Global Journal of Management and Business Research: B
Economics and Commerce
Volume 14 Issue 3 Version 1.0 Year 2014
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

Working Capital Management and Performance of Selected Nigerian Manufacturing Companies

By Mike A. Onodje

Abstract- The study determines whether the internal financial activity of working capital management affects the performance of Nigerian manufacturing companies. Data covering 2002-2011 from published financial statements of a panel of 75 manufacturing firms quoted on the Nigerian Stock Exchange (NSE) are analyzed using three alternative regression methods; namely fixed effect, random effect, and one-step difference GMM.

We find that working capital management is an important determinant of manufacturing performance in Nigeria. In particular, receivable conversion period and inventory conversion period are directly or positively related to manufacturing performance. On the other hand, payable deferral period, cash conversion cycle and the debt-equity ratio period are inversely or negatively related to manufacturing performance. Additionally, liquidity (measured as quick ratio) has no significant relationship with manufacturing performance.

Accordingly, we recommend liberal debt and aggressive inventory management strategies together with the pursuit of optimum debt profile to improve Nigeria's manufacturing performance.

GJMBR-B Classification : *NLMC Code: F63, J19*

Strictly as per the compliance and regulations of:

Working Capital Management and Performance of Selected Nigerian Manufacturing Companies

Mike A. Onodje

Abstract- The study determines whether the internal financial activity of working capital management affects the performance of Nigerian manufacturing companies. Data covering 2002-2011 from published financial statements of a panel of 75 manufacturing firms quoted on the Nigerian Stock Exchange (NSE) are analyzed using three alternative regression methods; namely fixed effect, random effect, and one-step difference GMM.

We find that working capital management is an important determinant of manufacturing performance in Nigeria. In particular, receivable conversion period and inventory conversion period are directly or positively related to manufacturing performance. On the other hand, payable deferral period, cash conversion cycle and the debt-equity ratio period are inversely or negatively related to manufacturing performance. Additionally, liquidity (measured as quick ratio) has no significant relationship with manufacturing performance.

Accordingly, we recommend liberal debt and aggressive inventory management strategies together with the pursuit of optimum debt profile to improve Nigeria's manufacturing performance.

I. Introduction and Overview

The performance of the Nigerian manufacturing sector has attracted considerable attention since independence in 1960 because of its potential for rapid economic growth. A growing manufacturing sector reduces poverty, disease and ignorance through wealth creation and employment generation. Despite this potential, the performance Nigeria's manufacturing sector has been declining over the years. This downward trend has been noticeable since the early period of the 1980s. As indicated in figure 1, the share of manufacturing sector contribution to the Gross Domestic Product (GDP) fell from 11.0% in 1980 to 4% in 1998, stagnating around 4% up to 2012.

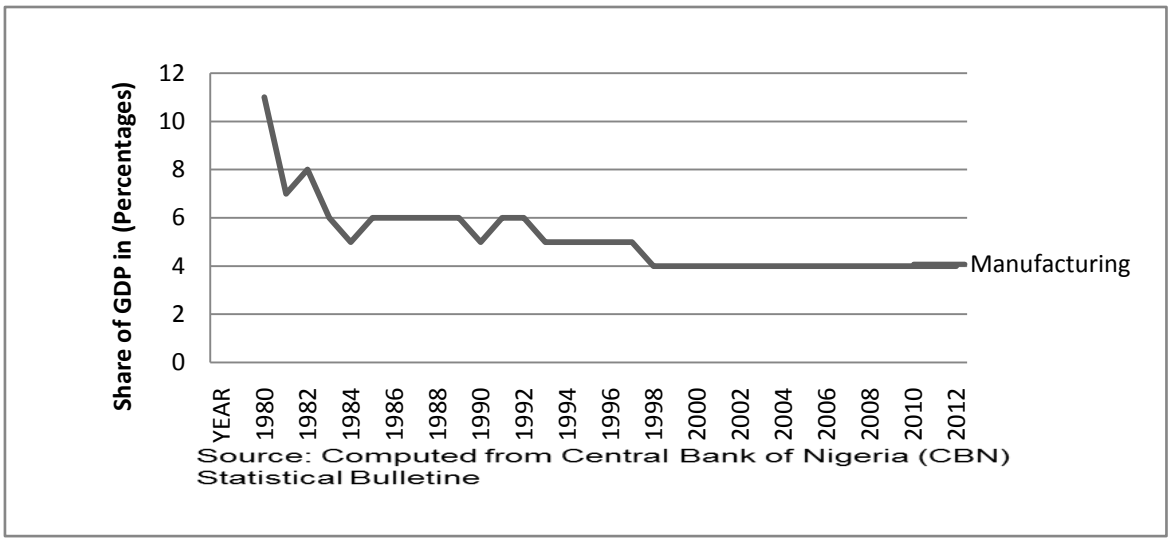

Figure 1 : Nigeria's Manufacturing Sector Contribution to GDP

The virtually stagnant manufacturing sector has negatively impacted on the Nigerian economy over the years. The economy relies heavily on imported manufacturing products following the low level of domestic supply of these products. Given the high population of Nigeria that is put at about 120 million people in the 2002 national Census, the massive importation of foreign manufactured products has imposed a drain on Nigeria's scarce foreign exchange. Additionally, such importation fuels imported inflation.

