CAPITAL INDUSTRY PRACTICE AND AGGRESSIVE CONSERVATIVE WORKING CAPITAL POLICIES IN NIGERIA

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ABSTRACT

This study investigates fifteen diverse industrial groups over an extended period to establish the relationship between aggressive and conservative working capital practices. Data were sourced from the annual reports of the companies and the publications of Nigerian Stock Exchange. Descriptive statistics were used for analyzing the data collected. Results strongly show that firms in differing industries have significantly different current asset management policies. Additionally, the relative industry ranking of the aggressive/conservative asset policies exhibit remarkable stability over time. It is evident that there is a significant negative correlation between industry asset and liability policies. Relatively aggressive working capital asset management seems balanced by relatively conservative working capital financial management. The study recommends that, a firm in deciding its working capital policies should consider the policies adopted in that industry in which it operates. A firm pursing aggressive working capital investment policy should match it with a conservative working capital financing policy.

INTRODUCTION

The problem of satisfying the conflicting requirement of corporate liquidity and profitability has remained a source of major concern to financial managers in the face of high level of competition, increasing cost of capital and hyperinflation. The success of any business organizations in achieving the above goals is often attributed to proficiency in planning and control techniques (Imegi et al 2003).

Pandey (1995) argues that the management of current assets is similar to that of fixed assets in the sense that both have an effect on risk and returns. According to Weinraub et al (1998), most finance textbooks begin their working capital sections with a discussion of the risk and return tradeoffs inherent in alternative working capital policies. High risk, high return on working capital investment and financing strategies are referred to as aggressive; intermediate risk returns strategies are called moderate or matching, while lower risk and return strategies are called conservative.

A conservative approach to working capital occurs when the company finances some or all of its temporary current assets with long-term funds. This approach involves high liquidity, low profitability and low risk. An aggressive approach to working capital occurs when the company finances some of its permanent current assets, along with all of its temporary current assets with short-term funds. This approach involves low liquidity, high risk and high profitability.

The operations of many companies are subject to seasonal or cyclical fluctuations requiring them to have both permanent and temporary current assets. Permanent current assets can be defined as the amount of current assets a company needs when it is at the trough of a cycle. Based on this definition, permanent current assets are similar to long-term assets, such as plant and equipment. Temporary current assets are those that rise and fall along with the company's seasonal or cyclical variations.

The objective of the study therefore is to determine if a significant difference exists in the aggressive/ conservative working capital among industries in Nigeria Thus from the above assumptions, the following research questions will be addressed in this paper. Do significant differences exist in working

capital policies in Nigeria? Do most industries follow aggressive working capital as a method of managing working capital in Nigeria? Do Nigerian industries maintain sufficient liquid resources to meet their current obligations?

The rest of the paper contains four sections. Section II provides a brief literature review and conceptual framework. Section III deals with research method while Section IV presents the results. Concluding remarks follow in Section V.

LITERATURE REVIEW

Chen and Shimerda (1981) examined why firms have different levels of working capital. They examined the strategic determinants of working capital (cash, short-term securities, accounts receivable and inventory) on a product line basis. Their final multiple regression models contained 19 variables pertaining to production, sales accounting, competitive position, and industry factors. They used this model to explain why working capital levels differ among firms both within and across industries. Weinraub and Visscher (1998) observed a tendency of firms with low current ratios levels to also have low levels of current liabilities. In their study, they examined ten diverse industry groups over an extended time period to determine the relative relationship between aggressive and conservative working capital practices. Hil, Satoris and Ferguson (1984) combined accounts receivable and payable into one issue and discovered that payees define date of payment as the date payment is received, while payers view payment as the postmark date.

Much of the literature focuses on the theoretical determination of optimal trade credit limits such as Schwartz (1974) and Scherr (1998), with some focusing on special subsets of business. For example, Ferconio and Lane (1991); and Kincaid (1993) looked at the healthcare industry. Belt and Smith (1991) examined Australian companies; Kim, Rowland and Kim (1992) examined Japanese manufacturers in the United States, etc. While each makes a positive contribution to the literature, the only study to address the issue of differences in aggressive/conservative working capital policies is Weinraub and Visscher (1998). However, their study focused on developed countries. No known research empirically examines the question of aggressive/conservative working capital policy in Nigeria.

