THE IMPACT OF CREDIT MANAGEMENT STRATEGIES ON LIQUIDITY AND PROFITABILITY

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ABSTRACT
Extant literature showed the failure of many manufacturing organizations was due to poor profit maximization emanating from lack of adequate liquidity to initiate viable investments. The issue of low liquidity has been traced to weak credit management resulting in a poor receivable collection when due and bad debt losses. This study evaluated the impact of credit management strategies on the liquidity and profitability of quoted chemical & paints manufacturing companies in Nigeria. The descriptive survey research design was implemented. 500 staff representing 60% of the population was used as the sample population upon which copies of questionnaire were administered. 342 valid responses were returned by the participants and analyzed. One-way ANOVA was used for descriptive statistics, and a simple regression analysis method was used to test the formulated hypotheses. The result obtained indicated that the credit management strategies sub-variables - credit risk assessment, debt recovery strategy, receivable collection policy, have positive and statistically significant impact on the liquidity sub-variable - Ability to pay, level of bad debt, and cash inflow (R=.654 R2=.632, p=.0<.05; R=.692, R2=.674, p=.0<.05; R=.621, R2=.601, p=.0<.05). The effect of liquidity on profitability was positive and statistically significant (R=.723, R2=.701, p=.0<.05). The study recommended that organizations within the industry should improve liquidity to achieve the desired profit level by (i) having effective credit terms and proper risk assessment strategy, (ii) designed and implemented debt recovery plans to aid collection of the overdue debt, (iii) adopt a stringent credit collection method, and (iv) employ and retained qualified Accountants and Credit Administrators with excellent knowledge of credit control methodology.

Keywords: Credit sales, Accounts receivables, Credit management strategies, Liquidity and profitability, Manufacturing industry

1.0 INTRODUCTION
According to Achumba and Osuagwu (1994), marketing experts have long established that granting credit is one of the tools employed by an organization to expand the volume of sales. It provides a vital marketing link for the movement of goods from production through distribution stages to a large number of customers who do not have immediate payment capacity. Trade credit creates an account receivable under current assets in the firm’s statement of financial position, which the firm expects to receive in the future. Apart from increased sales volume, firms grant credit to customers for specific reasons such as to acquire a good share of the industry market, achieve envisaged level of profit, command customers’ loyalty, and retain them in the firm (Pandey, 2010). In credit sales, the economic value in goods passes immediately at the time of purchase while the seller expects an equivalent amount to be received on a later date. The partial or full payment delay at the time of sales might impose some element of liquidity risk to the seller(Kaitibi1, Ganawah, Yokie1, Jalloh1, & Koroma, 2018). Therefore, credit sales imply both now and future transactions, which involves a receivable risk that should be cautiously analyzed and adequately managed. Although in every business circle, credit is unavoidable but remains a threat to the financial stability and performance of any business (Agu & Basil, 2013; Nwanna & Oguezue, 2017).

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Previous studies have shown that low liquidity to initiate viable investments leading to reduced profitability level to continue operations were responsible for the failure of many quoted manufacturing organizations in Nigeria (Owolabi & Obida, 2012; Ifurueze, 2013). A good number of the liquidity problem were traced to bad debts from customers who could not pay for the goods sold to them on credit when due. Some manufacturing companies allow a lot of credit to customers to expand sales volume and control a fair share of the industry market at the detriment of liquidity. Adequate liquiditenables a company to meet its short term operating obligations to creditors when due and invest in viable projects. The result of appropriate investments such as in projects with positive net present value, as well as prompt creditor’s payment and cash discount advantage would positively affect profitability (Eljelly, 2004). A prolonged credit without appropriate credit policy to manage debts will negatively affectliquidity and profitability (Olagunju, David, & Samuel, 2012). Therefore, an organization should employ credit analytical tools and strategies developed by credit professionals to measure, manage credit, and avoid bad debts. In a bid to solve the problem of a firm’s bad debts and improve cash inflow, management employs sound credit sales to increase debt collection, achieve economy of credit costs, and extend credit only to creditworthy customers. Also, firms should develop competitive credit terms to beat the competition (Ofoegbu, Duru, & Onodugo, 2016).

Owolabi and Obida (2012) recommended that management should control credit to ensure adequate liquidity by developing appropriate credit model that would provide a collection of receivables at the due date. The strategy includes credit terms and customers’ risk assessment, credit collection, and enhanced debt recovery at low cost. Ifurueze (2013) noted that adequate liquidity has a significant moderating influence on the profitability of an organization. This assertion has led to a question of how does credit management strategies influence the level of liquidity and consequential profit? The answer to this research question has been omitted in the quoted chemical and paint manufacturing subsector in Nigeria. Therefore, further research is needed to assess the impact of credit management strategies on the firms’ liquidity and profitability. The general objective of this study is to investigate the effect of credit management strategies on the liquidity and profitability of quoted chemical and paint manufacturing firms in Nigeria. To achieve the main objective, the subsidiary objectives include: to explore the effect of credit terms and risk assessment on the customer’s ability to pay; to examine the influence of debt recovery on the level of bad debt; and to evaluate the impact of credit collection policy on the company’s cash flow.

In this research paper, credit management strategies in chemical and paint manufacturing firms whose instruments are not traded on the floor of Nigeria stock exchange and company in other subsector were excluded. The justification for the study was to provide analytical evidence on the relationship between the variables and contribute to the literature. The results achieved would benefit managers of the manufacturing subsector, researchers conducting further studies in this direction, bankers, and analysts. The study would also serve as a reference point on the application of credit management.

2.0 LITERATURE REVIEW

A Conceptual review of credit management strategies

An important decision faced by sellers is whether to grant credit or not and if allowed, how would the credit be controlled? Credit control decision varies from one organization to another, while some companies may have similarity in their decision template, especially within the same industry (Ross et al., 2008). Though credit sales transactions lead to the creation of trade debts in a business and in some cases, result in doubtful and bad debts. Irrespective of the risk involved, credit sales are of utmost importance where survival depends on the volume of turnover (Taiwo & Abayomi, 2013). Debt can be classified into good, doubtful, and bad according to the payment strength of the debtors involves. The determinants of the size of doubtful or bad debt losses include the quality of accounts accepted by the firm, the condition of the country of the buyers, and credit management strategies (Uzoh, 2012). When debtors are appropriately managed, the risk of doubtful and bad debts can be mitigated. While poor management of trade debts can lead to the provision of a large sum of funds for doubtful and debt debts, bad debt losses arise when a firm is unable to collect its accounts receivable (Pandey, 2010; Agu & Basil, 2013).