The falling performance of the manufacturing sector has also led to the closure of many manufacturing companies. According to Manufacturing Association of Nigeria (MAN, 2009) about 857 manufacturing companies have either closed down their operations in Nigeria or relocated to other neighboring countries since 1999. The development has contributed immensely to the high unemployment rate in Nigeria

Author: Centre for Mgt. Devpt. (CMD), South West Nigeria, Ibadan.
e-mail:mikeonodje@yahoo.com

through retrenchments and contraction of job openings to job seekers.

Low manufacturing performance has equally contributed to the slow development of the agricultural sector of the country because the manufacturing sector lacks the requisite capacity to utilize agricultural products as inputs. The result is that potential income to farmers from manufacturing sector demand for farm produce is highly restricted. Based on the fact that Nigeria's agricultural sector accounts for the greatest share of employment, it is evident that the poor linkage between it and the manufacturing sector fuels unemployment and increases the incidence of poverty.

The problem is further worsened by limited ability of the manufacturing sector to process farm produce to final or semi-finished state for export as required by potential international trading partners. This, among other factors, has made it difficult for Nigeria to sufficiently benefit from opportunities offered by the World Trade Organization and the African Growth Opportunity Act of the United States of America.

II. Sources of Declining Manufacturing Performance in Nigeria

Judging from the negative impact of falling manufacturing sector performance on the Nigerian economy as illustrated above, reversing the trend has become a major issue of public policy. Various reasons have been offered for the declining performance of the manufacturing sector: they include inadequate technology, low capacity utilization rate, insufficient investment, high cost of production, inflationary environment and poor infrastructure (Akinlo, 1996; Adenikinju, 1999, Bankole, Lawanson and Aminu, 1999; Okaro, 2004).

The reasons advanced for the unsatisfactory performance of Nigeria's manufacturing sector can be grouped broadly under internal and external factors as shown in figure 2. While external factors include infrastructural facilities, macroeconomic stability, loans advances and security requiring macroeconomic tools, internal factors include financial controls, financial and human resources management, marketing and innovation which require microeconomic tools for their analysis and management.

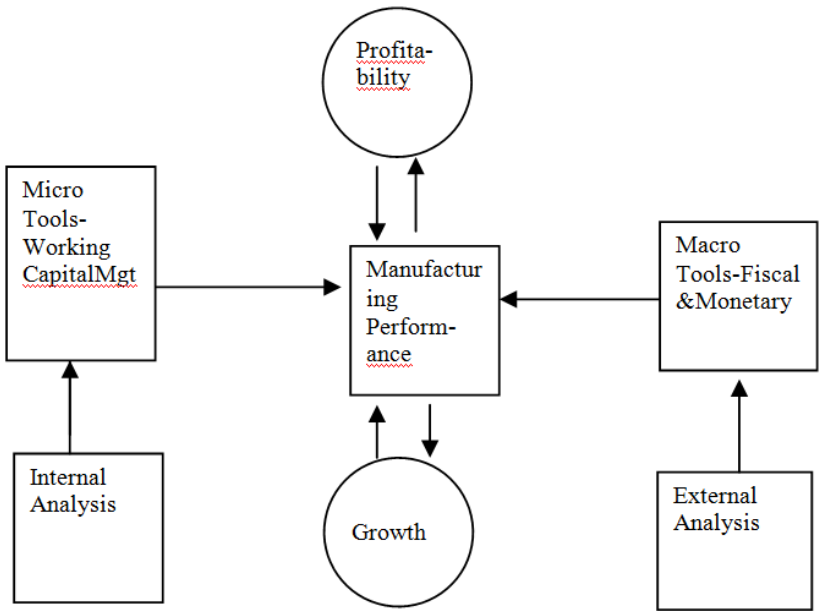

Figure 2 : Internal and External Analysis of Manufacturing Sector performance *Source:* the Author

Unlike the external factors, internal factors are controllable by the firms in so far as they are activities carried out within the manufacturing companies. Hence an attempt to understand the factors influencing manufacturing sector performance in Nigeria needs to also consider internal factors. In this regard, various studies have identified limited finance as an important factor militating against manufacturing performance in Nigeria. In a survey of the performance of the Nigerian manufacturing sector conducted by Malik, et al (2006) it is reported that access to credit is the most significant issue in Nigeria's manufacturing sector performance, after physical infrastructure as shown in figure 3.

