EFFECTS OF ECONOMIC REGULATIONS ON DOMESTIC AIRLINES IN DEVELOPING COUNTRIES: A CASE STUDY OF NIGERIA

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ABSTRACT

This article describes the effects of Economic Regulation (ER) on domestic airlines in developing countries using Nigeria as case study. In recent times ER has received much attention in the developing countries as setbacks in airline industry are partly attributed to poor financial management despite the huge loosely monitored Government subventions in the form of bail outs. The regulatory mechanism for ER in the airline industry emphasised non-financial qualitative metrics and cost variables whilst numerous financial ratios that guide industrial best practices globally received insignificant attention. Literatures confirmed that financial ratios are of outmost significance in evaluating airline solvency and they further provide objective basis for financial analysis, statistical inference, comparative and trend analysis. Two sets of structured interviews were administered to the NCAA and three (3) selected domestic airlines to determine the extent of adoption of quantitative (financial ratios) in ER; regrettably, the inherent lack of quantitative data was evidenced. This article employed qualitative comparative analysis methodology to bridge the existing literature gaps. It developed a framework as benchmark for best industrial practices by utilising financial ratios to assess airline solvency. The results of the study conducted were used to modify the existing body of knowledge, propose institutional change that are airline-specific and augment the holistic mechanism for ER of airlines in Nigeria inclusive of consideration of mergers and acquisitions that improves both scope and scale economies. Future work would include specific testing of the proposed framework in an airline environment with the objective of improving learning and dynamics of policy formulation in a complex air transport environment.

Key Words: Airline Failures, Airline Operations, Economic Regulations and Financial Management.

1. INTRODUCTION

The aviation industry is essentially regulated! These regulations take the form of *Standards* and *Recommended Practices i.e. 'Safety and Economic Regulations'.* This paper focuses on Economic Regulation (ER) as many of the mishaps and setback in the Developing Countries (DC) airline industry have been associated with airlines facing financial exigencies. It is therefore worrisome that despite the pervasiveness of ER as described by the Nigerian Civil Aviation Authority (NCAA), most Nigerian airlines perform poorly compared to their counterparts elsewhere. ER was described as the process of ensuring that airlines are self-sustainable through efficient delivery of air transport services, consistency of service, cost-effectiveness and customer-focused businesses [1]. It was stated in [2] that ER is an extreme form of government intervention in markets involving considerable control over firms' entry, pricing, investment, product choice decisions and administrative decisions. ER therefore covers a broad spectrum of airline operations such as ownership, insurance, obligations to customers, passenger compensation programmes, fares and tariff and airline financial health. Justification of government intervention in airline operation has been deposited in the literature [3]. The author positioned that that unhindered airline encourages monopoly and that government alone are capable of correcting these market failures through regulation. This study considers ER in terms of the process and mechanism of monitoring airline financial health and its ability to sustain its future operations.

2. STATEMENT OF THE PROBLEM AND JUSTIFICATION OF STUDY

The volatile nature of the airline industry in the light of financial distress, rising cost, reorganisation, acquisition, liquidation and exits called for regular and detailed collection and publication of financial operations and market data [4]. The authors argued that this would facilitate econometric analysis of airline performance and its implications for the industry at large. ER is a means of control to ensure that airlines are capable of meeting expected standards of operation and securing a fair deal to users in the delivery of air travel service. In was argued in [5] that airlines facing financial exigencies often resort to various cost-saving or cost-cutting measures; and where such measures impinge on aircraft operations or related personnel (such as staff cuts and outsourcing of certain operational activity), they could have a potential negative effect on the safety standards and security of operations.

The cost centres which generally characterise airline failures in DC particularly within the African region were identified in [6]. These include: entry into a new operating environment, low safety and environmental standards, undercapitalisation, overexpansion, slow growth, lack of flexibility, wrong leadership, wrong money, need for newer aircraft fleet to replace old technology, inadequate infrastructure, need for personnel training, bankruptcy and shut downs, inappropriate business plan, absence of a flexible strategic plan, rising costs (fuel, labour, maintenance, security), restructuring and alliances, excessive capacity, competition in terms of transport and technology, locating target customer and securing their loyalty, organisational design barriers, air carrier ownership and control, upholding sustainable air carriers, physical and environmental constraints, the global trade trends, consumer protection and passenger rights; all impact significantly on the nature of airline operations.

