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EMPIRICAL SURVEY OF CORPORATE LIQUIDITY MANAGEMENT PRACTICES OF NIGERIAN – QUOTED MANUFACTURING ENTERPRISES

ADOLPHUS J. TOBY, ESQ

Faculty Member

Faculty of Management Sciences

Rivers State University of Science and Technology

Port Hacourt, NIGERIA

Abstract

This study is intended to investigate and subsequently improve the capability of corporate finance executives in handling acute liquidity shortages through optimal cash flow management practices within a risk-return framework in the Nigerian quoted manufacturing enterprises. The questionnaire survey which obtained a response rate of 75.5 percent show among others that most respondents are incapable of interacting with the financial markets in managing the cash flow cycle. Since financial liberalization fosters banking fragility, as the Nigerian experience shows, finance managers in manufacturing enterprises need to redefine their banking relationships regularly as a strategy for managing anticipated and unanticipated financing gaps.

Key Words : Nigeria; Quoted-Manufacturing Enterprises; Optimal Cash Flow Management

JEL Classification: L60; C82; N67; G39

Introduction

Corporate liquidity management is aimed at seeing to it that a company's cash flow would provide for successful and productive fulfillment of objectives through the timing of corporate investments and loans. In this context, optimal liquidity management portfolios are designed to meet the short-term cash needs of the enterprise, while striving for minimum risk advantages in return that surpass Treasury Bills (TBs) and similar money market instruments. Three strategic elements that comprise a dynamic philosophy of company liquidity management are

- selecting securities that preserve capital,
- maximizing opportunities for enhanced returns, and
- diversifying among market sectors, issuers and specific credits to reduce risk.

Generally, liquidity is the degree to which an asset or security can be bought or sold in the market without

affecting the asset's price. It also means the ability to convert an asset to cash quickly.

Another view is that in managing the firm's working capital, we are concerned with the firm's liquidity (Keown, *et al*¹). This entails considering two related problems:

- managing the firm's investment in current assets, and
- managing the firm's use of short-term or current liabilities.

Accordingly, Keown, *et al* have hypothesized that other things remaining the same, the greater the firm's investment in current assets, the greater is its liquidity. As a means of increasing its liquidity the firm may choose to invest additional funds in cash and/or marketable securities. Such action involves a tradeoff, however, since such assets earn little or no return. The firm thus finds that it can reduce its risk of illiquidity only by reducing its overall return on investment funds and vice versa. The risk-return tradeoff involved in holding more cash and marketable securities, therefore, is one of added liquidity

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versus reduced profitability. In managing the firm's use of current liabilities, Kenown, *et al* have also hypothesized that other things remaining the same, the greater its reliance on short-term debt or current liabilities in financing its asset investments, the lower will be its liquidity. On the other hand, the use of current liabilities offers some very real advantages to the user in that they can be less costly than long-term financing and they provide the firm with a flexible means of financing its fluctuating needs for assets.

In recent times, much emphasis has been placed on bank liquidity management which entails matching the banks' short-term assets and liabilities in tenor and risk. The studies on corporate liquidity management practices in Nigeria have only replicated the Baumol and Miller-Orr models (see Soyibo and Aina², Toby³). A number of other studies have employed both financial-statement stimulator and mathematical programming in short-term financial planning (see Mao⁴; Robocheck, Teichrow and Jones⁵, Rogue and Bussard⁶). Short-term financial planning generally deals with the interface between short-run cash requirements of the firm and the time stream of cash available for a firm's long-run financing strategy (Lee⁷).

It has been shown in Toby⁸ that the liberalization of the Nigerian banking system between 1986 - 92 limited further the effectiveness of the monetary transmission mechanism by encouraging high interest rates and acute liquidity shortages in the manufacturing sector. This finding is in agreement with a number of studies showing that financial liberalization encourages fragility in the banking sector (see Caprio and Summers⁹; Hellmann, Murdock and Stiglitz¹⁰, Chari and Jagannathan¹¹ and Kaminsky and Reinhart¹²). Other studies have confirmed that bank failures affect the clients of failed and surviving banks (see also Yamori and Murakami¹³; Djankor, Jindra and Klapper¹⁴ and Bae, Kang and Lim¹⁵). The Nigerian 2004 Budget clearly built on the foundation of liberalization and accelerated privatization provides the framework for another Structural Adjustment Program (SAP) experiment in Nigeria. With a poorly developed financial system, and a fragile inter-bank market, both banks and manufacturing enterprises are going to manage another round of wide financing gaps, as was the case during the 1986 - 92 SAP experiment. In this context the results of this study are intended to improve the capability of corporate finance executives in handling major short-term financing requirements within a risk-return framework.

The major research questions addressed in the study include :

- what department in your company handles liquidity management?
- what is the effect of monetary policy on the company's liquid asset portfolio?
- what are the current liquidity management practices of quoted manufacturing enterprises?
- what is the relative importance of various factors affecting the company's motive for holding cash?
- what are the principal purposes of company liquidity management strategy?
- what are the general selection criteria in composing the company's marketable securities portfolio?
- what are the major strategies applied during cash shortages?
- what are the method used in addressing anticipated and unanticipated liquidity problems in the manufacturing sector?
- what are the major working capital management strategies of the companies sampled?
- what are the cash collection and disbursement techniques adopted by the firms?
- what are the cash flow management strategies of quoted manufacturing enterprises?
- what is the degree of control over the amount and timing of cash flows in the sampled companies?, and
- what is the frequency of applying strategies in controlling the timing of cash flows?

Theoretical and Empirical Framework

The goal of shareholders' wealth maximization depends on the ability of the managers to convince the securities markets that they are acting and will continue to act, to maximize the net cash inflow of the company over time, in a way which is consistent with the minimization of risk. The finance manager should know his company's current cash position and its expected cash position at various times in the future. To do this, he will need to estimate the company's cash needs, its ability to finance them, the possible sources from which any shortfall can be financed, and what to do with any surplus cash.

In addition to the cash budget, there is a range of cash management models which may be used by the finance manager to help him to maintain approximately enough cash in the company to cover transactions, precautionary and speculative balances (see Baumol¹⁶; Miller and Orr¹⁷; Beranek¹⁸; and Orr¹⁹). Each of these

models seeks to produce optimal policy towards cash balances held by a company. The Baumol inventory model emphasizes 'transfer' costs between cash and marketable securities, but ignores the alternative of short-term overdraft borrowing to cover a cash shortage which would be expensive to correct by a 'forced' sale of marketable securities.