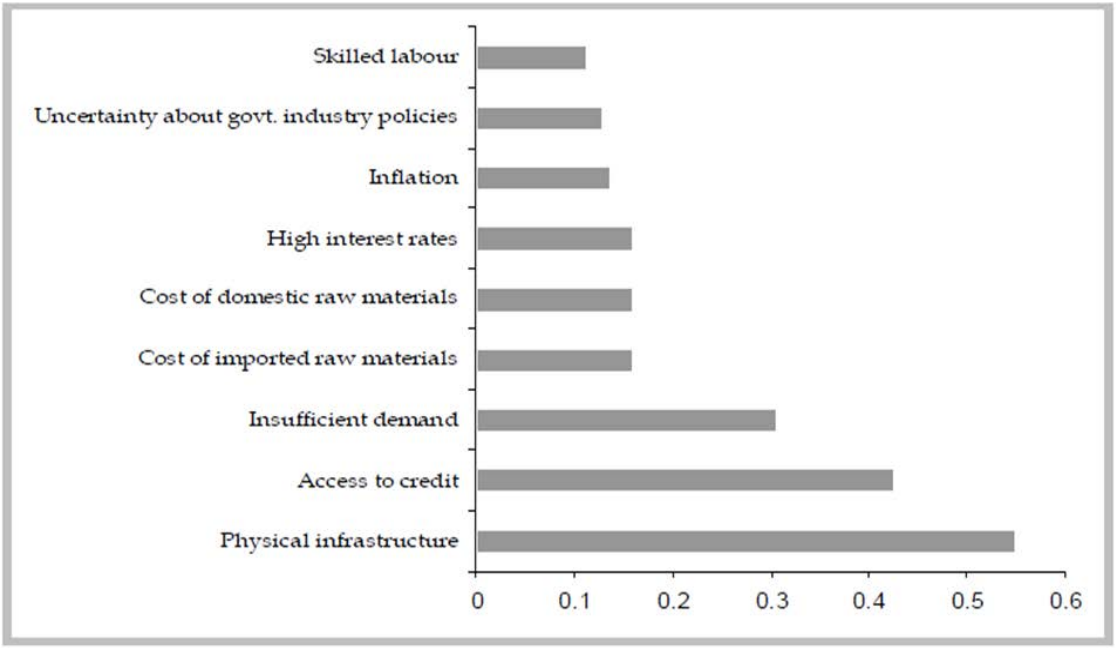

Figure 3 : Factors Perceived by Nigeria's Manufacturing firms as Obstacles to their Performance

Source: Malik A., Teal F. and Baptist S (2006)

Against the foregoing therefore, there is need to seeks ways to overcome the problem of limited access to finance. One of such ways is by determining whether working capital management, a financial activity within the control of Nigerian manufacturing companies, affects their performance.

III. Review of Literature

a) Theoretical Review

Various theories and related models have evolved over the years to explain or predict the behavior of the various components of working capital. Prominent amongst them are those dealing with inventory and cash management. An important model dealing with the inventory component of working capital management is the Economic Order Quantity model (EOQ) (Wilson, 1934, Ross et al, 2008). The EOQ model determines the point at which the combination of order costs and inventory carrying costs are the least to a firm. It states that the quantity of inventory to be ordered at a given time must be determined by two balancing factors: (1) the cost of holding or carrying inventories and (2) the cost of acquiring or ordering inventories. Purchasing larger quantities of inventories may decrease the unit cost of acquisition, but this saving may be more than offset by the cost of carrying inventories for a longer period of time.

The basic ingredients of the theories of cash and inventory components of working capital management include the optimum level of working capital, and the trade-off between profitability and risk associated with the level of working capital. Efficient working capital management requires that firms operate with some optimum (cheapest) level of working capital. Thus, the following theoretical relationships exist in the optimum working capital level of a firm: 1) the shortage cost of working capital is inversely related to assets levels, 2) the holding cost of working capital is directly related to asset levels, 3) in the long run, the total cost curve of a firm's working capital is U-shaped, and 4) total working capital cost is minimized at the point where the shortage cost curve cuts the holding cost curve at the lowest point. These theoretical propositions are depicted in figure 4.