Historically, working capital was considered to be a company's current asset, that is assets that consisted of cash and those that were easily convertible to cash within a short period of time, say one year. Merger Management Consultant (1998) noted that for most companies, the principal current assets are cash, short-term investments (sometimes referred to as marketable securities), accounts receivable, and inventory. However, Igben (1999) referred to working capital as the excess of current assets over current liabilities. (Current liabilities consist of bills and other debts that are due within a short period of time, usually a year or less.) According to Evans (1998), this modern definition of working capital is also called net working capital.

Aside from the traditional definitions of working capital, there is another way of presenting working capital that provides some additional insight. For example, the presentation of some company's balance sheet shows a different format. On the left are the company's assets (labeled as uses of funds). Uses are divided into two categories: short term uses (current assets) and long term uses (fixed and other non-current assets). However, on the right side are the sources of funds (liabilities and equity).

Companies use different approaches to finance current assets. For example a company could finance some of its short-term assets with permanent funds. In contrast, another company could follow a policy of having almost no working capital, meaning that it finances all of its short-term assets with temporary funds Omolumo (1997). Regardless of the degree to which a company is subject- seasonal or cyclical fluctuations- all companies need some minimum amount of current assets.

The working capital policy alternatives open to a firm depend, to a large extent, on its debt-equity ratio, rates of interest on current and long-term debts and the foreseeable net operating income. Different working capital policies involve a risk/return tradeoff because it deals with the nature of short versus long-term financing. The more aggressive a company's working capital policy, the more it relies on short-term. A company can adopt one of the three approaches to working capital, namely: matching approach, conservative approach and aggressive approach (Omolumo, 1997).

DATA AND METHODOLOGY

The data used in this study consist of selected variables from the financial statements of Nigerian firms listed on the Nigerian Stock Exchange. The financial data collected includes annual levels of current liability (C/L), current assets (C/A) and total assets (T/A) of the firms under investigation. The sample size for this study constitutes forty-two (42) quoted companies in Nigeria over a period of ten years (1994–2003). This study made use of secondary data, which were sourced from the annual reports of the firms and publications of Nigerian Stock Exchange (NSE) Fact Book. The data were analyzed, using cross tabulation, correlation analysis and ANOVA analysis. Summary statistics are presented in Table 1.

Table 1: Ten-Year Industry Means and Standard Deviations

Industry	Number of Companies	CA/TA		TCL/TA	
		Mean	STD	Mean	STD
Automobile & Tire	3	0.6256	0.0672	0.4581	0.0372
Breweries	1	0.5848	0.0718	0.3845	0.0572
Building Materials	3	0.4716	0.1353	0.5561	0.1974
Commercial/Services	1	0.7513	0.0947	0.3231	0.1299
Chemical and Paints	3	0.8104	0.0456	0.5703	0.0822
Conglomerates	3	0.6823	0.1035	0.6333	0.1568
Construction	2	0.8237	0.0282	0.8586	0.0265
Emerging Market	2	0.7445	0.0459	0.4910	0.0631
Food/Beverages & Tobacco	8	0.6793	0.0446	0.5249	0.0341
Health Care	5	0.6985	0.0904	0.4335	0.1160
Industrial/Domestic Product	4	0.6390	0.0623	0.5612	0.1009
Packaging	2	0.6014	0.0337	0.369	0.0728
Petroleum	2	0.7779	0.0537	0.7967	0.0596
Printing and Publishing	2	0.7117	0.0762	0.5962	0.9406
Textiles	1	0.5162	0.0655	0.3561	0.0516

Defining *DOA* to be the Degree of Aggressiveness, *CA* to be Current Assets and *TA* to be Total Assets, then to measure the degree of aggressiveness, the *DOA* is computed as follows:

$$DOA = \frac{CA}{TA}$$

Defining *TCL* to be the Total Current Liabilities, the total current liabilities and the total assets are used to measure the *DOAP,* degree of aggressive financing policy as follows, with a high ratio being relatively more aggressive.

$$DOAP = \frac{TCL}{TA}$$

RESULTS

In this section, the results of the analysis are presented. Three sets of analysis are presented. First, the results of tests regarding differences in policies are presented. Second, evidence regarding stability between policies are provided. Finally results regarding the relationship between asset/investment and Financing policies are presented.

