

# Assessment of Financial Reporting Quality of Federal Universities in Nigeria: A Case Study of the Federal University of Agriculture, Abeokuta

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## ABSTRACT

The study has, as its objective, the assessment of the financial reporting quality of Federal universities in Nigeria. Contrary to the frequently used tools, models, and techniques in the determination of the quality of financial statements, especially in the public sector of the Nigerian economy, we deployed a novel approach, applying the Benford's Law as a technique of assessing the quality of the three (3) most recent audited financial statements of the Federal University of Agriculture, Abeokuta (i.e., years 2017, 2018, and 2019). We, however, found no divergence between the characteristics of the distribution of the data in the university's financial statements and the theoretical distribution of the Benford's Law. We therefore concluded that the incomes, deficits, total assets, and cash flows reported by the University in their annual reports and accounts are consistent, reliable, and of a high quality.

(Keywords: financial reporting, economic audits, Benford's Law, economic reform, governance, accountability, financial report validation, public sector accounting standards)

## INTRODUCTION

Following the approval of the Economic Reform and Governance (ERG) project by the World Bank in December, 2004, the Federal Government of Nigeria embarked on the objective of strengthening governance and accountability, reducing corruption, and delivering services more effectively. The ERG project significantly aims to improve the federal government's economic and financial management systems and processes and it has, as one of the broad areas of support, the public resource management, and targeted anti-corruption initiatives.

Prior to the above, the Nigeria's public sector has over the years been under-achieving in its objectives, primarily due to ineffective and inefficient management of its resources (Esu and Inyang, 2009). Nevertheless, Okere, Eluyela, Basse and Ajetunmobi (2017) noted that financial reporting in the public sector is important to help achieving political and economic stability by ensuring government revenue is not wasted and is managed and spent efficiently, effectively, and transparently; and most importantly, that it is appropriately spent on health care, education, transport, and other infrastructure.

However, in compliance with the range of the aforementioned reforms, all Ministries, Departments, and Agencies (MDAs) of government, which are constituents of the Nigeria's public sector, were expected to key into the pursuant of the objectives thereof. Therefore, the Federal University of Agriculture, Abeokuta (FUNAAB), being under the supervision and control of Federal Ministry of Agriculture, was no exception.

## Problem Statement

The Federal government, which is the major financier of Federal universities in Nigeria, makes the universities accountable to the government and the public, through the incorporation of the universities' financial records into the nation's consolidated financial statements by the Accountant General of the Federation in accordance with the Finance (Control and Management) Act of 1958. The nation's consolidated financial statements are, in turn, audited by the Auditor-General for the Federation in accordance with Audit Ordinance Act of 1956.

Moreover, several third-party donors, who provide funds to support various tertiary institutions in Nigeria for teaching and research

activities, such as the World Bank, the Bill & Melinda Gates Foundation, the National Research Institute of the University of Greenwich, United Kingdom, the Department for International Development (DFID), etc., require the financial statements of the University prior to the releasing of funds, and after the utilization of funds released into the University.

However, audited financial statements and financial statements prepared in accordance with the provisions of International Public Sector Accounting Standards (IPSAS) have generally been deemed (by researchers and users of financial statements) to be reliable and of a high quality. And whereas financial statements prepared in accordance with international accounting standards (IPSAS/IFRS) enhance harmonization and comparability, a wide range of corporate liquidations precipitated by corporate scandals and low financial reporting quality have shown that international accounting regulations alone cannot stem the tide of corporate collapse.

Therefore, because of its several conceptual and statistical benefits over other fraud and error detection tools and models, Benford's Law was applied in the assessment of the financial reporting quality of a renowned Federal university in Nigeria – the Federal University of Agriculture, Abeokuta.

### **Objective of the Study**

The objective of the study was to assess the quality of the audited financial statements of the Federal University of Agriculture, Abeokuta.