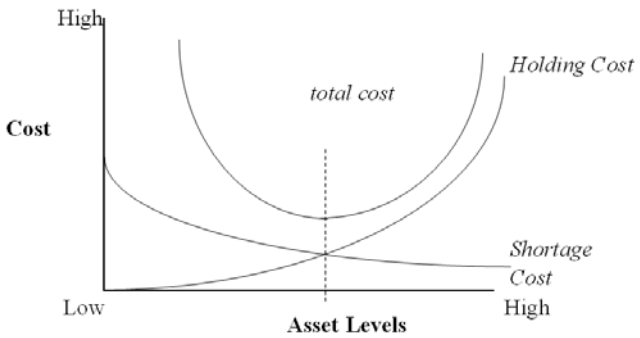

Figure 4 : The Cost of Holding Cash and Inventories

A number of factors have been identified as variables affecting the size of a firm's working capital. These include(Ross et al, 2008): 1) the extent to which the firm's business is subject to seasonal fluctuation and vagaries of taste and weather condition, 2) the operating cycle of the firm- an extended operating cycle implies tied down funds in inventories and debts receivables 3) the nature and size of the business- a manufacturing

firm requires large build-up of raw materials and work-in-progress than a trading or retail organization, hence its need for higher amount of working capital. Also, the larger the firm, the more its scale of operation, and the more its need for working capital, 4) the extent to which the firm embarks on speculative purchase of stocks of raw materials and finished products, 5) the amount of working capital required to service fixed assets, 6) the firms credit policy- a liberal credit policy increases debtors level, 7) growth and expansion plans- a growing firm requires cash investments continuously, 8) profit appropriations - cash profits not distributed as dividend but retained as reserves will increase working capital, and 9) macroeconomic stability- fluctuations in interest rate, inflation rate and exchange rate affect working capital needs of the firm.

b) Empirical Review

The empirical literature provides evidence consistent with a prior expectation of the relationship between components of working capital and profitability (Eljely, 2004, Lazaridis et al, 2006, Garcia-Turuel et al, 2007, Singh, 2008, and Christopher et al, 2009). These results indicate that inventory conversion period and receivable conversion period are inversely related to profitability, while payable deferral period is directly related to profitability. However, an earlier study by Deloof, (2003) found that profitability is inversely related to accounts payable deferral period, thus contradicting a priori expectation. This result appears to suggest that unprofitable firms wait longer before paying their bills to creditors.

Incidentally, a later study by Nobanee et al (2009) also agrees with the contradictory result of Deloof, (2003) for account payable deferral period. The results of Nobanee et al (2009) also contradicts a priori expectation for inventory conversion period, indicating that shortening the inventory conversion period reduces profit rather increase it. An explanation for this may be that carrying higher level of inventory may enable the firm take advantage of business opportunity. However, this may only be possible for firms dealing in fast moving inventories.

Evidence suggests that shortening the cash conversion cycle increases a firm's profitability (Eljelly, 2004, Deloof, 2003, Lazaridis et al, 2006, García-Teruel et al, 2007, Christopher et al, 2009). This occurrence may be due to the fact that the firm with a short cash conversion cycle readily realizes its investments which it could quickly plough back into the business thereby taking advantage of profitable investment opportunities. However, this result was contradicted by those of Nobanee et al (2009) which suggest that shortening the cash conversion cycle reduces profitability rather than increase it. They explain that shortening the cash conversion cycle suggests aggressive management policy that may be resisted by debtors who are being pressurized to pay up and creditors who are not being paid in term.

Indeed, this reasoning is supported by the findings of Nazir and Afza (2009) which indicate that firms increase profit by adopting a conservative approach towards working capital management. Their results also show that investors attach risk premium to the stocks of firms with aggressive working capital management policy. The implication is that such firms source funds at higher cost to finance their operations thereby reducing their profit levels. In view of their results which indicate that shortening the cash conversion cycle harms profitability, Nobanee et al (2009) recommend that keeping the working capital components at their optimum levels is a better tool for increasing profitability than the focus on cash conversion cycle. This position is corroborated by the findings of Hao et al (2009) which show that maximum operating shortfall is a better predictor of the amount of cash holding a firm requires to remain profitable than the cash conversion cycle.

Another issue addressed in the literature is whether efficient working capital management necessarily impacts on firm performance. In this regard, studies (Singh et al, 2008, Christopher et al, 2009) indicate that efficient working capital management increases performance. Indeed, the results from Gosh and Majidocumented in Raheman and Nasr, 2007) show that Indian manufacturing companies performed poorly in terms of profitability in the period 1992/1993 to 2001/2002 because of inefficient working capital management practices. In the study by Christopher et al (2009), a 1% increase in current ratio, current asset to operating income, cash turnover ratio and leverage decreased the profit of 14 corporate hospitals in India by 10%. Also, Singh and Pandey (2008) find that 131 Athenian firms studied increased their profits by managing efficiently their cash conversion cycles and keeping each of the different components (account receivables, account payables, inventories) to an optimum level.

