

Effect of Ownership Structure on Financial Performance: Evidence from Listed Airlines in Africa

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Abstract

Objective: This study empirically examines the impact of ownership structure on the financial performance of listed airlines in Africa.

Design/Methods/Approach: The research utilized quantitative techniques to collect secondary data from listed airlines over ten years (2010-2019). Descriptive statistics and multiple regression were used for analysis.

Findings: The results revealed that airlines with the majority of private domestic and private foreign ownership showed a significant positive effect on financial performance (ROA and ROE). In contrast, state ownership had an insignificant impact on airlines' financial performance. The study supports the property rights theory, emphasizing the importance of private ownership in airlines.

Originality/Value: This study adds to the existing literature by providing evidence on how ownership structure influences financial performance in African airlines, contributing to aviation research.

Practical/Policy Implication: The findings suggest that private and foreign investors should consider acquiring controlling airline stakes to enhance financial performance. Policymakers should aim to create flexible laws and regulations that attract domestic and foreign private investors to the aviation sector, potentially fostering improved management practices and policy developments.

Keywords: Airlines; Financial performance; Ownership structure; Private ownership; State ownership.

JEL Classification: L25, G32



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I. Introduction

Humanity has aspired to attain ownership and governance over meaningful objects throughout history. Ownership of an object confers the legally enforceable right to choose the terms and conditions of its use and operations, ultimately granting the owners the freedom to make choices in alignment with their desires (Järvihaavisto & Öhman, 2022). Owners of a firm can play a crucial role in influencing its capacity to innovate. Ownership may influence a firm's incentives to seek innovation and efficiency (Zhong et al., 2022). Innovation and efficiency are critical variables in a firm's ability to thrive and adapt in a dynamic environment (Cavich et al., 2021). The ability of the firm to thrive and adapt will eventually affect its financial performance in the long run, as such an ability enhances its competitiveness and competencies in the marketplace (Wanasida et al., 2021). In that light, there exists a potential that the ownership structure of airline firms might affect their financial performance.

Airlines are predominantly owned by the state in most nations, as reported in the list provided by the International Civil Aviation Organization, in which only a minority of the listed airlines have a majority shareholding of the private sector (ICAO, 2016). Su et al. (2017) Argue that state ownership might play a vital role in firm performance because the state can step in and direct when the management is not performing as expected. However, it is also probable that state-owned enterprises will place less emphasis on profit maximization since the government typically has other non-economic interests while running an enterprise (Chen, 2021; Shekhar, 2022). There is a chance that state involvement in firm ownership might influence its financial performance either positively or negatively (Nguyen et al., 2021).

Various scholars have tried to establish the effects of airline ownership structures on their financial performance. Suhardjanto and Ajibroto (2017) studied the effect of ownership structure on the financial performance of Australian and Asian airlines. Their research revealed that foreign ownership and state ownership positively affected the financial performance of airlines in Australia and Asia. Backx et al. (2002) employed panel data from a selection of big and medium-sized international scheduled passenger airlines for 1993-1997. They determined that the financial performance of public sector airlines was not as good as that of privately-owned airlines. They also find that airlines with mixed ownership tend to outperform public-sector airlines but underperform private-sector airlines. Burgos Suarez (2014) determined that private airlines produced higher revenue than state-owned airlines when looking at the Impact of Ownership Structure on the Financial Performance of Airlines in an International Context. C.-H. Lee & Hooy (2012), investigating the factors determining airlines' systematic financial risk exposures in North America, Europe, and Asia, found that airlines with government ownership recorded significantly higher earnings growth before interests and tax than airlines without government ownership. Soranzo's (2020) research examined the European airline industry performance using data from 41 European airlines from 2009 to 2018. The results showed that privately owned airlines had a better financial performance than public-owned airlines. Indicating that public-owned airlines are most readily skewed from profit maximization aims, worsening their financial performance.

There are mixed views from prior research on the effect of ownership structure on the financial performance of airlines. Some scholars determined that foreign and state ownership had a far more significant positive effect on financial performance (Suhardjanto & Ajibroto, 2017; Lee & Hooy, 2012), while others concluded that private ownership had a far greater significant effect on the financial performance of airlines. (Soranzo, 2020 ; Burgos Suarez, 2014). In all its essence, we cannot hide from the fact that ownership structures do somehow affect airlines' financial performance.

