

Research Article

Received on: 01/03/2016

Published on: 10/03/2016

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Conflict of Interest: None Declared !

Feasible Solutions to the Current and Future Nigerian Economic Crises: Jameel's Contractional, Normal and Expansional Economic Circles' Revenue, Budget and Tax Formulas: An Open Letter II to the PRESIDENT

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Abstract:

The paper presents Jameel's Advanced Contractional, Normal and Expansional Economic Circles' Revenue/Budget/Tax Formulas and Methods. Also, the paper cited how Nigerian Policy Makers **Hugely Overestimates** Projected Oil Revenue thereby producing **Very Huge Gap** between **Projected Oil Revenue** and **Realized Oil Revenue**. An attempt has been made using Jameel's advanced formulas to **Narrow the Huge Gap** that exists between the **Projected Oil Revenue** and **Realized Oil Revenue**. The paper recommended that (a) If Governments involve Highly Qualified Modern Quantitative and Qualitative Risk Management Professionals, Audit, Accounting and ICT Professionals whenever projecting Nigerian Revenues, Budgets and Taxes, the future Economic and Financial crises would have very **Thin Probabilities of Occurrence** (b) If Governments adopt the use of Very Highly Sophisticated Advanced Financial Softwares, Application Packages, Programming Languages as well as the Mathematical, Statistical and Econometrical Formulas whenever projecting Nigerian Revenues, Budgets and Taxes, the future Economic and Financial crises would have very **Thin Probabilities of Occurrence** and finally (c) If (a) and (b) mentioned above applied the ongoing Nigerian Economic and Financial Crisis will soon be curtailed.

Keywords: Government Projected Oil Revenue, Realized Oil Revenue, Jameel's Projected Revenue Formulas, Mathematical, Statistical, Econometrical.

1. INTRODUCTION

The notion of Revenue, Budget and Tax Projections has become very hot topic among the Nigerian Executives, Legislators, Regulators, Supervisors, Civil Societies and General Public. However, in the Advanced Nations, the Revenue, Budget and Tax Projections are not a business of **ONLY** Policy Makers but rather a business that involve the combination of policy makers as well as the highly qualified Modern Quantitative and Qualitative Risk Management Professionals, Audit, Accounting and ICT Professionals. The standard practice in **the advanced Nations, Revenue, Budget and Tax Projections are conducted using Highly Sophisticated Mathematical, Statistical and Econometrical Formulas. More so, Highly Advanced Financial Softwares, Application Packages and Programming Languages are required** due to the rapid change in terms of Information and

Communication Technology (ICT), Natural Disasters, Social Insecurity and Unrest, Strikes, Political and Regulatory Change, Abysmal Corruption and other unexpected future Extreme Events.

The simple questions are (a) Do we use these very highly sophisticated Advanced Financial Softwares, Application Packages, Programming Languages as well as the Mathematical, Statistical and Econometrical Formulas whenever projecting Nigerian Revenues, Budgets and Taxes? (b) Do we consider Extreme Cases whenever projecting Nigerian Revenues, Budgets and Taxes? (c) Do we consider the opinions of Highly Qualified Modern Quantitative and Qualitative Risk Management Professionals, Audit, Accounting and ICT Professionals whenever projecting Nigerian Revenues, Budgets and Taxes?

The simple answer is NO, because of the Monthly repeated **Huge Gaps** between the Nigerian **Government Projected Revenues** and **Realized Revenues** as can be later demonstrated in this paper. Another problem was the failure to consider three (3) major Economic Circles whenever projecting Nigerian Revenues, Budgets and Taxes by Governments. We have three major Economic Circles namely; The Contractional, Normal and Expansional Economic Circles. From all the available literature, Nigeria uses only **Normal Economic Circle** whenever projecting Nigerian Revenues, Budgets and Taxes and is obviously vulnerable to Economic and Financial Crises.

For instance Nigerian Corporate Income Tax (CIT), Personal Income Tax (PIT) and Value Added Tax (VAT) is respectively **30%, 24% and 5%**: constant numbers (meaning not changing with respect to the three major Economic Circles), hence are not obviously in accordance with the ever-changing World Economic Realities and Uncertainties. The concept of tax is globally constant over a period of time. However, due the reoccurrences of Economic and Financial Crises more often, the concept of tax should be viewed in those three major economic Circles. Globally, Governments sets taxes using only one dimensional Economic Cycle, that is the Normal Economic Circle and forget about the Contractional and Expansional Economic Cycles. The computations of Revenues, Budgets and Taxes should be in Three Major Economic Circles that are the Contractional (at the Contractional Times), the Normal (at the Normal Times), and the Expansional (at the Expansional Times).

This paper presents how Nigerian Policy Makers **Hugely Overestimates** Projected Oil Revenue thereby producing **Very Huge Gap** between **Government Projected Oil Revenue** and **Realized Oil Revenue**. An attempt has been made to **Narrow the Huge Gap** that exists between the **Government Projected Oil Revenue** and **Realized Oil Revenue** using Jameel's Contractional and Expansional Economic Circles' Revenue, Budget and Tax Formulas.