In summary, much of the evidence from the empirical literature suggests an inverse relationship between firm performance on one hand and cash conversion cycle, inventories conversion period and receivable conversion period on the other hand. Also, majority of evidence suggest a direct relationship between payable deferral period and firm performance. However, some few studies report opposite direction of influences between the working capital variables and firm performance. It is therefore an issue of interest to determine whether and how the working capital variables impact on the performances of Nigerian manufacturing companies.

IV. Data and Methodology

As shown by Nobanee and Alhajarr (2009), the conventional method of modeling the influence of

working capital management on firm performance uses sales growth, operating income, and operating cash flow as some of the important measures of firm performance. Of these measures, operating income scaled by sales is the most widely used. Also, the most widely used explanatory variables include receivable conversion period (rcp), inventory conversion period (icp), payable deferral period (pdp), cash conversion cycle (ccc), quick ratio (qr), debt to equity ratio (de) and sg is sales growth.

The study extracts these variables over the period 2002-2011 from the published financial statements of a panel of 75 manufacturing firms sourced from the Nigerian Stock Exchange (NSE).The fixed and random effects' estimation procedures are employed under two alternate assumptions about the error term as explained by Madalla (2001). In the first assumption, the error term is assumed not to vary randomly over time t or the individual firms I; in which case, the fixed effect (FE) estimation technique is applied. The second assumption holds that the error term varies randomly over t or the individual firms i; in which case, the random effect (RE) estimation technique is applied.

However, a number of empirical studies have indicated that the FE and RE estimates may render the estimates biased and inconsistent. To overcome this problem, the Generalized Method of Moment (GMM) estimator proposed by Arellano and Bond (1991) and System GMM estimator proposed by Blundell and Bond (1998) are usually applied by researchers. Thus, we apply a one-step GMM estimation procedure on the data, in addition to the FE and RE estimation procedures to see if this improves the results.

Based on the foregoing, the explicit model for estimation can be stated as follows:

$$mfp_{it} = \beta_o + \beta_{1mfpit-1} + \beta_1 rcp_{it} + \beta_2 icp_{it} + \beta_3 pdp_{it} + \beta_4 ccc_{it} + \beta_5 qr_{it} + \beta_6 de_{it} + €_{it}$$

where mfpis manufacturing performance (measured as operating income to sales) and mfpit-1 is its one-period lag introduced in the model as explanatory variable to eliminate the effect of firm specific heterogeneity (De Grauwe and Skudenly, 2000).Also, rcp is receivable conversion period calculated as [(account receivable/sales) *365], icp is inventory conversion period calculated as[(inventory/cost of good sold)*365], pdp is payable deferral period computed as [(account payable/cost of goods sold)* 365], cccis cash conversion cycle calculated as[Receivable collection period + inventory conversion period - Payable deferral period], qris quick ratio computed as [(current assets – stocks)/current liabilities], andde is debt-to-equity ratio computed as total debt/equity. Equally, €is an error term, and the subscripts i and t are respectively theith manufacturing firm in the sample and time.

V. Empirical Findings

The regression results are discussed in this section with respect to the three methods employed in estimating the relationship between working capital management and manufacturing performance measured as operating income-to-sales.

First, we report in table 1 the results of the estimated model based on the fixed effect estimation procedure. The reported F-statistics is highly significant, indicating that the specified variables of the model robustly explain the relationship.

Table 1 : Fixed Effect GLS Regression of the Relationship between Working Capital Management and Manufacturing Performance

Dependent Variable: mfp_{it}	Coefficient	Standard Error	pValue
mfp_{it-1}	-0.0000436	0.0007079	0.951
rcp_{it}	-0.0062752*	0.0046731	0.181
icp_{it}	-0.0062167*	0.0046729	0.185
pdp_{it}	0.0062254*	0.0046729	0.184
ccc_{it}	0.0062485*	0.0046728	0.182
qr_{it}	0.0027206	0.0027337	0.321
de_{it}	0.1222858***	0.0640631	0.057
Constant	21.41292***	0.907777	0.000
F-Statistics	7.10***		

*Note: * significant at 75% confidence level, ** significant at 90% confidence level, * **significant at 95% confidence level*

The results show that the working capital variables are all significant determinants of manufacturing performance, although the relationships are rather weak at the reported 75% level of significance. While receivable conversion period, inventory conversion period and payable deferral period carry the expected signs, the cash conversion cycle carries an unexpected positive sign as equally reported by Nobanee et al (2009). The positive sign of the cash conversion cycle implies that shortening cash collection period of manufacturing firms harms rather than improve performances. In an economy like Nigeria where average per capita income is very low and poverty is high, it is reasonable to expect that manufacturing firms

would rather embark on sales maximization than aggressive cash collection so as not to drive away cash strapped customers.