The Federal Aviation Administrative (FAA) statistics focusing on the world regional perspective as articulated in [7] showed that developing African countries accounted for the worst rate of accidents, air incidents and airline failures globally. The report categorised Africa as the most unsafe region with 26% of fatal accidents and only 2% of global departures. Specifically, it was reported in [8] that the Nigerian aviation industry was heavily indebted because of losses caused by low fares, high interest rates, and rising fuel costs. In 2010 alone, Nigerian airlines owed a combined $59.5 million to Federal Airport Authority of Nigeria (FAAN) as at when the Central Bank of Nigeria (CBN) announced a $1.2 billion bail-out for domestic carriers. In 2011, the airlines owed $66.7 million (10 billion naira) to Nigerian aviation agencies. Of the 150 active Nigerian airlines in 2001, the number declined to 19 in 2011 mainly due to financial mismanagement and airline failures to meet industrial policies. Furthermore, it was lamented in [9] that the country's setbacks in safety and security practices, poor management practices, exits and catastrophic plane crashes involving once admirable airlines have increased concerns for a coherent air transport policy and the need to address the financial health of these national carriers.

The reviewed (April 2013) Nigerian Civil Aviation Policy (NCAP) is resolved to benchmark ER after countries like United State America (USA), United Kingdom (UK), South Africa (SA) and India where Independent Economic Regulatory Unit have been introduced as a way of relieving the Civil Aviation Authorities (CAAs) to concentrate on safety issues while ensuring adequate and effective supervision of operations, investment and reducing losses from the anticipated economic benefits. The former Honourable Minister of Aviation, Mrs. Stella Oduah-Ogiemwonyi in a press briefing sequel to the Dana plane crash in June 2012 noted that the internationally accredited financial auditor, Messrs Pricewater House Coopers (PwC) would assist the NCAA in the financial audit of all domestic airlines in the country. This assertion further queries the effectiveness of ER framework as described by NCAA in determining airline financial health.

It is therefore paramount to ascertain the adequacy and effectiveness of the NCAA ER framework in detecting, mitigating, preventing and remedying these situations. More so, it is essential to verify the inclusiveness of Nigerian airlines in financial auditing and operational sustenance. The motivation behind this study is the recurring failures of airlines in terms of '*Poor Service Quality, Incessant Air Disasters, Bankruptcy, Exits* and *Airline Losses'* in DC, many of which have been attributed to poor financial condition, reckless financial management and huge indebtedness that are yet to be empirical substantiated. This study therefore attempts to:

- Ascertain the financial position of Nigerian airlines and their abilities to sustain future operations.
- Determine the extent of the effectiveness of ER by NCAA in the airline industry.
- Determine the extent of airline compliance and inclusiveness
- Fill the gap in terms of the adequacy of the existing ER framework by recommending an appropriate model based on best international best practices.

3. ECONOMIC REGULATION CONCEPT AND METHODOLOGY

The *Principles* of ER as described in [10] argued that its infrastructure pivot and support a competitive and growing economy. Further the framework provides good quality, reliable and sustainable services upon which all businesses and citizens depend. It is premised on six (6) basic principles: *Accountability, Focus, Predictability, Coherence, Adaptability and Efficiency.* Service institutions such as airlines operate in volatile markets and must be transparent, sufficiently capitalised and adequately liquid to withstand large shocks [11]. The author recommended that the *Mechanism* (*financial and non-financial metrics)* for ER must be based on the following ***Pillars***: *Governance Structure, Risk Assessment, Internal Audit, and Monitoring Compliance.* These mechanisms are regrettably passively employed in the ER of airlines as currently stipulated by NCAA.

Specifically, the *financial metrics* would include ratios such as *activity, inventory turnover, receivable turnover, fixed assets turnover, total assets turnover, liquidity, debt and solvency and profitability* etc. *Non-Financial Metrics* would strategically focus on *overall fares, service frequency, traffic growth, load factor data, management of equipment in terms of fleet acquisition, composition, utilisation, maintenance and labour productivity etc.* Studies such as that contained in [12] conducted a regional survey of performance measurement techniques of 200 of the world's best performing airlines and considered it best to the combine both *financial and non-financial metrics* in determining the financial health of airlines – this paper concur with such assertion and argued the need for inclusive usage of both soft and hard variables in assessing the economic performance of airline in their pursuit for sustainable growth in the developing Nigerian economy.

