# EFFECT OF CAPITAL STRUCTURE ON FINANCIAL PERFORMANCE OF AIRLINES IN KENYA

BY

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# DECLARATION

I, the undersigned, declare that this research project is my original work and has not been submitted to any other college, institution or university for academic credit.

Signature: ………………………………      Date: ………………………………

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**D61/85694/2016**

This research project has been submitted for examination with our approval as the appointed supervisors.

Signature: ………………………………      Date: ………………………………

This research project has been submitted for examination with our approval as the appointed supervisors.

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# DEDICATION

I dedicate this project to my friends and family members due the support they accorded me.

# ABSTRACT

Capital structure forms the basis of whether the firm will use debts, equities or both and in what proportion so as to maximize the wealth of shareholders. Capital structure decisions are complex since they affect the overall operation of the business and the wealth of shareholders. Airlines in Kenya have faced challenges that can best be explained by their capital structure decisions. A good example is the case of Kenya Airways (KQ) that witnessed a consistent rise in the level of debts with no corresponding increase in equity in the recent financial statements. The study sought to determine the effect of capital structure on financial performance of airlines in Kenya. A cross sectional and descriptive design was employed. In total, 46 airline companies were targeted. A census was employed thus the sample size was 46. The study collected secondary data on a period from 2013 all through to 2017. The analysis was done descriotively and inferentially. The study established that debt equity ratio (r=-0.174, p=0.000) had a negative but significant relationship with financial performance. Size (r=0.227, p=0.003) had a positive and significant relationship with financial performance. Liquidity (r=-0.285, p=0.000) had a negative but significant effect on financial performance. The study concludes that capital structure has a significant effect and relationship with financial performance. The study recommends that the management team of all airlines in Kenya should be cautious on the amount of debts and equities in the capital structures. The finance managers of all airlines in Kenya should exercise care when maintaining liquidity levels because too much liquidity would adversely affect financial performance of their companies.

# TABLE OF CONTENTS

# LIST OF ABBREVIATIONS

**DFL:** Degree of Financial Leverage

**EPS:** Earning Per Share

**IATA:** International Air Transport Association

**KQ:** Kenya Airways

**MM:** Modigliani and Miller

**NSE:** Nairobi Security Exchange

**SMEs:** Small and Medium Enterprises

# LIST OF TABLES

# LIST OF FIGURES

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the Study

Finance managers today are faced with a challenge of striking a balance between the level of debts and equities to use in financing investments so as to maximize the wealth of their shareholders. While use of debts is advantageous to the company by providing an interest tax shield which maximizes the wealth of shareholders, a levered company however will be require to pay regular interest and the principal amount when it falls due. Use of equities on the other hand will require a company to regularly pay dividends to shareholders which is also an added cost to the company. Use of too much debt increases the risk of financial distress and subsequent bankruptcy especially when the company fails to repay the interest accumulated. It therefore remains a challenge to determine the optimal level of debts and equities to use in financing investments and projects so as to maximize the wealth of shareholders. This introduces the concept of capital structure (Muritala, 2018).

The study was informed by Capital Structure Irrelevance Theory (MM1 Hypothesis), the Tradeoff Theory and the Pecking Order Theory. In Capital Structure Irrelevance Theory, it assumed that taxes and bankruptcy costs are not in place such that the changes in levels of debts and equities of the capital structure are not relevant to stock price of the stock and therefore value of the firm (Modigliani & Miller, 1958). According to the Tradeoff Theory, an optimal leverage level is attained by striking a balance between benefits accruing from the payment of interest and the costs of debt issue to a company. In other words, the costs and benefits form a basis of how much debts and equities to use in financing investment projects in a company (Kraus & Litzenberger, 1973). The Pecking Order Theory on the other hand suggests that in financing project, a company should first use its internal sources of finances followed by use of

debts and ultimately issue ne new shares as the last resort. The argument put forward for this order is that internal sources of financing are risk free; debts are riskier while floatation of new shares is most risky (Myers & Majluf, 1984).

Airlines engage in provision of carriage of cargo and passengers by air at local, regional and international level. It also handles imports and export cargo. Some of the Airlines in Kenya have faced challenges in financial performance that can bests be explained by their capital structure decisions. A critical examination of KQ's statement of financial position indicates a rise in long term debts from Kshs.31.4 billion to Kshs.50 billion and surprisingly to Kshs.104 billion over the periods 2013, 2014 and 2015 respectively. In the same periods, there was a rise in leverage from 1.01 in the year 2013 to 1.78 and later on (17.47) in 2014 and 2015 respectively (KQ, 2017). Such an alarming rise in debt levels with no corresponding rise in equity is risky and would likely to result into financial distress. This leads to the capital structure discussion in seeking to determine and achieve the proportion of debts and equities that would result into maximization of firm value while minimizing the cost of capital.

### 1.1.1 Capital Structure

Capital structure is the judicious mix of retained earnings, debts and equities used in finance investments in the company. It is the optimal level of debts and equities that maximize the value of the firm while minimizing the costs of capital. It is a decision of how much debts and equities to use by the company to finance investments. Capital structure decisions are complex since they affect the overall operation of the business and the wealth of shareholders (Adesina, Nwidobi & Adesina, 2015).