### **Statement of Hypotheses**

The following null hypotheses was formulated for the purpose of the study:

H<sub>0</sub>: The features of the distribution of the data in the financial statements of the Federal University of Agriculture, Abeokuta are divergent from the theoretical distribution of the Benford's Law

## **LITERATURE REVIEW**

### **Diverse Approaches to Measuring and Assessing Financial Reporting Quality**

Herath and Albarqi (2017) mentioned a wide range of measurements that is available for the measuring financial reporting quality using models, proxies, qualitative characteristics, and other elements of financial reports. In the literature, three different dimensions of financial reporting quality are frequently used: Accrual Based Models, Accounting Conservatism, and Earnings Managements (abnormal accrual). Whereas many approaches have been used to measure and assess financial reporting quality, new approaches are however still being developed. Some of the approaches used to measure and assess the financial reporting quality are: Standardized Score, Accrual-based models (or Accruals Quality), Beneish Model's – M-Score, Indices (or scores) method of Internal Control, and the degree of Accounting conservatism.

### **An Overview of Benford's Law**

Saville (2006), reviewed that in 1881, the astronomer-mathematician, Simon Newcomb, in his article published in the *American Journal of Mathematics*, described his observation that books of logarithms were more worn in the beginning and progressively unspoiled throughout (Newcomb, 1881). Following his observation, Newcomb inferred that researchers (including fellow astronomers and mathematicians, as well as biologists, sociologists, and other scholars) using the logarithmic tables were looking up numbers starting with the digit 1 more often than numbers starting with the digit 2. In the same vein, Newcomb inferred that researchers were looking up numbers starting with the digit 2 more often than those beginning with the digit 3, and so on (Hill, 1998: 1).

After a short heuristic argument, Newcomb (1881:40) concluded that the probability (P) that a number (D<sub>1</sub>) has the first significant digit (that is, first non-zero digit) d<sub>1</sub> is:

$$P(D_1 = d_1) = \log_{10} \left( \frac{1 + 1/d}{1 + 1/d-1} \right)$$

where d<sub>1</sub> ∈ {1, 2, ..., 9}.

From Newcomb's rule, it can be calculated that the probability of 1 occurring as the first digit is 0.301 (or 30.1 percent). Similarly, the probability of 2 being the first digit is 0.176 (17.6 percent). The above equation gives us the theoretical distribution of what is now commonly referred to as Benford's Law, or the expected frequency of the first digits 1 through 9 (Amiram, Bozanic and Rouen, 2015). And the distribution resulting from this equation is:

**Table 1:** Statistical Distribution of Benford's Law.

1	2	3	4	5	6	7	8	9
0.301	0.176	0.125	0.097	0.079	0.067	0.058	0.051	0.046

Although, Benford's Law is generally believed to work more efficiently with larger datasets, the law has also been proven to hold true for sets of data holding as few as 50 to 100 numbers.

## METHODOLOGY

### Research Design

*Ex-post facto* research design was considered suitable, and therefore adopted, for this study as the data required are of a historical nature. Financial statements are a collection and aggregate of recorded financial transactions of an enterprise. They contain aggregates of financial transactions that have been recorded, analyzed, classified, summarized, and communicated in a form accepted by extant laws and regulations.

### Method of Data Collection

The data for the study was collected from secondary sources, specifically from the annual reports and accounts of the university as obtained from the Financial Statements and External Audit (FS & EA) section of the university's bursary department. The components of the financial statements collected are the:

- (i) **Balance sheet** (or statement of financial position);
- (ii) **Income statement;** and
- (iii) **Dash Flow Statement.**

The data obtained were the financial data extracted from the three (3) most recent financial statements published by the University specifically for the years 2017, 2018, and 2019. Although each component provides distinctive details, the information so provided by each is all interconnected. Jointly the **three financial statements' components** offer a comprehensive portrayal of the university's financial operations.

### Population, Sample and Sampling Techniques

The population for the study consisted of the 44 Federal Universities in Nigeria as of 2020. However, purposive sampling technique was used to select the Federal University of Agriculture, Abeokuta, as a case study. The University was established as a specialized university on January 1, 1988 by the Federal Government of Nigeria with a tripodal mandate of Teaching, Research, and Extension Services. The university sits on a land area covering about 10,000 hectares in the Northeastern end of Abeokuta, the capital of Ogun State. The University has 179 academic programs made up of 44 undergraduate programs and 135 graduate programs which includes 22 Postgraduate diploma programs, 57 Masters' degree programs and 56 Doctorate degree programs.