METHOD

The method adopted in this paper is to use Jameel's Contractional and Expansional Stress Methods by incorporating fat tailed effects of the underlying asset returns probability distribution using simple discrete formula for calculating **Expected Value** given by:

$$E[X] = \sum_{i=1}^n x_i f_i(x) = x_1 f_1(x) + x_2 f_2(x) + \dots + x_n f_n(x)$$

Also, recall that

$$Expected\ Revenue / Tax = E[X] = \sum_{i=1}^n x_i f_i(x) = x_1 f_1(x) + x_2 f_2(x) + \dots + x_n f_n(x)$$

and

$$Revenue / Tax\ Variance = \sigma^2 = \sum_{i=1}^n \left[(x_i - \mu)^2 f_i(x) \right] = (x_1 - \mu)^2 f_1(x) + (x_2 - \mu)^2 f_2(x) + \dots + (x_n - \mu)^2 f_n(x)$$

Let assume $i = 1, 2$ then

$$Expected\ Revenue / Tax = E[X] = \sum_{i=1}^n x_i f_i(x) = x_1 f_1(x) + x_2 f_2(x)$$

Also, let assume the Revenue/Tax follows **LOGIT** and **PROBIT** probability distributions respectively then we have the following proposals:

Proposed Jameel's Advanced Stress Expected Revenue/Tax Formulas:

The proposed models considering simple Logistic Regression Model are given by:

Type A:

$$Expected\ Revenue / Tax_{Stressed} = E[X]_{Stressed} = x_1 f_{1(Stressed)}(x) + x_2 f_{2(Stressed)}(x)$$

$$= \left\{ \left[x_1 \left[\frac{1}{1 + \exp \left(\mu_A \left(\sum_{i=0}^K \beta_i X_i \right) \right)^{\mp} \sigma_A f(x; \mu_{company}, \sigma_{company}, \xi)} \right] \right] \right. \right. \\ \left. \left. + x_2 \left[\Phi \left(\beta_0 + \mu_A \sum_{j=1}^J \beta_j X_j \right) \right] \pm \sigma_A f(x; \mu_{company}, \sigma_{company}, \xi) \right] \right\}$$

Type B:

$$Expected\ Revenue / Tax_{Stressed} = E[X]_{Stressed} = x_1 f_{1(Stressed)}(x) + x_2 f_{2(Stressed)}(x)$$

$$= \left\{ \left[x_1 \left[\frac{1}{1 + \exp \left(\mu_A \left(\sum_{i=0}^K \beta_i X_i \right) \right)^{\mp} f(x; \mu_{company}, \sigma_{company}, \xi)} \right] \right] \right. \right. \\ \left. \left. + x_2 \left[\Phi \left(\beta_0 + \mu_A \sum_{j=1}^J \beta_j X_j \right) \right] \pm f(x; \mu_{company}, \sigma_{company}, \xi) \right] \right\}$$

Type C:

$$Expected\ Revenue / Tax_{Stressed} = E[X]_{Stressed} = x_1 f_{1(Stressed)}(x) + x_2 f_{2(Stressed)}(x)$$

$$= \left\{ \left[x_1 \left[\frac{1}{1 + \exp \left(\sum_{i=0}^K \beta_i X_i \right)^{\mp} \sigma_A f(x; \mu_{company}, \sigma_{company}, \xi)} \right] \right] \right. \right. \\ \left. \left. + x_2 \left[\Phi \left(\beta_0 + \sum_{j=1}^J \beta_j X_j \right) \right] \pm \sigma_A f(x; \mu_{company}, \sigma_{company}, \xi) \right] \right\}$$

Type D:

$$Expected\ Revenue / Tax_{Stressed} = E[X]_{Stressed} = x_1 f_{1(Stressed)}(x) + x_2 f_{2(Stressed)}(x)$$

$$= \left\{ \left[x_1 \left[\frac{1}{1 + \exp \left(\sum_{i=0}^K \beta_i X_i \right)^{\mp} f(x; \mu_{company}, \sigma_{company}, \xi)} \right] \right] \right. \right. \\ \left. \left. + x_2 \left[\Phi \left(\beta_0 + \sum_{j=1}^J \beta_j X_j \right) \right] \pm f(x; \mu_{company}, \sigma_{company}, \xi) \right] \right\}$$

Where,

The **Proposed Models I** considering simple Logistic Regression Model are given by:

Type A:

$$PD_{Stressed} = \frac{1}{1 + \exp \mu_A \left(\sum_{i=0}^K \beta_i X_i \right) \mp \sigma_A f(x; \mu_{company}, \sigma_{company}, \xi)}$$

Type A* (Higher Probabilities):

$$PD_{Stressed} = \frac{1}{1 + \mu_A \cdot \exp \left(\sum_{i=0}^K \beta_i X_i \right) \mp \sigma_A f(x; \mu_{company}, \sigma_{company}, \xi)}$$

Type B:

$$PD_{Stressed} = \frac{1}{1 + \exp \mu_A \left(\sum_{i=0}^K \beta_i X_i \right) \mp f(x; \mu_{company}, \sigma_{company}, \xi)}$$

Type B* (Higher Probabilities):

$$PD_{Stressed} = \frac{1}{1 + \mu_A \cdot \exp \left(\sum_{i=0}^K \beta_i X_i \right) \mp f(x; \mu_{company}, \sigma_{company}, \xi)}$$

Type C:

$$PD_{Stressed} = \frac{1}{1 + \exp \left(\sum_{i=0}^K \beta_i X_i \right) \mp \sigma_A f(x; \mu_{company}, \sigma_{company}, \xi)}$$

Type D:

$$PD_{Stressed} = \frac{1}{1 + \exp \left(\sum_{i=0}^K \beta_i X_i \right) \mp f(x; \mu_{company}, \sigma_{company}, \xi)}$$

Where, the Simple **Logistic Regression Model (Logit)** is given by:

$$PD = \frac{1}{1 + \exp \left(\sum_{i=0}^K \beta_i X_i \right)}$$

$X = (X_1, X_2, \dots, X_k)$ is a vector of explanatory variables (Macro-economic Indicators).