A decision to use debts in the capital structure results into leverage in an organization. A levered firm there has some proportion of debts in its capital structure apart from equities. Firms can fully levered meaning that its operations are fully financed by debts. Such a firm has no equities in its capital structure. Debts are external sources of finances to a company. Debts can classified as either long term or short term in nature. Use of debts requires an organization to pay interest at a specified time as and when it falls due (Mwangi & Birundu, 2015).

Retained earnings are internal sources of financing investment projects of the company. Retained earnings are the amount of net profit set aside after paying dividends to shareholders of the company. They are less risky because no cost is attached to them. Equities on the other hand can either be internal or external. It can be raised through floatation of shares on a security exchange market or through conversion of some debts into shares at specified terms. Use of equities in financing projects of the company will require payment of dividends to owners of equity (Chadha & Sharma, 2015).

There are several factors that have an influence on capital structure of a company. These include desire for control, size and nature of industry, financial leverage, growth and stability in sales, cost of capital, risk, capital market conditions and floatation costs. Financial leverage is the application of debts that attract fixed interest in the capital structure. It is also referred to as trading on equity. Stability in sales of the company is likely to raise the debt level and thus increasing leverage in the capital structure (Kodongo, Mokoaleli-Mokoteli & Maina, 2015).

### 1.1.2 Financial Performance

This is the underlying objective for existence of a business. Financial performance is a measure of well a firm generates profits for paying interests, taxes and dividends to shareholders. It    is

usually determined by ratio analysis. Information for computing ratios is usually extracted from financial statements at the end of a given financial year. Financial performance is usually expressed in quantitative terms (Robb & Robinson, 2014).

Most companies determine the level of their financial performance through measures like return on assets (ROA), return on equity (ROE) and return on investment (ROI). ROA measures how well a business utilizes its asset base to generate profits for maximizing the wealth of its shareholders. ROE is a measure of how well organizations utilize its equity portion in the balance sheet to generate net profit for shareholders. ROI is the minimum rate of return on required by the company to commit funds in a given project over a given period of time (Dawar, 2014).

### 1.1.3 Capital Structure and Financial Performance

Capital structure plays an important role as far as financial performance of a company is concerned. Capital structure determines the optimal levels of debts and equities that would maximize the wealth of shareholders. Use of debts in the financing projects which is an important consideration of capital structure plays a crucial role in maximizing the wealth of shareholders and therefore financial performance. Debts result into interest that is tax deductible. This will result into provision of an interest tax shield to companies which improve on financial performance of a company (Hasan, Ahsan, Rahaman & Alam, 2014).

Too much debt however becomes risky to the company. This is because its increases the risk perceptions of shareholders while raising financial costs in terms of interest and principal amount advanced at a specified terms. A company with too much debt is likely to default on repayment

of the interest. This would ultimately result into bankruptcy proceedings and financial distress (Vătavu, 2015).

Studies exploring the link between capital structure and performance of firms financially have resulted into mixed findings. For instance, Siro (2013) in an analysis of capital structure and how it influences listed firms on Nairobi Security Exchange indicated an inverse relationship. This shows that increase in capital structure negatively affects financial performance. Githire and Muturi (2015) in a related study showed that capital structure positively influenced financial performance. Nassar (2016) in an analysis of how capital structure affected financial performance of Istanbul firms suggested established inverse relationship.

**1.1.4 Airlines in Kenya**

In Kenya, there are 46 Airlines currently in operations (IPFS, 2018). Of these Airlines, Kenya Airways occupy the largest market share of over 40% with operations extending beyond Africa as a continent. Most of the Airlines have however faced various challenges emanating from capital budgeting. For instance, compared with past years, financial performance of Kenya Airways has not been encouraging in the recent few years. For instance, 2006 was the best year for KQ ever where the company generated a pretax profit of Kshs.6.96 billion. Ten years up the line from 2006 however (2016), Kenya Airways had a significant deviation from this performance recording a pretax loss of Kshs.26.1 billion.

Most of the Airlines in Kenya have been faced with challenges that can best be described by the capital structure concept. For instance, Kenya Airways (KQ) has witnessed a consistent rise in the level of debts with no corresponding increase in equity in the recent financial statements. For example, there was a rise in borrowing from Kshs.104, 175 billion in 2015 to Kshs.113, 216

billion in 2016 as compared to total equities of Kshs. (5,963) and Kshs.(35,665) billions across the same period of 2015 and 2016 respectively (KQ, 2017). Such an increase in debts with subsequent negative equity can be explained by capital structure. It is against this backbone that the current study seeks to determine whether capital structure has had an influence on financial performance of airlines in Kenya.

**1.2 Research Problem**

Capital structure forms the basis of whether the firm will use debts, equities or both and in what proportion so as to maximize the wealth of shareholders. According to Adesina, et al. (2015) capital structure decisions are complex since they affect the overall operation of the business and the wealth of shareholders. Capital structure decisions results into leverage especially when the firm opts to use debts in financing operations (Kodongo et a., 2015). Use of debts are beneficial to an organization since they provide an interest tax shield that maximizes the wealth of shareholders and improve on financial performance of a firm (Mwangi & Birundu, 2015).