The qualitative comparative analysis similar to studies stated in [12] and [13] was employed to compare several observed variables of NCAA metrics and those in the public domain for the purpose of benchmarking best industrial practices. Subsequently, metrics for measuring airline financial health were examined within three (3) domestic airlines selected on the basis of having not less than five aircraft in their fleet. The obtained metrics were compared with the metrics obtained from three (3) reputable airlines in the public domain. Interviews were also administered to determine the *financial fitness* of the airlines, the nature and extent of ER and the degree of airline *compliance* in terms of *transparency* and *timeliness* of financial reporting of Nigerian registered airlines.

4. STATE OF ART OF ECONOMIC REGULATION OF NIGERIAN AIRLINES

Table 1 below shows the Financial and Non-Financial Metrics as adapted from the 2013 Financial Health Return Form of [14] as used in ER of Nigerian airlines while Table 2 depicts the extent of airline compliance in terms of consistency and timeliness of financial reporting. The tables demonstrate a serious imbalance between the financial ratio and non-financial metrics used by NCAA in ER of airlines in Nigeria and a *significant departure from international best practices*. This paper hereby postulates the need for regulatory rethinking and the associated cooperation of Nigerian airlines in their pursuit for sustainable development and economic significance in the Nigerian economy.

Table 1 NCAA/DATR Financial and Non Financial Metrics

NON-FINANCIAL METRICS	FINANCIAL RATIOS
Aircraft Acquisition	Total Direct Operating Cost
Maintenance	Total Indirect Operating Cost
Fuel/Lubricant	Total Operating Cost
Insurance	Total operating revenue
Ground handling	
Catering service	
Staff salaries	
Aviation charges: (*NCAA, FAAN, MMA2 and NAMA*)	
Airport(s) rentals	
Loan	
Operating revenue indicators	
Non-operating revenue/losses	

Adapted from [14]

Table 2: Extent of Financial Reporting in the Nigerian Airline Industry

FREQUENCY OF REPORTS	AIRLINE 1	Inconsistencies in timeliness of reporting
	AIRLINE 2	Inconsistencies in timeliness of reporting
	AIRLINE 3	No records of financial audit has been filed since inception

2013 Interview with NCAA/DATR

It was affirmed in [15] that economic regulators should be mindful of key *Non-Financial Indicators* in measuring airline performance such as *Labour, Aircraft Equipment* and *Maintenance;* which constitute the major part of input costs in the industry. For instance, poor management of equipment (*fleet acquisition, composition and utilisation*) and low labour productivity are symptoms of poor airline performance as witnessed in Nigeria. Generally, *newer aircraft* are more efficient to run than older aircraft in terms of maintenance costs and fuel consumption. The *average fleet age* is a characteristic for assessing the *poorer performing airlines*. This can result from the *financial limitation* of the airline to procure or lease new equipment or aircraft; or arise from *poor fleet planning* which would inevitably increase *airlines costs* in the short-run. Notably, adding new incompatible brands to the fleet raises costs including planning, crew and maintenance costs.

Given the large associated cost and capital outlay, *Aircraft utilisation* is significant in airline financial management. Non-distressed carriers are expected to have higher number of departures per aircraft as a consequence of better overall management of schedules, distribution and marketing – *unfortunately that is not the usual scenario in the Nigerian airline industry* and neither does the NCAA explicitly regulates *aircraft utilisation* as non-financial metrics. *People* are another important airline input resource. In the airline industry, pilots are usually the most expensive labour resource. It is expected that higher number of flight hours per pilot is synonymous to better performing carriers.

Emphasis of the importance of non-financial metrics such as the *Environmental Responsibility, Extent of Communication/Information Technology, Operations Management, Organisation/General Management, Financial Management, Airline Marketing, Customer Satisfaction, Internal Business Processes, Growth* and *Change* as crucial factors in determining the financial health of airlines was articulated in [16]. It is however evident from Table 1 above that *financial ratio* receives insignificant attention in analysing Nigerian airlines financial health.