According to Uzoh (2012), regardless of the merits of credit sale towards achieving company objectives, it had proved to be responsible for the financial failure recorded in some manufacturing organizations primarily when trade credits were not properly managed. Most firms disregard the risk associated with sale credits and use it as a marketing tool on the following grounds: make additional sales to beat the competition, help in commanding higher customer loyalty, it encourages additional cash flow, and assist in leverage during negotiation. A firm grants more credit when the degree of competition is high in the industry and would have solid bargaining power if it has a strong product, monopoly power, brand name, large size, and strong financial position. Also, credit sales are employed as a marketing tool, when a new product is introduced into the market or when a company wants to push its weak product (Ehiedu, 2014).
Credit management strategies
Policy and strategy have been used interchangeably. Policy refers to a set of rules made by the organization for rational decision making while a strategy is a special plan made to achieve a market position and to achieve the company’s objectives. Therefore, policies are subordinate to strategy. Credit management policy is an operational document defining several operating rules for the credit sales process to be followed by the whole organization in the course of granting credit to customers (Taiwo & Abayomi, 2013). This study focused on credit management strategy which is described as a willing design to help the company attain the organizational credit objectives, gain customer’s trust, attains competitive advantage through sales volume and to acquire a good market position. It is a combination of well-thought intent and actions which lead a firm towards its desired position. This organizational strategy is intended to have effectiveness (increase sales), handling events and problems (financial risk), taking advantage of opportunities (enhance cash inflow), full resource utilization (make appropriate investments), and coping with threats (reducing bad debt losses). The credit management strategy ensures that credit sales are controlled and bad debt losses are minimized. The standard procedures include: establishing terms of credit, credit information analysis and scoring to determine credit worth firms and individuals, and setting credit plans to aid receivable collections when due (Ifurueze 2013).

Establishment of terms of credit
The terms of credit refer to a mix of three factors involving the period of credit, cash discount, and the type of credit instrument used. First, the credit periods is the time frame between sales and payment, and this varies among different industries and the types of goods sold. Where setting a credit period, a company must consider the probability that the customer may not pay at due the date, the size of the account to allow smaller account as shorter credit period and vis-a-vis (Dunn, 2009). The degree of the durability of collateral presented as security also matters. Secondly, a cash discount is often allowed as part of the terms of credit, and the reason for offering the rebate is to speed-up the receivables collection. Lastly, credit sales instrument is usually the invoice. A seller issues an invoice to customer to sign as a proof that the goods have been received which also form a source document for receivable accounting record (Ross, Westerfield, Jaffe, & Jordan, 2008).

Credit information analysis and scoring
Credit information analysis and scoring are various sources of information for deciding on the creditworthiness of a prospective customer (firm or individual) which influences the quality of firm's customers to be granted credit (Ifurueze, 2013). The information generally used to evaluate the creditworthiness of customers includes financial statements of the prospective credit customer. This would enable the seller to conduct a ratio analysis. The other information required for credit reports is the customer’s payment history, size of the customer valuable assets, at least three trade credit references, full details of all directors, partners, or owners. New financially weak customers should be asked to present a “credit bond” from a credible financial institute (Akinsulire, 2017). It is upon these facts that the choice of either granting or declining credit is made. According to Ifurueze (2013), the established criteria for evaluating credit risk should be based on the “5Cs” of credit, which include character, capacity, capital, collateral, and condition.

Character refers to the customer’s willingness to meet credit obligations. Capacity denotes the customer's ability to pay his debts out of operating cash flows. Capital is measured by the general financial ratio analysis, with particular emphasis on the risk ratios such as debt to assets ratios, current ratio, and interest-earned ratio. This criterion shows the adequacy of the customer’s capital. Furthermore, collateral represents the assets offered by the customers as a pledge for security of the credit extended. Lastly, the condition refers to the preventing of economic and other national conditions, which may influence the customer's capacity to pay. Adverse economic conditions may affect the ability or willingness of a customer to pay debt when due (Enarke, 1989; Olowe, 2011; Ofoegbu, Duru, & Onodugo, 2016).

Factoring
In credit management, different firms adopt various methods as long as it will yield a positive outcome. The finance manager who has recognised the exceptional circumstance of his firm may decide to adopt some strategies to reduce debt risk, one of which include factoring. Factoring, as known as debtor financing or receivables factoring occurs when an organization buys a debt or invoice from another company (Khan, Tragar, & Bhutto, 2012). In this purchase, the debtors’ accounts are discounted to allow the buyer to make a profit upon the settlement of the debt. Factoring transfers the ownership of the receivable accounts to another party who would pursue the debt. Factoring purchases the debt at a discount thereby discharging the original owner of the debt and then provide them with working capital to continue trading, while the buyer of the debt chases up the debt for the full amount and profits when the receivable is collected (Kroes & Manikas, 2014). The factor gives clients...
necessary information and reports about market trends and patterns. Also, they make a systematic analysis of the data concerning the client for the proper monitoring and management of the debts (Uwalomwa, Uwuigbe, & Oyewo, 2015).

**Monitoring receivables**

The finance manager should monitor debts to ensure that all receivables are collected on the due date. He should employ methods such as average collection period, aging schedule, and collection experience matrix (Michael, 2011). The average collection period is a credit policy which provides a credit period that is compared with the calculated average collection period to measure the average amount of time needed to collect an account receivable. A delay in the collection period hinders the cash inflows and increases the chances of bad debt losses (Kwenda, 2014). This scenario would inevitably impair the firm’s liquidity position and may affect profitability. The formula is calculated thus:

\[
ACP = \frac{D}{CS} \times 365 \text{ days.}
\]

Where:  
ACP = Average collection period;  
D= Debtors, and  
CS = Credit sales

This method of evaluating and monitoring receivable assists in tabulating receivables according to the age of the debts. It shows the duration of time for which the receivables have been outstanding, usually within 30 days, 60 days, and 90 days and above (Uzoh, 2012). The average collection period and aging analysis schedule are regarded as the traditional methods of evaluating receivables, and both have some limitations. The shortcoming includes failure to relate receivable to sales of the same period, which makes control difficult (Owolabi & Obida, 2012). The collection experience matrix is the scientific method which makes use of disaggregated data for analysis of collection experience. This approach relates receivable to sales of the same period. The model shows the transactions of a given period in a horizontal order and the associated receivables in a vertical hierarchy.