The reason for the mixed findings is that the relationship between ownership structure and financial performance may vary depending on the specific context of the airline and the broader economic environment in which it operates. For example, in a highly competitive market, an airline with a firm owner who can make quick and decisive strategic decisions may have an advantage over those owned by the state or with a mixed ownership structure. However, the ownership structure might be less critical in determining financial performance in a more stable market.

Scanty research focuses on airlines' ownership structure and financial performance in Africa. Ochieng and Ahmed (2014) studied Kenya Airway's Financial Performance since privatization and determined that privatization had a positive effect on the airline's financial performance. Yifru (2017) determined that State Influence is the most important factor influencing Ethiopian Airlines' success in most areas, such as allowing industry experts to manage the airline freely, allowing the airline to reinvest its profit with no tax payment, and allowing the airline to expand its fleet of aircraft. Again, it is inconclusive, and the researchers studied only single airlines, making it harder to assume the results will be useful if carried over to all airlines in Africa.

With inconclusive results, gaining further insight into the ideal sense of financial performance becomes imperative. In its natural and ideal sense, good financial performance is essential for any firm to operate smoothly. This is needed since all firms across the globe have limited resources, which makes it imperative for them to perform well financially, or else they will perish from a lack of surplus inflow of resources (Twesige & Gasheja, 2020). This ideology applies to all firms, including the airlines. However, industry insight from global management consulting firm McKinsey and company has indicated that the airlines have never been able to earn their cost of capital in any of the years that they have existed, and only a select few airlines have been able to increase their shareholders' wealth (Alex et al., 2022).

Various efforts have been taken to alleviate airlines' financial problems. For example, the government of Kenya is considering selling all its stakes in Kenya Airways Plc (Business Daily, 2022). The South African government also sold

its majority stake in South African airline (Nqobile, 2021) to a private consortium. However, as McKinsey has reported, only a handful of airlines have managed to increase shareholders' wealth over time. Since the problem is persistent, it has become vital to carry out a study to understand the effect of ownership structure on the financial performance of airlines listed in Africa.

This study will make several contributions to the understanding of the aviation industry in Africa. Firstly, it will address the existing gap in research by adding to the existing body of knowledge that has investigated the impact of ownership structure on the financial performance of airlines listed in Africa. The current existing gap stems from a limited number of studies that have been carried out in Africa and the inconclusive results reached from similar studies that were carried out in other parts of the globe. Additionally, the insights gained from this research will provide valuable guidance for decision-makers in the African aviation sector, which is crucial for economic growth. Pavlovich (2017) argued that airlines contribute towards a nation's competitiveness in the global economy, which ultimately leads to economic growth, foreign investment flow, enhanced trade, and employment opportunities.

This research paper contains several sections, beginning with an introduction that provides an overview of the topic and its significance. The theoretical underpinning section provides a view of relevant theories and concepts that form the basis of the study. The hypothesis development section outlines the specific hypotheses being investigated. The data and methodology section details the research methods and data sources used in the study. The results and discussions section presents the findings and their implications. The conclusions and recommendations section summarizes the essential findings and suggests practical implications of the research outcomes. The final section addresses the research limitations and suggests areas for further research.

2. Theoretical Underpinning

After reviewing prior studies, exploring the theoretical underpinnings of the relationship between ownership structures and financial performance is crucial, which will provide an enhanced framework for developing the hypothesis. This research was guided by the property rights theory, which argues that the nature of ownership structure in any organization affects its performance (Grossman & Hart, 1986). This theory emerged in the mid-20th century. It focuses on the significance of well-defined and secure property rights in shaping economic behaviour and resource allocation. It highlights the role of institutions in promoting efficiency, investment, and economic growth. Rakhman (2018), based on this theory, suggested that privately owned firms may outperform publicly owned ones due to clear and well-defined property rights, which incentivize the owners to invest time and resources in firm maintenance and improvement.

In contrast, publicly owned firms (such as state-owned enterprises) may have less well-defined property rights, leading to poor performance. Additionally, privately owned firms may have more flexibility in their decision-making and be more responsive to market signals, leading to enhanced performance. Based on this theory, this paper was set to determine if the ownership structure affects the financial performance of airlines listed on African stock exchanges.

