Advances in Modeling for Falsified Financial Statements

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Abstract   This study is centered on developing advanced simplified Z-Score model for identification of falsified financial statements mainly from published data of emerging economies. The paper adopts qualitative response technique based on six parameter questions. The answers to these questions which are derivable from each financial statement are the nucleus for the construction of 'Angus Z-Score'. Financial Statements of Fifty one companies with unique motivations to falsify were investigated. Statistical tools of analyses are T-test SPSS based and percentages. The study found it easier and simpler to use Angus Z-Score model in testing and identification of Falsified Financial Statements. The predictive efficacy of Angus Z-Score is significantly high. The model's predictive ability increased in comparisons to adopted benchmark CPT. Model in some sectors. Angus Z-Score model is found to be an important analytical tool for pre-testing Corporate Financial reports for falsification/misstatements in order to enhance right investment and other business decisions.

Keywords   Misstatements Prediction, Propensity to Falsify, Z-Score, Identification of Fraudulent Financial Statements, Predicting Fraudulent Financial Statements, Emerging Economics, Financial Statement Falsification Forecasting

1. Introduction

Financial statements' preparation and presentation has become crucial instrument of corporate identity, performance history and Corporate Public relations' show case. This new found usefulness of corporate reporting has increased motivations for insertions of unfounded and false items into financial statements in order to bring it up to desired intentions. These manipulations has assumed unimaginable proportions in recent years of economic downturns for various reasons leading to distortions of financial statements and clouding the understanding of Financial Statement Corporate stakeholders. The sudden collapse of multinational corporations and many national companies were attributed to falsification of financial statements for prolonged periods. The motivations to false are anchored on Corporate management's participations in order to hold on to office, earn bonus and present themselves as genius before stockholders and the general public. These falsifications sometimes is aided by professionals as a result of existing lapses in Accounting Standards of affiliating countries and sometimes by encouraged by non-existence of enabling status. Falsifications of financial statements appear in different forms such as earnings engineering, accounting for retained profits, provisions, tax evasions, fraudulent accounting and misstatements. Whichever form, falsification of financial statements appears, it brings with it only short

terms gains but huge long term economic and social costs to the Government, Business Owners, Stockholders, lack of trust on Corporate Auditors and the General public, thus the need for a model for identification of false financial statements has become expedite. It is more needed in emerging economics where information technology, information upkeep and access is every difficult, complex and usually faced with disruptions.

1.1. Statement of the Problem

In a bid to curb the long run huge negative effects of Corporate financial statements' falsifications and manipulations, several scholars have advocated methods/models for identification of fraudulently prepared financial statements. These existing methods come with it long mathematical calculations, equations and econometric models that are hard to understand and interpret by Corporate financial statement stakeholders for which they were intended to serve. Felt-gaps centred mainly on complexities of existing models. Phenomenal suggestions were on the need for Z-Score type of model for identification of falsified financial statements. The purpose of this research is to develop advanced simplified Z-score model for identification of false financial statements, using variables derivable from Corporate financial statements itself.

The specific objectives of this paper are anchored to meeting these felt-gaps arising from existing models, thus it aimed that advocating a new model called 'Angus Z-Score model' that is not only simply to understand but construed in Z-score form for easier interpretation and application.

1.2. Research Hypotheses

In the present modeling, CPT. Model postulated by [1] is adopted as a benchmark model for testing the efficacy of the new model, thus the following hypotheses are hereby formulated;

HO$_1$: The predictive efficacy of Angus Z-Score and CPT. Models is not significantly different in discriminating between falsified and non-falsified financial statements.

HO$_2$: The predictive ability across industries between Angus Z-Score and CPT. Models is not significantly different.

1.3. Practical implications and Significance of Paper

Corporate Financial reports can now be pre-tested using Angus Z-Score model for falsification/misstatements in order to enhance right investment and other business decisions. The significance of this paper is that a simple and easy to use working model is now available to test corporate financial statements for right investment and other business decisions. It is mainly applicable on Corporate bodies operating in developing economies. This Study has succeeded in adding an analytical tool to Forensic Accountants and other outside corporate stakeholders' capability of discriminating between falsified and non-falsified financial statements, the knowledge of which enhances making right investment decisions.

2. Review of Related Literature on Modeling for Falsified Financial Statements

The desires to falsify financial statements have been studied and further explanations as to what factors motivate these desires had been advocated ([2],[3],[4],[5],[6]). Despite the harm, falsified financial statements bring to corporate bodies and the economy, the desire to falsify is increasing. Regardless of the existence of different countries' laws making falsification of financial statements illegal, criminal and misdemeanor, the urge to falsify is unabated. As a result of these increasing urge to falsify financial statements, researchers have started modeling how to identify falsified financial statements. The magnitude of falsification of financial statements is more in Emerging Economies as a result of lapses and inadequacy of information technology, information upkeep and access. Emerging Economies are prone to various kinds of shocks, manipulations and circumventions than developed countries. It is asserted by [7] that continuous improvement in communication and information technology has directly impacted the quantity and quality of data available to be communicated. Continuing [7] citing Sachs (1999) averred that the problem for myriad reasons; the technological gains in wealthy countries do not readily diffuse to the poorest ones. This gap has created differences in the quality of financial reporting between developed and emerging economies. In order to survive and flourish in emerging economies, companies must be able to filter quickly

corporate reports for further business decisions. One of the most effective filtering focuses for further business decisions is the determination of falsified and non-falsified financial statements.