The results also indicate that the debt equity ratio is positive and highly significant (at 95%), implying that rising debt rather than equity finance increases manufacturing performance, due possibly to the benefits derivable from net debt tax shields (Ryan, 2005). The results show that liquidity variable qr is not a significant, implying that liquidity is not a significant determinant of manufacturing performance. However, the prior year manufacturing performance variable mfpit-1 is not significant, implying the possibility of firm specific bias in the estimates (De Grauwe and Skudenly (2000). Hence it is appropriate at this stage to evaluate the model using the other two methods of estimation.

Second, we report in table 2 the results of the estimated model based on the random effect estimation procedure.

Table 2 : Random Effect GLS Regression of the Relationship between Working Capital Management and Manufacturing Performance

Dependent Variable: mfp_{it}	Coefficient	Standard Error	pValue
mfp_{it-1}	-0.0000389*	0.000289	0.179
rcp_{it}	0.0003118**	0.0001881	0.098
icp_{it}	0.0003107**	0.0001881	0.099
pdp_{it}	-0.0003099**	0.0001881	0.100
ccc_{it}	0.0003089**	0.0001881	0.101
qr_{it}	0.0000422	0.0001053	0.689
de_{it}	0.0043931***	0.0024095	0.068
Constant	0.0216787***	0.0045362	0.000
Wald-statistics	54.93***		
Dependent Variable: mfp_{it}	Coefficient	Standard Error	pValue

*Note: * significant at 75% confidence level, ** significant at 90% confidence level, * **significant at 95% confidence level*

The reported Wald-statistics is highly significant, indicating that the specified variables of the model robustly explain the relationship. The estimated results show that the random effect method improves on the level of significance of the coefficients, with all the working capital variables being significant at 90% compared to the 75% level of significance reported with the fixed effect method. Also, the prior year manufacturing performance variablemfpit-1 is significant, implying the absence of firm specific bias in the estimates. However, only the cash conversion cycle variable carries the expected sign among the working capital management variables.

The receivable conversion period is positive as also reported by Nobanee et al (2009) and Deloof, (2003) in earlier studies. This implies that a longer debt collection cycle improves manufacturing performance, rather than the shorter debt collection mostly reported in the literature. This might mean that aggressive debt collection drive may be harmful to Nigerian manufacturing firms who produce mainly for the domestic market, given the very low per capita income of the average Nigeria consumer.

The payable deferral period carries an unexpected negative sign, implying that taking longer time to pay creditors may harm the performance of manufacturing firms. This result is equally supported by an earlier finding by Deloof, (2003). The inventory conversion period carries a positive sign as also reported by Nobanee et al (2009) and Deloof, (2003) in earlier studies.

This implies that carrying inventories for a longer period of time improves rather harm manufacturing performance. Nobanee et al (2009) explains that this could be interpreted by the fact that shortening the inventory conversion period could increase the stock-out/shortage cost of inventory, leading to lose of sales opportunities and poor performance.

The negative sign of the cash conversion cycle indicates that shorter cash collection period improves the performance of manufacturing firms. The negative sign of the debt equity ratio and its high significance (at 95%) imply that a rising debt profile is harmful to manufacturing performance. This appears to support the assertion that high debt burden occasioned by high cost of bank lending is injurious to Nigerian manufacturing firms (Malik, 2006). However, the liquidity ratio qris not significant, as similarly reported for the fixed effect method in table 1.

Third, we report in table 3 results of the estimated model based on the one-step difference GMM estimation procedure. The Sargan test result shows that the test instruments are not rejected. Equally, the results of the Arellano-Bond test does not reject the null hypothesis of no second-order serial correlation.

Table 3: One-Step Difference GMM Regression of the Relationship between Working Capital Management and Manufacturing Performance

Dependent Variable: mfp_{it}	Coefficient	Standard Error	pValue
mfp_{it-1}	-0.2932103***	0.0866205	0.001
rcp_{it}	1.510932	1.728168	0.382
icp_{it}	1.461534	1.710194	0.393
pdp_{it}	-1.46052	1.709861	0.393
ccc_{it}	-1.47096	1.713854	0.391
qr_{it}	0.1833684**	0.1125185	0.103
de_{it}	36.0452	45.49193	0.428

- *Note: * significant at 75% confidence level,** significant at*
- *90% confidence level,***significant at 95% confidence level*
- *Sargan test of over-identifying restrictions, P> Chi2 62.46,*
- *Arellano-Bond test for AR(1) in first difference = 0 -1.08*
- *Arellano-Bond test for AR(2) in first difference = 0 -0.85*

The prior year manufacturing performance variablemfpit-1 is significant, implying the absence of firm specific bias in the estimates. As shown by the results in table 3, only the prior year manufacturing performance mfpit-1 and liquidity qrare significant (at 95% and 90% respectively). Thus, the results indicate that, except for liquidity, all the other working capital variables are not important determinants of manufacturing performance in Nigeria.

