

Evaluating the Significant Drivers of Domestic Airline Failures in Nigeria: an Analytical Evidence

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Abstract

The failure rate of domestic airlines in Nigeria suggests a proactive action to investigate the causal factors of Airline operations failure in the country. The study sourced secondary data to peep into the causal factors as extracted from the record of the Nigeria Civil Aviation Authority (NCAA). There were several factors identified multiple regression was employed step-wise to remove variables with less statistical significance till the most significant variables were achieved. Logistic multiple regression analysis was used to analyze the data. The study reveals the following variables such as inability to meet financial obligations, poor patronage, air-crash incidents, poor management, and poor load factor as the most significant factors. The analysis also revealed that "inability to meet financial obligations" emerged as the most influential factor, with a large positive coefficient (7.92) and a highly statistically significant p-value (0.0002). This implies that a company's failure to meet financial obligations significantly increases the probability of airline failure. Airlines should prioritize financial profitability and effective financial management practices to mitigate the risk of failure in the highly competitive and challenging aviation industry.

Keywords: *Financial obligations; poor patronage; Aircarsh incidents, Poor management and poor load factors*

1. Introduction

The historical trajectory of air travel in Nigeria dates back to the 1925 landing of an aircraft in Kano from Egypt, which has shaped the aviation sector's role in the global and Nigerian economies. Contributions from taxes, technological investments, and facilitation of foreign direct investment have fostered increased demand for air travel services, thereby generating substantial revenue and contributing significantly to the gross domestic product (GDP) (Gbadamosi & Adekunle, 2018; Ladele, 2012; Stephens, Ikeogu, Stephens, & Ukpere, 2014; Nigerian Bureau of Statistics, 2019; Sidiq, 2019), Sidiq et al 2021. However, this positive trajectory has been marred by the collapse of many domestic airlines in Nigeria, which has been attributed to several factors, (Uhuego, Daradara, Jubril, & Okafor, 2019). This paper aims to establish the significant drivers of airline failures over time in Nigeria. Past studies worked on general factors of airline failure, this work attempts to provide clues to the most significant variable causing airline failure.

The consequences and externalities of airline failures are multifaceted. When an airline fails, it comes with repercussions such as the reduction in available seat kilometers (ASK) which often leads to increased ticket prices, potentially compromising safety measures and negatively impacting passengers' quality of living standards (IATA, 2019; Potterie & Bruno, 2005). Moreover, the reduction in demand for ancillary services can contribute to unemployment, further affecting the overall standard of living. The repercussions extend to tourism, making travel more challenging for passengers trying to reach their destinations (Shobande & Akinbomi, 2020).

Failure in Business is frequently attributed to organizations' tendency to maintain the status quo and their inability to draw lessons from past mistakes (Baumard & Starbuck, 2005), (Edmondson, 2011). Academics of vast perspectives have deferred on what constitutes organizational failure over time. For example, some argue that it can be defined as the closing of the business (Schwarze, Bouckennooghe, & Vakola, 2021), the transfer of ownership of the business (Everet & Watson, 1998), or both. A business may cease operations when the owner chooses to step down and sell their assets to a willing buyer. A constraint of the aforementioned perspective is that it confines failures to rates of admission and departure (Amankwah-Amoah, 2016) (Everet & Watson, 1998). After the proprietor retires, many businesses frequently stop operating.

According to, Cameron, Sutton, & Whetton, (1988) and Hager, Galaskiewicz, & Bielefeld, (1996), organizational failure is the state in which a business ends operations and loses its identity as a result of its inability to respond and adapt to changes in the external environment promptly. In summary, firm failure is the actual end of the firm upon going out of business, or the entire dissolution of the organization (Vansteenkiste & Mark, 2008). The aforementioned criteria will serve as a guide towards assessing the significant drivers of airline performance and determine the significant factors that cause domestic airlines to fail in Nigeria

An intricate example of a corporate organization that has been plagued with persistent collapse is the airline industry, which consists of several entities including airlines, airports, maintenance centres, and travel agents that collaborate to offer seamless services to customers. Airports handle facilities, security, and ground services; airlines handle the scheduling of flights, crew management, fleet maintenance, ticket sales, and customer support services. The industry structure demonstrates how different Systems work together to provide passengers with a comprehensive service. When an airline is unable to continue operating because of financial insolvency or other operational inefficiencies, it is considered to have failed. It has been determined that a combination of internal and external factors can cause a firm to fail or succeed, (Amankwah-Amoah, 2016).