2.1. Dynamics of Modeling for Falsified Financial Statements

Using ten financial variables of debt to equity, sales to total assets, net profit to sales, accounts receivable to sales, net profit to total assets, working capital to total assets, gross profit to total assets, inventory to sales, total debt to total assets and financial distress (Z-score) , using stepwise logistic regression,[8] developed two models with an equation

$$E(Y) = \frac{\exp(b_0 + b_1 x_1 + b_2 x_2 + ... + b_k x_k)}{1 + \exp(b_0 + b_1 x_1 + b_2 x_2 + ..b_k x_k)}$$

Where;
Y= 1 if falsified financial statements occurs
Y =0 if non-falsified financial statements occurs
E(Y) = p (falsified financial statements occurs = Π)
Π= denotes the probability that Y = 1
bo = the intercept term
b_1; b_2; . . . ; b_k = the regression coefficients of independent variables
x_1; x_2; . . . ; x_k= the independent variables
The models are presented as:
FFS = *bo* + b_1...(DEBT/EQ)+ b_2(SAL/TA)+ b_3(NP/SAL)+ b_4(REC/SAL)+ b_5(NP/TA) +b_6(WC=TA) + b_7(GP/TA)+ b_8(INV/SAL)+ b_9(TD/TA)+ *e*
Where FFS = 1 if FFS discovered group, 0 otherwise.
Given that;
Debt = Long term Debts
EQ = Equity
SAL = Sales
TA = Total Asset
NP = Net Profit
REC = Receivables
WC = Working Capital
GP = Gross profit
INV = Inventory
TD = Total Debt
Having found from the work of Loebbecke *et al.* (1989) that profit relative to industry was inadequate for 35 percent of companies with fraud in their financial statements,[8] incorporated the Z-Score insolvency prediction model advocated by ([9],[10]) in producing two models of Logit model and Altman's Z-Score model. The combined theory and workings of these models were not only long but very complex for a Corporate Manager, Financial analyst and other users of financial statements to apply and interpret with ease.

A study carried by[11] on a study titled detection of fraudulent financial statements through the use of data mining techniques. In their study[11] used decision trees, neural networks and Bayesian belief networks for building a model for identification of falsified financial statements.

Apart from the known defects in the use of data mining techniques which presupposes that some of the variables or financial statement must have been proofed to be falsified, their model is very long, complex and understandable by experienced well read professional auditors.

A research done by[12] centered on developing a model of forecasting fraudulent financial statements using data mining while[13] focused on creating model of predicting fraudulent financial statements with machine learning techniques were well thought academic researches. The first model is based on a hybrid decision support system that combines algorithms using stacking variant methodology while the second model anchored on the use of decision trees based on financial ratios as variables. Twenty five financial ratios were incorporated in building this second model. The models were found to be significant predictors of falsified financial statements but both models ended up being very long to comprehend and very complex in application.

The use of three-Phase Cutting Plane Algorithm using Mathematical Programming was advocated by[14]. The motivation behind the model is to develop an algorithm which will give a successful achievement on detecting companies which appeal to financial manipulation and intend to estimate the amount of earnings management practices from the publicly available information. The algorithm, the claimed will overcome some of the major drawbacks of the existing statistical techniques for detection of financial manipulations of earnings. In building their model, they adopted ten variables, each an equation of other variables. Listing and explaining the variables and their equations because it is very long and will result into seeking their permission for reproduction. The application and the workings of the model are not only tedious but understandable by highly trained Accountants with technological and econometric exposures.

A study on detecting the manipulation of financial information, using artificial neural network models was carried out by[15]. An Artificial Neural Network Model, which is based on the concept of using artificial neurons, to estimate the manipulative financial reporting practices of the companies. Neural network refers to an artificial intelligence technology. The variables employed in the built of their model came from;

i. Sales Growth Index (SGI)
ii. Days Sales in Receivables Index (DSRI)
iii. Gross Margin Index (GMI)
iv. Asset Quality Index (AQI)
v. Depreciation Index (DEPI)
vi. Sales, General and Administrative Expenses Index (SGAI)
vii. Leverage Index (LVI)
viii. Total Accruals to Total Assets Index (TATA)
ix. Days in Inventory Index (DII)
x. Financial Expenses Index (FEI)

In their conclusion, they are of the view that when the variables that are necessary to find out manipulation of financial information are known, artificial neural network approach could be used for determining the companies which will exercise manipulation of financial information.

A review of reviewed Financial Accounting Fraud Detection based on Data Mining Techniques was also done by[16]. The review proposes a framework for data mining techniques based accounting fraud detection to help qualified accountants selecting suitable data and data mining technologies for detecting fraud which shows that there exist apparent confusion on conceptualizations and applications of data mining techniques.