Airlines in Kenya have faced challenges that can best be explained by their capital structure decisions. A good example is the case of Kenya Airways (KQ) that witnessed a consistent rise in the level of debts with no corresponding increase in equity in the recent financial statements. For instance, there was a rise in borrowing from Kshs.104, 175 billion in 2015 to Kshs.113, 216 billion in 2016 as compared to total equities of Kshs. (5,963) and Kshs.(35,665) billions across the same period of 2015 and 2016 respectively (KQ, 2017). Such an increase in debts with subsequent negative equity can be explained by capital structure (Robb & Robinson, 2014). Financial performance of some of the Airlines for instance KQ has been in terms of losses for the past years. For instance, the year 2016 resulted into the worst level of financial performance

where a net loss of Kshs.26, 225 million was recorded as compared to a net loss of 25,743 million in 2015. The same period was characterized by a rise in level in debt levels relative to equity (KQ, 2017). It is not clear whether capital structure explained this trend in financial performance.

A number of studies have been on how capital structure influences financial performance. Globally, Vătavu (2015) examined how capital structure and financial performance of Romanian firms was related. In Sri Lanka, Arulvel and Ajanthan (2013) assessed how capital structure and financial performance were related. The study revealed an inverse relationship. The study established that financial performance improved when firms avoided debts in their capital structure. Mauwa, Namusonge and Onyango (2016) looked at how capital structure and financial performance of Rwandan Stock Exchange firms were related. The study revealed an inverse relationship. In Nigeria, Chinaemerem and Anthony (2012) examined how capital structure affected financial performance of firms.

Locally, Omukaga (2017) examined how capital structure affected firms listed on commercial an Service Sector on NSE. Obonyo (2017) looked at how capital structured affected financial performance of listed firms on NSE. Chepkemoi (2013) evaluated how capital structure affected on financial performance of SMEs. The study revealed an inverse relationship. Maniagi Musiega, Ondiek and Musiga (2013) did a study to determine how capital structure and financial performance of non-financial firms listed on NSE were related. The study revealed correlation between total assets and capital structure.

The above studies examined how capital structure affected financial performance. The studies however were done ion different contexts including different countries. None of the study was

done in among airlines. This results into gaps. To fill these gaps, the current sought to answer a question of what is the effect of capital structure on financial performance of airlines in Kenya?

**1.3 Research Objectives**

To examine the effect of capital structure on financial performance of airlines in Kenya

**1.4 Value of the Study**

The study would be valuable to the entire airline sector, the management of KQ and future scholars and academicians. The airline sector would rely on the findings of the study to explain how variations in capital structures within firms in the sector influence financial performance. This would inform policy and decision making on how best to improve on their capital structures so as to influence their financial performance.

Kenya Airways has consistently recorded losses in the last couple of years. The study would determine whether this trend is related with the capital structure. This would inform policy and decision making that would lead to regaining of previous financial performance. This would help the company to maximize the wealth of its shareholders with ease.

The study would add theory and knowledge on capital structure. This would facilitate other future studies. Future scholars would use these findings to carry further related studies in future. This would increase the available information and knowledge for decision making.

# CHAPTER TWO: LITERATURE REVIEW

## 2.1 Introduction

This chapter presents the theories that informed the study. The factors affecting financial performance of airline firms are also indicated. The empirical literature is also presented that contain past relevant studies. The conceptual framework showing how variables are interrelated is also presented.

## 2.2 Theoretical Review

A theoretical framework represents theories that form the basis of the study. The study was informed by the Capital Structure Irrelevance Theory (MM1 Hypothesis), the Tradeoff Theory and the Pecking Order Theory. Each of these theories is discussed in details in this section.

### 2.2.1 Capital Structure Irrelevance Theory (MM1 Hypothesis)

This theory was put forward by Modigliani and Miller (1958). It is called Modigliani and Miller Hypothesis 1 or Capital structure irrelevance theory. The theory argues that in a perfect world, the value of the firm is independent of the capital structure or financing decision adopted by the firm. In other words, the financial securities and instruments that a firm issue in the market place does not influence the firm value.

This theory holds in world of perfection where it assumed that there is no tax is charged on corporate profits, no transaction costs, no information asymmetry, no different risk classes of firms, all cash flows are perpetual, there exists no moral hazards between managers and the firm issue only two types of securities: debts and equities. In reality, most of these assumptions however do not hold since firms must pay taxes and incur transaction costs. In issuing securities to the market, an organization is required to pay for transaction costs.

## 2.2.2 Tradeoff Theory

This theory was formulated by Kraus and Litzenberger (1973). The theory was formulated on the basis of the limitations from MM1 Hypothesis. The theory indicates that a firm attains an optimal level of leverage by striking a balance between benefits accruing from repayment of interests on debts and costs associated with issue of debts. The theory assumes that every source of finance has its own specified costs and return and these relates to the earning capacity of the firm, it insolvency and business risk.