3. Hypothesis Development

As argued by Rakhman (2018), who placed relevance on the property right theory, privately held companies may have a performance advantage over publicly owned enterprises because their property rights are explicit and well-defined, incentivizing the owners to devote time and resources to the maintenance and enhancement of the company. It is intriguing to determine whether the argument is valid and the property right idea is valid. By empirically evaluating the link between the ownership structure and airlines' financial performance, we may produce a result that either supports or completely refutes the concepts provided by the property rights theory. In addition, the recent losses suffered by African airlines such as Air Tanzania and Kenya Airways, as well as the Kenyan president's plan to sell the government's entire stake in Kenya Airways to private investors, make us question whether ownership structure has any influence on the financial performance of airlines.

Various researchers have also questioned whether the ownership structure of an airline has any relevance to its performance. By reviewing them, we can unveil a noteworthy pattern. Suhardjanto and Ajibroto (2017) delved into Australian and Asian airlines, discovering that foreign and state ownership positively impacted financial performance. Backx et al. (2002) scrutinized international airlines and found a superior financial performance in privately owned and mixed-ownership airlines compared to their public sector counterparts. Burgos Suarez (2014) echoed these findings, emphasizing that higher revenue is earned by private airlines on a global scale. Lee and Hooy (2012), however, found different results. They determined that there was significantly higher growth in earnings for government-owned airlines in North America, Europe, and Asia. Soranzo's (2020) European focus revealed superior financial performance in privately owned airlines. Czerny and Lang (2019) further argue that private ownership fosters efficiency and financial stability within airline organizations. The dynamics of private ownership contribute significantly to preventing substantial financial losses due to its ability to enhance revenue generation and cost efficiency.

There is an elusive ground of understanding on which it is difficult to collectively agree on the commonality of the intricacies of the relationship between ownership structures and the financial performance of airlines across the

globe. The complexity of the relationship deepens as contextual factors come into play. In Africa, research on ownership structures and financial performance remains scanty. Ochieng and Ahmed (2014) concluded that privatization positively affected Kenya Airways, while Yifru (2017) highlighted the state influence and the success it brought to Ethiopian Airlines. Apart from their different views, their narrow focus on studying individual airlines makes it challenging to generalize these findings to the broader African aviation landscape. To obtain a more comprehensive understanding of the effect of ownership structures on the financial performance of African airlines, the following hypothesis is proposed as a guiding framework for this study.

H₁: The ownership structure of an airline has a significant effect on its financial performance

The above hypothesis was grounded on the divergent outcomes from existing studies and the need to contribute valuable insights to the discourse on the relationship between ownership structures and financial performance in the airline industry. This study has examined and analyzed various ownership structures, including private, state-owned, or mixed ownership, to discern patterns supporting or challenging the hypothesis. The findings contribute to understanding the intricate relationship between ownership structures and financial performance in the challenging aviation landscape in Africa.

4. Data and Methodology

In the quest for the answers, researchers opted to utilize the quantitative research technique; this technique was opted for due to its ability to facilitate analysis of a large number of subjects and its ability to provide accurate and reliable measurements when appropriately utilized (Soundarapandiyan & Ganesh, 2018). Secondary Data was collected for nine listed airlines for ten years ranging from 2010 to 2019. The year 2010 was selected due to the number of mergers and acquisitions among airlines announced or completed during that year. The consolidation of the airline industry through mergers and acquisitions could have resulted in a variety of impacts, including changes in the competitive landscape of the industry, economies of scale, and the ability to offer a wider range of routes and services to customers, all of which could have had a ripple effect and disturb the financial performance of Airlines in various parts of the world. Some merger and acquisition events of significant importance in the airline industry that occurred in 2010 are as follows. (1) The merger of United Airlines and Continental Airlines to create the world's largest airline was announced in 2010 (Smith, 2010); (2) Southwest Airlines announced that it would acquire Air Tran Airways in 2010 (Mouawad, 2010); (3) Delta Air Lines and Northwest Airlines merger was completed in 2010 (ICAO, 2010).