[1] using variables from financial statements prompted ten parameter questions advocated a model titled 'CPT analyses model (Cash flow, Percentage Trend Analyses)'. The model is a qualitative-response technique with the following equation and explanations;

$$Ag = \frac{p_v - N}{P_v}$$

Where; Ag = Angus range.

P_v = Parameter Values (We advocated for ten Scale point parameters or questions for ascertaining false financial statements)   N = No answers from the assertion parameters or questions.

2.2. The Ten Parameter Questions are

1. The Cash Flow Statement was forced to balance with an entry or there is a new in the financial statements that has no contra effects or lacks from the previous year?

2. There exist given percentage trend(s) in any of the financial statement's variables?

3. Is there apparent sudden material change(s) in Long-term investments, Long-term loans, Leases, Deferred taxes, Provisions or write-offs that affect Cash Flow Statement computations?

4. Are there material item(s) omitted or added in any financial statement or not professional correctly reflected in the Cash Flow Statement?

5. Tax paid or Tax liability computations/shown in any financial statement cannot be reconciled with that shown in the Cash flow Statement?

6. Dividend paid/outstanding shown in the financial statements cannot be reconciled with the figures reflected in the Cash flow Statement?

7. Gains or losses from Disposals Fixed Assets are not correctly shown in the Cash Flow Statement and/or treatment of acquisitions or disposals in the financial statements lacks professional assertion?

8. There exists a treatment in any financial statement that lacks professional assertion?

9. Is there end of year transfers from intra-group transactions or foreign partners that lacked established prior year events but affect current year's Cash flow statement computation?

10. There are changes to non-cash items or provisions without details, notes after the base year but affects current year Cash flow Statement?

2.3. CPT Decision Criteria: Decision Outcome

Where $Ag \geq 0.3$ Falsified.
$\quad Ag \leq 0.2$ Not falsified.

The felt-gaps of [1] model are the existence of gray area and overlapping parameter questions. The material issue in CPT. model is not the gray area but overlapping questions. To close the gray area is simply to restate the decision criteria thus:

Where $Ag \geq 0.3$ Falsified.
$\quad Ag < 0.3$ Not falsified.

The present study though adopted qualitative response questions which are similar to the ones employed[1] but is different as it focuses on developing model for identification of falsified financial statements that is construed in Z-Score form.

3. Research Methods

3.1. Study Area and Sampling Technique

The area of concentration of this study is corporate bodies operating in emerging economies with high propensity to falsify apparent in their published financial statements. The symptoms that induce falsification of financial statements as asserted by [3] as expanded by [1] formed the nucleus of the current study.

The data for this study were obtained from published financial statements of corporate bodies as surveyed/investigated by [1]. The sampling method adopted is availability and purposefully sampling technique. Published financial statements of Fifty one companies with unique motivations to falsify their financial statements were investigated for the purpose of testing stated hypotheses at 95% confidence level.

This research adopts qualitative response technique in the modeling so as to keep the model and its interpretation very easy. It adopts parameter questions stipulated by[1] but reduced it to six. The modified six parameter qualitative response observatory aces are used in the construction of a Z-score model hereby referred to as 'Angus Z-score model'. Statistical tools of analyses are T-test SPSS based version 16 software and percentages.

3.2. Angus Z-score Model and its Decision Criteria

The dynamics of building Z-score model for identification of falsified financial statements starts with identifying areas of financial statements with high propensity to manipulate. These areas of high propensity to falsify are broadly classified into six. Using qualitative response technique in order to make its use universal, each of them is assigned a model question and identified as variables X_1 to X_6. Positive answer to any of the posited questions attracts a digit of one and it is multiplied as many times as there are such inherent positive answers on appraisal of any given financial statements. The weight of these parameter questions are not the same. The weighting is based on intentionality and

materiality of the entry into the financial statements. Weighting and dividing by sum of the parameters, the Angus Z-score model for detecting falsified financial statements is construed thus:

$$Z = 0.625X_1 + 0.561X_2 + 0.630X_3 + 0.621X_4 + 0.629X_5 + 0.631X_6$$

Where;

X_1 = There is apparent sudden material change(s) in Long-term investments, Long-term loans, Leases, Deferred taxes, Provisions, Pensions, write-offs, etc, that affect Cash Flow Statement computations and there exist changes to non-cash items or provisions without details/notes after the base year but affects current year Cash flow Statement?

X_2 = Tax paid or Tax liability computations/shown in any financial statement cannot be reconciled with that shown in the Cash flow Statement?

X_3 = The Cash Flow Statement was forced to balance with an entry or there is a new entry in the financial statements that has no contra effects or is not a prior year item, there is material item(s) omitted or added in any financial statement or lacks professional assertion?

X_4 = Dividend paid/outstanding shown in the financial statements cannot be reconciled with the figures reflected in the Cash flow Statement?

X_5 = There exist given percentage trend(s) in any of the financial statement's variables and or between current and previous year?