According to Tradeoff theory, a firm with greater tax advantage will issue more debts used to finance investments. This helps in balancing the costs related with financial distress and the benefits accruing from interest tax shield. Bankruptcy cost is a risk perceived in the firm in the event that it fails to pay the interest on debts. Examples of these bankruptcy costs include liquidation and financial distress costs. The tradeoff theory suggests that large amount of debts results into financial distress and agency costs to a firm or liquidation and restructuring. Thus, financial distress costs and the interest tax shield benefits are balanced. It is thus true that firms with greater financial distress costs at the same time have less value of debts in their capital structures (Ahlers, Cumming, Günther & Schweizer, 2015).

The theory suffers a limitation of not considering information asymmetry. Despite this limitation, the theory explains how the use of debts in capital structure of KQ can enhance its value. Enhancing the value of KQ would directly influence its financial performance.

## 2.2.3 Pecking Order Theory

The theory was advanced by Myers and Majluf (1984). The theory capitalizes on limitation of the tradeoff theory of ignoring information asymmetry. Due to this information asymmetry, the

theory suggests that there exists conflict between insiders and outsiders in an organization. In addition to information asymmetry, the theory also considers signaling effect. Just like the MM hypothesis, the theory also assumes existence of a perfect market.

Debt ratio in an organization is usually determined by the demand for and the supply of funds. However, the decision on the sources to use in financing investments in the company is made on the basis of a preference order. This preference order starts with internal sources of finances (retained earnings and reserves), followed by debts and lastly equity (Chen, 2011). The theory further suggests that firms maximize shareholders' wealth by deciding to finance new investments with cheapest sources of finance available (Sheikh & Wang, 2010). The theory argues that instead of arranging for new debts, firms chose to use internal sources to finance its projects. Thus, managers acting in interest of shareholders will not issue new undervalued shares.

Compared to equities, debts have preferential treatment and they are less exposed to information asymmetry. The theory suggests that profitable firms would likely be financed by internal sources and this explains why they have fewer debts in their capital structures. According to Mostafa and Boregowda (2014), small firms with greater opportunities for growth should issue more debts as compared to equity.

## 2.3 Determinants of Financial Performance of Airline Sector

This section looks at factors affecting financial performance of airline sector. The section specially looks at capital structure, liquidity and asset tangibility and how they influence financial performance. Each of these sections is discussed in details below.

11

**2.3.1 Capital Structure**

Capital structure is comprised of debts and equity that are judiciously mixed to maximize the wealth of shareholders. Literature suggests that capital structure influences financial performance of an organization. For instance, Aquino (2010) revealed that high debt ratio and profitability of the firm are positively related. Oguna (2014) revealed the use of long term debts influences the way firms perform. Long term debt and financial performance of affirm are inversely and significantly correlated (Albul, Jaffee & Tchistyi, 2015).

Debts in the capital structure play an important role by providing an interest tax shield which maximizes the wealth of shareholders. Debts discipline managers to undertake profitable investments so that they are able to repay the interest and dividends to shareholders (Trần, 2015). Too much debt however increases the risk of financial distress of the company in event that the company is not able to meet the interest and the principal amount when they fall due (Baker & Wurgler, 2015).

**2.3.2 Liquidity**

Liquidity is the ability of a firm to meet its current obligations as when they fall due. Liquid is a great measure of the working capital of a firm. It is usually determined by netting current liabilities from current assets of a firm. Highly liquid firms perform better than the less liquid firms. However, too much liquid would mean that the company has huge amount of tied up capital that would have otherwise been used in other profitable investments. A firm is said to have liquid assets when the same can be easily converted into cash (Riaz, 2015).

### 2.3.3 Asset Tangibility

Asset Tangibility is the ratio of the fixed assets to the asset base of the company. Fixed assets are also called noncurrent assets. They determine the level of debts, sales and ultimately profitability of the company. Compared to current assets, non-current assets have a greater economic value since they are more valuable in the event of bankruptcy to the company (Kundakchyan & Zulfakarova, 2014). Companies usually use a portion of their noncurrent assets as collaterals in obtaining debts from lending institutions. It is therefore expected that companies with a high level of non-current assets will have a higher debt levels in their capital structures. Using these external funds, a firm funds viable investment project that enhance the wealth of shareholders and therefore financial performance (Rouf, 2015).

### 2.4 Empirical Literature

Internationally, M'ng, Rahman and Sannacy (2017) examine factors affecting capital structure among listed firms. The study was done in Malaysia, Singapore and Thailand. The study relied on secondary data. Collection of data covered a period from 2004 all through to 2013. The findings of the study supported the trade-off and pecking order theories of capital structure. The study established that profitability and asset tangibility has a direct and positive link with performance while depreciation to total assets had an inverse relationship with financial performance. The study however focused on Malaysia, Singapore and Thailand and thus need for similar studies in Kenya.

Sivalingam and Kengatharan (2018) did a study on how capital structure affected financial performance. The study was done in the banking sector of Sri Lanka. A total of 10 banks were covered. The study adopted panel data methodology and the analysis of the finding indicated that

capital structure had and inverse relationship with financial performance. The study was done among commercial banks, the current study focuses on airlines.