It was posited in [17] that *mergers and acquisitions* are means of rapidly achieving external corporate expansion and growth which has sadly not been adopted by Nigerian airlines. Airlines in Nigeria could take advantage of such endeavour by pooling their resources to increase corporate values. Sources of added value are synergies found in both revenue or cost side of the business. Revenue enhancements can be achieved through the growth, increased market power, increased productivity attractiveness, access to scarce resources etc. Sources for cost synergies include removal of overlapping areas, increasing efficiency gains (economies of scale, scope, density and learning), and tax benefits [18].

5. STANDARD INDUSTRY PRACTICE OF ECONOMIC REGULATIONS

Table 3 shows the Financial Indicators available in public domains and as adapted from [19] and [20]. The table shows the various financial indicators as adopted by Jet Airways, South West Airlines and Delta Airlines. The table demonstrates a significantly improved approach to the current practices of ER as adopted by NCAA in the regulation of Nigerian airlines. This paper hereby calls for the need to reawaken the Nigerian airline industry and complete overhaul of ER in their venture for sustainable development and economic significance in the global aviation discus.

Table 3 Financial Indicators Applicable in the Public Domain

JET AIRWAYS	SOUTHWEST AIRLINES	DELTA AIRLINES
Investment Valuation Ratios	Short-term Liquidity Ratios	Growth Rates
Dividend per share	Current ratio	Dividend yield
Operating profit per share	Quick ratio	Dividend growth rate
Net operating profit per share	Average collection period in days	Sales growth rate
Investment turnover ratio	Inventory turnover	Earnings per share
Profitability Ratios	Long-term Liquidity Ratios	Financial Strength
Operating profit margin	Debts to total assets	Quick ratio
Gross profit margin	Debts to equity	Current ratio
Cash profit margin	Long-term debt to total capital	Long-term debt to equity
Net profit margin		Total debt to equity
Pre-tax profit margin	Profitability Ratios	Interest coverage
Return on net worth	Gross profit	
Return on assets	Return on sales	Profitability Ratios
Asset turnover ratio	Return on shareholder's equity	Gross margin
	Asset turnover	Pre-tax margin
Liquidity and Solvency Ratios	Pre-tax on operating asset	Net profit margin
Current ratio	Earnings per share	Return on assets
Quick ratio		Return on investment
Debt-equity ratio		Receivable turnover
Long-term debt to equity ratio		Inventory turnover
Debt to owners fund		Asset turnover
Financial charges coverage ratio		
Debtors turnover ratio		
Cash flow indicator ratios		
Dividend payout ratio net profit		
Dividend payout cash profit		
Earning retention ratio		
Earnings per share		

Adapted from [19] and [20]

These ratios have gained wide usage in global financial management and are predominantly employed in the airline industry to provide a more accurate, concrete and reliable basis for informed decision making for organisational growth, consumers, investors, creditors and the regulators. They also provide the basis for statistical inference, comparative and trend analysis in the industry. In fact, in the work of [13], the authors postulated that financial ratios are able to provide: a *method of standardisation; economic characteristics and competitive strategies for the organisation; indication for areas of potential strength or weaknesses and could reveal matters that need further investigation*. It is the position of this article that both the regulator (NCAA), airlines and other stakeholders (financiers, banks, insurance etc) could collectively utilise financial indicators in assessing the strengths, weaknesses, opportunities and threats of individual airlines and take corrective measures as opposed to witnessing of booms and bursts that has sadly characterised the Nigerian airline industry for decades.