### Technique for Data Analysis and Model Specification

The study set out to assess the quality of the financial reports prepared by the university over the last three (3) years using the Benford's Law in detecting data error or fraud in accounting information produced. Although, Benford's law can also be used to test joint frequencies, such as the first-two, first-three or, more generally, first-*n* digit combinations (Saville, 2006), however, for the purpose of the study, the testing was restricted to the first-digit level.

The probability (P) that a number ( $D_1$ ) has the first significant digit (that is, first non-zero digit)  $d_1$  is:

$$P(D_1 = d_1) = \log_{10} \left( 1 + \frac{1}{d_1} \right)$$

where  $d_1 \in \{1, 2, \dots, 9\}$ .

**Table 2:** FUNAAB's Statement of Financial Performance
**FEDERAL UNIVERSITY OF AGRICULTURE, ABEOKUTA**  
**STATEMENT OF FINANCIAL PERFORMANCE**

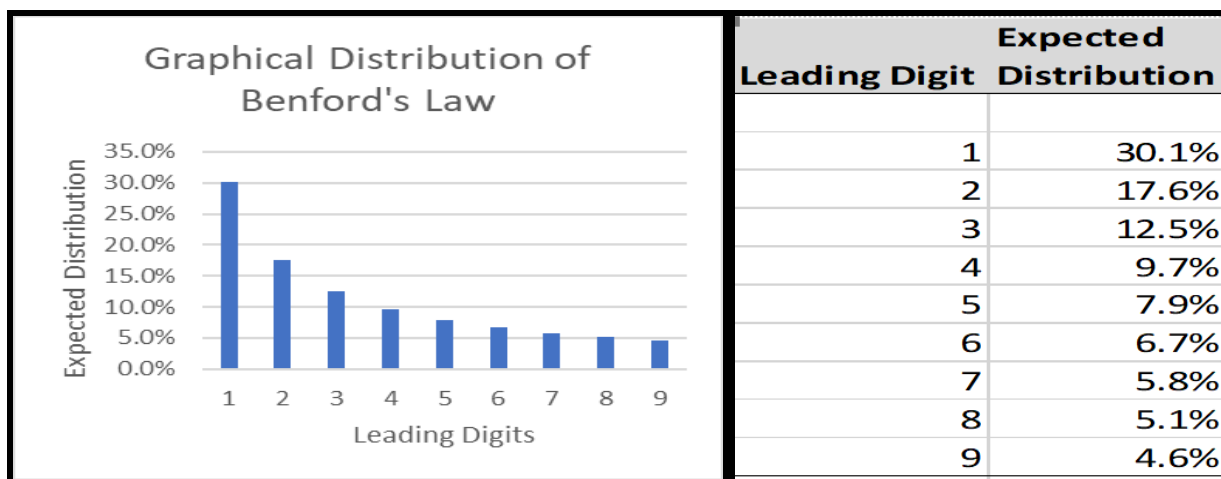
<b>INCOME</b>	<b>YEAR 2019</b>	<b>YEAR 2018</b>	<b>YEAR 2017</b>
	₦	₦	₦
Income from Exchange Transactions			
Student Fees	1,331,605,542	1,390,222,269	1,199,098,186
Investment Income	26,859,343	23,273,570	33,124,658
Internally Generated Revenue (IGR)	177,169,513	164,261,778	193,079,093
Income from Research and Development Activities	189,436,429	56,422,924	33,569,918
<b>Total Income from Exchange Transactions</b>	<b>1,725,070,827</b>	<b>1,634,180,541</b>	<b>1,458,871,855</b>
<b>Income from Federal Government</b>			
Subvention from Federal Government	5,395,132,272	4,670,192,017	5,181,678,589
Donations & Request	2,213,638	2,059,594	800,000
General Endowment	-	1,002,500	-
<b>Total Income from Non-Exchange Transactions</b>	<b>5,397,345,910</b>	<b>4,673,254,111</b>	<b>5,182,478,589</b>
<b>Total Income (Exchange &amp; Non-Exchange)</b>	<b>7,122,416,737</b>	<b>6,307,434,652</b>	<b>6,641,350,444</b>
<b>EXPENDITURE</b>			
Operating Activities Expenditure			
Personel Cost	5,107,332,975	5,058,369,189	5,320,233,867
Capital from Recurrent Expenditure	12,272,875	12,122,475	
Administrative Expenditure	1,698,747,578	1,119,516,083	929,497,346
Direct Teaching & Laboratory Cost	4,063,653	6,873,266	14,872,450
Academic Expenses	228,243,211	164,497,604	459,154,571
Depreciation (Property, Plant & Equipment)	453,404,468	453,267,838	355,269,455
Operating Costs for Other Activities Units			23,165,564
Library Expenses			4,801,680
Operating Costs for Research & Development Activities			34,392,731
	<b>7,504,064,760</b>	<b>6,814,646,455</b>	<b>7,141,387,664</b>
<b>Non-Operating Activities</b>			
Gain/(Loss) from Disposal of Assets			5,962,850
<b>Surplus/(Deficit) for the year</b>	<b>(381,648,023)</b>	<b>(507,211,803)</b>	<b>(494,074,370)</b>