Records from the aviation authority underscore the severity of the issue, revealing that ten registered airlines that emerged during the full deregulation period (1991-2001) had failed. Despite the birth of new airlines, the number of active domestic passenger carriers

remained disproportionately low in 2019, considering Nigeria's vast population of about 200 million persons and a potential passenger for the foreseeable future of the country (Daramola & Tunde, 2019).

The heightened rate of airline failures raises serious concerns, as emphasized by Adekola, (2007), the understanding of both the causes and effects of airline failures becomes imperative for sustainable development and growth in the Nigerian airline industry. The basic question begging for answers is:

1. what are the general factors causing airline failure
2. what are the most significant factors of airline failure

2. Review of Literature

Theoretical Review

Integrative Framework Theory: The question of whether internal or external causes, play a key role in a firm's failure has been the subject of numerous research on organizational failure in the past. Research on organizational failure, both theoretical and empirical, indicates that these determinants are very differentiated from one another (Karmel & Adrian, 2004). Industrial-organizational theorists assert that external factors that may be outside of managers' control are to blame for industries' failures (Eruemegbe, 2015.) (Cameron, Sutton, & Whetton, 1988) . The proponents believe that unfavourable environmental factors can lead to organizational failure; they suggest that failure is a result of "natural selection," in which unfit firms are "thrown out" and "die." This implies that factors in the surrounding environment that allow new entrants can cause a firm's demise if it is unable to cope with the factor causing change (Amankwah-Amoah, 2016 Many new entrants have changed the airline business climate when the airline sector liberalized globally, making it more competitive, which has led to the demise and in some cases the rise of others. The IO theory can be summed up as follows: internal factors determine whether an organization succeeds or fails. Among these internal variables include inadequate management, an unsuitable financial balance, excessive trading, inadequate cash management, and inadequate accounting. (Morton , 2017) On the other hand, organization studies theory holds that external circumstances are what lead to organizational failure; according to them, managers' actions in a changing environment ultimately determine whether a corporation succeeds or fails (Barker & Duhaime, 1997), conducted a study on state-owned airlines and concluded that management restrictions and frequent leadership changes were some of the reasons behind the airlines' demise. A revised framework for analysing the causes of business failures or demise is called integrated framework theory, and it was proposed by Kamal Mellahi and Adrian Wilkinson in 2004. According to the harmonized framework, a firm's performance and ultimate downfall or destruction are largely influenced by both internal and external forces. Aspects of management and product-market alignment, such as inadequate

training, insufficient funding, excessive workforce, inadequate fleet maintenance, employee performance, branding, and marketing services, are examples of internal issues. The external factors include global competition, government policies, lax regulations, various taxes, competition and liberalization, and the economy (interest rates and inflation). This idea backs up the findings of (Kamel Mellahi P. Jackson Leigh Sparks, 2002), who stated that the interaction of organizational dynamics and contextual factors must be taken into account in any explanation of organizational failure. This theory applies to this study since it examines a variety of factors that lead to airline failures in Nigeria. The external factors include global competition, government policies, lax regulations, various taxes, competition and liberalization, and the economy (interest rates and inflation). This idea backs up the findings of (Kamel Mellahi P. Jackson Leigh Sparks, 2002), who stated that the interaction of organizational dynamics and contextual factors must be taken into account in any explanation of organizational failure. This theory is relevant to this study as it analyses a mix of the factors that are responsible for airline failures in Nigeria. It will slightly differ by looking at most significant factors in airline performance leading to failure of airlines. In the late 1970s and early 1980s, it became clear that the strict government regulation of the airline industry was no longer sustainable in Nigeria. Factors such as mismanagement, difficulties meeting passenger demand, routine flight delays, and cancellations prompted a re-evaluation of policies. The desire for accelerated development and the alignment with global trends in deregulation led to a landmark policy change. The government shifted from a conservative stance to allow private sector participation, resulting in the deregulation of the industry. This policy change led to unrestricted competition among operators, with 25 private airlines initially licensed. Three domestic operators—Okada Airlines, Kabo Air Travels, and Gas Air—were upgraded to scheduled operators, with Kabo and Okada later permitted to operate international routes. In 1995, the Aviation Development Company (ADC) and Bellview Airlines were granted permission to operate international routes.