In Netherlands, Bortych (2017) examined how capital structure affected financial performance. The study was a comparison between performance of private and public companies. The study adopted panel data methodology. The study relied on secondary data. The collected data was analyzed and the findings indicated that capital structure had positively influences performance. The study was done in Netherlands limiting applicability of the findings in the Kenyan context.

Among firms in the textile industry of Pakistan, Mujahid and Akhtar (2014) assessed how capital structure affected maximization of shareholders wealth and financial performance. The study sampled 155 firms in the textile sector. Performance was measured using ROE, ROA and EPS of the overall textile sector. The analyzed findings indicated that capital structure directly influences financial performance and shareholder wealth maximization. The study focused in the textile industry, the current study will be done in the aviation industry specifically among airlines.

Among listed banks in Thailand, Dai (2017) conducted a study on how capital structure affected financial performance. The study collected secondary data on a quarterly basis. Data collection occurred over a period from 1997 all through to 2016. By adopting panel data methodology, it was shown that capital structure had an inverse influence on performance. The study was done among commercial banks and not airline companies creating a contextual gap. Using a case of listed agriculture firms in Indonesia, Suardi and Noor (2015) examined how capital structure affected their financial performance. A total number of 16 firms listed were used. Secondary data

was collected from these firms covering a period from 2010 up to 2014. Debt equity and debt asset ratios were used as proxies for capital structure. From the finding, debt equity ratio and ROE were inversely related.

In Nigeria, Adesina, Nwidobie and Adesina (2015) looked at how capital structure affected financial performance of firms. Pretax profit was used as dependent variable while debt and equities were used as proxies for capital structure. The study used a sample size of 10 listed banks in Nigeria. Secondary data was collected covering a period from 2005 all through to 2012. The analyzed findings indicated that capital structure significantly influenced financial performance of the listed banks in Nigeria. The study was limited to Nigeria; the current study will be done in Kenyan context.

In Ethiopia, Getahun (2016) looked at how capital structure affected financial performance. Insurance companies were targeted. Data was sought from auxiliary sources.    The study collected data covering a period from 2004 all through to 2013. The findings suggested that leverage, size of the firm, asset tangibility and level of business risk all have significant inflkue4nce on performance of firms in the insurance industry of Ethiopia. The study was done in the insurance sector; the current study will be done in airline companies.

Using a case of S&P500, Martis (2013) evaluated how capital structure affected financial performance. The study adopted a panel data methodology where secondary data was collected. Data collection stretched the period 2003-2008 and 2003- 2011. ROA, ROE and Tobin's Q were used as proxies for financial performance. From the finding, leverage has significant influence on ROA. Short term debts were inversely correlated with financial performance of the studied

companies. The study did not use current data (2003-2011). The current study will use recent data up to 2017.

In Jordan, Zeitun and Tian (2014) examined how capital structure affected financial performance. Panel data methodology was adopted among 167 firms in Jordan. Secondary data was collected covering a period from 1989 all through to 2003. It was shown that the capital structure of the firms has significant influence on its financial; performance. The study was done in Jordan hence need for similar studies in Kenyan context.

Locally, Mwangi et al. (2014) did a study on how capital structure and financial performance were related. The study was done among non-financial firms listed on NSE. The proxies for financial performance were ROE and ROE. Capital structure on the other hand was measured through financial leverage and the ratios of total current liabilities to total assets. The study showed that financial leverage and financial performance were inversely correlated. The study was done among non-financial firms, the current study specifically focus on airlines in Kenya.

Maniagi et al. (2013) analyzed how the capital structure of the firm influenced its financial performance. The study sampled 30 firms listed on NSE. Data used was primary covering a period of 2007 all through to 2011. The analyzed findings indicated that listed firms on NSE were guided by the pecking order theory in their capital structure decisions. The study further established correlation between asset base and financial performance an indicators that firms placed assets as collateral in obtaining debts from lending institutions. The study focused on firms listed on NSE, the current study will base on listed and non-listed airlines.

Karanja and Gweji (2014) looked at how financial leverage affected financial performance of savings and credit co-operative that are involved in taking deposits from customers. The

researcher sampled out a total number of 40 SACCOs. Secondary data was collected from these SACCOs over a period from 2000 all through to 2012. The analyzed findings indicated that financial leverage and financial performance were positively correlated. The study was done in the SACCO subsector; the current study will be done among the airline companies.

Using a case of listed commercial banks in Kenya, Ronoh (2015) looked at how capital structure affected their financial performance. The study relied on secondary data collected over a five year period. Data covered a period of 2009 to 2013. ROA was used to measure financial performance. The analysis of the findings indicated that retained earnings had indirect and significant influence on financial performance. This finding was informed by the fact that debt, equity and deposits had an inverse and positive relationship. The study focused on listed commercial banks in Kenya, the current study use a case of airline companies in Kenya.

Langat, Chepkoech, Shavulimo, Wachira and Thuo (2014) did a study to establish how debt financing influenced profitability Tea Development Authority processing companies in Kenya. Performance was measured by use of ROA and ROE. The analyzed findings suggested that long term and overall debt directly determine performance. Short term on the hand had an inverse relationship with financial performance. The study focused on Tea Development Authority processing companies and not the airline companies.