The major data sources were airline websites and African stock exchanges, such as the Dar es Salaam Stock Exchange, Nairobi Exchange, Johannesburg Stock Exchange, Uganda Stock Exchange, Tunis Stock Exchange, Algeria Stock Exchange, and Lagos Stock Exchange. African airlines were selected due to the unique context of the African aviation industry, which faces distinct challenges and opportunities in comparison to other airlines from other areas of the world (Basal & Suzen, 2023)

Nine airlines were selected, depicted in Table I below, despite having more than ninety-five airlines to facilitate data collection as data was not readily available for all the airlines. The collected data resulted in an unbalanced panel data due to the data quantity mismatch caused by the absence of data for some airlines, particularly in the years prior to 2015, when some were not yet listed.

Table I. Listed airlines whose data are publicly available online.

SN	AIRLINE	COUNTRY
1	Comair	South Africa
2	Precision Air	Tanzania
3	Kenya Airways	Kenya
4	South African Airways	South Africa
5	Egypt Air	Egypt
6	Med-view Airline	Nigeria
7	Air Mauritius	Mauritius
8	Trans-Nationwide Express	Nigeria
9	Red Star Express	Nigeria

The study comprised three independent dummy variables, three control variables, and two dependent variables. All variables and their measurement are explained in Table 2.

Table 2: Definition of variables and their measurement.

Variable	Measurement
MS	MS stands for Majority State dummy variable, which will have a value of 1 if over 50% ownership of the firm is with the government and will take the value of 0 if the majority of ownership is private, including domestic private and foreign ownership.
MP	MP stands for Majority Domestic Private dummy variable, which will take the value of 1 if over 50% of shares are owned privately by domestic investors and 0 if over 50% of the share is owned by both state and foreign private investors.
MF	MF stands for Majority Foreign dummy variable, which will take the value of 1 if over 50% of shares are owned privately by foreign investors and 0 if over 50% are owned by both state and domestic private investors.
Age	This variable was measured by the number of years the airline has been in operation.
Size	This variable was measured by applying the natural logarithm to the airlines' assets. The rationale is to minimize the bias resulting from different economies of scale the airline enjoys.
Country Effects	The country effect was measured as a dummy variable to control the effect of the particular country to arrive at unbiased statistical estimates.
Return on Equity (ROE)	It was measured by computing the profit ratio before tax and interest to equity shareholders. The shareholder's equity comprises both ordinary and preference shares as well as all reserves of the Company (Purnamasari, 2015). The ratio measures the proportion of the returns generated using the owner's funds (Ahsan, 2012).
Return on Assets (ROA)	It was measured by computing the ratio of profit before interest and tax to the total assets of the airline during the particular financial year. It shows how the airline's assets generate returns. (Swai and Mbogela, 2014).

4.1. Data Analysis

Multiple regression was employed as a tool of analysis because it is useful when there is more than one independent variable and one continuous dependent variable (Sujud & Hashem, 2017). Hausmann test was conducted to determine whether the random effect model and the fixed effect model were suitable for analysis. Other tests were carried out to determine the normality of data and if there was a multicollinearity amongst the independent variables. STATA software was utilized to conduct the analysis, and the regression model used to estimate the parameters were as follows;

$$ROA = \alpha + \beta_1 MS + \beta_2 MP + \beta_3 MF + \beta_4 A + \beta_5 S + \beta_6 CE + \varepsilon \dots \dots \dots (i)$$

$$ROE = \alpha + \beta_1 MS + \beta_2 MP + \beta_3 MF + \beta_4 A + \beta_5 S + \beta_6 CE + \varepsilon \dots \dots \dots (ii)$$

ROA and ROE were the proxies for financial performance, representing return on assets and return on equity. ROA assesses the airline's ability to generate profit proportionately to the total assets employed to pursue such profits. It is determined by dividing the business's net revenue (or profits) by its total assets (Ningsih and Sari, 2019). ROA was selected because, apart from showing profitability, it is also an indicator of operational efficiency (Strouhal et al., 2018). ROE measures airline profitability relative to the capital invested by its shareholders. It is computed by dividing the company's net income (or profits) by its total shareholder equity. ROE was selected as a proxy for financial measures since it indicates how the firm uses equity to create more value for its shareholders (Ibbett, 2020). MS stood for majority state ownership, MP stood for majority domestic private ownership dummy, MF stood for majority foreign ownership dummy, A stood for firm age, S stood for airline size, CE stood for country dummy capturing time-invariant country-specific effect, and ε was the error term. Firm age and size were selected as a control variable because literature has shown that they can influence financial performance (Muharam & Atyanta, 2021; Novitasari & Agustia, 2022; Qurashi, 2017; Silvy Christina, 2019).