The Beranek model incorporates the overdraft possibility, but it is arguable that it does not give sufficient weight to transfer costs. In many respects, the Miller – Orr model is the most appealing. Although it relies on an assumption of equal probabilities of inflows and outflows, it does incorporate 'carrying' and 'transfer' costs, and it leads to a simple decision rule. The 'transfer' cost assumption, that it is fixed and identical whether buying or selling securities, can be amended. Eppen and Fama²⁰ show that when there are only strictly proportional transfer costs, that is, when cost depends on the size of the transfer, the only adaptation needed to the Miller-Orr model would be to have two return points, Z_1^* , and Z_2^* . When the cash balance reaches the upper limit, U , purchases of securities reduce it to Z_2^* , which is higher than Z_1^* . When necessary, the cash balance should be raised to Z_1^* , by the sale of securities.

Surveys conducted by Gitman, *et al*²¹ and Mathur and Loy²² centered on both the cash management services offered by commercial banks and the investment of excess cash in the marketable securities portfolio. Gitman, *et al* surveyed 300 of the 1000 largest industrial firms in the United States as ranked by total sales for 1975 (i.e. the *Fortune* 1000 list). They received 98 responses to their questionnaire for a response rate of 32.7 per cent. With regard to speeding up the firm's cash receipts it was found that 80 per cent of the respondents used lock-box systems and 61 per cent used concentration banking. This same study revealed that 46 per cent of the respondents used selected disbursing points (remote disbursing) to slow down or better control their cash payments.

The Mathur and Loy study centered on the 200 largest industrial firms from the *Fortune* 500 list for 1983. Of these 200 firms, 160 were sampled. A response rate of 46 per cent was achieved. This study showed that almost all of the respondents used lock-box services (96 per cent). Additionally, concentration banking was employed by 80 per cent of the survey participants.

These same two studies also touched upon the

management of the marketable securities portfolio. Gitman, *et al* found that the most-favored security for the investment of excess cash was commercial paper. It was followed in popularity by repurchase agreements, Treasury securities and certificates of deposit (CDs). Mathur and Loy also found that commercial paper was the most-favored marketable security investment. Furthermore, repurchase agreements and CDs ranked high on their respondents' most favored lists. Mathur and Loy reported that on average, the firms invest in 3.6 different types of marketable securities. It is known that commercial papers, CDs, and repurchase agreements are more risky investments than Treasury securities. It seems that those who are responsible for making marketable security investment decisions in large firms do not consider the risk differences among the traditional money market instruments to be very significant. They are willing to trade the greater riskiness inherent to the "non-Treasury" instruments for their higher expected yield. Pandey²³ has reported the main cash collection instruments in India to include cheques, drafts, documentary bills, trade bills and letters of credit.

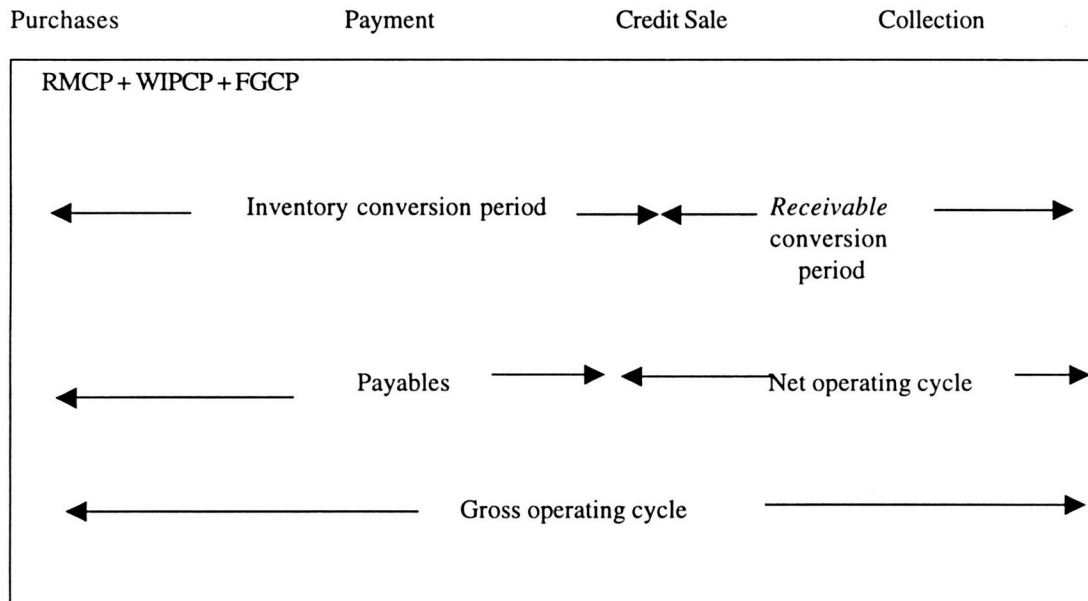
Methodology Used

Our understanding of the various issues raised in the study would be provided by three models stated as **Figures 1, 2 and 3**. The models are (1) operating cycle of a manufacturing firm, (2) cash flow cycle of a manufacturing firm, and (3) a model for designing the marketable securities portfolio. **Exhibit** presents the definitions of technical terms used in the paper (see page 55).

Model 1: Operating Cycle of Manufacturing Firms

Figure 1 which illustrates how the length of the operating cycle is determined is proposed by Richards and Laughlin²⁴. The length of the operating cycle of a manufacturing firm is the sum of: (i) inventory conversion period (ICP) and (ii) debtors conversion period (DCP). The inventory conversion period is the total time needed for producing and selling the product. Typically, it includes: (a) raw material conversion period (RMCP), (b) work-in-process conversion period (WIPCP), and finished goods conversion period (FGCP). The debtors' conversion period is the time required to collect the outstanding amount from the customers. The total of inventory conversion period and debtors conversion period, is referred to as gross operating cycle.

FIGURE 1
OPERATING CYCLE OF A MANUFACTURING FIRM



In practice, a firm may require resources (such as raw materials) on credit and temporarily postpone payment of certain expenses. Payables which the firm can defer are spontaneous sources of capital to finance investment in current assets. The payables deferral period (PDP) is the length of time the firm is able to defer payments on various resource purchases. The difference between (gross) operating cycle and payables deferral period is net operating cycle (NOC). If depreciation is excluded from expenses in the computation of operating cycle, the net operating cycle also represents the cash conversion cycle. It is net time interval between cash collections from sale of the product and cash payments for resources acquired by the firm. It also represents the time interval over which additional funds, called working capital, should be obtained in order to carry out the firm's operations. The firm has to negotiate working capital from sources such as commercial banks. The negotiated sources of working capital financing are called non-spontaneous sources. If net operating cycle of a firm increases, it means further need for negotiated working capital.