VI. Summary and Evaluation of Findings

The study has thrown up three alternative results from the estimated model which is summarized in table 4. Estimates from the random effect method appear more robust than those from the other two methods. While the estimated relationship appears weak with the fixed effect method (at 75% significance) and non-existent with the one-step GMM, it is fairly strong with the random effect method (at between 90% and 95% significance). Equally, the reported standard errors are least with the random effect method (0.0080924 in total) compared to those of fixed effect method (0.9939734) and one-step GMM method (52.553146).

Table 4 : Summary of Model Results from the Three Estimation Methods

Dependent Variable: mfp_{it}	Fixed Effect	Random Effect	1-Step Difference GMM
rcp_{it}	-ve; 75% Significant	+ve; 90% Significant	Not Significant
icp_{it}	-ve; 75% Significant	+ve; 90% Significant	Not Significant
pdp_{it}	+ve; 75% Significant	-ve; 90% Significant	Not Significant
ccc_{it}	+ve; 75% Significant	-ve; 90% Significant	Not Significant
qr_{it}	Not Significant	Not Significant	+ve; 90% Significant
de_{it}	+ve; 95% Significant	-ve; 95% Significant	Not Significant
Total value of standard errors	0.9939734	0.0080924	52.553146

- *Note: * significant at 75% confidence level, ** significant at 90% confidence level, * **significant at 95% confidence level*
- *-ve = positive; +ve = negative.*

Based on the foregoing, therefore, it seems to us that the estimates of the random effect estimation are more robust in explaining the relationship being investigated. Accordingly, we conclude that receivable conversion period and inventory conversion period are directly or positively related to manufacturing performance in Nigeria. On the other hand, payable deferral period, cash conversion cycle and the debt-equity ratio period are inversely or negatively related to manufacturing performance in Nigeria. Additionally, liquidity (measured as quick ratio) has no significant relationship with manufacturing performance in Nigeria.

VII. Policy Implications and Recommendations

The results of the study show that there is need to look inwards in formulating policy measures to improve manufacturing performance in Nigeria. Managers of manufacturing firms would need to devise strategies of efficient working capital management as part of a holistic measure aimed at improving their performances. As shown by the results of the study, these measures include the following: 1) pursuit of liberal debt recovery strategy that that places emphasis on sales maximization without undue pressure on debtors given the low level of per capita income, high poverty incidence and unemployment in the country. 2) pursuit of aggressive inventory management strategy where large amounts of inventories are held to avoid stock-out cost and maximize sales in the face of emerging opportunities 3) development of a brand image that shows manufacturers care for unpaid creditors and customers who deposited monies for goods awaiting production. This involves ensuring that

delays in the settlement of creditors and accrued bills are brought to a reasonable minimum consistent with the company's brand image.

Another policy implication is that rising debt profile is harmful to the performance of Nigerian manufacturing companies. Hence managers of manufacturing companies should put in place strategies for the efficient management of their capital structures as a way of ensuring optimum debt profile. Given that the Nigerian manufacturing sector holds a strategic position in Nigeria's quest to be one of the 20 most developed economies of the world by 2020, it should be provided a form of economic bailout assistance by the government to fast-track the needed improvement in its performance. In this regard one commends the effort of the government at setting up the Micro, Small and Medium Enterprises Development Fund (MSMEDF) which is aimed at rebuilding Non-Bank Financial Institutions (NBFIs) structurally, organizationally and operationally to enhance their effectiveness and impact on the Micro, Small and Medium Enterprises (MSME) sub-sector of Nigeria.

VIII. Conclusion

The study seeks to determine whether the internal factor of working capital management could be adduced as an additional reason for the low level of manufacturing performance in Nigeria, in to other issues of inadequate technology, low capacity utilization rate, insufficient investment, high production cost, inflationary environment and poor infrastructure usually canvassed in the empirical literature. Data extracted over the period 2002-2011 from the published financial statements of a panel of 75 manufacturing firms quoted on the Nigerian Stock Exchange (NSE) are analyzed using three alternative regression methods; namely fixed effect, random effect, and one-step difference GMM.

The results of the study show that efficient working capital and debt management are critical to improved manufacturing performance in Nigeria. Accordingly, the study recommends a liberal approach to the management of cash receivable portfolio of manufacturing firms in order to maximize sales revenue. Conversely, it recommends an aggressive inventory control policy to take advantage of emerging opportunities while minimizing stock-out costs. It also recommends that the deferral of creditors and accrued charges should be held at the minimum to enhance corporate credibility and market share. Finally, the study recommends that effort should be made by manufacturing firms with support from the government to ensure that the debt profiles of manufacturing firms are kept at optimum levels.