Muchugia (2013) looked at how debt financing influence performance of the banking sector in Kenya. Quantitative design was adopted. ROE was dependent variable while total debts, long term ter4m debt, size of the firm and short term liabilities represented the independent variables. Regression was use to analyze the data. From the findings, short term financing had positive and significant influence on firm profitability. The study was limited to the banking sector and not the airline companies.

Masiega *et al.* (2013) investigate how capital structure influenced financial performance. The study sampled 30 firms listed on NSE. Secondary data was collected covering a five year period 2007 all through to 2011. The analyzed findings indicated that long term debts had positive and significant influence on asset base of the firm. There was a positive effect between long term debts and financial performance. The study was done among listed companies and not specifically on airline companies.

Chepkemoi (2013) examine how capital structure and financial performance were related with each other. The study was done among SMEs in Nakuru. The population of the study constitute of 295 SMEs in Nakuru town. The study collected data using questionnaires. The analysis of the collected data was done using both descriptive and regression analysis. From the findings, capital structure and SMEs financial performance were inversely correlated. The study was limited to SMEs operating in Nakuru, the current study will be done among airlines in Kenya.

## 2.5 Summary of Literature and Research Gaps

A number of studies have been done to link capital structure and financial performance. Sivalingam and Kengatharan (2018) examined how capital structure affected financial performance. The study was done in the banking sector of Sri Lanka limiting its applicability in Kenyan context. M'ng, Rahman and Sannacy (2017) investigated factors affecting capital structure among listed firms. The study was done in Malaysia, Singapore and Thailand. Need similar study in Kenya. Dai (2017) sought to examine how capital structure affected financial performance. The study was done among listed banks in Thailand. There is need for a similar study in airline industry.

Mwangi et al. (2014) assessed how capital structure and financial performance were related. The study was done among non-financial listed on NSE. Karanja and Gweji (2014) investigated how financial leverage affected financial performance of savings and credit co-operative. The study

was done among SACCOs; need a similar study among airline companies. Chepkemoi (2013) sought to determine how capital structure and financial performance were related with each other. The study was done among SMEs in Nakuru; there is need for a similar study in the airline sector.

## 2.6 Conceptual Framework

The conceptual framework is used to illustrate how variables are interrelating. It also used to indicate how variables of the study are operationalized. In Figure 2.1, the variables of the study (the independent, the dependent and the controlling) are shown.

| Independent Variable | | Dependent Variable |
|---|---|---|
| **Capital Structure**<br>• Debt-equity Ratio | → | **Financial Performance**<br>• Return on Assets |
| **Size**<br>• Log of Assets<br>**Liquidity**<br>• Current Assets/Current Liabilities | | |
| Control Variable | | |
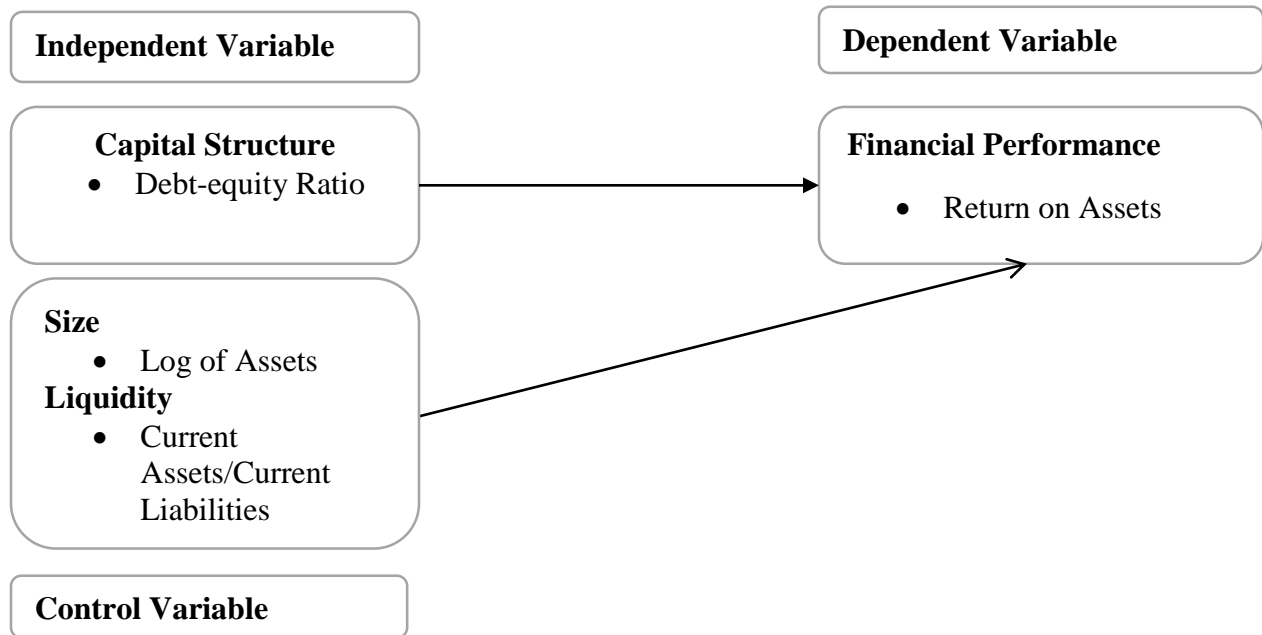
**Figure 2.1: Conceptual Framework**

# CHAPTER THREE: RESEARCH METHODOLOGY

## 3.1 Introduction

The chapter presents the design and targeted respondents who formed the population of interest. The methods to be used in to gather and transform collected data into information are also discussed.