Model 2 – Cash Flow Cycle of a Manufacturing Firm

The entire firm's operations can be visualized

through the use of the cash flow cycle diagram (see **Figure 2**) as proposed by Keown, et al. The diagram depicts the firm's operations as a large pump that pushes cash through various reservoirs such as inventories and accounts receivables and dispenses cash for taxes, interest rates and principal payments on debts, and cash dividends to shareholders. The major problem in liquidity management is anticipating cash needs and planning how to finance them by the matching principle. Sometimes this involves liquidating some money market instruments in the firm's marketable securities portfolio.

Model 3 – Designing the Marketable Securities Portfolio

The model in **Figure 3** summarizes our framework for designing the firm's marketable securities portfolio. The four basic considerations of financial risk, interest rate risk, liquidity, and taxability are shown to influence the yields available on securities. The financial manager must focus on the risk-return tradeoffs that are identified through his analysis. Coming to grips with these tradeoffs will enable the financial manager to determine the proper marketable securities mix for his company.

FIGURE 2
CASH FLOW CYCLE OF A MANUFACTURING FIRM

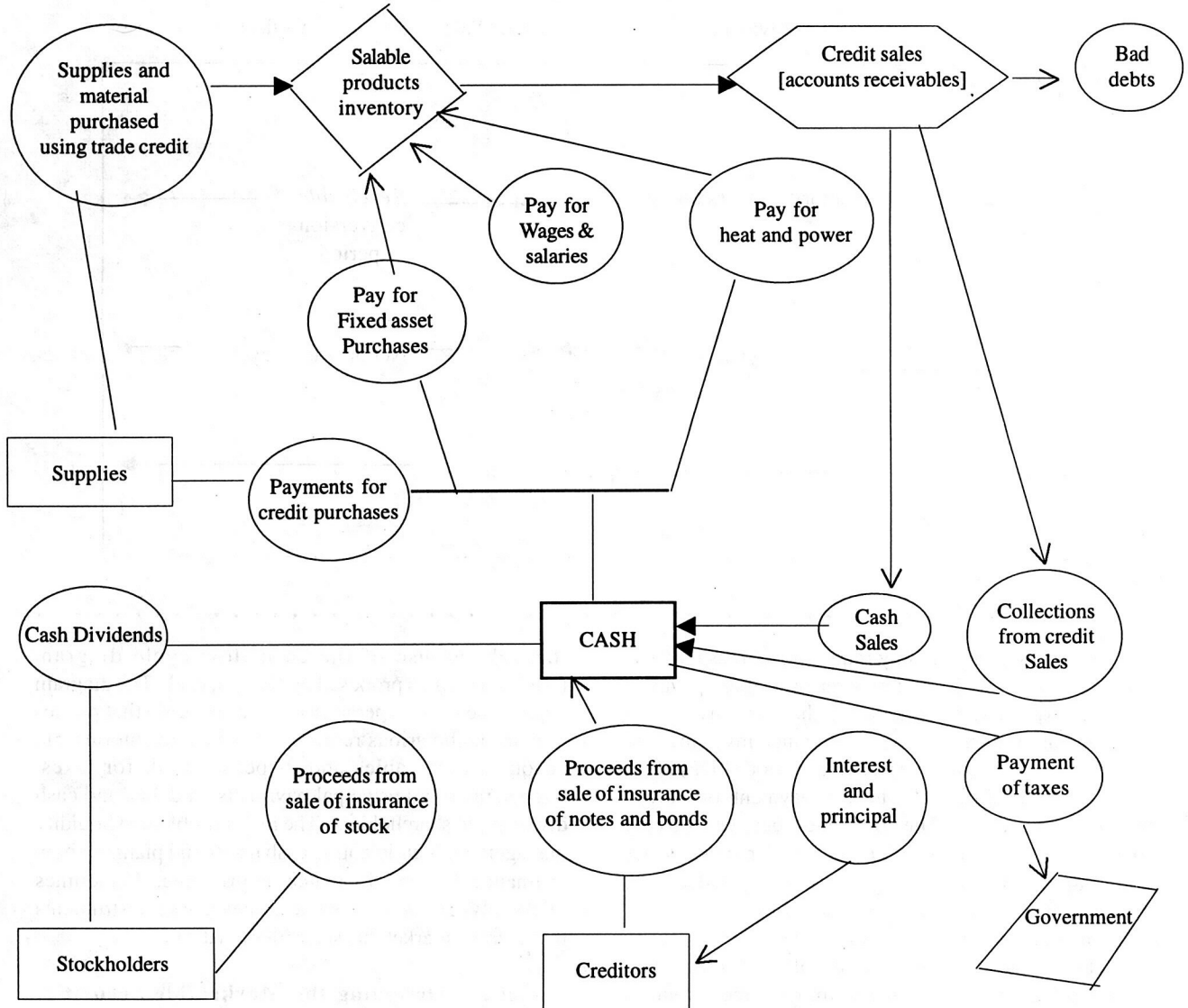
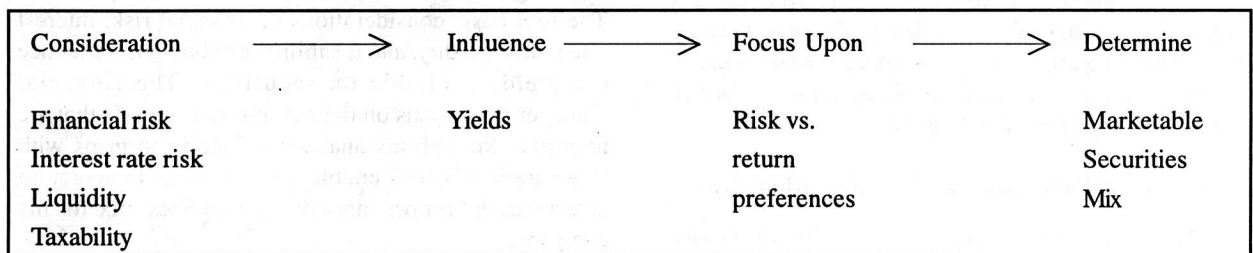


FIGURE 3
DESIGNING THE MARKETABLE SECURITIES PORTFOLIO



Methodology Used

The data for this study were generated from structured questionnaire administered in 102 manufacturing companies quoted on the Nigeria Stock Exchange as at June, 2003. We obtained a response rate of 75.5 per cent or 77 responses (see **Table 1**). Since the questionnaire was administered personally at the head offices of these various companies within a period of six months (June – December, 2003), we also had some interactive discussions with corporate finance executives, senior accountants and other relevant persons in the financial controller's office. Owing to the confidential nature of financial information provided, the identities of the companies would not be disclosed in this paper. It is important to note that some of the responses do not equal the total number of obtained responses because of omissions by respondents or non-response.