And the **Proposed Models II** considering Merton's (Probit) Model are given by:

Type A:

$$PD_{Stressed} = \Phi \left(\beta_0 + \mu_A \sum_{j=1}^J \beta_j X_j \right) \pm \sigma_A f(x; \mu_{company}, \sigma_{company}, \xi)$$

Type A*:

$$PD_{Stressed} = \Phi \left[\mu_A \left(\beta_0 + \sum_{j=1}^J \beta_j X_j \right) \right] \pm \sigma_A f(x; \mu_{company}, \sigma_{company}, \xi)$$

Type B:

$$PD_{Stressed} = \Phi \left(\beta_0 + \mu_A \sum_{j=1}^J \beta_j X_j \right) \pm f(x; \mu_{company}, \sigma_{company}, \xi)$$

Type B*:

$$PD_{Stressed} = \Phi \left[\mu_A \left(\beta_0 + \sum_{j=1}^J \beta_j X_j \right) \right] \pm f(x; \mu_{company}, \sigma_{company}, \xi)$$

Type C:

$$PD_{Stressed} = \Phi \left(\beta_0 + \sum_{j=1}^J \beta_j X_j \right) \pm \sigma_A f(x; \mu_{company}, \sigma_{company}, \xi)$$

Type D:

$$PD_{Stressed} = \Phi \left(\beta_0 + \sum_{j=1}^J \beta_j X_j \right) \pm f(x; \mu_{company}, \sigma_{company}, \xi)$$

Where, **Factor Model based on Merton Model (Probit)** is given by:

$$PD = \Phi \left(\beta_0 + \sum_{j=1}^J \beta_j X_j \right)$$

RESULT AND DISCUSSION

Here, the Author considered Nigerian Government Projected Oil Revenue and Realized Oil Revenue from Janaury – December 2015 and relate it with Jameel's Contractional, and Expansional Economic Circles' Revenue, Budget and Tax Formulas so as to critically examine their differences reference to the current Nigerian Financial and Economic Crisis. First, consider the following data tables.