The following paragraphs discuss four (4) key financial ratios and pinpoint their implications for Nigerian airlines in the holistic pursuit of ER of the industry.

a) ***Inventory Turnover Ratio*** measures the efficiency of the airline in managing and selling its tickets. Inventory turnover is an indication of how quickly the passenger seats are sold. It is derived by *dividing* the *'Cost of Goods Sold'* by the *'Average Inventory'*. The *implications* of *'Inventory Turnover Ratio'* are that a high value implies fewer funds being tied up and management efficiency. High inventory can also indicate limited capacity to meet traffic demand. Decrease in inventory turnover however, may indicate problems such as a wrong business plan or worsening competition levels. Low turnover can also represent legitimate reasons such as an industrial action or insufficient capacity to meet increased demand. As such, any airline having most of its assets tied up in inventory is heading for financial trouble.

b) ***Receivable Turnover Ratio*** is a crucial analytic financial ratio that measures how many times proceeds are turned into cash. That is, the sooner customers pay their bills, the sooner the airline can put the money in the bank, pay back debt or partake in new investment. It is obtained from *dividing* '*Sales*' by the *'Average Receivable'*. The *implications* of *'Receivable Turnover Ratio'* is that a relatively low turnover may indicate *inefficiency, overstated airline's income, future decline in service delivery, future liquidity problems, reduction in demand, or earnings manipulations.*

c) ***Fixed Assets Turnover Ratio*** compares the sales of the airline to its fixed assets. Fixed assets are generally important because they represent the largest component of total assets particularly in the airline industry which is largely capitalised. The fixed assets turnover ratio indicates the effectiveness and efficiency of an airline in using its fixed assets in generating revenue. It is obtained from *dividing 'Sales'* by the *'Average Fixed Assets'*. The implication for airlines is that a high ratio shows that an airline is *efficient at managing its fixed assets with less money tied up in fixed assets.* In practice, it is important for regulators to compare the *asset turnover ratio* over the years for the same airline in order *to ascertain whether the airline is progressing or deteriorating*. *It is also important to compare the asset turnover ratio among airlines in order to determine performing and non-performing airlines.* When the asset turnover ratios are low, this may represent that *either there is too much investment in assets including property, plant and equipment; or that sales are sluggish*.

d) ***Quick Ratio*** is the strongest test of an airlines financial strength and liquidity. The ratio measures airline's ability *to meet short term obligations, convert current assets to cash, reduce current liabilities and determine the ability to meet debt requirements as at when due.* It is derived by *dividing* the *'sum of Liquid Cash, Cash equivalents and Account Receivable'* by the *'Current Liabilities'.* Quick Ratio or Acid Test Ratio should be as low as possible. Typically a ratio of 1:1 is considered most appropriate.

6. COMPLIANCE OF NIGERIAN AIRLINES TO ECONOMIC REGULATIONS

The extent of compliance of Nigerian airlines to ER in terms of regularity and timeliness of reporting is a crucial element is assessing continued survivability of an airline. Findings and extracts from (Table 2) reveal serious inconsistencies in the timeliness of reporting in two (2) of the three (3) airlines sampled. The third airline demonstrates a complete non-adherence to NCAA ER as no records of financial audits has been filled since the airline's inception. Sadly, findings reveal that only a few airlines comply with the ER requirement to retire the Financial Health Return Forms and those that comply are not consistent in terms of regularity and timeliness. NCAA therefore resorts to the service providers for financial information about their clients (airlines); but many are not cooperative because of the confidentiality pacts with their clients and the belief that the NCAA is not empowered to compel the airlines to fulfil their terms of agreements.

Table 4 below shows variables for comparative analysis of the financial ratios as required by the NCAA/DATR [14] as contained in the Financial Health Return Form and those adopted as international best practice as adopted by Jet Airways, Southwest Airlines and Delta Airlines [19] and [20]. The shortfall of financial ratios and focus on cost component variables in the NCAA mechanism compared to the ratios derived from international best practice in public domain evidently reveal that there are gaps in the NCAA ER mechanisms and this may account for their usual reactive response in the event of an air mishap.