**Liquidity and profitability relationship**

Liquidity in the manufacturing context is the measure of the extent to which an organization has adequate cash or near cash instrument to meet its obligations instantly or in a short-term (Pacurar& Muntean, 2008). Sufficient liquidity means that an entity can meet its financial obligations as they fall due. According to Ezejiofor, Adigwe, & John-Akamelu (2015), there is a quantity and a time dimension to liquidity. If you hold cash or readily realizable assets such as government securities, your liquidity is soundly based. If it consists of debtors, liquidity depends on their ability and willingness to pay. If it consists of goods, liquidity is a function of the salability of those goods and may be low if they are not in demand. The statement above analyses liquidity with the components of current assets and their ability to be converted into cash (Olagunju, David, & Samuel, 2012; Owolabi & Obida, 2012). In this study, liquidity is assumed to be at the optimum level when credit customers can pay their debt when due, and appropriate policy is undertaken to avoid or reduce bad debt. Adequate cash inflow enables an organization to operate smoothly and attain the envisaged level of profit (Michael, 2011; Muritala & Taiwo, 2013; Ofoegbu, Duru, & Onodugo, 2016).

The central purpose of any business venture is to maximize profit, which determines the short-term survival. Profit is vital, but management decisions should not only be profit-oriented at the detriment of wealth maximization. Profit is the difference between revenues and expenses over some time usually one year, and it is regarded as the final output of a company’s operation. A company without sufficient profit would have no future. Profitability ratios measure the overall performance of the company by determining the effectiveness and viability of the company in general terms (Pandey, 2010). The margin and mark up, return on equity (ROE) and return on assets (ROA) are the ratios used for profitability measurement. The ordinary shareholders are entitled to the residual profits. This means that the net profit after tax represents their return. Therefore, shareholder’s equity return is used to measure the profitability of owners’ investment known as Return on Equity (ROE). The formula is:

\[
\text{ROE} = \frac{\text{Net profit after tax}}{\text{Shareholders ‘equity}}
\]

Also, the profitability can be measured by the net income earned by a company as a percentage of the total assets available for use by that company known as Return on Assets (ROA). ROA suggests that companies with higher amounts of assets should be able to earn higher levels of profit. ROA measures management’s ability to effectively use the available assets and earn good returns. The formula is:

\[
\text{ROA} = \frac{\text{Profit after tax}}{\text{Total Assets}}
\]

**Theoretical review**
Literature indicated that the offer of trade credit in an asymmetric setting between the vendor and the purchasers generates various theories to explain the existence and use of trade credit. These theories include tax theory, liquidity theory, product quality theory, financing advantage theory, price discrimination theory, and transaction cost theory. Although the above list is not exhaustive but merely reflects the authors’ perception of trade credit in a Nigerian setting. The Financing advantage theory of trade credit and transactions costs theory were used as the foundation of this study to explain the merit offered to both the sellers and buyers.

1. Financing advantage theory of trade credit

The financing advantage theory of trade credit states that the supplier may have an advantage over traditional lenders in investigating the creditworthiness of his clients, and also have a better ability to monitor and force repayment of the credit. The financing advantage may also give the seller a cost advantage over financial institutions in offering credit to a buyer (Schwartz, 1974; Petersen & Rajan, 1996). The cost advantages available to the credit supplier is gain in information acquisition, controlling the buyer, and salvaging value of the existing assets. An advantage in information acquisition is gained when the supplier visits the buyer’s premises more often than financial institutions would. The information may be deduced from the buyer’s business condition by assessing the size and timing of the buyer’s orders, as well as his response to taking advantage of early payment to get discounts. The buyer’s inability to take advantage of early payment discounts may reveal the level of deterioration in his creditworthiness and serve as a red warning flag.

If the seller must control the buyer, the nature of the goods sold and the seller’s position should be considered. If the supplier notices that the buyer has few cost-effective substitute sources available, the supplier can threaten to cut off future supplies in the event of default only if the buyer account is small about the supplier’s total sales volume. To salvage the value of the existing assets, the supplier can seize the goods supplied in the event of the buyer’s defaults. The lien situation can be practical if the goods supplied are durable. Therefore, the more durable the collateral provided by the buyer, the higher the credit the supplier can provide (Mian & Smith, 1992). By contrast, a financial institution may have limited powers as a treat to withdraw future finance may have a little immediate effect on the borrower’s operations. Also, the financial institution’s ability to withdraw past finance may be constrained by bankruptcy laws. Financial institutions can also repossess the firm’s assets to payoff the loan granted. However, the supplier can achieve the reclaim and resale at a lower cost than the financial institution, if there is already a network for selling its goods. Financing advantage theory of trade credit was used by Petersen and Rajan (1996); Alalade, Binuyo, and Oguntodu (2014); Kagoyire and Shukla (2016).

2. Transactions costs theory.

Transactions costs theory supports the buyer’s advantage in trade credit as a means of financing as well as the seller in reducing cost. It states that trade credit may reduce the transactions costs of paying bills (Ferris, 1981). This means that rather than paying bills every time goods are delivered, a buyer under credit sales cumulates obligations and pay them only at the agreed intervals – weekly, monthly, or quarterly. This would also permit the seller to separate the payment cycle from the delivery schedule. The other versions of the transactions cost theory relate to goods with strong seasonality in consumption patterns. To uphold smooth production cycles, the firm may have to build up large inventories which trigger off the costs of stock warehousing and tied-down capital. These costs could be reduced by (a) lowering the price of the goods to attract demand and early sales. Though, this may affect the profit, (b) granting trade credit selectively, both across customers and over time, to improve sales and manage inventory (Mian & Smith, 1992). Transactions costs theory was adopted by Ezejiofor, Adigwe, and John-Akamelu, 2015; Kagoyire and Shukla (2016); Nwanna and Oguezue (2017). The trade credit theories of financing advantage and transactions costs are relevant to this study on the ground they explained the reasons for offering and accepting trade credit by both the sellers and buyers under trade credit in a perfect market.