Table 1: Excel Computations on Returns of Fundamental Macroeconomic Indicators

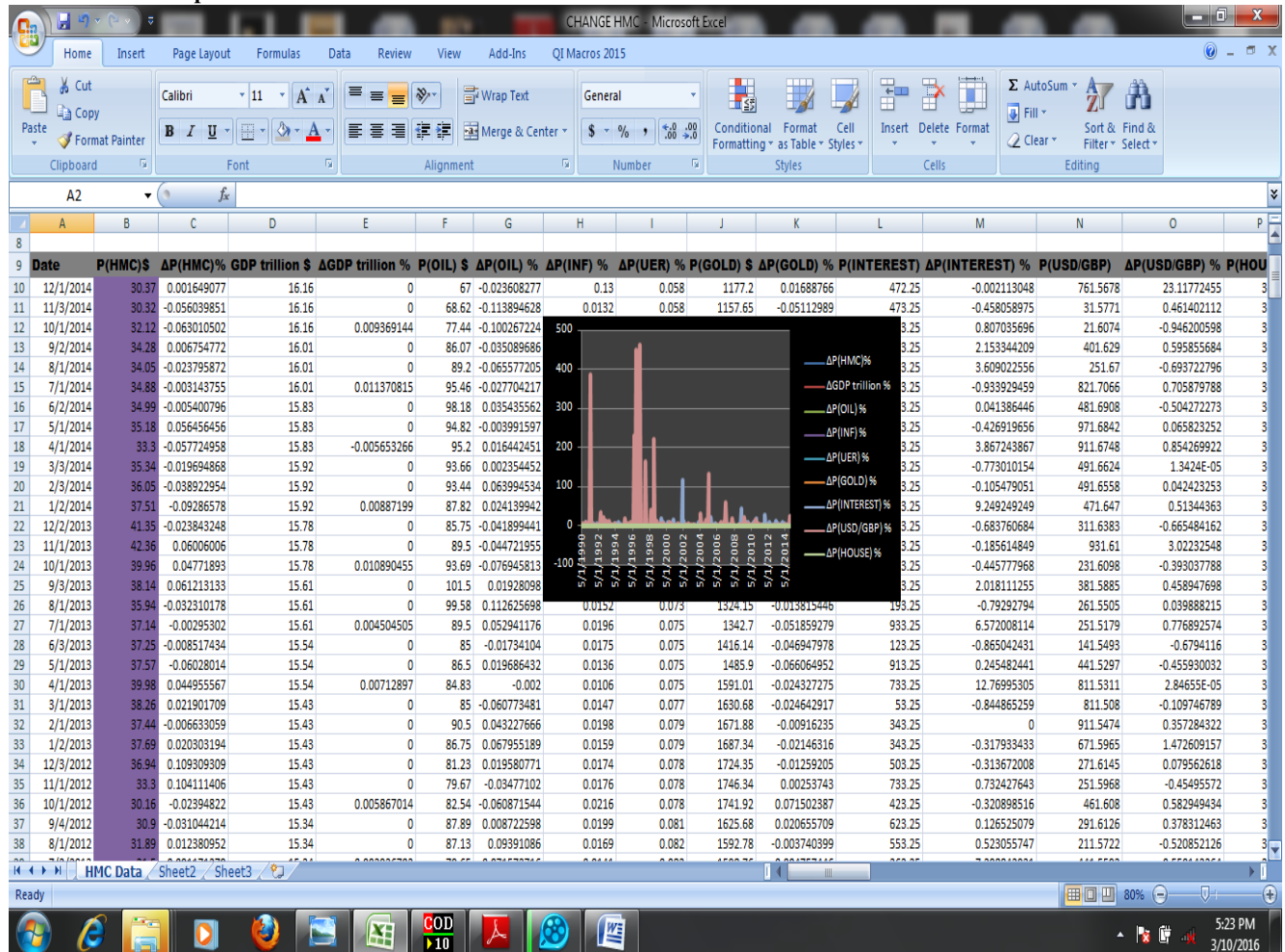


Table 2: Excel Computations of Probabilities used in the Research Work

	T	U	V	W	X	Y	Z	AA	AB	AC
9	Date	M1 TYPE A-	M1 TYPE A+	M1 TYPE B-	M1 TYPE B+	M1 TYPE C-	M1 TYPE C+	M1 TYPE D-	M1 TYPE D+	LOGIT
10	12/1/2014	0.49996827	0.499968182	0.499968612	0.49996784	0.498986591	0.498986503	0.498986932	0.498986163	0.498986547
11	11/3/2014	0.500002916	0.499962034	0.50016184	0.499803237	0.499461403	0.49942061	0.499619983	0.499262157	0.499441006
12	10/1/2014	0.500026642	0.499965058	0.500266096	0.499725893	0.499898359	0.499836807	0.50013769	0.499597764	0.499867581
13	9/2/2014	0.499979001	0.499978997	0.499979016	0.499978981	0.499330153	0.499330149	0.499330169	0.499330134	0.499330151
14	8/1/2014	0.499982846	0.49997722	0.500004707	0.499955362	0.499365952	0.49936034	0.499387759	0.499338535	0.499363146
15	7/1/2014	0.4999957	0.499995279	0.499997338	0.499993642	0.49985635	0.499855929	0.499857986	0.499854292	0.499856139
16	6/2/2014	0.49997364	0.499972967	0.499976255	0.499970352	0.49914883	0.499148159	0.499151436	0.499145552	0.499148494
17	5/1/2014	0.499982452	0.499973628	0.500016742	0.499939343	0.499303967	0.499295167	0.499338164	0.499260975	0.499299567

	AD	AE	AF	AG	AH	AI	AJ	AK	AL
9	PROBIT	M2 TYPE A-	M2 TYPE A+	M2 TYPE B-	M2 TYPE B+	M2 TYPE C-	M2 TYPE C+	M2 TYPE D-	M2 TYPE D+
10	0.501617235	0.501594751	0.501595103	0.501593383	0.50159647	0.501617059	0.50161741	0.501615691	0.501
11	0.500892025	0.501541668	0.501705204	0.500906182	0.50234069	0.500810258	0.500973793	0.500174771	0.50
12	0.50021131	0.501522306	0.501768645	0.500565052	0.502725899	0.50008814	0.500334479	0.499130886	0.501
13	0.501068923	0.501611599	0.501611615	0.501611536	0.501611677	0.501068915	0.501068931	0.501068852	0.501
14	0.501016271	0.501605063	0.501627566	0.501517616	0.501715013	0.50100502	0.501027523	0.500917573	0.50
15	0.500229569	0.50163807	0.501639755	0.501631521	0.501646305	0.500228726	0.500230411	0.500222176	0.500
16	0.501358805	0.501602388	0.501605081	0.501591927	0.501615542	0.501357459	0.501360151	0.501346998	0.501
17	0.501117729	0.501587455	0.501622752	0.501450293	0.501759914	0.50110008	0.501135378	0.500962919	0.50