Deregulation ended the era of a single carrier, but the entry of new operators brought challenges. Safety standards became a crucial focus due to the capital-intensive nature of the airline industry. Despite cautionary references to the Nigeria Airways trajectory, private investors ventured in, facing risks and financial challenges. Many operators struggled with maintaining aircraft due to expensive engineering checks, leading to numerous failures and fleet reductions.

By the early 1990s, eleven domestic carriers had a combined fleet reduction of seventy-five percent. Calls for mergers and acquisitions as a solution prompted scepticism due to funding challenges among operators. As of 2005, 177 airlines were granted operational licenses by the Nigerian Civil Aviation Authority (NCAA), but only 39 remained active. Notable airlines included Aero Contractor, Afrijet, Albarka, Okada, Chanchangi, Bellview, IRS, Fresh, Dasab, Sosoliso, ADC, Network Aviation Service, Kabo, Green

Africa EAS, Overland, and Air Peace Airlines (Diepriye & Ndi-Okereke, 1997). Below is the selected airlines that failed over time.

0-5 Years: Discovery Air

Discovery Air was founded in 2013, started operations in 2014, flying domestic routes. Privately owned by Babatunde Babalola with backing from First Development Water Discovery. Operated 3 B737-300s, faced challenges with its AOC revoked in 2015 due to unresolved concerns such as financial struggles, alleged debt, and mismanagement actions led to operational difficulties (Oyewole, 2014).

6-10 Years: Dasab, Fresh Air, Albarka Air

i Dasab Airline (2001-2007):

Operated domestic flights, failed to meet the 2007 capital requirement by NCAA. AOC was revoked along with six other airlines (Ndubuisi, 2004).

ii Fresh Air (1999-2007):

Passenger and cargo airlines failed to meet the 2007 recapitalization target set by the NCAA. Operated various services, including trader flights and aerial photography (Reuter, 2021).

iii Albarka Air (1999-2007):

The joint venture founded in 1999, based in Abuja, operated domestic flights. AOC was revoked for not meeting the capital requirement (Ndubuisi, 2004). 11-21+ Years: IRS Airlines, Sosoliso, Nigerian Airways

11 to 21+ years: IRS Airlines, Sosoliso, Nigerian Airways

i IRS Airlines (2002-2014):

Privately owned, grounded in 2013 due to aircraft hydraulics issues. Planned to resume operations, faced an accident in Niger Republic, leading to suspension and debts (Oyewole, 2014).

ii Sosoliso Airline (1994-2006):

Tragic accident in 2005 led to suspension, unable to meet 25% capitalization introduced by NCAA in 2006. Operated domestic flights with a fleet of McDonnell Douglas aircraft (Oyewole, 2014).

iii Nigerian Airways (1961-2003):

Founded in 1961, wholly owned by the Nigerian government. Once a major player in African aviation, faced demise due to massive debt, mismanagement, and corruption (Adeoye, 2022; Ogbeidi, 2006). Interesting all the aforementioned airlines failed due to one reason or the other, that's why this paper seeks to examine the causal factors of airlines failure in Nigeria.