Empirical Review

Previous empirical studies captured to support this study were summarized as follows: Muritala and Taiwo (2013), examined the relationship between credit management, liquidity position, and profitability of some selected banks in Nigeria using ten years data of banks from 2006 to 2010. The study indicated that the alternative risk absorption hypothesis stipulated efficient credit management, which enhances firms’ ability to create liquidity. Also, it showed that return on assets has a significant positive effect on current ratio confirming the financial fragility crowding out hypothesis. The relationship between credit management and liquidity was also established by Oyadonghan and Bingilar (2014), who evaluated the impact of effective credit policy on the liquidity of manufacturing companies in Nigeria. The study revealed that when a company’s credit policy is favourable, liquidity is at a desirable level. It also indicated that manufacturing companies do not monitor and review their credit policy regularly, and as a result, the allowance of cash discounts could not be minimized as much as expected.

Some studies noted that credit management has a positive and significant correlation with profitability as seen in in the report of Kaitibi, Ganawah, Yokie, Jalloh and Koroma, (2018) who studied the impact of efficient credit management on
The profitability of commercial banks in Sierra Leone between 2010 and 2014. The results showed that the profitability of commercial banks in Sierra Leone was significantly influenced by the efficiency of credit management. Kagoyire and Shukla (2016) investigated the effect of credit management on the performance of commercial banks in Rwanda. The study established that there was a strong relationship between the financial performance of Equity Bank and client appraisal, credit risk control, and collection policy. Also, Nwanna and Oguezue (2017) carried out a study on the nexus between credit management and profitability of deposit money banks in Nigeria between 2006 and 2015. The study concluded that sound credit management holds the financial strength (liquidity) of the DMBs, which heightens the banks’ profitability.

Consequently, Kungu, Wanjau, Waititu, and Gekara (2014) evaluated the effects of credit policy on the profitability of manufacturing firms in Kenya. The results show that there is a positive relationship between profitability and credit policy. These results are in line with the findings reported by Martínez-Sola et al. (2010); Khan et al. (2012). However, the positive effect of credit management on profitability was opposed by the finding of Alarcon (2008). The study assessed the role of trade credit in the Spanish agro-food industry to ascertain the importance of trade credit as a way of firm financing. Onuora and Nwafili (2017) also concluded that credit policy and liquidity management has a significant negative relationship to Return on Assets.

Liquidity management is of utmost importance especially at the period when firms are facing financial crisis and high cost of obtaining loans in the financial market, as well as the reluctance of the investors to invest in the share of companies due to the problem of the capital market (Owolabi & Obida, 2012). In this direction, Owolabi & Obida, (2012) measured the relationship between liquidity management and corporate profitability in manufacturing firms in Nigeria. The finding showed that liquidity management measured in terms of the company’s credit policies, cash flow management, and cash conversion cycle has a significant impact on profitability. Furthermore, Ezejiofor, Adigwe, and John-Akamela (2015) evaluated the effect of credit management on liquidity and profitability of a manufacturing company in Nigeria. The study concluded that there is a significant correlation between liquidity position and debtors’ turnover as well as liquidity management and profitability of the manufacturing companies in Nigeria. Based on the above findings, it has been established that trade credit promotes products and increasing sales, while credit management strategies have direct relationship with a firm’s liquidity position and indirect relationship with profitability. The result of the relationship between liquidity management and profit performance was replicated in the listed pharmaceutical manufacturing subsector in Nigeria by Ofoegbu, Duru, and Onodugo, (2016). Findings showed that the liquidity ratio and profitability of the companies were significantly and positively related. The conclusion of these studies is supported by research findings of Uzoh (2012); Ifuweze (2013). Omenguele and Mazra (2013) warned that if trade credit is not effectively controlled, it will deteriorate the profitability and performance of the system.

Gaps and hypotheses development

Generally, the literature reviewed in the above subsection showed that most researchers had established the relationship between credit management and liquidity and profitability in the banking sector (Muritala & Taiwo, 2013; Kagoyire & Shukla, 2016; Nwanna & Oguezue, 2017; Kaitibi et al., 2018). However, only a few studies linked credit management with liquidity and profitability in the manufacturing sector in general terms in Nigeria (Owolabi & Obida, 2012; Oyadonghan & Bingilar, 2014; Ezejiofor, Adigwe, & John-Akamela, 2015). It is evident that the relationship between the credit management strategy, liquidity and profitability sub-variables and in aggregate have been omitted in the body of knowledge in the quoted chemical and paints manufacturing subsector in Nigeria. This omission has created gaps upon which the current study intended to fill. The following null hypotheses (H0) were developed to investigate the relationship between the variables to fill the gaps in the literature.

1. Credit risk assessment has no significant impact on the customer’s ability to pay.
2. Debt recovery strategy has no significant influence on the level of the company’s bad debt.
3. Receivable collection policy has no significant effect on cash inflow and
4. Firm liquidity has no significant influence on profitability.

The conceptual model and research hypotheses

In the current study, the researchers proposed a conceptual model which suggests that there is a relationship between credit management strategies and adequate liquidity. Liquidity forms a moderating factor between credit management strategies and profitability in the quoted chemical & paints manufacturing companies in Nigeria. Figure 1 shows the relationship between the independent, dependent, and moderating variables.
3.0 METHODOLOGY

A descriptive survey research design was employed in an attempt to empirically assess the impact of credit management strategies on liquidity and profitability of quoted chemical & paints companies in Nigeria. This design was adopted due to its ability to capture research questions raised in the study and deals with non-manipulated complex relationships between variables (Saunders, Lewis & Thornhill, 2010; Okpala, 2017).