Table 4 Variables for Comparative Analysis

FINANCIAL RATIOS FROM DATR/NCAA FINANCIAL HEALTH RETURN FORM	INTEGRATED FINANCIAL RATIOS FROM JET AIRWAYS, SOUTHWEST AND DELTA AIRLINES
1.Total Direct Operating Cost	Liquidity and Solvency Ratios
2.Total Indirect Operating Cost	Current ratio
3.Total Operating Cost	Quick ratio
4.Total operating revenue	Debt-equity ratio
	Interest coverage
	Long-term debt to equity ratio
	Long-term debt to total capital
	Debt to owners fund
	Debts total assets
	Financial charges coverage ratio
	Debtors turnover ratio
	Profitability Ratios
	Operating profit margin
	Gross profit margin
	Return on sales
	Cash profit margin
	Net profit margin
	Pre-tax profit margin
	Return on net worth
	Return on assets
	Pre-tax on operating asset
	Return on shareholder's equity
	Asset turnover ratio
	Average collection period in days
	Receivable turnover
	Inventory turnover
	Dividend payout ratio net profit
	Dividend payout cash profit
	Earning retention ratio
	Earnings per share
	Investment Valuation Ratios
	Dividend per share/yield
	Operating profit per share
	Sales growth rate
	Net operating profit per share
	Investment turnover ratios

Adapted from [14], [17] and [18]

It is widely acceptable that financial ratios are more objective in assessing airline financial health and the comparative assessment that NCAA ER metrics is inadequate in addressing sustainable development of Nigerian airlines. This paper proposed a sustainable ER framework as contained in Table 5 below.

Table 5 PROPOSED FRAMEWORKS FOR FINANCIAL ASSESSMENT OF AIRLINES

LIQUIDITY AND SOLVENCY RATIOS	**PROFITABILITY RATIOS**
Current ratio	Operating profit margin
Quick ratio	Gross profit margin
Debt-equity ratio	Return on sales
Interest coverage	Cash profit margin
Long-term debt to equity ratio	Breakeven analysis
Long-term debt to total capital	Net profit margin
Debt to owners fund	Pre-tax profit margin
Debts total assets	Total operating cost (i.e. Direct and Indirect)
Financial charges coverage ratio	Total operating revenue
Debtors turnover ratio	Return on net worth
	Return on assets
	Pre-tax on operating asset
	Return on shareholder's equity
	Asset turnover ratio
	Average collection period in days
	Receivable turnover
	Inventory turnover
	Dividend payout ratio net profit
	Dividend payout cash profit
	Earning retention ratio
	Earnings per share
OPERATIONAL RATIOS	**INVESTMENT VALUATION RATIOS**
Available seat mile	Dividend per share/yield
Revenue passenger mile	Operating profit per share
Yield	Sales growth rate
Operating revenue per ASM	Net operating profit per share
Passenger revenue per ASM	Investment turnover ratios
Operating cost per available seat mile	
Passenger load factor	

The proposed framework will provide a more adequate, accurate and effective basis for monitoring airline financial health. In addition, financial ratios facilitate statistical inference, comparative analysis and trend analysis for assessing airline solvency and industrial growth. Although, non-financial metrics such as the extent of airline compliance with mandatory maintenance checks, insurance premium, ability of airlines to meet staff obligations, accidents and incidents etc. are useful indicators; they are only visible as the aftermath of distressed airlines; unlike financial ratios which are able to forecast the future financial condition of an airline and eminent consequences for the industry.

7. CONCLUSIONS, RECOMMENDATIONS AND FUTURE WORK

In conclusion, it can be seen that although there is a conscious effort by NCAA to monitor airline financial health and ensure that airlines operations are safe and sustainable, the existing ER mechanism does not effectively provide requisite information on the financial status of airlines because the metrics are incomprehensive and neither do they reflect the realities of the industry in terms of international best practices. It is therefore needful to benchmark best industrial practices and mechanisms in monitoring the financial health of airlines in developing countries. It is the position of this paper that effective financial assessment of the airline industry is dependent on close monitoring, adequacy and effectiveness of ER framework.

The following recommendations are proposed for strategic ER in the airline industry:

a) Establishment of effective regulatory framework for implementation of ER in terms of augmenting the existing non-financial parameters with financial ratios in order to be at par with industrial and international best practices.
b) Creating a platform for discussing financial issues that affect the Nigerian air transport industry.
c) Empowering NCAA to enforce its ER regulations irrespective of third party agreements of airlines and other service providers.
d) Government subventions in the form of bail-out funds as discussed in [8] should be objective and closely monitored in order to ensure that they are not diverted out of the airlines; as the alleged case with Air Nigeria.
e) Domestic airlines should also consider the options of *Merger and Acquisition* which will enable them to spread risks; sustain their operations; provide better access to the international capital market and provide employment opportunities for the industry.

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