3. Methodology

Data for the studies was collected from secondary sources. The sources of data were from the Nigeria Civil Aviation Authority and the Corporate Affairs Commission of Nigeria. The model specification is as stated below;

The standard equation for logistics multiple regression analysis is given by:

$$y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + \dots + b_nx_n + e \dots\dots\dots \text{Equation 1}$$

where, y is a dependent variable i.e. failures of airline

b_0 is the intercept; b_1, b_2, b_3 and b_n are the coefficients of the variables; x_1, x_2, x_3 and x_n are the independent variables

e is error term.

Note, there were several factors identified from literature that are causing are lines to fail multiple regression was adopted by using a step-by-step approach, otherwise called stepwise multiple regression to remove factors with less statistical significance till we end up getting the most significant independent factors. This was done using the backward elimination method as all the identified factors will be included in the starting iteration till we have our desired model. Below is a list of identified factors

- i. High operational cost;
- ii. Lack of harmony between the aviation policy of the country and sub-regional policies;
- iii. Inadequate provision of power;
- iv. Secure airport terminal (robbery, theft, injury and others);
- v. Scarcity of forex;
- vi. Provisions in employment contract;
- vii. Misalignment of policies among parastatals and ministries;
- viii. Age of fleets;
- ix. Incompetent management and poor business model;
- x. Commission for travel agents;
- xi. Administrative and overhead costs;
- xii. Corruption and unethical practices;
- xiii. Lack of perimeter fencing of airports;
- xiv. Absence of competitive reward system;
- xv. Health security due to coronavirus (COVID-19) and other diseases;
- xvi. Poor emergency response procedures;
- xvii. Low level of implementation of safety measures;
- xviii. Coordination among various security agencies at airports;
- xix. Excessive control and interference by supervising ministry;
- xx. Accident rate;
- xxi. Poor Management-labour relationship;
- xxii. Rising inflation;

- xxiii. Secure road to airport (robbery, theft, injury and others);
- xxiv. Poor Airport project planning skill;
- xxv. Emission of noise, toxic wastes, and greenhouse gases;
- xxvi. Supervision and enforcement of traffic rules;
- xxvii. Cost of aviation fuel (Jet A-1);
- xxviii. Stowaway incidences;
- xxix. Lack of Government's political will to implement formulated policies;
- xxx. Weakening of the naira against the dollar;
- xxxi. Shortage of skilled personnel (skill gap);
- xxxii. Technology and Airport Information System;
- xxxiii. Drugs trafficking using airport as routes;
- xxxiv. Centralization of decision making by supervising ministry;
- xxxv. Poor maintenance culture;
- xxxvi. Inadequate number and small fleet sizes of aircrafts;
- xxxvii. Standard runway and terminal facilities;
- xxxviii. Misalignment between policies and the requirements of the sector;
- xxxix. Debt burden;
 - xl. Unfavourable policies;
 - xli. Lack of transparency and accountability;
 - xlvi. Poor implementation of policy;
 - xlvi. Inadequate training and personnel development;
 - xlv. Charges and taxes to the government; and
 - xlv. Inadequate funding by government
 - xlvi. Load factor
 - xlvi. Profitability
 - xlvi. Breakeven
 - xlix. Service Quality
 - 1. Over supply

The above was reduced via the multiple regression which adopted a stepwise logit model to these five factors; inability to meet financial obligations, poor patronage, air-crash incidents, poor management and poor load factor.

4. Result and Discussions

The causes of failure of airlines were observed from the records of NCAA and the CAC used by the study to be: inability to meet financial obligations, poor patronage, air-crash incidents, poor management and poor load factor. These causes are in agreement with existing literature [Adeoye & Musa (2019), Uhuego, Daradara, Jubril, & Okafor (2019), Amankwah-Amoah &

Yaw, 2010, Amechi, Ibe, Ejem, & Okeudo, 2022, and Ojebode (2022)] and they are seen to be those that can be controlled internally and those that cannot be controlled by the airlines. From the logistics multiple regression analysis, to determine the most causal factor of the failure of the airlines, we considered the coefficients of the independent variables in the regression equation.