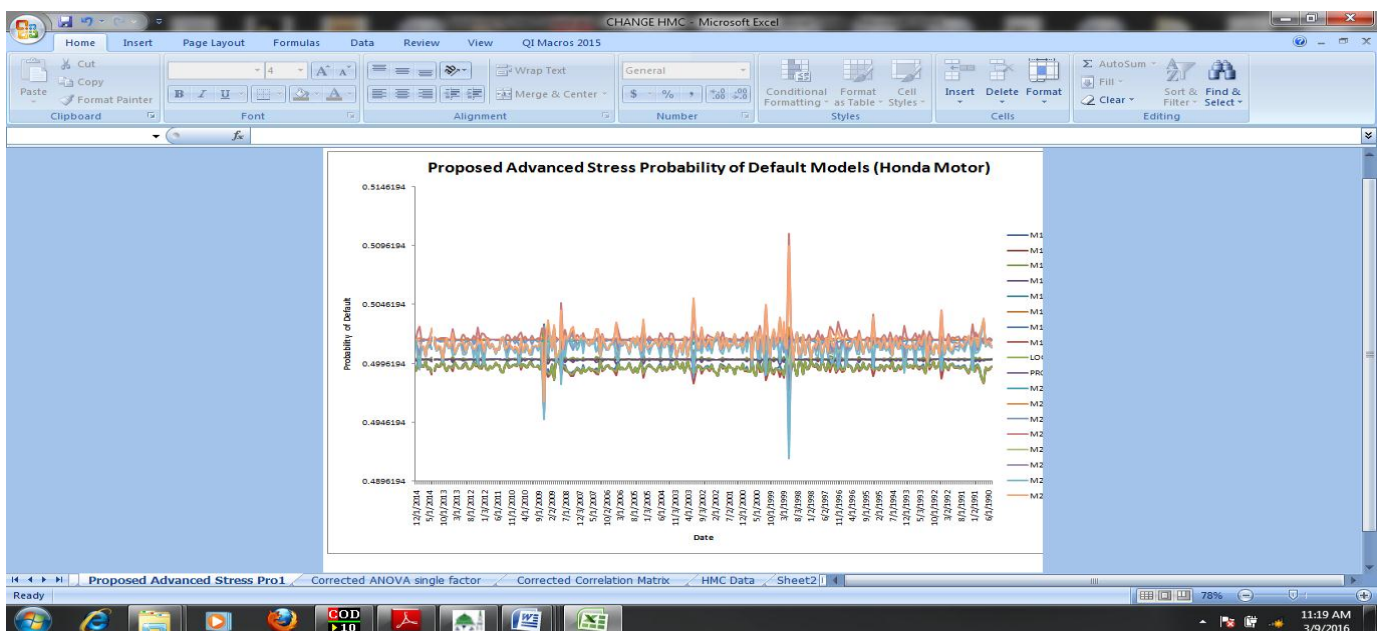


Figure 1: Chart representation of the above Probabilities used in the Research Work

Table 3: 2015 Monthly Government Projected Oil Revenue in Billions vs Realized Oil Revenue in Billions

Date	Government Projected Oil Revenue in Billions	Realized Oil Revenue in Billions
January	815	416.09
February	802.92	401.46
March	735.07	315.04
April	572.48	286.24
May	836.904	418.452
June	970	485
July	837.168	433.584
August	429.4	214.7
September	426.256	213.128
October	374.46	187.23
November	594	297
December	323.5	214.7
	7717.158	3882.624

Note that some values in the Government Projected Revenues are obtained by using simple statistical techniques because of limitations in getting the actual data

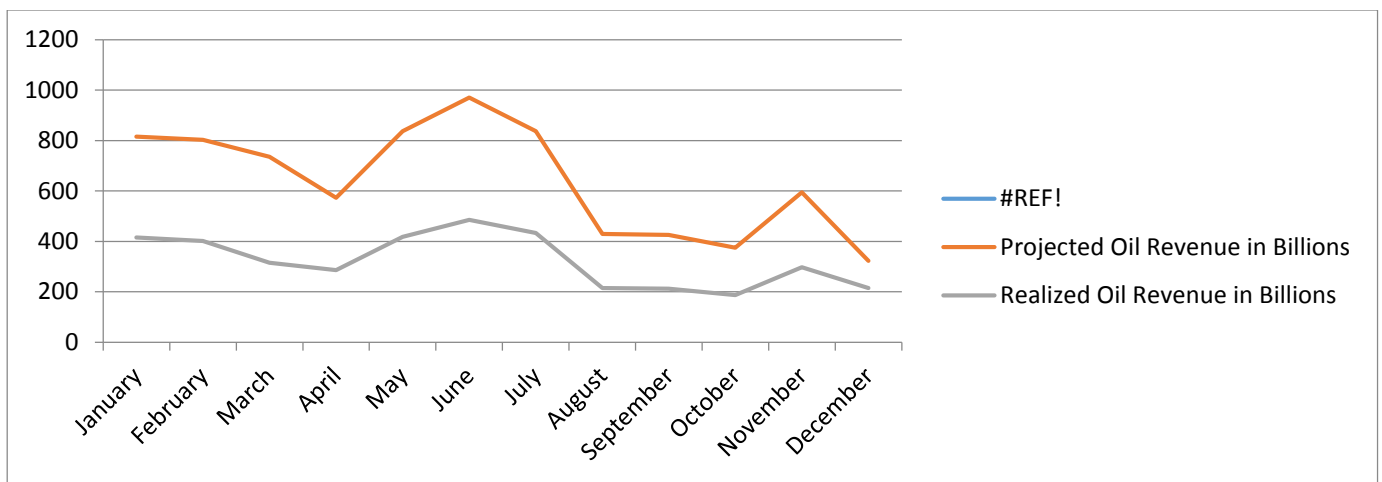


Figure 2: Huge Gap between Government Projected Oil Revenue and Realized Oil Revenue in Billions

Table 4: Probabilities of 2015 Monthly Projected Oil Revenues using Jameel's Formulas

Date	Logit M1 TYPE C-	Logit M1 TYPE D+	LOGIT	PROBIT	Probit M2 TYPE C-	Probit M2 TYPE D+
January	0.4989866	0.4989869	0.4989865	0.501617235	0.501617059	0.5016157
February	0.4994614	0.49962	0.499441	0.500892025	0.500810258	0.5001748
March	0.4998984	0.5001377	0.4998676	0.500211131	0.50008814	0.4991309
April	0.4993302	0.4993302	0.4993302	0.501068923	0.501068915	0.5010689
May	0.499366	0.4993878	0.4993631	0.501016271	0.50100502	0.5009176
June	0.4998563	0.499858	0.4998561	0.500229569	0.500228726	0.5002222
July	0.4991488	0.4991514	0.4991485	0.501358805	0.501357459	0.501347
August	0.499304	0.4993382	0.4992996	0.501117729	0.50110008	0.5009629
September	0.4988994	0.4990735	0.4988771	0.501791965	0.501701995	0.5010028
October	0.4988994	0.4990735	0.4988771	0.501791965	0.501701995	0.5010028
November	0.4990845	0.4991448	0.4990767	0.501473304	0.50144214	0.5011999
December	0.4995571	0.4995571	0.4995571	0.500706763	0.500706763	0.5007068

