuring greater control on liquidity. In addition, Finance managers should have adequate knowledge of sources of funds as well as investment opportunities where idle funds may be temporarily invested. Management decisions concerning cash should not be solely left to the financial manager alone. Other departmental heads should partake for optimality to be attained easily. Financial information system should also be introduced to develop financial discipline in cash management. While financial forecasting, planning and control devices are to be move intensive to enhance the efficiency of cash management.

Above all, manufacturing companies should engage in an extensive training program in finance for its workforce regardless of their different educational background and attainment. Through this, staff will be exposed to trends in the finance world thereby enhancing their understanding of cash management system and the need to maintain liquidity.

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Appendix 1

List of Statement and Corresponding Responses

S/N	QUESTIONS	SA		A		U		D		SD	
		Fr	%	Fr	%	Fr	%	Fr	%	Fr	%
Q1	Management is responsible for setting up cash management system in an organization?	19	42.2	21	46.7	2	4.4	2	4.4	1	2.3
Q2	Regular planning of cash can be said to be one of the key features of cash management.	26	57.8	13	28.9	3	6.7	2	4.4	1	2.2
Q3	A good cash management requires regular cash forecasts.	24	53.3	11	24.4	1	2.2	5	11.1	4	9.0
Q4	Companies operating a good system of budgeting seldom experience cash crunch?	23	51.1	11	24.4	3	6.7	8	17.8	0	0
Q5	Cash held by the company at any given time is a function of its estimated payments and contingencies?	20	44.4	13	28.9	2	4.4	6	13.3	4	9.0
Q6	The cost of holding too much cash is the profit and interest not earned if invested.	29	64.4	9	20.0	2	4.4	3	6.7	2	4.5
Q7	Setting optimal cash balance will reduce the liquidity costs of Cadbury Nigeria Plc	24	53.3	14	31.1	0	0	5	11.1	2	4.5
Q8	Budgeting is a technique to plan for and control the usage of cash.	25	55.6	9	20.0	2	4.4	4	9.0	5	11.0
Q9	Generating and investing surplus cash ensures liquidity.	23	51.1	17	37.8	1	2.2	2	4.4	2	4.5
Q10	Establishing standard procedures and processes will enhance the effectiveness of cash management in Cadbury Nigeria Plc.	18	40	17	37.8	3	6.7	2	4.4	5	11.1
Q11	Effective Cash management has a strong impact on financial and operational performance of manufacturing companies .	24	53.3	14	31.1	1	2.2	2	4.4	4	9.0
Q12	Manufacturing companies with quality cash management strategies perform better than those without sound cash management strategies.	27	60.0	11	24.4	0	0	5	11.1	2	4.5
Q13	Performance of manufacturing companies can be enhanced by efficient cash management.	22	48.9	11	24.4	2	4.5	5	11.1	5	11.1
Q14	Management of cash reflects in the performance of manufacturing company.	25	55.6	10	22.2	2	4.4	2	4.4	6	13.4
Q15	Efficient management of cash guarantees good performance in manufacturing companies .	20	44.4	14	31.1	1	2.2	6	13.4	4	8.9
Q16	Cash management plays a major role in the survival of a corporate organization.	31	68.9	10	22.2	2	4.5	1	2.2	1	2.2
Q17	Efficient management of cash will ensure continuous existence of manufacturing companies .	22	48.9	11	24.4	4	8.9	4	8.9	4	8.9
Q18	Corporate survival is a function of efficient cash management strategies.	20	44.4	15	33.3	3	6.7	2	4.4	5	11.2
Q19	Cash generated by the business activities is not sufficient to guarantee the company's liquidity and survival.	24	53.3	12	26.7	1	2.2	5	11.1	3	6.7
Q20	Effective cash management guarantees corporate survival of manufacturing companies.	29	64.4	9	20.0	3	6.7	4	8.9	0	0