The population of the study consisted of seven (7) selected quoted chemical & paints manufacturing companies in Nigeria with 834 management employees (top, middle, and lower level managers) as of May 2019. The criteria for the participant’s inclusion were (i) havea minimum of 5 years’ calculative experience in the industry, (ii) a minimum of B.Sc. educational qualification and (iii) must be connected with trade credit and receivable decision making in the organization. The companies include African Paints Nigeria Plc, Berger Paints Plc, CAP Plc, DN Meyer Plc, IPWA Plc, Nigerian-German Chemicals Plc, and Premier Paints Plc. The sample comprised of 500 staff representing 60% of the total population selected at random. The participants were chosen among Executive Directors, General Managers, Sales & Marketing Managers, Finance Managers, and Accountants.

21 items, 7 points Likert-scale response instrument was self-generated and structured into section A for demographic and B to E for inferential data. Answers to the questions in the quantity of relationships between variables in each section were coded as: 1 = Very weak, 2 = Weak, 3 = Slightly weak, 4 = Average, 5 = Slightly strong, 6 = Strong and 7 = Very high. The perceptions and opinions of the respondents were captured and rated to achieve meaningful analysis and conclusion. A pilot study exercise was conducted to test the degree of understanding of the questions (Panneerselvan, 2009). Fifty (50) respondents for the pilot study represents 10% of the sample population. Four organizations with the same characteristics of the population of the study were randomly selected based on convenience and copies of the questionnaire administered to them. A total of thirty-four (34) valid responses were received and analyzed. The trial study assisted the researchers to ascertain the suitability of the instrument, assessed the feasibility of a full-scale study, and enabled revision and adjustment (re-word or re-scale) of any questions that were not answered as expected.

The face validity was confirmed by experts in management accounting and credit management. Construct validity was tested whether the instrument adequately measures all areas of the subject being studied (Cozby, 2003). The research instrument used exploratory factor analysis to assess whether the proposed variable indicators had significant factor loadings and to ensure that the most appropriate model was selected for the study. The average variance extracted showed values between .591 and .654 > .05, which indicated that the variables were valid and could be used for further analysis. Cronbach’s Alpha coefficient was used to test the reliability of the instrument for the constructs. The result indicated R, between .662 and .711 > .05, which confirmed the internal consistency and reliability of the instrument for data collection. The result of a co-linearity test conducted indicated that the relationships between the predictor and the outcome variable met the assumptions of linear regression. The results of the reliability tests were presented in Table 4.

The primary data collected were analyzed using descriptive statistics and regression analysis method at 5% level of significance. A one-way ANOVA was used for the descriptive statistics to define the average respondents’ perception.
and the mean score on each of the three constructs. Also, a simple regression analysis method was employed to test the impact of credit management strategy on liquidity and profitability in the selected quoted chemical and paints manufacturing companies in Nigeria. The rule was that the probability value of the independent variable was compared with the critical value of 5%.

The independent variable is credit management strategies divided into three proxies: credit risk assessment strategy, debt recovery strategy, and credit collection strategy. The dependent variable is liquidity categorized into three sub-variables: the ability to pay, level of bad debt and cash inflow, which is perceived to have the ability to moderate profitability. Table 1 showed the description of the variables used in the research.

Table 1: Description of variables used in the research

<table>
<thead>
<tr>
<th>Variables</th>
<th>Abbre</th>
<th>Description</th>
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<tbody>
<tr>
<td>Independent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credit Management Strategies</td>
<td>CMS</td>
<td>Credit management strategies are plans put in place by an organization to ensure that credit sales are controlled, receivables are collected when due, and bad debt losses are minimized to attain the company objective.</td>
</tr>
<tr>
<td>Credit risk assessment</td>
<td>CRA</td>
<td>This is the analysis conducted on prospective credit customer’s information to ascertain whether the customer can meet his obligations according to the terms of trade.</td>
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<tr>
<td>Debt recovery strategy</td>
<td>DRS</td>
<td>This is a procedure designed to assist a firm in debt collection to reduce costs and save the time of collection and improve liquidity.</td>
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<tr>
<td>Credit collection strategy</td>
<td>RCP</td>
<td>This is a receivable collections guidelines that govern how an organization grants credit and collect receivables.</td>
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<tr>
<td>Dependent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquidity</td>
<td>LID</td>
<td>Liquidity is the extent to which an organization has adequate cash or near cash to meet its obligations in a short-term.</td>
</tr>
<tr>
<td>Profitability</td>
<td>PRO</td>
<td>This is the degree to which an organization’s activity yields profit or financial gain. It is measured by deducting total expenditure from the total revenue of the same period.</td>
</tr>
<tr>
<td>Ability to pay</td>
<td>ATP</td>
<td>This is an economic principle which shows that a credit customer can to pay his debt when due.</td>
</tr>
<tr>
<td>Bad debt</td>
<td>LBD</td>
<td>Bad debt is a monetary amount owed to a creditor which is unlikely to be collected</td>
</tr>
<tr>
<td>Cash inflow</td>
<td>CFL</td>
<td>Cash inflow is the net amount of cash and cash-equivalents being transferred into a business.</td>
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Other variables known as a dummy in this research include the credit manager’s experience, industry regulations, type of goods sold on credit and collateral use as security. However, these variables were not be used in the regression analysis since they assumed the value of “0”.

3.1 Econometric specification

Data collected were analyzed using a descriptive and simple regression method at 5% level of significance. The model specification in functional form is \( \text{LID} + \text{PRO} = f(\text{CMS}) \). Where LID represents Liquidity and covering sub-variables: ATP, LBD, and CFL as a function of credit management strategy (CMS). The CMS represented by proxies: CRA, DRS, and RCP. The linear regression equations used were specified as follows:

3.1.1 Impact of credit risk assessment on customer’s ability to pay the debt
\[ \text{ATP} = \beta_0 + \beta_1(\text{CRA}) + \varepsilon_1 \] ... Model 1

3.1.2 Impact of debt recovery strategy on the company’s level of bad debt.
\[ \text{LBD} = \beta_0 + \beta_2(\text{DRS}) + \varepsilon_2 \] ... Model 2

3.1.3 Impact of credit collection policy on cash inflow
\[ \text{CFL} = \beta_0 + \beta_3(\text{RCP}) + \varepsilon_3 \] ... Model 3