X_6 = Gains/losses from Disposals of fixed assets are not correctly reflected in the Cash Flow Statement and/or treatment of acquisitions/disposals in the financial statements lacks professional assertion?

Decision criteria of Angus Z-Score model

Where $\quad \geq 0.632$ **= Falsified**
$\quad\quad\quad < 0.632$ **= Not falsified**

3.3. Justification for the Choice of the Six Qualitative Response Questions

X_1. Long-term investments and Loans are readily used to manipulate additions or reductions in figures in form of write-offs, increases or reductions aimed at balancing financial figures. Such write-ins or write-offs without historical origins are usually covers of falsifications. Leases, Deferred taxes and Provisions always attract high propensity to falsify because of their non-cash impacts. Many non-cash items of the income statement have high focus for financial statement's manipulations thus the need to ascertain their historical origin.

X_2 Tax paid is readily entered into the Income Statement but many a time is reduced or increased in the Cash Flow Statement for balancing entry. Same applies to tax liabilities that appear in the Balance Sheet compared with historical events leading to its computations. There is the need to recheck this as many unquoted corporate bodies uses tax provisions that appeared in the Income State and Balance Sheet as tax paid in the Cash flow Statement.

X_3 Sudden introduction of entries into the Cash flow

Statement without contra effects on either the Income Statement or Balance Sheet is a suspect for falsification because Cash Flow Statement reconciles entries in the Balance Sheet resulting to "Cash" as reported in the Balance Sheet with entries in the Income Statement which resulted to "Profit" as captured by the Income Statement.

X_4 Dividend paid reduces Cash in the Balance Sheet while proposed dividend affects retained profit and increases liability. Many a time there exist complexities of historical events from previous years' proposed dividend, current year dividend declared and the amount of dividend recorded to have been paid. These complexities induce a fertile soil for falsifications.

X_5 Common falsification of financial statements trend is to increase or decrease the current year's figures by given percentages of the previous year. Where it is established that a given trend exist be it vertical or horizontal, is a sure sign of falsification. This type of falsification is common in the Income Statement.

X_6 Acquisitions and Disposals of Fixed Assets always have contra effects on Balance Sheet and Cash Flow Statements. Lack of these contra effects in reporting is a sure sign of falsifications. Further complications are inherent from Disposals in terms of gains or losses because of their non-cash entry nature. These complications always give rise

for their use for manipulations; hence there is the need to recheck their historical treatments, computations and entry in the Cash Flow Statement.

4. Testing of Hypotheses and Discussions of Test Outcomes

HO_1: The predictive efficacy of Angus Z-Score and CPT. Models is not significantly different in discriminating between falsified and non-falsified financial statements.

In order to test this hypothesis, extracts of prediction of each of the two models were made from the appendix in respect of falsified and Not-falsified predictions. The summary of these are seen in table 1 below;

Table 1. Predictions of Angus Z-Score and CPT. Models***

Prediction Model	Angus Z-Score Model	CPT. Model	Total
Falsified	23	19	42
Not Falsified	28	32	60
Total	51	51	102

*** Based on extracts from Appendix.

Statistical analysis of table 1, using T-test appeared as seen in table 2 below;

Table 2. Predictive Efficacy of models & outcomes of predictions Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Prediction Model - Prediction Outcome	.912	.676	.067	.779	1.045	13.614	101	.000
Pair 2	Prediction Model - Frequency	-2.4951	4.80795	.47606	-25.89535	-24.00661	-52.412	101	.000

4.1. Discussion of Hypothesis 1 Test Outcomes

The outcome of the test as contained in table 2 showed that the predictive efficacy of the models used against outcome of predictions is very significant as p= 0.0001 which is less than stipulated 0.05 level of significance. Thus the paper stipulated hypothesis one which states that the predictive efficacy of Angus Z-Score and CPT. Models is not significantly different in discriminating between falsified and non-falsified financial statements is hereby rejected. The differences in predictions are vividly captured in table 3 below;

Table 3. Cross tabulation Differences between Angus Z-score and CPT. Models' prediction outcomes

			Prediction Outcome		Total
			Falsified	Not Falsified	
Prediction Model	Angus Z-Score	Count	23	28	51
		% within Prediction Model	45.1%	54.9%	100.0%
	CPT.	Count	19	32	51
		% within Prediction Model	37.3%	62.7%	100.0%
Total		Count	42	60	102
		% within Prediction Model	41.2%	58.8%	100.0%

HO₂: The predictive ability across industries between Angus Z-Score and CPT. Models is not significantly different. To test hypothesis two, extracts from the appendix in this respect appears as seen in table 4;

Table 4.   Industrial Sector Predictions of Angus Z-Score & CPT. Models

Industrial Sector	Angus Z-Score		CPT. Model	
	Falsified Prediction	None Falsified Prediction	Falsified Prediction	None Falsified Prediction
Services	9	3	5	2
Manufacturing	3	11	3	11
Merchandising	7	7	7	7
Oil Services	5	5	2	6
Transport & Aviation	1	2	1	2

Applying T-test statistics on each aspects of the prediction outcomes, the results are as seen in tables 5 and 7 below;