The main objective of this study as previously stated is to determine if a significant difference exists in the aggressive/conservative working capital policies among industries. Industry investment policy, measured by Current Assets/Total Assets, was first examined. To determine if significant differences exist in the mean of the Current Asset to Total Asset ratio two methodologies were employed, an ANOVA analysis and a Tukey's Honestly Significantly Different (HSD) test. A one-way ANOVA was applied to the set of 15 ten-year average ratio means. The results are presented in Table 2(a) The observed F-ratio of 17.344, is significant at 1% level of significance, thus the differences in the means are highly significant. To further examine the strength of differences between industry values, Tukey's HSD test was performed, comparing the industry means on a paired sample basis. The results of the test, which are also shown in Table 2(a), show that 47 out of 105 comparisons are significantly different at the 1% level. Thus, both the ANOVA and Tukey's HSD tests show a distinctive difference in the asset management policies between industries.

Table 2(b) provides additional information on specific industries whose asset management policies are not significantly different from one another at the 1% level. As indicated in the table, there are 8 homogeneous groups. The differences between industries within any group were not significant, but between two different groups the differences were significant.

Next, financing policy is examined by performing a one-way ANOVA on the Total Current Liability/Total Asset ratio tested differences in the relative degree of aggressive/conservative liability management. The results are presented in Table 3(a) The observed F-ratio of 25.219 is significant at 1% level. Thus, the differences in the means are highly significant. The Tukey's HSD test was also performed to help examine the strength of differences between industry values. The results of the test, which are also contained in Table 3(a), reveal that 50 of the 105 comparisons showed a significant difference at the 1% level. Therefore, both the AVOVA and Tukey's HSD tests confirmed the existence of significant difference in the liability management policies between industries. An examination of Table 3(b) reveals that there are 7 homogeneous groups, within which liability management policies of the specified industries are not significantly different from one another. It is apparent that significant industry differences do exist in the relative degree of aggressive/conservative working capital policies for both asset and liability management. However, both the ANOVA and Tukey's HSD tests show that these differences are generally broader and more significant when examining liability management.

Table 2(a): Significance levels for industry mean differences of the Current Assets / Total Asset
  Ratio

	AUTO	BREW	BLDN	COMM	CHEM	CONG	CONS
BREW	0.0408	-	-	-	-	-	-
BLDN	0.1540**	0.1132**	-	-	-	-	-
COMM	-0.0957	-0.1365**	-0.2497**	-	-	-	-
CHEM	-0.1848**	-0.2256**	-0.3388**	-0.0891	-	-	-
CONG	-0.0567	-0.0975	-0.2107**	0.0390	0.1281**	-	-
CONS	-0.1981**	-0.2389**	-0.3521**	-0.1024	-0.0133	-0.1414**	-
EMERG	-0.1189**	-0.1597**	-0.2729**	-0.0232	0.0659	-0.0622	0.0792
FOOD	-0.0537	0.0945	-0.2077**	0.0420	0.1311**	0.0030	0.1444**
HELT	-0.0729	-0.1137	-0.2269**	0.0228	0.1119**	-0.0162	0.1252**
IND. PRO	-0.0134	-0.0542	-0.1674**	0.0823	0.1714**	0.0433	0.1847**
PACK	0.0242	-0.0166	-0.1298**	0.1199**	0.2090**	0.0809	0.2223**
PETR	-0.1523**	-0.1931**	-0.3063**	-0.0566	0.0325	-0.0956	0.0458
PRIN	-0.0861	-0.1269**	-0.2401**	0.0096	00.0987	-0.0294	0.1120**
TEXT	0.0644	0.0236	-0.0896	0.1601**	0.2492**	0.1211**	0.2625**

	EMERG	FOOD	HELT	IND. PRO	PACK	PETR	PRIN
BREW	-	-	-	-	-	-	-
BLDN	-	-	-	-	-	-	-
COMM	-	-	-	-	-	-	-
CHEM	-	-	-	-	-	-	-
CONG	-	-	-	-	-	-	-
CONS	-	-	-	-	-	-	-
EMERG	-	-	-	-	-	-	-
FOOD	0.0652	-	-	-	-	-	-
HELT	0.0460	-0.0192	-	-	-	-	-
IND. PRO	0.1055	0.0403	0.0595	-	-	-	-
PACK	0.1431**	0.0779	0.0971	0.0376	-	-	-
PETR	-0.0334	-0.0986	-0.0794	-0.1389**	-0.1765**	-	-
PRIN	0.0328	-0.0324	-0.0132	-0.0727	-0. 1103	0.0662	-
TEXT	0.1833**	0.1181**	0.1373**	0.0778	0.0420	0.2167**	0.1505**