TABLE 1
RESPONSE RATES TO QUESTIONNAIRE ADMINISTERED ON QUOTED MANUFACTURING COMPANIES

| Classification | Total* | Responding Companies | Response Rate (%) |
|--------------------------------|------------|----------------------|-------------------|
| Automobile and Tyre | 6 | 3 | 50.0 |
| Breweries | 7 | 6 | 85.7 |
| Building Materials | 4 | 4 | 100.0 |
| Chemical & Paints | 7 | 6 | 85.7 |
| Conglomerates | 8 | 5 | 62.5 |
| Industrial & domestic products | 12 | 6 | 50.0 |
| Packaging | 8 | 8 | 100.0 |
| Textiles | 6 | 6 | 100.0 |
| Engineering technology | 3 | 3 | 100.0 |
| Health care | 11 | 7 | 63.6 |
| Food, Beverages & Tobacco | 13 | 6 | 44.2 |
| Footwear | 2 | 2 | 100.0 |
| Second-tier companies | 16 | 15 | 93.8 |
| TOTAL | 102 | 77 | 75.5 |

* These are totals of manufacturing companies listed on the Nigeria Stock Exchange as at the end of June, 2003.

The classification of the officers completing the questionnaire is presented in **Table 2**. The 77 returned questionnaire was completed by accountants (35.1 per cent), chief accountants (27.3 per cent), financial controllers (18.2 per cent), officers in the financial unit (15.6 per cent), and treasurers (3.9 per cent).

TABLE 2
CLASSIFICATION AND NUMBER OF OFFICERS COMPLETING QUESTIONNAIRE

| Officer | Number | Percentage |
|-----------------------------|-----------|------------|
| Treasurer | 3 | 3.9 |
| Accountant | 27 | 35.1 |
| Chief Accountant | 21 | 27.3 |
| Financial Controller | 14 | 18.2 |
| Officer in the Finance Unit | 12 | 15.2 |
| TOTAL | 77 | 100 |

Questionnaire Survey Findings

The data in **Table 3** show that 46.8 per cent of the responding companies indicate that the accounts department handles liquidity management in quoted manufacturing companies. The others show that liquidity management is handled by the finance unit (37.7 per cent), treasury department (13.0 per cent), and no special department (2.6 per cent). Although the difference between accountancy and finance is well articulated in the literature as in Lee and McLaney²⁵, our empirical results do not confirm this demarcation in the practice of corporate financial management in Nigeria. In fact most finance units in these companies are headed by chartered accountants. Within the context of corporate financial management, while accounting provides information, finance is concerned with making decisions based on this information within a risk-return framework to maximize shareholders' wealth. The financial manager is regarded

TABLE 3
OPINIONS OF FINANCE EXECUTIVES ON THE DEPARTMENT THAT HANDLES LIQUIDITY MANAGEMENT

| Officer | Number | Percentage |
|-----------------------|-----------|------------|
| Treasury | 10 | 13.0 |
| Accountants | 36 | 46.8 |
| Finance Unit | 29 | 37.7 |
| No Special Department | 2 | 2.6 |
| TOTAL | 77 | 100 |

as 'a man-in-the-middle' interfacing between the financial markets and the company's internal operations.

The results in **Table 4** show the opinions of respondents on the impact of monetary policy on their liquid asset portfolio profile. Tight monetary policy is viewed as having a negative impact on company liquidity by 70.1 per cent of the respondents. However, the same per centage of respondents, that is 70 per cent, view money supply growth as having a positive impact on company liquid asset profile. The deregulation period of 1986 – 92 was characterized by tight monetary policies conducted through a combination of stabilization securities, minimum liquidity ratio (MLR), cash reserve requirements (CRR), discount window operations and administrative fiats. The goals of monetary policy within

this period was to control inflation, credit expansion and money supply growth – to enhance better liquidity and profitability.

The tight monetary policy regime resulted in acute liquidity crisis in the Nigerian banking sector during the structural adjustment period of 1986 - 92. The resultant banking fragility coupled with rising interest rates created funding crisis and decline in investment in the manufacturing sector. However, growth in money supply without a corresponding growth in productivity, leads to inflationary spirals and a fall in the real cash flows. The response of executives on growth in money supply is therefore in conflict with the goals of monetary and fiscal policies.

An evaluation of current liquidity management practices of the respondent quoted manufacturing companies is represented in **Table 5**. It is always the practice of 77.9 per cent of the respondents to match the sources and uses of funds as to term and risk. Moreover, 71.4 per cent of the respondents concentrate cash balances in financial institutions and instruments with greatest safety, return and liquidity. For most of the respondents, that is 72.9 per cent, cash is held mainly for transactions. Only 29.9 per cent of the responding manufacturing enterprises indicate that cash is being held mainly for precautionary reasons. It is hardly the practice

TABLE 4
OPINIONS OF FINANCE EXECUTIVES ON IMPACT OF MONETARY POLICY ON COMPANY LIQUID ASSET PROFILE

| Action/Experience | Positive(%) | Negative(%) | No Effect(%) |
|------------------------|-------------|-------------|--------------|
| Tight Monetary Policy | 16(20.8) | 54(70.1) | 7(9.1) |
| Normal Monetary Policy | 38(49.4) | 10(13.0) | 17(22.1) |
| Loose Monetary Policy | 13(16.9) | 23(29.9) | 18(23.4) |
| Growth in Money Supply | 54(70.1) | 4(5.2) | 6(7.8) |
| Fall in Money Supply | 11(14.3) | 57(74.0) | 8(10.4) |