Table 5: 2015 Monthly Projected Oil Revenues and Oil Revenue Projected using Jameel's Formulas

Date	Realized Oil Revenue in Billions	Expected Revenue using Logit M1 TYPE C-	Expected Revenue using Logit M1 TYPE D+	Expected Revenue using LOGIT	Expected Revenue using PROBIT	Expected Revenue using Probit M2 TYPE C-	Expected Revenue using Probit M2 TYPE D+
January	416.09	406.6740717	406.6743492	406.6740359	408.8180461	408.8179027	408.816788
February	401.46	401.0275496	401.1548765	401.0111724	402.176225	402.110572	401.6003272
March	315.04	367.460287	367.6362118	367.4376631	367.6903273	367.5997891	366.8961405
April	286.24	285.8565262	285.8565352	285.8565251	286.8519371	286.8519324	286.8518966
May	418.452	417.9213626	417.9396131	417.9190144	419.3025215	419.2931049	419.2199203
June	485	484.8606593	484.8622467	484.8604551	485.2226815	485.221864	485.2155111
July	433.584	417.8714274	417.8736095	417.8711467	419.7215482	419.7204214	419.7116633
August	214.7	214.4011232	214.4158076	214.399234	215.1799528	215.1723745	215.1134772
September	213.128	212.6588811	212.7330921	212.6493361	213.8918358	213.8534856	213.5554345
October	187.23	186.8178855	186.8830788	186.8095004	187.9010192	187.8673291	187.6054953
November	297	296.4561959	296.4920365	296.4515849	297.8751429	297.856631	297.7127596
December	214.7	161.6067224	161.6067224	161.6067224	161.978638	161.978638	161.978638

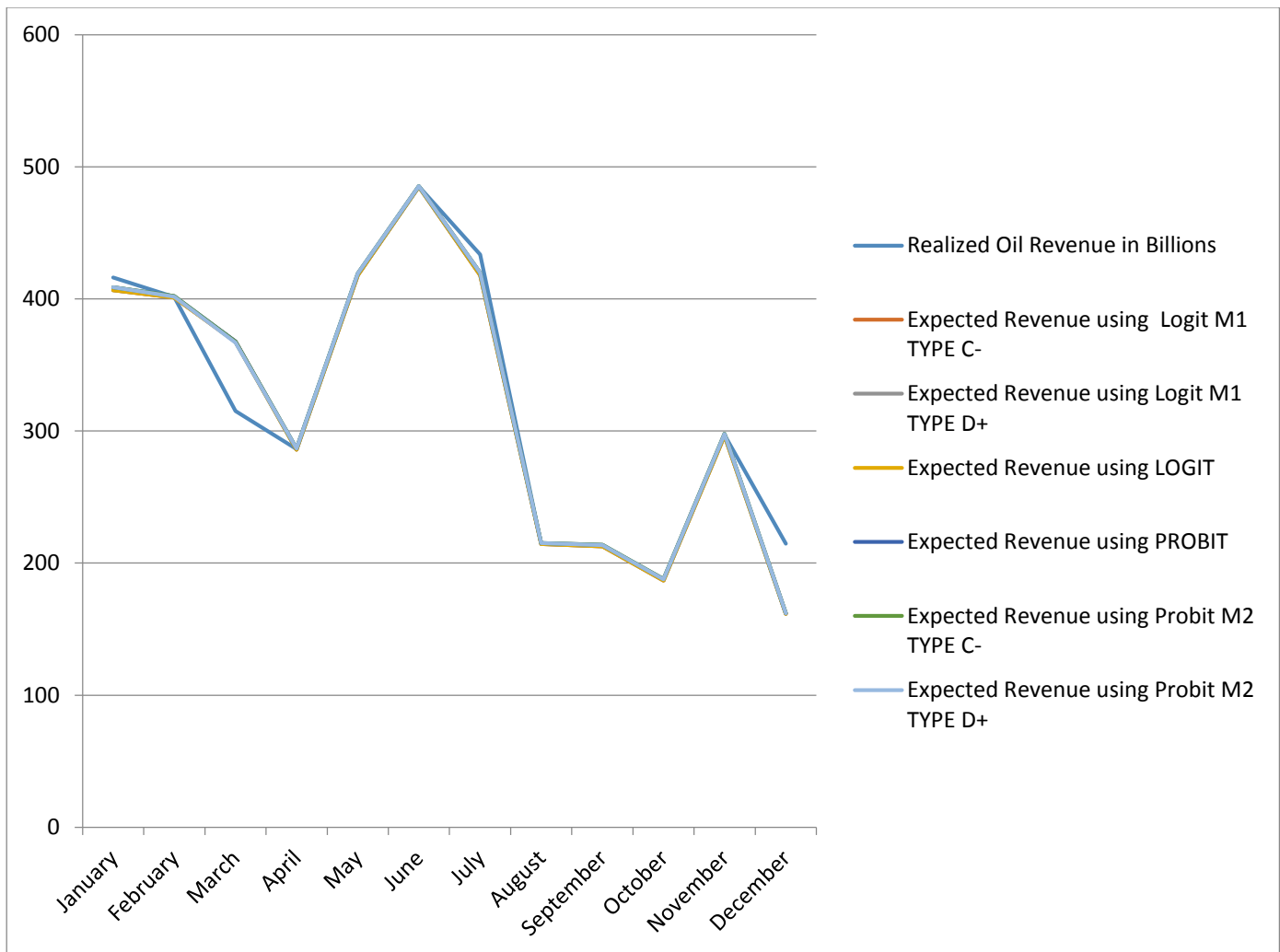


Figure 3: Thin difference between 2015 Monthly Projected Oil Revenues and Oil Revenue Projected using Jameel's Formulas