3.1.4 Impact of liquidity on profitability
\[ \text{PRO} = \beta_0 + \beta_4(\text{LID}) + \varepsilon_4 \] ... Model 4
The general model for the study was specified as follow:

3.1.5 Impact of firm liquidity on profitability

\[ \text{LID} + \text{PRO} = \beta_0 + \beta_1 (\text{CMS}) + \varepsilon \]

Where: \(\text{CMS} = (\text{CRA}) + (\text{DRS}) + (\text{RCP})\)

\[ \text{LID} + \text{PRO} = \beta_0 + \beta_1 (\text{CRA}) + \beta_2 (\text{DRS}) + \beta_3 (\text{RCP}) + \varepsilon \ldots \ldots \text{Model 5} \]

A prior expectation \(\text{CRA} > 0, \text{DRS} > 0, \text{RCP} > 0\)

4.0 DATA ANALYSIS AND INTERPRETATION OF STATEMENTS

Five hundred (500) copies of questionnaire were administered to the sample population. Three hundred and forty two (342) copies were received, representing a response rate of 68.4% (Table 5). The data were collected and analyzed to test the formulated null hypotheses the effect of credit management strategy on liquidity and profitability using both descriptive and regression analyses.

Descriptive statistics

The descriptive statistics were conducted using one-way ANOVA to describe the average respondents’ perception of each of the credit management strategy sub-variables - credit management, credit risk assessment, debt recovery strategy.

Hypothesis 1: Credit risk assessment has no significant impact on the customer’s ability to pay

The average opinion of each population strata indicated a high but mixed perception in each category on the impact of credit risk assessment on customer’s ability to pay, as shown in Table 2, Model 1. The overall average perception of all categories obtained when collapsed all the items gave a total mean score of 5.044 with the F- statistics of 21.716. The differences in mean perception of the seven firms were statistically significant with \(P\)-value = .004 < .05. Therefore, credit risk assessment is perceived to be strongly related to the customer’s ability to pay on the ground that the overall mean score of respondents’ opinion between the CRA and ATP. This falls above “slightly strong” option on the scale of 1 to 7 on the research instrument.

Hypothesis 2: Debt recovery strategy has no significant influence on the company’s level of bad debt.

The average opinion of each population strata indicated a high but mixed perception in each category on the impact of debt recovery strategy on the company’s level of bad debt as shown in Table 2, Model 2. The overall average perception of all classes obtained when collapsed all the items gave a total mean score of 6.040 with the F- statistics of 25.112. The differences in mean perception of the seven firms were statistically significant with \(P\)-value = .000 < .05. Therefore, debt recovery strategy is seemingly firmly related to the company’s level of bad debt based on the overall mean score of respondents’ opinion between the DRS and BDE. This falls within the “strong” option on the scale of 1 to 7 on the research instrument.

Hypothesis 3: Receivable collection policy has no significant effect on cash inflow.

The common perception of each population section showed a high but mixed opinion in each group on the impact of receivable collection policy on cash inflow exhibited in Table 2, model 3. The overall average perception of all categories achieved when collapsed all the items gave a total mean score of 5.996 with the F- statistics of 19.781. The differences in the mean opinion of the seven firms were statistically significant with \(P\)-value = .000 < .05. Therefore, the receivable collection policy is strongly related to the level of cash inflow based on the overall mean score of respondents’ opinion between the RCP and CFL. This falls within the “strong” option on the scale of 1 to 7 on the research instrument.

ONE-WAY ANALYSIS OF VARIANCE (ANOVA)

HYPOTHESES ONE TO THREE

Table 2: Summary of Results (One - way ANOVA)

<table>
<thead>
<tr>
<th>Participants</th>
<th>Credit risk Assessment (Model 1)</th>
<th>Debt recovery Strategy (Model 2)</th>
<th>Receivable collection policy (Model3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N) Mean SD</td>
<td>(N) Mean SD</td>
<td>(N) Mean SD</td>
</tr>
<tr>
<td>African Paints Nigeria Plc</td>
<td>60 4.622 0.621</td>
<td>60 6.100 1.234</td>
<td>60 5.611 0.940</td>
</tr>
<tr>
<td>Berger Paints Plc</td>
<td>55 5.681 1.231</td>
<td>55 4.986 1.067</td>
<td>55 5.856 0.765</td>
</tr>
<tr>
<td>CAP Plc</td>
<td>59 4.554 0.869</td>
<td>59 5.865 0.787</td>
<td>59 6.532 1.061</td>
</tr>
<tr>
<td>DN Meyer Plc</td>
<td>40 4.907 0.645</td>
<td>40 6.879 0.990</td>
<td>40 6.976 0.811</td>
</tr>
</tbody>
</table>
Adigwe, and John-Akamelu (2015). concurred with the findings of Ifurueze (2013); Owolabi and Obida (2012); Omenguele and Mazra (2013); Ezejiofor, that the relationship between liquidity and profitability is not only positive but also significant. The result of the analysis that credit policy and liquidity management has a significant negative relationship to return on assets Hypothesis 4 revealed system if not effectively controlled. The report also disagreed with the report of Onuora and Nwafili (2017), who concluded management might promote products and increasing sales but will deteriorate profitability and performance of the financial Oguezue (2017). However, the current study's result opposed the report of Alarcon (2008), who claimed that credit Khan et al. (2012); Kungu et al. (2014); Kagoyire and Shukla (2016); Ofoegbu, Duru, & Onodugo, (2016); Nwanna and improved bank profitability in Sierra Leone. These hypotheses were supported by the reports of Martínez-Sola et al. (2010); are also in agreement with the report of Kaitibi et al. (2018), who stated that good credit policy was responsible for the Bingilar (2014), which revealed that a favourable company's credit policy propels a desirable level of liquidity. The results showed that the value of Durbin-Watson statistic for the four hypotheses tested were 1.332, 1.521, 1.432, and 1.348 of the LID would drive a 57% increase of PRO. Therefore null hypothesis 4 was rejected and alternate not rejected.