## 3.2 Research Design

A research design is a structure that guides the study. A research design goes a long way to determining the method to use in collection and analysis of data. It is the blue print that determines how study objectives would be attained. There are three basic research designs; descriptive, exploratory and casual or correlational design (Kothari, 2004).

The study adopted a cross sectional-descriptive research design. This design was adopted to help the researcher to account how capital structure and financial performance of Airlines in Kenya were related. A descriptive researcher design according to Yin (2017) gives a record of the way things are. It helps to answer the questions on what, why, when and how? This design will therefore appropriate in this study.

## 3.3 Population of the Study

Population is a collection of items or individuals that have share some features in common and which a researcher is has interest in. The population of this study comprised of 46 Airlines operating in Kenya (Appendix II). Since the population was relatively small, census was employed and therefore the sample size will be 46 Airlines.

## 3.4 Data Collection

The study collected secondary data on current assets (trade receivables), non-current assets (fixed assets), current liabilities (trade payables), equities, debts and net income of the airlines in Kenya (Appendix II). This data was collected from publications from NSE for the listed Airlines and other reports from the International Air Transport Association (IATA). Secondary data was collected using data collection sheets (Appendix I).The horizon of collecting this data was (2013-2017).

## 3.5 Data Analysis

The analysis of data was done using descriptive an inferential statistics. Means and standard deviations constituted descriptive statistics while regression analysis formed part of the inferential.

### 3.5.1 Diagnostic Tests

The researcher used diagnostic tests to ensure regression assumptions are not violated. The study carried out normality, autocorrelation, heteroskedasticity and multicollinearity tests. Normality was tested by Skewness and Kurtosis. Values of between -3 or +3 indicates that the data is normally distributed (Kothari). Autocorrelation was detected using Durbin Watson Statistics. Values of -2 or +2 suggest that the data set has no autocorrelation. Heteroskedasticity was tested using Scatter plots. Data points on scatter plots with clearly established patterns would suggest that the data set has heteroskedasticity. Multicollinearity was detected using Variance of Inflation Factor (VIF). In essence, VIF values of between 1 and 10 suggest that there is no multicollinearity in the data set.

### 3.5.2 Analytical Models

The adopted regression model took the following firm;

**Y = a + b₁X₁+ b₂X₂+ b₃X₃+ ε**

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \varepsilon$$

Where **Y** is **=** Financial Performance (ROA= Net Income/Total Assets)

   **X₁** =Debt-Equity Ratio (Total Debts/Total Equity)

   **X₂** =Liquidity (Current assets/Current Liabilities)

   **X₃** =Size (Natural Log of Total Assets)

a = Constant; b₁, b₂, b₃, are Coefficients and **ε** = Error Term

### 3.5.3 Test of Significance

The study used $R^2$ to determine how change in financial performance is explained capital structure components. Analysis of Variance (ANOVA) was done by comparing the value of F calculated in the ANOVA Table and that F critical from the F Table. P values were interpreted at 5% level of significance.

# CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

## 4.1 Introduction

In this chapter, the researcher presents the findings on the analysis of the collected data. Data was collected on debts, equity, asset base, current assets and liabilities and the net income. The findings are shown in subsequent sections.

## 4.2 Response Rate

The researcher sought to collect data from 46 airline companies in Kenya (Appendix II). However, data was only available from 33 companies. This was equivalent to a response rate of 71.7%. This response rate was sufficient in line with Babbie (2015) who recommended that for excellent presentation of the findings, response rates of over 70% are sufficient.

## 4.3 Descriptive Statistics

The researcher used means and standard deviations to descriptive a link between capital structure and financial performance. The findings are shown in Table 4.1.

**Table 4.1: Means and Standard Deviations**

|                   | N   | Mean | Std. Deviation |
|-------------------|-----|------|----------------|
| Debt Equity Ratio | 165 | .192 | .116           |
| Size              | 165 | 4.60 | .669           |
| Liquidity         | 165 | 1.52 | 1.09           |
| ROA               | 165 | .019 | .110           |

**Source; Research Data (2018)**

Table 4.1 shows that airline in Kenya on average had a debt equity ratio of 0.192, size of 4.60, liquidity of 1.52 and ROA of 0.019.

## 4.4 Trend Analysis

The researcher used graphs to illustrate the trend in the movement of the variables under the period of consideration.