**Table 3:** FUNAAB's Statement of Financial Position
**FEDERAL UNIVERSITY OF AGRICULTURE, ABEOKUTA  
STATEMENT OF FINANCIAL POSITION**

<b>ASSETS</b>	<b>YEAR 2019</b>	<b>YEAR 2018</b>	<b>YEAR 2017</b>
<b>Current Assets</b>	<b>₦</b>	<b>₦</b>	<b>₦</b>
Cash and Cash Equivalents	4,072,513,968	1,621,508,147	1,826,459,692
Inventories	1,664,240	1,664,240	1,534,240
Accounts Receivable	365,858,779	180,152,606	79,925,315
Prepayments	27,000,000	27,000,000	27,000,000
<b>Total Current Assets</b>	<b>4,467,036,987</b>	<b>1,830,324,993</b>	<b>1,934,919,247</b>
<b>Non-Current Assets</b>			
Property, Plant and Equipment	10,119,114,736	8,734,019,854	8,241,376,213
Investments	131,124,000	137,869,898	439,776,393
Biological Assets	168,831,335	163,891,335	141,713,710
	<b>10,419,070,071</b>	<b>9,035,781,087</b>	<b>8,822,866,316</b>
<b>Total Assets (Current &amp; Non-Current)</b>	<b>14,886,107,058</b>	<b>10,866,106,080</b>	<b>10,757,785,563</b>
<b>LIABILITIES</b>			
Accounts Payable	38,610,534	338,926,997	600,938,931
Accruals	12,181,250	8,231,250	5,343,750
	<b>50,791,784</b>	<b>347,158,247</b>	<b>606,282,681</b>
<b>Non-Current Liabilities</b>			
Equity/Net Assets			
Accumulated Funds	905,975,726	641,326,863	1,029,767,243
Public Funds	13,929,339,546	9,877,620,968	9,121,735,640
<b>Total Equity/Net Assets</b>	<b>14,835,315,272</b>	<b>10,518,947,831</b>	<b>10,151,502,883</b>
<b>Total Equity &amp; Liabilities</b>	<b>14,886,107,056</b>	<b>10,866,106,078</b>	<b>10,757,785,564</b>