TABLE 5
EVALUATION OF CURRENT LIQUIDITY MANAGEMENT PRACTICES

| Practice | Always the Practice (%) | Hardly the Practice (%) | Sometimes the Practice (%) |
|---|-------------------------|-------------------------|----------------------------|
| 1) Matching sources and uses of funds as to term and risk | 60(77.9) | 13(16.9) | 19(24.7) |
| 2) Concentrating cash balances in financial institutions and instruments with greatest safety, return and liquidity | 55(71.4) | 14(18.2) | 11(14.3) |
| 3) Cash being held mainly for transactions | 56(72.7) | 8(10.4) | 12(15.6) |
| 4) Cash being held mainly for precautionary reasons | 23(29.9) | 14(18.2) | 11(14.3) |
| 5) Cash being held mainly for speculative Reason | 15(19.4) | 36(46.8) | 14(18.2) |
| 6) Liquid assets held for precautionary purposes invested in money market instruments or time deposits, to obtain safety, adequate return and liquidity | 31(40.3) | 16(20.8) | 21(27.3) |
| 7) Centralising cash management under the jurisdiction of a professional treasurer | 25(32.5) | 38(49.4) | 7(9.1) |

for cash to be held mainly for speculative reasons, as indicated by 46.8 per cent of the respondents. On the whole 40.3 per cent of the responding firms indicate that liquid assets held for precautionary purposes are invested in money market instruments or time deposits, to obtain safety, adequate return and liquidity. It is hardly the practice to centralize cash management under the jurisdiction of a professional treasurer. At the moment corporate treasurers are trained at the Federal Treasury School, Nigerian Money Market Association, the various discount houses, and the Chartered Institute of Bankers of Nigeria (CIBN).

Table 6 summarizes the views of respondents on the importance of various factors affecting the company's motive for holding cash. It is the view of 66.2 per cent of the responding firms that cash flow predictability is highly important in determining the company's motive for holding cash. Other highly important factors include the

firm's access to external funds (44.2 per cent), nature of banking relationship (46.8 per cent) and existing portfolio of liquid assets (28.6 per cent). The return on short-term investments is just important (31.2 per cent). The present distress in the Nigerian banking industry is having some adverse effects on corporate bank balances, hence most companies are improving the firm's access to external funds from the capital market, and their marketing potentials to boost turnover or increase the collection of accounts receivables.

The principal purposes of liquidity management and their extent of importance are shown in **Table 7**. The purpose of liquidity management in 72.7 per cent of the responding companies is to indicate the probable cash position, as a result of planned operations. Following closely is establishing a sound basis for continuing control of the cash position (71.4 per cent). The other purposes include (1) to handle excess cash or shortages

TABLE 6
IMPORTANCE OF FACTORS AFFECTING FIRMS' MOTIVE FOR HOLDING CASH

| Factor | Just Important (%) | Highly Important (%) | Less Important (%) | Unimportant (%) |
|-------------------------------------|--------------------|----------------------|--------------------|-----------------|
| Cash Flow Predictability | 12(15.6) | 51(66.2) | 3(3.9) | 5(6.5) |
| Firm's access to external funds | 30(39.0) | 34(44.2) | 4(5.2) | 7(9.1) |
| Nature of banking relationship | 19(24.7) | 36(46.8) | 9(11.7) | 6(7.8) |
| Return on short-term investments | 24(31.2) | 10(13.0) | 15(19.5) | 18(23.4) |
| Existing portfolio of liquid assets | 16(20.8) | 22(28.6) | 12(15.6) | 18(23.4) |

TABLE 7
PRINCIPAL PURPOSES OF LIQUIDITY MANAGEMENT AND EXTENT OF IMPORTANCE

| Purpose | Most Important (%) | Least Important (%) | Unimportant (%) |
|--|--------------------|---------------------|-----------------|
| 1) To indicate the probable cash position as a result of planned operations | 56(72.7) | 8(10.4) | 8(10.4) |
| 2) To indicate excess cash or shortages | 45(58.4) | 25(32.5) | 12(15.6) |
| 3) To indicate the need for borrowing or the availability of idle cash for investment | 42(54.5) | 28(36.4) | 14(18.2) |
| 4) To co-operate cash with total working capital (2) sales, (3) investment, and (4) debt | 38(49.4) | 29(37.7) | 15(19.5) |
| 5) To establish a sound basis for credit | 35(45.5) | 30(40.0) | 16(20.8) |
| 6) To establish a sound basis for continuing control of the cash position | 55(71.4) | 20(26.0) | 12(15.6) |

(58.4 per cent), (2) to indicate the need for borrowing or the availability of idle cash for investment (54.5 per cent), (3) to coordinate cash with total working capital, sales, investment, and debt (49.4 per cent), and (4) to establish a sound basis for credit (45.5 per cent).

The results in **Table 8** show that only 22.9 per cent of the respondents on the average are conversant with the general selection criteria for determining the company's marketable securities portfolio mix. As much as 77.1 per cent on the average are undecided on the composition of their marketable securities portfolio. The liquidity consideration is very high on the scale, when including Treasury bills (TBs), Treasury Certificates (TCs), Bankers'

Acceptances (BAs), Certificates of Deposit (CDs), and Commercial Papers (CPs) in the marketable securities portfolio. However, financial risk, interest rate risk, taxability and yield are highly important considerations for investing in such nongilt-edged money market instruments as BAs, CDs and CPs. The inclusion of Eligible Development Stocks in the portfolio is influenced by interest rate risk and yields.

Table 9 summarizes the major strategies applied during cash shortages. The most frequently used strategies are (1) increasing efforts to collect receivables (83.1 per cent), (2) reducing out-of-pocket expenses (63.6 per cent), (3) deferring payment of selected liabilities

TABLE 8
DETERMINANTS OF MARKETABLE SECURITIES PORTFOLIO

| Money Market Instrument | Financial Risk | | | Liquidity | | | Interest Rate Risk | | |
|----------------------------|----------------|----------|----------|-----------|----------|----------|--------------------|----------|----------|
| | HI(%) | HU(%) | UND(%) | HI(%) | HU(%) | UND(%) | HI(%) | HU(%) | UND(%) |
| Treasury bills | 8(1-4) | 14(18.2) | 55(71.4) | 17(22.1) | 5(6.5) | 55(71.4) | 7(9.1) | 14(18.2) | 56(72.7) |
| Treasury Certificate | 6(7.8) | 14(18.2) | 57(74.0) | 12(15.6) | 9(11.7) | 56(72.7) | 2(2.6) | 17(22.1) | 58(75.3) |
| Bankers' Acceptances | 9(11.7) | 5(6.5) | 63(81.8) | 9(11.7) | 4(5.2) | 64(83.1) | 11(14.3) | 2(2.6) | 64(83.1) |
| Eligible Development Stock | 9(11.7) | 9(11.7) | 59(76.6) | 9(11.7) | 10(13.0) | 58(75.3) | 8(10.4) | 7(9.1) | 62(80.5) |
| Certificates of Deposit | 3(16.9) | 5(6.5) | 59(76.6) | 14(18.2) | 5(6.5) | 58(75.3) | 12(15.6) | 5(6.5) | 60(77.9) |
| Commercial Papers | 14(18.2) | 7(9.10) | 56(72.7) | 17(22.1) | 2(2.6) | 58(75.3) | 16(20.5) | 4(5.2) | 57(74.0) |