5. Results and Discussions

5.1. Descriptive Statistics

Descriptive statistics were run to summarize and describe the basic features of the dataset. Such analysis is vital to obtain an insight into the dataset by observing essential figures like the mean and standard deviation, which can guide further analysis (Feng, 2022). Table 3 presents the results of the descriptive analysis.

From Table 3, the mean value for ROE is 0.3990 with a standard deviation of 0.8395, indicating a significant deviation of the dataset from mean values. The mean value for ROE is closer to the minimum value and far from the maximum value. This implied that many of the sampled airlines had accumulated negative equities; such outcomes could

be due to the high costs of starting and running an airline business and the competitive nature of the airline industry, leading to low profit margins and making it easier for negative equity to build up. ROA had a mean value of 0.0003 and a standard deviation of 0.1606. ROA of 0.0003 is substantially low, which can be attributed to the capital-intensive nature of the aviation industry (DeRiso, 2004). Buying and running an airplane necessitates a massive initial outlay of capital, thus leaving gigantic values of total assets in the balance sheet. High levels of capital intensity limit profit creation, resulting in low levels of ROA. The airline industry's low return on assets reflects the industry's hard economic situation and the complexities of combining capital intensity and profitability with operational efficiency.

Table 3. Descriptive statistics

Variable	Observation	Mean	Std. Dev	Min	Max	
Return on Equity	ROE	83	0.3990	0.8395	-0.4382	5.4242
Return on Assets	ROA	83	0.0003	0.1606	-0.5715	0.3706
Majority State	MS	83	0.6018	0.3629	0.5089	0.9800
Majority domestic	MP	83	0.7523	0.2498	0.6061	0.9000
Private						
Majority Foreign	MF	83	0.7228	0.3213	0.6540	0.8833
Size	Size	83	8.2847	1.2486	6.0900	10.0653
Age	Age	83	48.9398	24.8303	9.0000	91.0000

In the case of core independent variables, the lowest and highest value of state ownership for all sampled airlines owned by the government were 0.5089 (51%) and 0.9800 (98%), respectively, implying that for the sampled airlines whose ownership were in government hands, the government had 51% to 98% share ownership with the mean value of 60%. Also, some privately owned airlines by domestic shareholders had minimum and maximum value of share ownership of 60.61% and 90.00%, respectively. This means that some airlines have little government or foreign share ownership. Lastly, airlines owned by foreign shareholders showed that the lowest value of shareholding that enabled foreigners to take ownership of the airlines in other countries was 65.4%, and the highest level reached 88.3%. With a mean value of 72.2%

Considering the control variables, the youngest airline in this study is nine (9) years old, and the oldest is ninety-one (91) years old. The wider dispersion between the minimum and maximum ages signifies a pleasant sample composition comprising very young, medium, and very old airlines. Therefore, even generalization of the results from the inferential analysis will be meaningful and unbiased as the sample included young, growing and aged airlines. The average size of the airlines received a score of 8.28 out of 10 with a minimum score of 6.09 and a standard deviation of 1.245, indicating that the sampled airlines were fairly large and the majority of them had a size close to the mean size as the standard deviation is not large.

5.2. Diagnostic Tests

Before analyzing the various regression models, four statistical tests were performed to ensure the best and most accurate estimations. The normality test showed that this study's data were normally distributed. Second, we did multicollinearity tests to determine the degree of correlations between variables. The Variance Inflating Factor (VIF) was below ten (10), and the tolerance threshold for all variables exceeded 0.1, indicating no multicollinearity issue. The heteroscedasticity test determined that data with dependent variable ROA had constant variance. The result changed when ROE was the dependent variable since the model data had no consistent variance. These findings led the researcher to use robust standard error in the regression model with ROE to address the statistical issue. Finally, The Hausmann test determined that the fixed effect model would be used.