This table shows significance levels for industry mean differences of the Current Assets / Total Asset Ratio (F-Test and Tukey's HSD). **
indicates significance at the 1 percent level

Table 2 (b): Homogeneous Subsets each containing Industries with no significant difference in
  Their Current Assets/Total Assets Ratio

SUBSETS							
1	2	3	4	5	6	7	8
BLDN	TEXT	BREW	PACK	AUTO	FOOD	CONG	PRIN
TEXT	BREW	PACK	AUTO	IND. PRO	CONG	HELT	COMM
	PACK	AUTO	IND. PRO	FOOD	HELT	PRIN	EMERG
	AUTO	IND. PRO	FOOD	CONG	PRIN	COMM	PETR
	IND. PRO	FOOD	CONG	HELT	COMM	EMERG	CHEM
	FOOD	CONG	HELT	PRIN	EMERG	PETR	CONS
		HELT	PRIN	COMM	PETR	CHEM	
			COMM	EMERG			

This table shows industry subsets with homogeneous Current Assets/Total Assets Ratios.

Table 3(a): Significance levels for industry mean differences of the Total Current Liability / Total
Asset Ratio (F-Test and Tukey's HSD tests**)**

	AUTO	BREW	BLDN	COMM	CHEM	CONG	CONS
BREW	0.0736	-	-	-	-	-	-
BLDN	0.0980	0.1716**	-	-	-	-	-
COMM	0.1350	0.0614	0.2330**	-	-	-	-
CHEM	0.1122	0.1858**	0.0142	0.2470**	-	-	-
CONG	0.1752**	0.2488**	0.0772	0.3020**	0.0630	-	-
CONS	0.4005**	0.4741**	0.3025**	0.5355**	0.2885**	0.2253**	-
EMERG	0.0329	0.1065	0.0651	0.1679**	0.0793	0.1423	0.3760**
FOOD	0.0668	0.1404	0.0312	0.2018**	0.0454	0.1084	0.3337**
HELT	0.0246	0.0490	0.1226	0.1104	0.1368	0.1998	0.4251**
IND. PRO	0.1036	0.1767	0.0051	0.2381**	0.0091	0.0721	0.2974**
PACK	0.0891	0.0155	0.1871**	0.0459	0.2013**	0.2643**	0.4896**
PETR	0.3386**	0.4122**	0.2406**	0.4736**	0.2264**	0.1634**	0.0619
PRIN	0.1381	0.2117**	0.0401	0.2731**	0.0259	0.0371	0.2624**
TEXT	0.1020	0.0284	0.2000**	0.0330	0.2142**	0.2772	0.5025**

	EMERG	FOOD	HELT	IND. PRO	PACK	PETR	PRIN
BREW	-	-	-	-	-	-	-
BLDN	-	-	-	-	-	-	-
COMM	-	-	-	-	-	-	-
CHEM	-	-	-	-	-	-	-
CONG	-	-	-	-	-	-	-
CONS	-	-	-	-	-	-	-
EMERG	-	-	-	-	-	-	-
FOOD	0.0390	-	-	-	-	-	-
HELT	0.0575	0.0914	-	-	-	-	-
IND. PRO	0.0720	0.0368	0.1277	-	-	-	-
PACK	0.7220	0.1559**	0.0645	0.1922**	-	-	-
PETR	0.3057**	0.2718**	0.3632**	0.2355**	0.4277**	-	-
PRIN	0.1052	0.0713	0.1627**	0.0350	0.2272**	0.2005**	-
TEXT	0.1349	0.1688**	0.0774	0.2051**	0.0227	0.4406**	0.3875**

*This table shows significance levels for industry mean differences of the Total Current Liability / Total Asset Ratio. **Significant at 1% level.*

Table 3(b): Homogeneous Subsets each containing Industries with no Significant Difference in
Their Total Current Liabilities/Total Assets Ratio

SUBSETS						
1	2	3	4	5	6	7
COMM	TEXT	PACK	HELT	AUTO	EMERG	PETR
TEXT	PACK	BREW	AUTO	EMERG	FOOD	CONG
PACK	BREW	HELT	EMERG	FOOD	BLDN	
BREW	HELT	AUTO	FOOD	BLDN	IND. PRO	
HELT	AUTO	EMERG	BLDN	IND. PRO	CHEM	
AUTO	EMERG	FOOD	IND. PRO	CHEM	PRIN	
			CHEM	PRIN	CONG	

This table shows industry subsets with homogeneous Total Current Liabilities/Total Assets Ratios.