| Taxability | | | Yields | | | Average | |
|------------------------|----------|----------|----------|---------|----------|-------------------|-----------------|
| HI(%) | HU(%) | UND(%) | HI(%) | HU(%) | UND(%) | DECIDED(%) | UNDECIDED(%) |
| 3(3.9) | 15(19.5) | 59(76.6) | 10(13.0) | 9(11.7) | 58(75.3) | 20.4(26.5) | 56.6(73.5) |
| 5(6.5) | 13(16.9) | 59(76.6) | 8(10.4) | 9(11.7) | 60(77.9) | 19.0(24.7) | 58.0(75.3) |
| 9(17.7) | 4(5.2) | 64(83.1) | 7(9.1) | 5(6.5) | 65(84.4) | 13(16.9) | 64.0(83.1) |
| 8(10.2) | 5(6.5) | 64(83.1) | 7(9.1) | 6(7.8) | 64(83.1) | 15.6(20.3) | 61.4(79.7) |
| 7(9.1) | 11(4.3) | 59(76.6) | 13(16.9) | 4(5.2) | 60(77.9) | 18.2(23.6) | 58.8(76.4) |
| 11(14.3) | 7(9.1) | 59(76.6) | 15(19.5) | 4(5.2) | 58(75.3) | 19.4(25.2) | 57.6(74.7) |
| Overall average | | | | | | 17.6(22.9) | 59(77.1) |

Notes : HI: Highly Important HU: Highly Unimportant UND: Undecided

TABLE 9
STRATEGIES APPLIED DURING CASH SHORTAGES

| Strategic Response | Most Frequently (%) | Least Frequently (%) | In Frequently (%) |
|---|---------------------|----------------------|-------------------|
| 1) Increasing efforts to collect receivables | 64(83.1) | 3(3.9) | 4(5.2) |
| 2) Reducing Out-of-pocket expenses | 49(63.6) | 20(26.0) | 5(6.5) |
| 3) Deferring capital expenditure | 35(45.5) | 24(31.2) | 8(10.4) |
| 4) Deferring payment of selected liabilities | 42(54.5) | 20(26.0) | 6(7.8) |
| 5) Reducing inventories | 20(26.0) | 36(46.8) | 14(18.2) |
| 6) Altering timing of operations that affect cash | 26(33.8) | 25(32.5) | 16(20.8) |

(54.5 per cent), and (4) deferring capital expenditure (45.5 per cent). The strategy of reducing inventories is used least frequently (46.8 per cent). **Tables 10 and 11** show methods for taking care of anticipated and unanticipated liquidity problems. The strategies for taking care of anticipated liquidity problems include overdraft coverage (63.6 per cent), line of credit (48.1 per cent), credit agreement (42.9 per cent), and committed line of credit (33.8 per cent). The liquidation of money market instruments (e.g. Treasury bills) is used infrequently (32.5 per cent). In the case of unanticipated liquidity problems, overdraft coverage is still most frequently used (58.4 per cent), complemented with credit agreement (42.9 per cent), committed line of credit (41.6 per cent), and line of credit (40.0 per cent). The liquidation of marketable securities is employed least frequently.

An evaluation of working capital management strategies is summarized in **Table 12**. In 70.1 per cent of the surveyed companies, seasonal expansion in inventories is always financed with a short-term loan or current liability. However, 42.9 per cent of the respondents agree strongly that asset needs not financed by spontaneous sources are financed in accordance with the rule: permanent assets financed with permanent sources. It is also strongly agreed by 31.2 per cent of the respondents that permanent sources of financing exceed permanent assets in trough periods such that excess cash is available and this is invested in money market instruments. It is also shown that 23.4 per cent of the respondents rely continuously on short-term financing to support their permanent short-term financing needs. However, 66.2 per cent of the responding companies

TABLE 10
METHODS FOR TAKING CARE OF ANTICIPATED LIQUIDITY PROBLEMS

| Methods | Most Frequently (%) | Least Frequently (%) | In Frequently (%) |
|---|---------------------|----------------------|-------------------|
| Line of credit | 37(48.1) | 12(15.6) | 3(16.9) |
| Credit agreement | 33(42.9) | 16(20.8) | 6(20.8) |
| Committed line of credit | 26(33.8) | 17(22.1) | 6(20.8) |
| Overdraft coverage | 49(63.6) | 12(15.6) | 7(9.1) |
| Liquidation of money market instruments (e.g. Treasury bills) | 6(7.8) | 20(26.0) | 25(32.5) |

TABLE 11
METHODS FOR TAKING CARE OF UNANTICIPATED LIQUIDITY PROBLEMS

| Methods | Most Frequently (%) | Least Frequently (%) |
|---|---------------------|----------------------|
| Line of credit | 30(40.0) | 29(37.7) |
| Credit agreement | 33(42.9) | 26(33.8) |
| Committed line of credit | 32(41.6) | 29(37.7) |
| Overdraft coverage | 45(58.4) | 26(20.8) |
| Liquidation of money market instruments | 15(19.5) | 17(22.1) |

disagree strongly that seasonal expansion is always financed from a long-term source.

The results in **Table 13** show the various cash collection and disbursement techniques employed by Nigerian quoted manufacturing enterprises. The lock-box system which involves the strategic location of lock boxes to reduce mail and transit floats is not popular in Nigeria because it requires an efficient postal system and large cash balances to operate. It is hardly the practice to collect cash through the lock-box system in 70.1 per cent of the responding companies. The results show that concentration banking and electronic fund transfer (EFT)

TABLE 12
EVALUATION OF COMPANY WORKING CAPITAL MANAGEMENT STRATEGIES

| Working Capital Management Strategy | Strongly Agree (%) | Strongly Disagree (%) |
|--|--------------------|-----------------------|
| 1) Seasonal expansion always financed with a short-term loan or current liability. | 54(71.1) | 0(0) |
| 2) Seasonal expansion always financed from a long-term source. | 13(16.9%) | 51(66.2) |
| 3) Asset needs of firm not financed by spontaneous sources are financed in accordance to the rule: permanent assets financed with permanent sources | 33(42.9) | 25(32.5) |
| 4) Permanent sources of financing exceed permanent assets in tough periods such that exceed cash is available and this is invested in money market instruments | 24(31.2) | 18(23.4) |
| 5) We rely continuously on short-term financing to support our permanent short-term needs | 18(23.4) | 13(16.9) |