Table 6: Huge differences between 2015 Monthly Government Projected Oil Revenues, Realized Revenues and Oil Revenue Projected using Jameel's Formulas

Date	Projected Oil Revenue in Billion	Realized Oil Revenue in Billion	Expected Revenue using Logit M1 TYPE C-	Expected Revenue using Logit M1 TYPE D+	Expected Revenue using LOGIT	Expected Revenue using PROBIT	Expected Revenue using Probit M2 TYPE C-	Expected Revenue using Probit M2 TYPE D+
January	815	416.09	406.6740717	406.6743492	406.6740359	408.8180461	408.8179027	408.816788
February	802.92	401.46	401.0275496	401.1548765	401.0111724	402.176225	402.110572	401.6003272
March	735.07	315.04	367.460287	367.6362118	367.4376631	367.6903273	367.5997891	366.8961405
April	572.48	286.24	285.8565262	285.8565352	285.8565251	286.8519371	286.8519324	286.8518966
May	836.904	418.452	417.9213626	417.9396131	417.9190144	419.3025215	419.2931049	419.2199203
June	970	485	484.8606593	484.8622467	484.8604551	485.2226815	485.221864	485.2155111
July	837.168	433.584	417.8714274	417.8736095	417.8711467	419.7215482	419.7204214	419.7116633
August	429.4	214.7	214.4011232	214.4158076	214.399234	215.1799528	215.1723745	215.1134772
September	426.256	213.128	212.6588811	212.7330921	212.6493361	213.8918358	213.8534856	213.5554345
October	374.46	187.23	186.8178855	186.8830788	186.8095004	187.9010192	187.8673291	187.6054953
November	594	297	296.4561959	296.4920365	296.4515849	297.8751429	297.856631	297.7127596
December	323.5	214.7	161.6067224	161.6067224	161.6067224	161.978638	161.978638	161.978638
	7717.158	3882.624	3853.612692	3854.128179	3853.546391	3866.609875	3866.344045	3864.278052

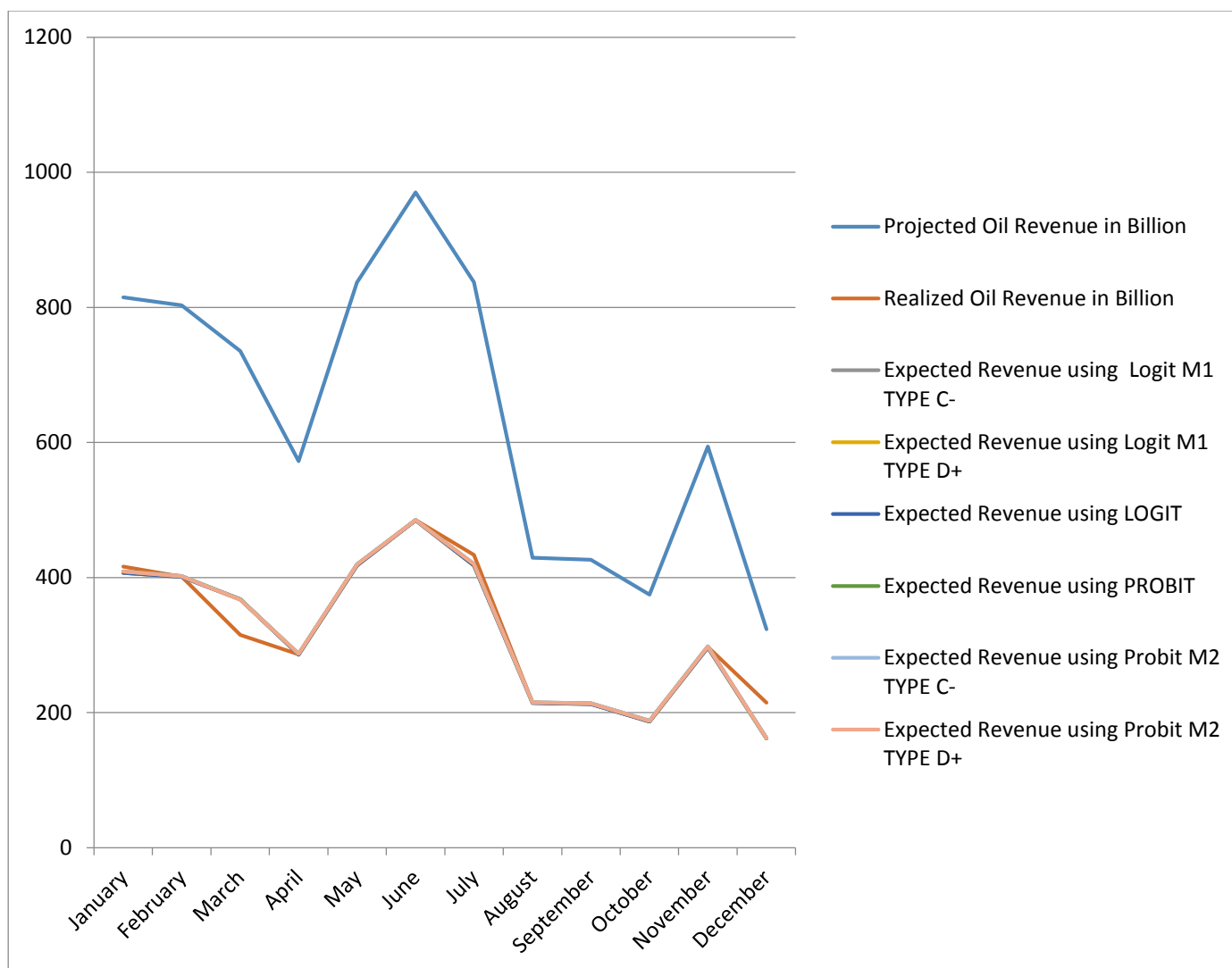


Figure 4: Huge differences between 2015 Monthly Government Projected Oil Revenues, Realized Revenues and Oil Revenue Projected using Jameel's Formulas