Based on positive effective of all CMS three constructs on manufacturing liquidity in the quoted chemical & paints companies (.654, .692, and .621) and the statistically significant (P =.001, 000, and 000 < .05). These results confirmed that independent variable proxies (Credit risk assessment, debt recovery strategy, receivable collection policy) have positive effects on the dependent sub-variables (Ability to pay, Company's level of bad debt, and cash inflow). This is supported by the F-statistics of 19.807, 17.419, and 15.500. The R^2 =.632, .674, and .601 implied that CRA, DRS, and RCP were responsible for 63%, 67%, and 60% variation in the liquidity and profitability quoted chemical & paints companies in Nigeria. The impact of the independent sub-variables on dependent sub-variables were statistically significant (P =.001, 000, and 000 < .05). These were confirmed by the t-statistics of 11.662, 9.722, and 10.234. Based on the above evidence, the null hypotheses 1 to 3 were rejected, and alternates were not rejected. The simple linear equations for the three constructs can be expressed as ATP= 4.011+.371 (CRA); BDE = 3.997+.456(DRS); and CFL = 3.600+.362(RCP). These implied that a unit increase in CRA, DRS, and RCP would propel 37%; 46%; and 36% increase of ATP, LBD, and CFL in the quoted chemical & paints companies manufacturing sub-sector in Nigeria.

The results of null hypotheses 4 indicated that the overall R= .723, which means that liquidity (LID) hasa strong positive impact on profitability (PRO). The R^2 = .701 concluded that LID was responsible for 70% variation in the PRO in the quoted chemical & paints companies manufacturing sub-sector in Nigeria. The impact LIDS on PRO was statistically significant (P =.000 < .05). The simple linear equation can be expressed as PRO= 4.798+.574 (LID) which implied that a unit change in LID would drive a 57% increase of PRO. Therefore null hypothesis 4 was rejected and alternate not rejected.

Based on positive effective of all CMS three constructs on manufacturing liquidity in the quoted chemical & paints companies (.654, .692, and .621) and the statistically significant (P =.001, 000, and 000 < .05). It can be concluded that the multi-variance between CMS in aggregate has properly explained liquidity and profitability. The linear simple equation for the multi-variance can be expressed as LID= 11.608 +.1.189  (CMS) / 3. On the average, LID = 3.869 and CMS = .396. Therefore, LID = 3.869 +.396 (CMS) which inferred that a unit change in CMS would drive 40% increase of LID Table 3 showed that the value of Durbin-Watson statistic for the four hypotheses tested were 1.332, 1.521, 1.432, and 1.348 of the residuals lies between “0 and 2”. These suggested the existence of positive autocorrelation and since they are greater than the adjusted R^2. .610, .628, .512, and .684 in the four equations, the obtained results can be taken as valid and also confirmed a high degree of the model specifications. The result of hypotheses one to four are in line with the a priori expectation: CRA > 0, DRS > 0, RCP > 0. Table 3 showed the summary of regression results of the impact of credit management strategies on liquidity and profitability.

**Discussion of findings**

Hypothesis 1, 2, and 3 tested agreed with findings of Muritala and Taiwo (2013), which stated that return on assets has a significant positive effect on current ratio; confirming the financial fragility crowding out hypothesis. Also, Oyadonghan and Bingilar (2014), which revealed that a favourable company’s credit policy propels a desirable level of liquidity. The results are also in agreement with the report of Kaitibi et al. (2018), who stated that good credit policy was responsible for the improved bank profitability in Sierra Leone. These hypotheses were supported by the reports of Martínez-Sola et al. (2010); Khan et al. (2012); Kungu et al. (2014); Kagoyire and Shukla (2016); Ofoegbu, Duru, & Onodugo, (2016); Nwanna and Oguezue (2017). However, the current study’s result opposed the report of Alarcon (2008), who claimed that credit management might promote products and increasing sales but will deteriorate profitability and performance of the financial system if not effectively controlled. The report also disagreed with the report of Onuora and Nwafili (2017), who concluded that credit policy and liquidity management has a significant negative relationship to return on assets Hypothesis 4 revealed that the relationship between liquidity and profitability is not only positive but also significant. The result of the analysis concurred with the findings of Ifurueze (2013); Owolabi and Obida (2012); Omenguele and Mazra (2013); Ezejiofor, Adigwe, and John-Akamelu (2015).
Table 3: Summary of Regression Results of the impact of credit management strategy on Liquidity and Profitability

<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Summary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R³</td>
<td>342</td>
<td>.654</td>
<td>.692</td>
<td>.621</td>
<td>.723</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td>.632</td>
<td>.674</td>
<td>.601</td>
<td>.701</td>
</tr>
<tr>
<td>Adj. R²</td>
<td></td>
<td>.610</td>
<td>.628</td>
<td>.512</td>
<td>.684</td>
</tr>
<tr>
<td>ANOVA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig.</td>
<td></td>
<td>.001</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>F. Statistics</td>
<td>342</td>
<td>19.807</td>
<td>17.419</td>
<td>15.500</td>
<td>22.114</td>
</tr>
<tr>
<td>Coefficients</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>t- statistics</td>
<td></td>
<td>11.662</td>
<td>9.722</td>
<td>10.234</td>
<td>12.773</td>
</tr>
<tr>
<td>( Constant)</td>
<td></td>
<td>4.011</td>
<td>3.997</td>
<td>3.600</td>
<td>4.798</td>
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<tr>
<td>CRA, DRS, RCP</td>
<td>342</td>
<td>.371</td>
<td>.456</td>
<td>.362</td>
<td>.574</td>
</tr>
<tr>
<td>Std. Error</td>
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<td>.075</td>
<td>.098</td>
<td>.090</td>
<td>.099</td>
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<tr>
<td>DW</td>
<td></td>
<td>1.332</td>
<td>1.521</td>
<td>1.348</td>
<td></td>
</tr>
</tbody>
</table>

5.0 SUMMARY OF FINDINGS, CONCLUSION, AND POLICY IMPLICATIONS

Summary of findings
Credit management strategies are the plans of actions designed to ensure appropriate granting and controlling of trade credit. It would enhance receivable collection from trade debtors using suitable measures that would lead to increased sales volume, total revenue, and reduction in financial risks. The objective of this study is to explore the effect of credit management strategies on liquidity and profitability. This was measured by evaluating the impact of credit risk assessment strategy on the customer’s ability to pay, the effect of debt recovery strategy on the level of bad debt, and credit collection strategy on the level of cash inflow. The forth sub-objective evaluated the influence of liquidity as a moderating factor on profitability. Based on the analysis conducted, the research findings were summarized as follows: 1. Hypothesis one to three showed that the three strategies - credit risk assessment, debt recovery, and credit collection have a positive and significant impact on company’s liquidity measured in terms of customer’s ability to pay, company’s level of bad debt, and cash inflow. 2. Granting credit to customers would boost sales and increase the industry share of the market. 3. Credit management strategies maximize liquidity through appropriate plans of actions and enhance receivable collections and assist in attaining the company’s objectives. 4. Adequate liquidity enables the firms to take cash discount advantage and invest in projects with positive the net present value, which impacts positively on profitability.