TABLE 13
CASH COLLECTION AND DISBURSAL TECHNIQUES IN QUOTED MANUFACTURING ENTERPRISES

| Technique | Always the Practice (%) | Sometimes the Practice (%) | Hardly the Practice (%) |
|---------------------------|-------------------------|----------------------------|-------------------------|
| Lock-box system | 11(14.3) | 12(15.6) | 54(70.1) |
| Concentration Banking | 68(88.3) | 5(6.5) | 4(5.2) |
| Electronic Funds Transfer | 61(90.9) | 10(13.0) | 6(7.8) |
| Foreign Drafts | 35(45.5) | 36(46.5) | 6(7.8) |
| Documentary credits | 30(39.0) | 42(54.5) | 5(6.5) |
| Selective method | 29(37.7) | 41(53.2) | 7(9.1) |

are the most popular in cash collection and disbursement in Nigerian quoted manufacturing enterprises. The use of concentration banking is always the practice in 88.3 per cent of the companies. Concentration banking is one of the methods through which time is saved in making funds get to the disbursement banks or firms. Most of the quoted manufacturing firms zone their branches or deposits with a collection centre in each zone. All payments received are then deposited into a designated branch of the concentration bank in the area. Most companies prefer banks that are online so their account at the Head office is credited immediately. Moreover, the recent automation of the clearing system has also reduced drastically the working days delayed credit. The management of the company gives standing instructions on what is to be done if: (a) cheques paid by customers are returned unpaid; (b) the field manager or officer needs cash for the running of his office; (c) any amount is to be left in the remittance accounts; (d) the cash received in the account will be transferred, where it has to be transferred to and the mode of transfer.

As much as 90.9 per cent of the respondent companies employ electronic fund transfer mechanisms for payment and settlement in their transactions. Most international payments are made through SWIFT (the society for World Interbank Financial Telecommunications). Another familiar electronic fund transfer mechanism is called EFTPOS (Electronic Funds Transfer at the Point Of Sale), which is a computerized system which provides the automatic transfer of funds from a customer's account by a retail organization at the point in time when the customer purchases goods or services from it. In this context, electronic products such as smart cards are now being introduced to replace the cheque in Nigeria.

Our empirical results also show that 45.5 per cent of the respondents employ foreign drafts in the settlement of import/export bills. This is sometimes the practice in 46.8 per cent of the surveyed companies. In this case the payment message takes the form of a document rather than a cheque, drawn by one bank on the other. Our investigation shows that a reasonable number of the manufacturing companies operate accounts in banks that have correspondent banking relationships with foreign banks. For the manufacturing companies involved in exports, the bankers' documentary letters of credit provide a means by which an exporter can get his money safely before goods sent abroad have been received. It is the

opinion of 54.5 per cent of the respondents that the use of documentary credits in receiving payments is sometimes the practice. The selective method involving express mailing arrangements, or personal delivery of huge sums of money is usually the practice in 37.7 per cent of the sampled companies.

The results in **Table 14** summarize the cash flow management strategies of Nigerian quoted manufacturing enterprises. Majority of the respondents agree that funds are allocated between cash and marketable securities at the start of a period. They also agree that the transfusions of cash from the sale of marketable securities are possible only at the end of a period. More than 60 per cent of the respondents agree that cash receipts from debtors may come in at various times, according to the payment policy of each debtor. While 51.9 per cent of the respondents that dividend and interest payments are often made regularly, if not infrequently, 54.5 per cent of them also agree that there exists in their liquid assets portfolio cash and marketable securities. It is also agreed by 68.8 per cent of the respondents agree that the transfer between cash and marketable securities may take place anytime and the lead time is short enough to be ignored. While there exists an absolute cash balance (this may be zero) in 37.7 per cent of quoted manufacturing enterprises, it is also agreed by 57.1 per cent that the objective of cash management is the minimization of average cost of managing cash balances.

While 36.4 per cent of the respondents agree that cash payments are relatively controllable, and often lumpy, 50.6 per cent disagree that cash receipts are relatively controllable and continuous. **Table 15** shows the degree of control over the amount and timing of cash flows. Majority of the respondents agree that the degree of control over the amount and timing of payment and receipts is high, while on the other hand the degree of control over the amount and timing of deficits is low.

The data in **Table 16** show the frequency of applying strategies in controlling the timing of cash flows. The most frequently used methods for controlling the timing of cash flows are (1) credit and collection policies (71.4 per cent), (2) batching of certain payments (49.4 per cent) and (3) payments on last day of discount periods (23.4 per cent). The least frequently used methods are (1) payments by time drafts rather than cheque (37.7 per cent) and (2) discount policies on sales (40.3 per cent).

TABLE 14
ANALYSIS OF THE CASH FLOW MANAGEMENT STRATEGIES OF QUOTED MANUFACTURING ENTERPRISES

| Characteristics | Agree (%) | Disagree (%) |
|---|-----------|--------------|
| 1 Funds are allocated between cash and marketable securities at the start of a period | 49(63.6) | 28(36.4) |
| 2 Transfusions of cash from the sale of marketable securities are possible only at the end of a period | 45(58.4) | 32(41.6) |
| 3 Cash payments are relatively controllable and often lumpy | 28(36.4) | 26(33.8) |
| 4 Cash receipts are relatively controllable and continuous | 26(33.8) | 39(50.6) |
| 5 Cash receipts from debtors may com in at various times, according to the payment policy of each debtor. | 49(63.6) | 10(13.0) |
| 6 Dividend and interest payments are often made regularly, if not infrequently | 40(51.9) | 15(19.5) |
| 7 There exists in our liquid assets portfolio cash and marketable securities | 42(54.5) | 24(31.2) |
| 8 The transfer between the two assets may take place at anytime and lead time is short enough to be ignored | 53(68.8) | 15(19.5) |
| 9 There exists an absolute cash balance (this may be zero) | 29(37.7) | 23(29.9) |
| 10 The objective of cash management is the minimization of average cost of managing cash balances | 44(57.1) | 10(13.0) |

TABLE 15
DEGREE OF CONTROL OVER THE AMOUNT AND TIMING OF CASH FLOW

| Financial Activity | Degree of Control | |
|-------------------------------|-------------------|----------|
| | High (%) | Low (%) |
| Amount and timing of payment | 72(93.5) | 24(31.2) |
| Amount and timing of receipts | 56(72.7) | 22(28.6) |
| Amount and timing of deficits | 23(29.9) | 49(63.6) |

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Our analysis so far has attempted to answer the major research questions on the liquidity management practices of Nigerian quoted manufacturing companies. The results show that there is no significant difference between the practice of accountancy and finance in the management of corporate liquidity in the responding companies. Since most Nigerian accountants are not specially trained in money markets and corporate treasury

management, their ability to interact with the financial markets in managing the cash flow process is in doubt. The result would be a continuous build-up of cash balances with lost investment opportunities.