In a logistic regression model, the coefficients represent the change in the log odds of the dependent variable (in this case, Airline failure) associated with a one-unit change in the corresponding independent variable. The larger the coefficient (in absolute value), the more significant the impact on the probability of failure and this is confirmed by the *p-value* at a 5 % mark of significance so that as the *p-value* reduces or tends toward zero or below it we say that the factor is very significant as a causal factor. Based on this “in ability to meet financial obligations”, with the largest coefficient (7.919682814) and a *p-value* of 0.000236632 is the most significant causal factor (see Table 1). The *p-values* confirm the statistical significance of the coefficients, a low *p-value* (typically less than 0.05) suggests that the variable has a significant impact on the outcome. Worthy of note are the signs of the coefficients (positive or negative), a positive coefficient indicates an increase in the probability of failure when the independent variable increases, while a negative coefficient suggests a decrease in the probability of failure. "Inability to meet financial obligations" and "Poor patronage" have positive coefficients, while the others have negative coefficients. Given these considerations, "Inability to meet financial obligations" with a large positive coefficient and high statistical significance seems to be the most causal factor of failure in this model. This means that a company's inability to meet its financial obligations significantly increases the probability of failure.

Table 1: Causes of failure in the Nigerian Airline Industry

Regression Statistics								
Multiple R	0.600621909							
R Square	0.360746677							
Adjusted R Square	0.321224307							
Standard Error	10.55834631							
Observations	95							
ANOVA								
	Df	SS	MS	F	Significance F			
Regression	5	5661.919096	1132.383819	10.15785128	1.01504E-07			
Residual	90	10033.0809	111.4786767					
Total	95	15695						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	9.215303004	2.588448478	3.560164741	0.000597398	4.072111014	14.35849499	4.072111014	14.35849499
Inability to meet financial obligations	7.919682814	2.06777926	3.830042677	0.000236632	3.811678402	12.02768723	3.811678402	12.02768723
Poor patronage	2.604885962	2.004397869	1.299585278	0.19706212	-1.377200254	6.586972177	-1.377200254	6.586972177
Air-crash incident	2.336062082	1.882027795	1.241247387	0.217739848	-1.402914623	6.075038787	-1.402914623	6.075038787
Poor management	0.594581945	1.959264886	0.303471955	0.762230644	-3.297839722	4.487003612	-3.297839722	4.487003612
Poor load factor	0.000322167	2.029813911	0.000158718	0.999873713	-4.032257452	4.032901786	-4.032257452	4.032901786

Source: Field work 2023

5. Conclusion

The general factors of airline failure have been identified above, as well as the significant factors via a logistic regression analysis which was conducted to determine the most significant causal factors contributing to airline failure. The study considered variables such as; inability to meet financial obligations, poor patronage, air-crash incidents, poor management, and poor load factor. The analysis revealed that "inability to meet financial obligations" emerged as the most influential factor, with a large positive coefficient (7.92) and a highly statistically significant p-value (0.0002) This supports the findings of (Morton , 2017) and (Karmel & Adrian, 2004) who identify it as an internal factor in is work. This implies that a company's failure to meet financial obligations significantly increases the probability of airline failure. Airlines should prioritize financial stability and effective financial management practices to mitigate the risk of failure in the highly competitive and challenging aviation industry. The following airline such as Bellview, Sosoliso, Albarka, ADC, IRS, Fresh, and Dasab failed due to recapitalization issues in 2006 lending credence to the findings of this study.

Conclusively, It's important to identify and tackle these causal factors to mitigate the incidences of airline failure in Nigeria.

6. Recommendation:

Airlines should be granted financial bail to keep the industry solvent thereby averting incidences of failure as was the case of most airlines that failed in Nigeria.

Profitability as a measure of the high load factor, that guarantees the sustainability of the industry should be the target.

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