5.3. Regression Results

A fixed effect regression model with Robust Standard Error was performed. The robust standard error was used to rectify the data's heteroscedasticity to provide accurate estimates and unbiased statistical inference from the regression model. The residuals had constant variance. Hence, a normal standard error was used during regression analysis. Tables 4 and 5 for ROE and ROA show the regression analysis findings and their interpretation, respectively.

The result of the fixed effect regression model with the robust standard error shown in Table 4 has an established R^2 of 52.29% with the Prob > F = 0.0082. The data fits the regression model, and independent variables can explain 52.29% of the variations in the dependent variable. From the table, we can also note that Airline size, Airline age, Domestic private ownership and majority foreign private ownership significantly affected ROE. In contrast, state ownership did not have a significant influence on ROE. Airline age had a negative effect, meaning that its ROE was

reduced as the airline grew older. This could result from the ever-increasing competition in the airline industry and the old airline carriers failing to keep pace with the modern changes in plane fuel efficiency as they have ageing fleets, which are costly to operate and thus decrease their ROE over time (Scholtz, 1998). Private ownership, both domestic and foreign, had a significant positive effect on airline ROE; these results are similar to those of (Suhardjanto and Ajibroto, 2017) and contradict those of (Lee and Hooy, 2012). These results align with the property rights theory, which argues that the nature of ownership structure in any organization affects its performance (Grossman and Hart 1986).

Table 4: Output of the fixed effect regression model (ROE)

Variable	Coefficient	Robust Std. Err	P > (t)
Airline size	0.0185	0.0672	0.025
Airline Age	-0.0128	0.0382	0.003
Majority state ownership	-0.5384	0.2963	0.099
Majority of domestic private ownership	0.553	0.3249	0.014
Majority of foreign private ownership	0.4634	0.1737	0.004
Constant	1.0766	0.836	0.027
R squared		0.5229	
Prob >		0.0082	

We can argue that Airlines with most private ownership have well-defined property rights (Sa, 2022). Thus, the owners' interests are more likely to be aligned with the airline's performance. Under such circumstances, the airline's performance may improve due to owners' greater commitment to business methods and the maintenance and improvement of the airline's fleet. In contrast, state-owned and other publicly-owned airlines may have property rights that are not secured and defined as the state is a dynamic body without a perspective of individualism in airline ownership. This argument is further enhanced by ideas obtained from (Titova, 2021). Based on his arguments, we are also intrigued to argue that private property rights protected by state laws play a crucial role in the aviation sector by enhancing work motivation, personal interest and economic initiative among individuals and organizations involved in the industry. Like in any other sector, state involvement in the aviation industry should be limited to ensuring legal frameworks for market interaction while allowing private property rights to flourish. This balance will allow for innovation, investment and growth in the aviation sector, benefiting the industry and the consumers it serves and enhancing its performance. This insight holds significant practical implications for airline management, suggesting that an airline's performance could see improvement under private ownership due to heightened owner commitment to business methods, maintenance, and fleet enhancement.

Conversely, state-owned and publicly-owned airlines, lacking secured property rights, may grapple with substandard performance. It might also be evident that the setup of ownership within a majority state ownership might undercut incentives obtained from private ownership and result in substandard performance of the airline (Zeng et al., 2020). These results further signify the theoretical implications of the property rights theory which centers on clear and well-defined property rights essential for the efficient functioning of an economy and the protection of business liberty. When property rights are secured, individuals will be incentivised to use resources productively, invest in the future, and engage in mutually beneficial exchanges. Private property rights lead to Individualism, leading to specialization by deterring infringement, ultimately leading to enhanced firm performance and economic growth.

Neoinstitutional economists argue that significant transaction costs may arise due to unclear property rights (Yuan et al., 2020). That is due to the difficulties stemming from individuals or organizations failing to determine who has the authority to decide what to do with a resource or asset and what measures to take when operating such assets. This may lead to arguments and other types of ambiguity, increasing the cost and complexity of transactions using the resource or asset. Eventually, it becomes difficult for businesses to invest and conduct operations, resulting in poor performance. We are also prompted to see such views based on the results obtained from our analysis, as the majority state ownership negatively affected ROE even though it was not significant at the 5% level. That does not mean the results are useless, as a p-value of 0.113 leaves room for an 89% chance of occurrence that is not of a random chance.