The survey also reveals that the companies rely heavily on the internal strategies of increasing efforts to collect receivables, reducing out-of-pocket expenses, and deferring capital expenditure for dealing with cash shortages. Overdraft coverage is the most popular strategy for handling anticipated and unanticipated liquidity problems. However, majority of the respondents are not conversant with the general selection criteria for including different money market instruments in their liquid asset portfolio.

Although most corporate finance executives in Nigerian quoted manufacturing enterprises are risk-averse in matching the sources and uses of funds as to term and risk, they will be unable to cope with the resulting mismatches in times of unpredictable macroeconomic

TABLE 16
FREQUENCY OF APPLYING STRATEGIES IN CONTROLLING THE TIMING OF CASH FLOWS

| Strategies | Most Frequently (%) | Least Frequently (%) | In Frequently (%) |
|---|---------------------|----------------------|-------------------|
| 1) Credit and collection policies | 55(71.4) | 24(31.2) | 14(18.2) |
| 2) Payments by time drafts rather than cheque | 18(23.4) | 29(37.7) | 24(31.2) |
| 3) Payments on last day of discount periods | 18(23.4) | 15(19.5) | 13(16.9) |
| 4) Batching certain payments | 38(49.4) | 23(29.9) | 22(28.6) |
| 5) Discount policies on sales | 16(20.8) | 31(40.3) | 14(18.2) |

policy. The 2004 Budget once more lays the foundation for the liberalization of the Nigerian financial system in the next few years, with possible fragility in the banking sector. The implications of the unfolding financial sector reforms would require constructing optimal risk-return preferences in the management of the corporate cash and marketable securities portfolio. Corporate finance executives need to enhance their liquidity profile by holding more cash for precautionary and speculative purposes. They should hold or expand their portfolio of gilt-edged securities like Nigerian Treasury Bills (NTBs), which are readily discountable on the Central Bank of Nigeria's discount window.

In times of highly volatile monetary policies as it was during the 1986-92 deregulation period, the degree of control over the amount and timing of receipts and payments would minimize, consequently leading to increased financing requirements. Since the motives of monetary policy makers continue to differ from those of corporate finance executives in the non-bank sector in liquidity management, liberalization of the financial system would initially create unanticipated liquidity problems due to rising interest rates and fragility in the banking sector. Only manufacturing companies with appropriate skills in liquid asset management would survive the financial turbulence that follows aggressive market reforms.

Conclusions

It is likely that a finance manager will spend the

majority of his time on dealing with shorter-term financing problems. His company will not be making new issues of debt or equity capital every day - - or even every year. But he will be taking decision every week, if not every day, about granting credit to customers, and how much to leave in the current account at the company's bankers. Freear²⁶ has noted that the distinction between long-term financing decisions and short-term financing decisions is false because the long and short-term decisions may be taken on a similar basis, the maximization of the enterprise value, which is also the minimization of its cost of capital.

A company stands or falls on its management of cash flows in both the longer and shorter term. In general, it is usual for a finance manager to try to match sources and uses, as to term and risk. However, the company may need short-term finance for various purposes, and various terms, so that this sort of matching plan might be difficult to achieve. The level of inventories depends on anticipated scale of production, the degree of seasonality, delays in ordering and delivery, production schedules and timings, and the degree of coordination between buying and production, and production and sales.

Within this framework, corporate liquidity management should be handled by chartered bankers or other treasury executives trained by the Nigerian money market association, with capabilities for designing an appropriate cash and marketable securities portfolio mix at all times. Owing to the fact that banking crises affect customers of both healthy and unhealthy banks, as recent

studies show, corporate finance executives need to be more sophisticated in dealing with acute liquidity problems that result from financial liberalization. They need to review their banking relationships in the wake of alarming distress in the Nigerian banking industry. The

development and deepening of the Nigerian banking system is a necessary condition for facilitating cash flow management in manufacturing enterprises. In this context the payment system is expected to improve the speed of cheque clearing and minimize the cost of transfers.

EXHIBIT DEFINITION OF TERMS

Maturity Principle: This involves matching the cash flow generating characteristics of an asset with the maturity of the source of financing used to finance its acquisition. The notion of maturity matching in the hedging principle can be most easily understood when we think in terms of the distinction between permanent and temporary investments in assets.

Permanent Investment: A permanent investment in an asset is one that the firm expects to hold for a period longer than one year.

Temporary Investments: These investments are comprised of the firm's investment in current assets that will be liquidated and not replaced within a period of one year or less. Examples include seasonal expansions in inventories and accounts receivable.

Temporary Financing: Financing (other than spontaneous sources) that will be repaid within a period of one year or less. Included among these sources of short-term debt are secured and unsecured bank loans, commercial paper, loans secured by accounts receivable, and loans secured by inventories.

Spontaneous Financing: These sources of financing consist of trade credit and other accounts payable that arise spontaneously in the firm's day-to-day operations.

Mail Float: Funds tied up during the time that elapses from the moment a customer mails his remittance check until the firm begins to process it.

Transit Float: Funds tied up during the time necessary for a deposited check to clear through the commercial banking system and become usable funds to the company.

Treasury bills: Nigerian Treasury Bills (NTBs) are direct obligations of the Federal Government of Nigeria (FGN) sold on a regular basis by the Central Bank of Nigeria (CBN).

Bankers' Acceptances (BAs): These are concentrated in the financing of foreign transactions. Generally, an acceptance is a draft (order to pay) drawn on a specific bank by an exporter in order to obtain payment for goods he has shipped to a customer, who maintains an account with a specific bank.

Negotiable certificate of deposit (CD): This is a marketable receipt of funds that have been deposited in a bank for a fixed time period. The deposited funds earn a fixed rate of interest.

Commercial Paper (CP): This refers to short-term, unsecured promissory notes sold by large businesses in order to raise cash. These are sometimes described as short-term corporate IOUs. Because they are unsecured, the issuing side of the market is dominated by large corporations, which typically maintain sound credit ratings.

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