Conclusion
This study concluded that credit management strategies measured in terms of the credit risk assessment, debt recovery strategy, and credit collection strategy have a positive and significant influence on liquidity and profitability of quoted chemical and paints manufacturing companies in Nigeria.

Policy implications
Related literature reviewed showed that credit sales and associated financial risks had become a threat to the manufacturing sector. This issue has negatively affected the firm’s liquidity and profitability through poor receivable collections and the resulting bad debts, which have a chain of effect on the economy. The findings from the conceptual, theoretical, and empirical results of this study formed a decision template for the management of quoted chemical and paints manufacturing companies in Nigeria. The policy implication drawn from the outcomes of this study is as follows: 1. Credit risk assessment strategy has a significant impact on the customer’s ability to pay. The organizations in this industry need to have effective credit terms and proper risk assessment strategy by setting a credit period, evaluate the degree of the durability of collateral presented as security before credit is granted, offer rebates to speed-up the receivables collections, and raise an invoice as a credit instrument for transaction proof. To assess customer information and avoid risk, the controller should evaluate financial statements of customers and ascertain their creditworthiness. 2. Debt recovery strategy has a significant influence on the company’s level of bad debt. A debt recovery plan should be designed and implemented to aid recovery of debt, especially the overdue emanating from credit sales to customers. This would help the firms to maximize receivable collections and reduce bad debts loss. 3. Receivable collection strategy has a significant effect on cash inflow. The company should adopt a stringent credit collection method instead of a lenient policy. A collection period should be stipulated, and age analysis should be produced at the agreed interval to assist in the collection effort. Supplies should be stopped on overdue accounts. 4. The
quoted chemical and paints manufacturing companies in Nigeria should pay close attention to receivables and liquidity. This effort is likely to influence the company bottom-line when adequately managed. 5. The three constructs – CRA, DRS, and RCP, indicated a variation of 63%, 67%, and 60% on ATP, LBD, and RCP. This means that the effect of credit management strategies is responsible for an average of 63% variation in liquidity. Debt recovery strategy has a higher rate of variation among the three with 67%. Therefore, the management of the companies in this industrial subsector should pay more attention to the sub-variable to bed debt. 6. Quoted chemical and paints manufacturing companies in Nigeria should employ and retained qualified Accountants and Credit Administrators with excellent knowledge of credit control methodology. This is important giving the volatile market of the manufactured goods in Nigeria and poor macroeconomic management affecting the business terrain.

Contributions to knowledge and suggestions for future research
This study contributed to the body of knowledge conceptually by defining of credit management strategies, also theoretically by confirming the relevance of trade credit theories of financing advantage and transactions costs in the quoted chemical and paint manufacturing firms in Nigeria. Finally, the study contributed to literature based on the empirical evidence produced from the data analysis. However, one of this study is the use of quoted chemical and paint manufacturing firms in Nigeria only. This subsector accounts for an insignificant portion of the manufacturing sector in Nigeria. Therefore, further study should be conducted to include other manufacturing subsectors. This would ensure a result that presents a full view of the effect of credit management strategies on liquidity and profitability of manufacturing companies in Nigeria. Also, other manufacturing companies and the dummy variables should be included in further research.

REFERENCES


APPENDIX 1

Table 4: Results of Construct Validity and Reliability Test for the Variables

<table>
<thead>
<tr>
<th>S/n</th>
<th>Variables</th>
<th>No. of Items</th>
<th>Construct Validity</th>
<th>Reliability</th>
<th>Cronbach’s Alpha</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Credit risk assessment</td>
<td>4</td>
<td>0.591</td>
<td>0.591</td>
<td>0.667</td>
</tr>
<tr>
<td>2</td>
<td>Debt recovery strategy</td>
<td>3</td>
<td>0.613</td>
<td>0.602</td>
<td>0.711</td>
</tr>
<tr>
<td>3</td>
<td>Credit collection policy</td>
<td>3</td>
<td>0.652</td>
<td>0.619</td>
<td>0.688</td>
</tr>
<tr>
<td>4</td>
<td>Ability to pay</td>
<td>4</td>
<td>0.654</td>
<td>0.628</td>
<td>0.700</td>
</tr>
<tr>
<td>5</td>
<td>Bad debt.</td>
<td>4</td>
<td>0.632</td>
<td>0.630</td>
<td>0.687</td>
</tr>
<tr>
<td>6</td>
<td>Cash flow</td>
<td>3</td>
<td>0.597</td>
<td>0.624</td>
<td>0.662</td>
</tr>
</tbody>
</table>

Table 5: Sample Size

<table>
<thead>
<tr>
<th>S/N</th>
<th>Companies</th>
<th>Total</th>
<th>Individual</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Population</td>
<td>MD</td>
<td>GM</td>
<td>SMM</td>
</tr>
<tr>
<td>1</td>
<td>African Paints Nig Plc</td>
<td>80</td>
<td>1</td>
<td>5</td>
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<tr>
<td>2</td>
<td>Berger Paints Plc</td>
<td>87</td>
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<td>3</td>
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<tr>
<td>3</td>
<td>CAP Plc</td>
<td>63</td>
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<td>5</td>
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<tr>
<td>4</td>
<td>DN Meyer Plc</td>
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<td>5</td>
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<td>5</td>
<td>IPWA Plc</td>
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<td>6</td>
<td>Nig.-German Chem. Plc</td>
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<td>7</td>
<td>Premier Paints Plc</td>
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<td>3</td>
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<tr>
<td>Total</td>
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</table>