References Références Referencias

1. Adenikinju A. F. (1999). "Cost of power outages in Nigerian Manufacturing sector". African Journal of Economic Policy. June, vol. 6 No. 1 p97-115.
2. Akinlo A. E. (1996) "Adjustment Programme and Structural Shift in the Nigerian Industrial Sector". Ife Journal of Economics and Finance, Vol. 3 Nos. 1&2, p7.
3. Arellano, M., and Bond S., (1991), "Some Test of specification of Panel Data: Monte Carlo Evidence and an Application to Employment Equations", Review of Economic Studies, Vol. 58, pp. 277-297.
4. Bankole A. S., Lawanson O. A. and Aminu A. (1999), "Import competition and Nigeria's Manufacturing sector.
5. Analysis of the employment effects". African Journal of Economic Policy. June, vol. 6 No. 1 p1-30.
6. Blundell, R., and Bond, S., (1998), "Initial Conditions and Moment Restrictions in Dynamic Panel Data Models", Journal of Econometrics, Vol. 87, pp. 115-143.
7. Christopher, S. B. and Kamalavalli, A. L.(2009), "Sensitivity of Profitability to Working Capital Management in Indian Corporate Hospitals". SSRN:http://ssrn.com/abstract=1331500.
8. De Grauwe P. and Skudenly F., (2000), "The Impact of EMU on trade Flows", WeltwirtshaftlichesArchiv, pp139, 4. Available at RN:http://ssrn.com/abstract=1331500·
9. Deloof, M.2003, "Does Working Capital Management Affect Profitability of Belgian Firms?" Journal of Business Finance & Accounting, Vol. 30, pp. 573-588.
10. Eljelly, A. (2004), "Liquidity-Profitability Tradeoff: An empirical Investigation in an Emerging Market", International Journal of Commerce & Management, Vol 14 No 2 pp. 48 – 61.
11. García-Teruel, P. J. and Martínez-Solano P. (2007),"Effects of Work in Capital Management on SME Profitability". Available at SSRN:http://ssrn.com/abstract=982868·
12. Hao J., Kim W. and Rao R. K. (2009), "Contract Heterogeneity, Operatin Shortfalls, and Corporate Cash Holdings". Mccombs Research Paper Series No. FIN-13-09.
13. Lazaridis I. and Tryfonidis D. (2006), "Relationship between Working Capital Management and Profitability of Listed Companies in the Athens Stock Exchange". Journal of Financial Management and Analysis, Vol. 19, No. 1, January-June.
14. Malik A., Teal F. and Baptist S (2006), the Performance of Nigerian Manufacturing Firms: Report on the Nigerian Manufacturing Enterprise Survey. A Research Supported by United Nations Industrial Development Organization (UNIDO), Nigerian Federal Ministry of Industry and Centre for the Study of African Economies, Department of Economics, University of Oxford, United Kingdom.
15. Nazir M. S., and Afza T. (2009), "Impact of Aggressive Working Capital Management Policy on Firms' Profitability". The IUP Journal of Applied Finance, Vol. 15, No. 8, pp.19-30, August 2009.

16. Nobanee H. (2009), "Working Capital Management and Firm's Profitability: An Optimal Cash Conversion Cycle". Available at SSRN: http://ssrn.com/abstract=1471230.
17. Nobanee H. and Al Hajjar M. (2009), "A Note on Working Capital Management and Corporate Profitability of Japanese Firms". Available at SSRN http://ssrn.com/abstract=1433243.
18. Nobanee H. and Al Hajjar M. (2009), "Working Capital Management, Operating Cash Flow and Corporate Performance". Available at SSRN:http://ssrn.com/abstract=1471236.
19. Okaro S. C. (2004). "The impact of government policies on industrial development in Nigeria." The Nigerian Accountant, July/Sept. 2004, pp20-24.
20. Raheman and Nasr (2007), Working Capital Management and profitability – Case of Pakistani Firms. International Review of Business Research Papers Vol.3 No.1. March 2007, Pp.279 – 300.
21. Ross, S., Westerfield, R., and Jordan, B., 2008, Corporate Finance Fundamentals, 8th Edition, Mcgraw Hill.
22. Ryan B. (2004), Finance and accounting for business. Thompson publishers, UK, pp163 - 205.
23. Singh P. (2008), "Inventory and Working Capital Management: An Empirical Analysis".
24. Available at SSRN: http://ssrn.com/abstract=1113246.
25. Singh, J. P. And Pandey S. (2008), "Impact of Working Capital Management in the Profitability of Hindalco Industries Limited". The Icfai University Journal of Financial Economics, Vol.6, No. 4, pp. 62-72.
26. Wilson, R. H. 1934. A Scientific Routine for Stock Control, Harvard Business Review, 13; p116-128.