Table 5.   T-test on Falsified Prediction outcomes of Angus Z-Score and CPT. models across Industrial Sectors

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Industrial Sector - Model type used for prediction	1.047	1.327	.202	.638	1.455	5.173	42	.000
Pair 2	Model type used for prediction - Frequency of Falsified Predictions	-4.46512	2.61269	.39843	-5.26918	-3.66105	-11.207	42	.000

4.2. Discussion of Hypothesis 2 Test Outcomes

Table 5 test outcomes shows that there is significant differences in falsified prediction outcomes of the two models since $p > 0.05$. The differences captured in percentages across sampled industrial sectors are as contained in table 6 below. In this same respect, the outcome of Not- falsified test statistics shown in table 8 is also very significantly different across industrial sectors using Angus Z-score or CPT. Model. Their areas of differences are depicted using percentages as seen in table 8.

Table 6.   Cross tabulation differences on Falsified prediction outcomes of Angus Z-Score and CPT. Models

			Model type used for Falsified predictions		Total
			Angus Z-Score	CPT. Model	
Industrial Sector	Services	Count	9	5	14
		% within Industrial Sector	64.3%	35.7%	100.0%
	Manufacturing	Count	3	3	6
		% within Industrial Sector	50.0%	50.0%	100.0%
	Merchandising	Count	7	7	14
		% within Industrial Sector	50.0%	50.0%	100.0%
	Oil Services	Count	5	2	7
		% within Industrial Sector	71.4%	28.6%	100.0%
	Transport & Aviation	Count	1	1	2
		% within Industrial Sector	50.0%	50.0%	100.0%
Total		Count	25	18	43
		% within Industrial Sector	58.1%	41.9%	100.0%

Table 7. T-test on Not Falsified Prediction outcomes of Angus Z-Score and CPT. models across Industrial Sectors

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Industrial Sector - Model type used for None falsified prediction	1.268	1.183	.158	.951	1.585	8.020	55	.000
Pair 2	Model type used for prediction - Frequency of None Falsified Predictions	-6.03571	3.21341	.42941	-6.89627	-5.17516	-14.056	55	.000

Table 8. Cross tabulation differences on Not Falsified prediction outcomes of Angus Z-Score and CPT. Models

			Model type used for None predictions		Total
			Angus Z-Score	CPT. Model	
Industrial Sector	Services	Count	3	2	5
		% within Industrial Sector	60.0%	40.0%	100.0%
	Manufacturing	Count	11	11	22
		% within Industrial Sector	50.0%	50.0%	100.0%
	Merchandising	Count	7	7	14
		% within Industrial Sector	50.0%	50.0%	100.0%
	Oil Services	Count	5	6	11
		% within Industrial Sector	45.5%	54.5%	100.0%
	Transport & Aviation	Count	2	2	4
		% within Industrial Sector	50.0%	50.0%	100.0%
Total		Count	28	28	56
		% within Industrial Sector	50.0%	50.0%	100.0%

5. Findings and Conclusions

It is easier and simpler to use Angus Z-Score model for testing and discrimination of Falsified Financial Statements and non-falsified ones. The predictive efficacy of Angus Z-Score and CPT. Models is significantly different. There is improvement on falsified predictive ability of Angus Z-Score over CPT. Model from 37.3% to 45.1%.

Across Industrial Sectors, Angus Z-Score model's falsified predictive ability increased in comparisons to CPT. Model in Services and Oil Service Sectors but remained unchanged in other sampled sectors.

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Appendix

Predictions of CPT. analyses model and Angus Z-score model

Name of Company	Unique features of Company that can motivate falsification of financial statements and model results	Symptoms of falsification from the financial statements	Financial Year Tested	Status of Company as at 31st Dec. 2010

Company	Details	Description	Year	Status
Talcon Securities Limited	More than 51% of the Company's Shares held by a shareholder CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Services	1. Motor Vehicle valued N112,500 1st January 2002 was not added at 31st Dec. 2002 to arrive at the NBV as at 31st Dec.2002.The figure was not shown in depr. either. 2. A Long term investment worth N8, 818,260 in 2001 was stated at Nil value in 2002. There was no realization from this source to show disposal in 2002 Cash flow Statements. 3. Dividend of N10m declared in 2001 and another of N10m declared in 2002, with a Cash Flow Statement showing that N10m dividend was paid for in 2002, yet the Balance Sheets of 2002 and 2001 showed Dividend liabilities of N10m each. 4. Deposit for shares of N5, 035,727 shown as a Source of Financing activity in 2002 was not reflected in the Notes of Liabilities. 5. Increases in provision for doubtful account were not shown in the P& L.	2002	Liquidated
		0.5 Probably falsified. 3.126 Probably falsified.		
Tantalizers PLC	More than 52% of the shares are held by two shareholders. Preceding year with Negative Working Capital. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Services	1. Loans taken for the year amounted to N483, 750,000 as per Note 11; however amount shown as sources from long-term loan was recorded as N298, 005,673(This figure is merely inserted as a balancing figure). 2. Payments made in respect of Pension amounting to N26, 193,535 reduced Pension liabilities in the Balance Sheet but was not shown in the Financing activity outflows. 3 Provisions made in respect of pensions for the year amounted to N57, 369,943 but was not written back to P& L as a non-cash item.	2008	Going Concern
		0.3 Probably falsified. 1.885 Probably falsified.		
International Breweries PLC		None was detected.	2001	Going Concern
	More than 52% of the shares are held by two shareholders. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Manufacturing	0 Probably Not falsified 0 Probably Not falsified.		
Lucky Chuks Nig. Ltd	Family Company	1. Bank Overdrafts not shown in the Cash flow Statement. 2. Tax paid not reflected in the Cash Flow statement correctly. Provisions for Tax were	2000	Liquidated
	CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Merchandising	0.3 Probably falsified 1.191 Probably falsified.		
Spamoon Nigeria Ltd	More than 52% of the shares are held by three shareholders. Two consecutive year's negative working capital, accumulated retained earnings & EBIT	1. Increases in Creditors in 2005 are N11, 757,173 and not N11, 700,173 as reflected in the Cash Flow Statement. An amount was omitted during computations yet the accounts balanced.	2005	Liquidated

	CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Oil Services	0.4 Probably falsified 1.26 Probably falsified.		
Spanmoon Nigeria Ltd	More than 52% of the shares are held by three shareholders. Two consecutive year's negative working capital, accumulated retained earnings & EBIT CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Oil Services	1. No provisions for taxation in the Income Statements but taxes are inserted as paid in 2003 and 2005 and were shown as prior year adjustments of tax under provisions. 2. The figure shown as tax under provisions for 2003 is N25, 778 in value added statement and Note 11 but shown as N125, 778 in Cash flow Statement.	2004	Liquidated
		0.4 Probably falsified 1.191 Probably falsified.		
Sacoma Trading Company Ltd.	Family Company CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Merchandising	Figure in the Cash flow for investment in Fixed Assets not correctly reflected in the Assets Accounts.	2005	Liquidated
		0.3 Probably falsified 0.63 Probably Not falsified.		
Eyre and Spottiswoode Nigeria Ltd.	More than 52% of the shares are held by two shareholders. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Manufacturing	Tax paid in the Cash flow statement did not reconcile with the profit and loss and that of the Balance Sheet figures.	2004	Liquidated
		0.3 Probably falsified 0.561 Probably Not falsified.		
R.T. Briscoe Nig. Plc	More than 46% of the shares are held by three shareholders. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Merchandising	Cash paid to suppliers & employers in Value Added Statement cannot be substantiated with other figures in other financial statements	2008	Going Concern
		0.1 Probably not falsified 0.625 Probably Not falsified.		

Company	Details	Detection / Results	Year	Status
Tripple Gee & Company Plc	More than 46% of the shares are held by three shareholders. Two consecutive year's negative working capital. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Services	1.Increases in Creditors from 2002 to 2003 is N27,028,000 and Not N26,277,000 .2 Net transfer to Gambbou is N158,958,000 and Not N158,950,000 as shown in 2003 Cash Flow Statement. 3. From Tax liability shown in Note 7, it means that a total tax of about N1,307,000 was paid but Not shown in the Cash Flow statement?	2003	Going Concern
		0.3 Probably falsified 1.821 Probably falsified		
Albarka Air Plc	More than 52% of the shares are held by three shareholders. Two consecutive years' accumulated retained earnings & EBIT. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Transport & Aviation	None was detected	2003	Liquidated
		0 Probably not falsified. 0 Probably not falsified		
Union Diagnostic & Clinical Services Plc	More than 57% of the shares held by seven shareholders CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Services	None was detected	2008	Liquidated
		0 Probably not falsified 0 Probably not falsified		
Hospitality Marketing Concepts	Family Company CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Merchandising	1. Dividend paid shown in the Cash flow statement was not shown in the Value added statement. 2 Tax paid computation is not accurately reflected if we put the liability shown in the Balance Sheet opening and close tax liabilities into consideration. 3. Tax payable for 2002 shown in the Value added statement is different from that shown in the Income statement for the same year. 4 Under provision of tax shown in Note 11 has no originating basis.5 There is sudden realization that prior year's liabilities had been overstated.	2003	Liquidated
		0.6 Probably falsified 2.929 Probably falsified		