Table 7: Summary Table

Date	Government Projected Oil Revenue in Billions	Realized Oil Revenue in Billions	Projected Oil Revenue using One of Jameel's Advanced Formulas in Billions
January, 2015	N815	N416.09	N408.8179027

It can be seen from the above table, the Federal Government Projected Oil Revenue in the month of January, 2015 was N815 billion and the Realized Oil Revenue in the same month was N416.09 billion (N815 billion - N416.09 billion = N398.91 billion) while using One of Jameel's Projected Oil Revenue Advanced Formulas is N408.8179027 billion. The difference between Jameel's formula and Realized Oil Revenue is only N7.2720973 billion. Just quantify the risk of LOSING N398.91 billion and that of just N7.2720973 billion in the Economy during the month of January, 2015.

Hence the Realized Oil Revenue to Government Projected Oil Revenue RATIO given by:

$$\frac{\text{Realized Oil Revenue}}{\text{Government Projected Oil Revenue}} = \frac{N416.09}{N815} = 0.510534 = 51.054\%$$

decreased against what anticipated in the month of

January, 2015 (quite abysmal). And that **Jameel's Projected Oil Revenue to the Realized Oil Revenue RATIO** given by:

$$\frac{\text{Jameel's Projected Oil Revenue}}{\text{Realized Oil Revenue}} = \frac{N7.2720973}{N398.91} = 0.01823 = 1.823\%$$

quite negligible compare to **51.054% National Risk Exposure in the case of Government Projected Revenue of the Month of January, 2015.**

CONCLUSION AND RECOMMENDATION

Based on the available literature, Nigerian Government Projected Oil Revenue is always **hugely higher** than Realized Oil Revenue (more often Deficits) for instance by about **51.054%** decreased in the Month of January, 2015.

Based on the Advanced **Jameel's Contractional and Expansional Economic Circles' Revenue, Budget and Tax Formulas**, Charts, and Numerical approximations

presented in this paper, there are very huge differences between Government Projected Oil Revenue and Realized Oil Revenue thereby creating very Big Negative Holes in the entire Nigerian Economy and causing serious draw back in the Economic performances of Nigeria. And indeed are simply major causes of the ongoing Nigerian Economic Crises. Also, the computation of Revenues, Budgets and Taxes should be in Three Major Economic Circles namely; Contractional (at the Contractional Times), the Normal (at the Normal Times), and the Expansional (at the Expansional Times). More so, Governments should involve Highly Qualified Modern Quantitative and Qualitative Risk Management Professionals, Audit, Accounting and ICT Professionals whenever projecting Nigerian Revenues, Budgets and Taxes. Furthermore, Governments should adopt the use of Very Highly Sophisticated Advanced Financial Softwares, Application Packages, Programming Languages as well as the Mathematical, Statistical and Econometrical Formulas whenever projecting Nigerian Revenues, Budgets and Taxes.

For the sake of practitioners and Academic Colleagues, it is believe that the existing Quantitative Economic and Financial Models underestimates (overestimates) Default Risks especially at the times of Economic and Financial Crises to the extent in which Tim Harford (2012) published an article entitled 'Black – Scholes: The Maths Formula linked to the Financial Crash' where he stated that '...It has been argued that one formula known as Black – Scholes, along with its descendants, helped to blow up the financial world'. Many other articles have been published in respect to that. The Economic models here presented will serve as the complimentary but not substitute of the Existing Models, however, they are just more robust, holistic and extraordinary, providing better approximations, increasing the probabilities of high losses and above all have the ability to precisely traces the trajectories of the past and future economic and financial crises, since they incorporated fat –tail effects.

Finally, for the sake of future research direction, the models can be improved further to capture more vital information using more macroeconomic indicators and models' independent variables.

Nassim Nicholas Taleb et al (2009) stated that **“Black Swan events are almost impossible to predict.** Instead of perpetuating the illusion that we can anticipate the future, risk management should try to reduce the impact of the threats we don't understand.”

CreditMetrics™ (1997) stated that **“We remind our readers that no amount of sophisticated analytics will replace experience and professional judgment in**

managing risks. CreditMetrics™ is nothing more than a high-quality tool for the professional risk manager in the financial markets and is not a guarantee of specific results.”

“If a seatbelt does not provide perfect protection, it still makes sense to wear one, it is better to wear a seatbelt than to not wear one”. **It is better off improving Revenue, Budget and Tax Formulas by incorporating fat – tail effects than not.**

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Cite this article as:

Jamilu Auwalu Adamu. Feasible Solutions to the Current and Future Nigerian Economic Crises: Jameel's Contractional, Normal and Expansional Economic Circles' Revenue, Budget and Tax Formulas: An Open Letter II to the PRESIDENT MUHAMMADU BUHARI, GCFR. Asian Journal of Management Sciences, 04(14), 2016, 21-30.