Next, the stability between policies are examined. Rank order correlations were used as a test of relative stability. For each of the ten years, the Current Asset/ Total Asset ratio was computed for each industry

and then ranked from the highest to lowest ratio. The base year rankings (1994) were then sequentially compared to the rankings of each succeeding year. The results obtained are presented in Table 4. There is evidence of strong stability in each industry's relative level of aggressiveness with respect to working capital investment over time, except in 2001 when there was significant change in each industry's relative level of aggressiveness.

The industries were also ranked each year on the basis of Current Liabilities to Total Assets ratios, and the computed rank order correlations are also presented in Table 4. The results obtained showed that each industry strongly maintained its relative level of aggressiveness with respect to working capital financing over time until 2002 when there were significant changes in the relative levels of aggressiveness in the industries. These changes continued in 2003. So there was instability in liability management policies in year 2002 and 2003. Hence, working capital investment policy was more stable than working capital financing policy over time.

Table 4: Rank Order Correlation and Z Values Between Base Year (1994) and Each Succeeding
Year for Current Assets/Total Assets and Total Current Liabilities/Total Assets

| Year | CA/TA | | TCL/TA | |
	Correlation	Z value	Correlation	Z value
1995	0.893	**	0.894	**
1996	0.752	**	0.912	**
1997	0.679	**	0.883	**
1998	0.757	**	0.731	**
1999	0.699	**	0.831	**
2000	0.704	**	0.608	*
2001	0.532	*	0.658	**
2002	0.764	**	0.481	
2003	0.768	**	0.188	

*This table shows the rank order correlations and Z Values between the base year (1994) and each succeeding year. The test variables are Current Assets/Total Assets and Total Current Liabilities/Total Assets. * indicates Significance at the 5% level, **indicates significance at the 1% level*

Finally, the relationship between Asset/Investment and Financing Policies are examined. The relationship between the asset management policy and the financial management policy, that is, how aggressive asset management corresponded to aggressive financial management. This relationship was tested on a year-by-year basis. For the first year, the industries were ranked from low CA/TA ratios to high ratios, corresponding to ascending order of relatively aggressive asset management policies. Rankings were also ordered, for the first year, from high to low TCL/TA ratios, corresponding to an ascending order of relatively aggressive financing policies. Rank order correlation between the two policies was then computed for year one. This procedure was repeated for each of the remaining nine years and the results are presented in table 4 above.

The results in the table reveal, without exception, that the correlations between the two policies were negative each year, and they were significant at the 1 or 5% level except for years 2000, 2001, 2002 and 2003. It is evident that industries, which pursued relatively aggressive asset policies simultaneously, followed relatively conservative financing policies.

The results reported in Table 5, at least for the first six years, showed that there is a significant negative relationship between the level of aggressiveness of asset management policies and the level of aggressiveness of liability management policies at 1 or 5% level. This means industries that use aggressive asset policy tend to pursue conservative liability management policy.

Table 5: Rank Correlation, Per Year, of Aggressive Asset Policies and Aggressive Financing
Policies

Year	Correlation	Z value
1994	-0.525	*
1995	-0.743	**
1996	-0.876	**
1997	-0.539	*
1998	-0.625	*
1999	-0.552	*
2000	-0.511	
2001	-0.232	
2002	-0.375	
2003	-0.261	

*This table shows the rank correlation of aggressive asset and financing policies. ** indicates significance at the 1 percent level and * indicates significance at the 5 percent level.*

CONCLUDING COMMENTS

This study examined the relative relationship between the aggressive/conservative working policies of firms in fifteen (15) different industries in Nigeria. Regarding the degree of aggressive asset management, the industries had distinctive and significantly different policies. In addition, the relative nature of asset policies between industries exhibited remarkable stability over the fifteen years studied. Industrial policies concerning the relative degree of aggressive liability management also were significantly different, but not to the same extent or with the same stability.

This study also showed a significantly negative correlation between industry asset and liability policies. In general, it appears that when relatively aggressive working capital policies are followed they are balanced by relative conservative working capital policies. A firm in deciding its working capital policies should consider the policies adopted in the industry in which it operates as working capital policies are industry specific and so differ from one industry to another.

A firm pursing aggressive working capital investment policy should match it with a conservative working capital financing. This is important to mitigate the risk being faced under aggressive working capital investment policies by safety involved under conservative working capital financing policy.

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BIOGRAPHY

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