Company	Description	Findings	Year	Status
Hospitality Marketing Concepts	Family Company CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Merchandising	Tax liability of 2,450,981 add to current year's provision less amount shown as paid in the current cash flow statement did not equal to tax liability for the current year. 2 There is a sudden realization that there is under estimate of expenses for 2003 amounting to N395, 028.	2004	Liquidated
			0.3 Probably falsified 1.186 Probably falsified	
Nestle Products Limited	Principal activity is the lease/hire of its land and production facilities to her holding company Nestle Nigeria Plc. 2000 and 2001 turnover are the same. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Services	A motor vehicle stated as N3,113,000 as at 31/12/00 turned into N3,399,000 as at 1/1/01	2001	Liquidated
			0.3 Probably falsified 0.625 Probably Not falsified	
Nestle Products Limited	Principal activity is the lease/hire of its land and production facilities to her holding company Nestle Nigeria Plc. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Services	Total tax liability computed in 1999 amounted to N64,131,000 and tax paid in 2002 amounted to N1,000 therefore it is wrong to add the paid tax to tax liability as at 31/12/00 as shown in Note 5.2	2000	Liquidated
			0.3 Probably falsified 1,186 Probably falsified	
Meriden Maritime Offshore Services Limited	71% of their shares are in few hands CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Oil Services	None was detected	2004	Liquidated
			0 Probably not falsified 0 Probably Not falsified	
Moooh Axis Nigeria Limited	Two consecutive years' Negative Working Capital, negative Accumulated retained earnings & EBIT CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Merchandising	Going Concern capacity of the company seems to be in doubt. All the fixed assets of the company had been disposed of in the previous year.	2007	Liquidated
			0.1 Probably not falsified 0 Probably Not falsified	
NI Plant Services Nigeria Limited	Two consecutive years' negative Accumulated retained earnings & EBIT	No turnover for the year. No fixed assets for the year.	2008	Liquidated

	CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Oil Services		0 Probably not falsified 0 Probably Not falsified	
Hallmark Paper Products Plc	Two consecutive years' Negative Working Capital, negative Accumulated retained earnings & EBIT CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Manufacturing	None was detected	1998	Liquidated
			0 Probably not falsified 0 Probably Not falsified	
Saipem Logistics Services Limited	The company is controlled by a holding company outside Nigeria. Two consecutive years' negative Accumulated earnings & EBIT. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Oil Services	Note 5 referred to in the cash flow statement did not show computed tax paid in 2007 accurately. There are material interests on bank overdrafts paid for both years but there were no bank overdraft liabilities at the end of each year.	2007	Liquidated
			0.2 Probably not falsified 1.186 Probably falsified	
International Breweries PLC	Two consecutive years' Negative Working Capital, Negative Accumulated retained earnings & EBIT. More than 51% of the Shares are held by three Shareholders. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Manufacturing	Deferred Taxation reversed in the year is shown as N7,331,000 in the P&L but shown as N7,336,000 in Note 9.	2001	Going Concern
			0.1 Probably not falsified 1.186 Probably falsified	
ABB Oil & Gas Nigeria Limited	Shares held by two shareholders. Company dormant for a long time. No Turnover for over two years. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Oil Services	None was detected	2005	Liquidated
			0 Probably not falsified 0 Probably Not falsified	
ABB Oil & Gas Nigeria Lited	Shares held by two shareholders. Company dormant for a long time. No Turnover for over two years. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Oil Services	None was detected	2004	Liquidated

			0 Probably not falsified 0 Probably Not falsified	
Gese Derdirabe Nigeria Limited	Family Company CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Merchandising	Tax provisions in the P &L for the two years were treated as Tax paid in the Cash flows. Deposit for shares shown in the Cash flow statements is different from that shown in Note 3.	2007	Going Concern
			0.3 Probably falsified 1.122 Probably falsified	
Maintenance Contractors Ltd	More than 51% of the shares are held by two shareholders. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Services	Transfers to and out of the company did not reflect accurately their originating entries.	2003	Liquidated
			0.4 Probably falsified 1.25 Probably falsified	
Capital Micro Finance Bank Limited	Shares held by few related shareholders. Company's first year of operations. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Services	33.5% of pre-operational expenses written off does not equal to the amount shown in Note 16.	2008	Going Concern
			0.2 Probably not falsified 1.25 Probably falsified	
Gal-Bose Hospital Limited	Family Company CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Services	Tax provisions in the P &L for the two years were treated as Tax paid in the Cash flows.	2005	Going Concern
			0.2 Probably not falsified 1.122 Probably falsified	
Gal-Bose Hospital Limited	Family Company CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Services	No provisions for tax for 2005 and 2006 year	2006	Going Concern
			0.1 Probably not falsified 0 Probably Not falsified	

Company	Details	Detected Issue	Year	Result
Kautal Hairu Company Limited	Family Company CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Merchandising	Tax provisions in the P &L for the two years were treated as Tax paid in the Cash flows.	2008 — Going Concern	0.2 Probably not falsified 1.122 Probably falsified
Ultimate Foods Limited	Family Company CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Services	Tax provisions in the P &L for the two years were treated as Tax paid in the Cash flows.	2010 — Going Concern	0.2 Probably not falsified 1.22 Probably falsified
Smart Products Nigeria PLC	Two consecutive years' Negative Working Capital& negative Accumulated retained earnings CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Merchandising	None was detected	2006 — Going Concern	0 Probably not falsified 0 Probably Not falsified
The Tourist Company of Nigeria PLC	Two consecutive years' negative Accumulated retained earnings & EBIT CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Services	None was detected	2006 — Going Concern	0 Probably not falsified 0 Probably Not falsified
Benue Cement Company PLC	Two consecutive years' Negative Working Capital, negative Accumulated retained earnings & EBIT CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Manufacturing	There is a loss on disposal of fixed Assets but proceeds from the sale are Not shown in financing activity.	2004 — Going Concern	0.3 Probably falsified 1.261 Probably falsified