**Table 4:** FUNAAB's Statement of Cash Flows**FEDERAL UNIVERSITY OF AGRICULTURE, ABEOKUTA  
STATEMENT OF CASH FLOWS**

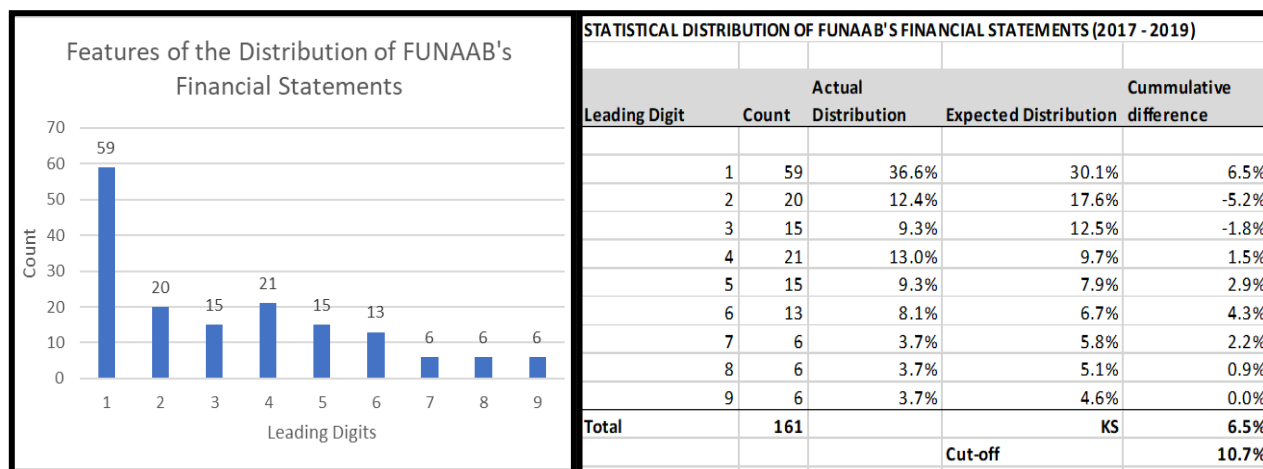
	YEAR 2019	YEAR 2018	YEAR 2017
	₦	₦	₦
Cashflow from Operating Activities			
Surplus/(Deficit) in the year	(381,648,022)	(507,211,803)	
Adjustment for Non-Cash Items			
Depreciation (Property, Plant & Equipment)	453,404,468	453,267,838	
Prior Year Adjustment	646,296,885	118,771,424	
	1,099,701,353	572,039,262	
Cashflow before Changes in Working Capital	718,053,331	64,827,459	
Changes in Working Capital			
Increase/Decrease in Inventories	-	(130,000)	(1,534,240)
Increase/Decrease in Receivables	(185,706,173)	(100,227,291)	(33,138,755)
Increase/Decrease in Payables	(300,316,463)	(262,011,933)	4,691,318
Increase/Decrease in Accruals	3,950,000	2,887,500	2,843,750
	(482,072,636)	(359,481,724)	(27,137,927)
Cashflow after Working Capital Changes	235,980,695	(294,654,265)	(213,071,539)
Cashflow from Investing Activities			
Property, Plant and Equipment	(1,838,499,350)	(945,911,480)	(601,899,947)
Investment	6,745,898	301,906,496	42,726,651
Biological Assets	(4,940,000)	(22,177,625)	(1,105,500)
	(1,836,693,452)	(666,182,609)	(560,278,796)
Cashflow from Financing Activities			
Movement in fund Account Balances	4,051,718,578	755,885,329	85,030,438
Increase or Decrease in Cash & Cash Equivalents	2,451,005,821	(204,951,546)	(688,319,899)
Cash and Cash Equivalents as at 1 Jan 2019	1,621,508,147	1,826,459,693	2,514,779,591
Cash and Cash Equivalents as at 31 Dec 2019	4,072,513,968	1,621,508,147	1,826,459,692
Cash and Cash Equivalents	4,072,513,968	1,621,508,147	1,826,459,692



**Figure 1:** Statistical and Graphical Distribution of Benford's Law.

**RESULTS AND DISCUSSION**

**Data Analysis and Results:** The table and graph presented in Figure 2 reveal the statistical and graphical distribution of the university's financial data over a 3-year period.



**Figure 2:** Statistical and Graphical Distribution of FUNAAB's financial data for the years 2017 – 2019.



## DISCUSSION

With a Kolmogorov-Smirnov (KS) statistic of 6.5% being lower than a cut-off of 10.7%, it could be seen that the characteristics of the distribution of the Federal University of Agriculture, Abeokuta's financial data is consistent with the theoretical distribution posited by the Benford's Law. Therefore, we fail to reject the alternate hypotheses.

## CONCLUSION

The shrink, in recent years, in the revenue of the Federal government of Nigeria has necessitated the need for the government to embark on a long list of reforms and a series cost saving measures to tighten the noose on the financial leakages that have turned to means of corruption among public officials. Corrupt practices could lead to Accounting Officers and preparers of public financial statements to manipulate the financial data included in their annual accounts and reports. Moreover, international donor agencies do consider high-quality financial statements as a vital requirement in granting funds to tertiary institutions for teaching, research, and extension services. However, in view of the non-divergence between the features of the distribution of the data in the financial statements of the Federal University of Agriculture, Abeokuta and the theoretical distribution of the Benford's Law as shown above, we concluded that the incomes, deficits and total assets presented and published in the financial statements of the university during the period under review, are of a high quality.

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## SUGGESTED CITATION

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