Table 1: Output of the fixed effect regression model for ROA

Variable	Coefficient	Std. Err	P > (t)
Airline size	0.0005	0.0192	0.002
Airline Age	-0.0113	0.0145	0.004
Majority state ownership	-0.0137	0.0468	0.123
Majority of domestic private ownership	0.0452	0.0477	0.002
Majority of foreign private ownership	0.0407	0.0457	0.008
Constant	0.3944	0.1921	0.01
R squared		0.694	
Prob >		0.0317	

The result of the fixed effect regression model with normal standard error for ROA shown in Table 5 has an established R^2 69.4% with the Prob > F = 0.0317. This indicates that the data fits the regression model, and independent variables can explain 69.4% of the variations in dependent variables. From the table, we can also note that Airline size, Airline age, Domestic private ownership and majority foreign private ownership significantly affected ROA. In contrast, state ownership did not have a significant influence on ROA. Airline age had a negative effect, meaning that its ROA was reduced as the airline grew older. This might result from the airlines failing to keep pace with the changing technology in the aviation sector. Research has demonstrated that firms that keep up with changing technology experience positive financial performance (Haabazoka, 2019; Marengue, 2018; Ogutu, 2018). However, it is not easy to replace the old fleet in an airliner to keep pace with changing technology compared to other industries, such as banks, which can easily and cheaply adapt to the changing technology.

Private ownership, both domestic and foreign, had a significant positive effect on airline ROA; these results are similar to those of (Soranzo, 2020; Suhardjanto & Ajibroto, 2017) and contradict those of (C.-H. Lee & Hooy, 2012b; Yifru, 2017). The results are also incongruent with Su et al. (2017), who concluded that Chinese airlines with mixed ownership perform worse than heavily privately held or majority state-owned peers. These results align with the property rights theory, which argues that the nature of the ownership structure in any organization affects its performance (Grossman & Hart, 1986). Zhou and Cheng (2007) Argue that privately owned firms have an edge in a competitive market. With a similar line of thought, we are prompted to argue that the ROA of airlines is positively affected due to the competitive edge provided by private ownership structure. Economists argue that private ownership fosters flexibility in decision-making, the incentive to create personal wealth rewards risk-taking, and nurtures innovation (Seokyoung, 1999). At this juncture, it is tough to argue that all those factors enhanced by private ownership might not influence firm performance, and the result of our analysis further supports that.

6. Conclusions and Recommendations

This research found that state ownership did not affect airline financial performance. However, it determined that private-domestic and foreign ownership positively affect airline financial performance as represented by ROA and ROE. These findings imply that private or foreign ownership, not state control, is a key to an airline's financial success. The results also corroborate the property rights hypothesis, which posits that private enterprises perform better than state-owned firms because the government pursues various goals that conflict with performance objectives and efficient company operations. Since airline financial success relies on each company's ownership structure at a particular moment, private domestic or international stockholders should own airlines instead of the government. We recommend private investors obtain control of airline stakes to obtain decisive power and make decisions that will boost financial performance. Foreign nationals should be welcomed to participate in share ownership and, if possible, allowed to be the majority shareholders, as this study and several others have shown that doing so stimulates the company to make more profit. Should the time come when all airlines are privately owned, the government should regulate them to guarantee fair play since extreme competition is fostered by private ownership, which might lead to unfair practices in the aviation sector. Policymakers should make laws flexible to assist airlines in navigating foreign and private ownership. At the same time, the Shareholders and boards should ensure that corporate rules and regulations are designed to attract local and overseas private investors.

6.1 Limitations and Areas of Further Studies

This research was constrained by the limited availability of data, resulting in the analysis being based solely on nine publicly traded airlines whose financial information was readily accessible. We strongly advise future studies to encompass a broader spectrum of airlines, including those that are not traded on stock exchange markets. This would ensure a more comprehensive understanding of the effect of ownership structure on the financial performance of African airlines, as it would provide a more inclusive representation of the industry. By considering a wider range of airlines, future studies could paint a more accurate picture of the relationship between ownership structure and financial performance in the African aviation sector.

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