Company	Details	Detection	Year	Status
The Okomu Oil Palm Company PLC		None was detected	2006	Going Concern
	Two consecutive years' Negative Working Capital. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Manufacturing			0 Probably not falsified 0 Probably Not falsified
WTN PLC	Current year has Negative Working Capital, negative Accumulated retained earnings & EBIT CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Manufacturing	None was detected	1997	Going Concern
				0 Probably not falsified 0 Probably Not falsified
Nigerian Wire Industries PLC	Two consecutive years' Negative Working Capital & negative Accumulated retained earnings CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Manufacturing	None was detected	1998	Going Concern
				0 Probably not falsified 0 Probably Not falsified
Presco PLC	Two consecutive years' Negative Working Capitals CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Manufacturing	None was detected	2002	Liquidated
				0 Probably not falsified 0 Probably Not falsified
AFPRINT PLC	Current year has Negative EBIT CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Manufacturing	None was detected	2004	Going Concern
				0 Probably not falsified 0 Probably Not falsified
Livestock Feeds PLC	Two consecutive years' Negative Accumulated retained earnings CPT. Analyses Result	None was detected	2009	Going Concern

	CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Manufacturing			0 Probably not falsified 0 Probably Not falsified
Mustang Company Nig. Ltd.	More than 51% of the shares are held by two shareholders. CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Merchandising	None was detected	2005	Liquidated
			0 Probably not falsified 0 Probably Not falsified	
Secure Electronic Technology PLC	Two consecutive years' Negative Accumulated retained earnings CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Merchandising	Schedule of fixed assets referred to as Note 1 is Not shown so as to help test how fixed assets purchased appeared in the Cash Flow Statement.	2009	Going Concern
			0.1 Probably not falsified 0 .63 Probably Not falsified	
Aviation Development Company PLC	Two consecutive years' Negative Working Capital, negative Accumulated retained earnings & EBIT CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Transport & Aviation	None was detected	2005	Liquidated
			0 Probably not falsified 0 Probably Not falsified	
Aluminium Extrusion Industries PLC	Two consecutive years' Negative Working Capital & negative Accumulated retained earnings CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Manufacturing	Tax liability of 2001 plus tax provisions for the year minus tax paid shown in the Cash flow Statement did not reconcile with tax liability outstanding in 2002.	2002	Going Concern
			0.3 Probably falsified 1.122 Probably falsified	
UTC Nigeria PLC	Two consecutive years' Negative Working Capital & negative Accumulated retained earnings	Net proceeds from Land disposal alone amounted to NN53, 854,000. Profit on disposal of Land & other Fixed Assets(Note 8, Land disposed was added to total fixed disposed to obtain profit on disposal of fixed assets as N3,152,000 (Computed thus Sale proceeds N4,794,000 - NBV N1,642,000) to N4,794,000. Adjustments for Profit from Land disposal not made in	2008	Going Concern

Company	Details	Note	Year	Result
	CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Merchandising	Note 21. These treatments lack professional assertions.		0.3 Probably falsified 1.261 Probably falsified
Reitzcot Nigeria Company PLC	Two consecutive years negative Accumulated retained earnings & EBIT with Current year's negative working capital CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Merchandising	Disposals during the year amounted to N12, 551,968 as per Note 1. Profit on disposal in the Cash flow amounted to N483, 000 while proceeds from disposals amounted to N495, 000. These figures cannot be professional reconciled.	1999	Going Concern
				0.3 Probably falsified 1.261 Probably falsified
BHN PLC	Two consecutive years' Negative Working Capital & negative Accumulated retained earnings CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Merchandising	Note on how Net Cash provided by operating activities is computed is not shown.	2003	Going Concern
				0.1 Probably not falsified 0 Probably Not falsified
Associated Bus Company PLC	Two consecutive years' Negative Working Capital CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Transport & Aviation	Assets costing N458,164,000 with accumulated Depreciation of N437,136,000 (see Note 6) was disposed at a proceed of N60,200,000 shown in the Cash Flow Statement at a profit of N20,753,000 (Note 22). These figures cannot be professional reconciled.	2009	Going Concern
				0.3 Probably falsified 1.261 Probably falsified
United Nigerian Textiles PLC	Two consecutive years' negative Accumulated retained earnings & EBIT CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Manufacturing	None was detected	2009	Going Concern
				0 Probably not falsified 0 Probably Not falsified
Nigerian Aviation Handing Company PLC	Preceding year with negative Working Capital CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Services	Disposals during the year amounted to N300, 000 and the asset was never depreciated before disposal.	2005	Going Concern
				0.1 Probably not falsified 0.631 Probably Not falsified

				2009	Going Concern
AshakaCem LC	Two consecutive years' Negative Working Capital CPT. Analyses Result CPT. Prediction Angus Z-score result Angus Z-score prediction Industrial Sector: Manufacturing	None was detected		0 Probably not falsified 0 Probably Not falsified	

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