### 4.4.1 Debt Equity Ratio

Figure 4.1 shows the trend analysis on the debt equity ratio of the study.
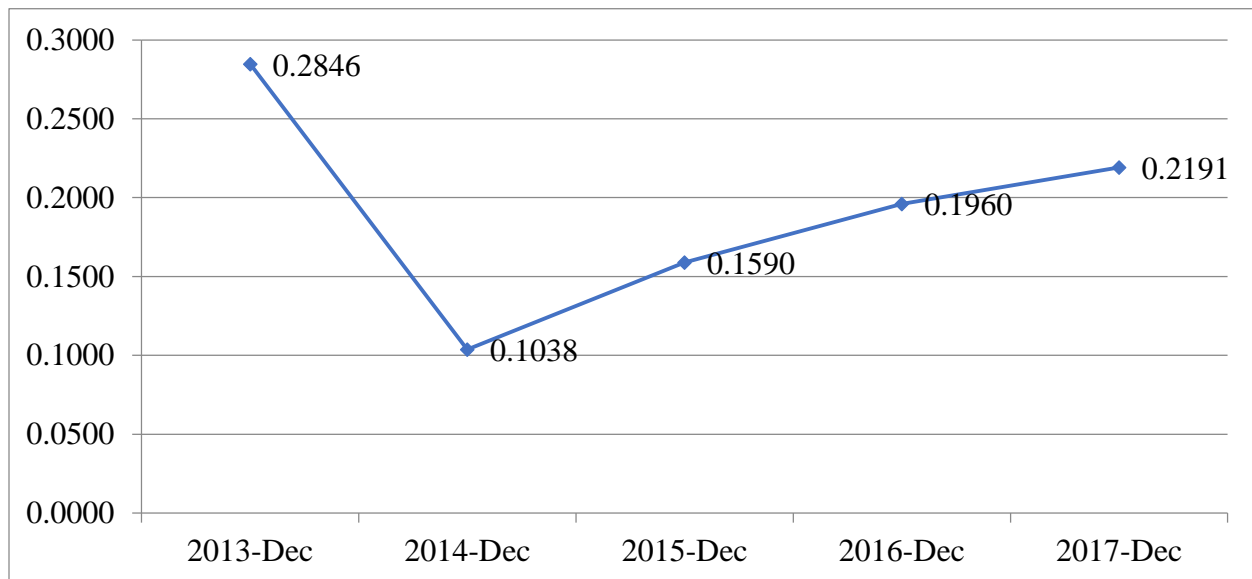


**Figure 4.1: Debt Equity Ratio**
**Source; Research Data (2018)**

Figure 4.1 indicates that there was generally a rise in debts equity ratio among airlines for the period under consideration. This shows that airlines consistently used both debts and equities in their capital structures.

### 4.4.2 Size
Size was the control variable used in the study. It was measured by taking the natural logarithm of the asset base of the studied airlines. The findings on its trend analysis across the study period are shown in Figure 4.2.
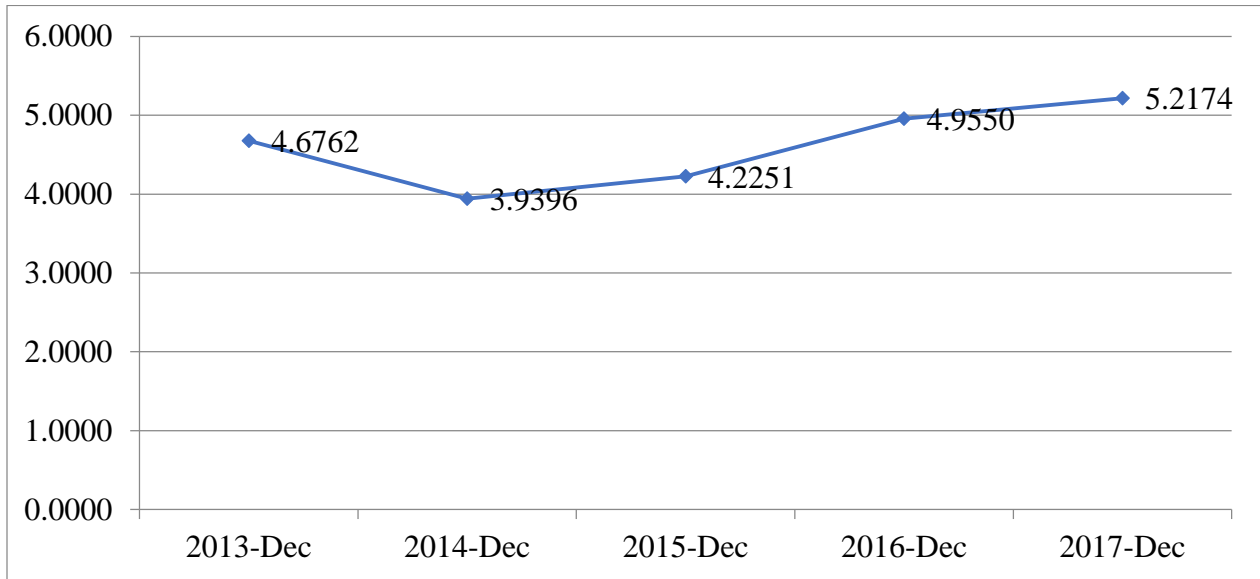
**Figure 4.2: Size**

**Source; Research Data (2018)**

Figure 4.2 show that on average, there was stability in size of the studied airlines. This could be probably because of the debts and equities that were used to expanding the operations of airlines hence a consistent rise in their relative sizes.

### 4.4.3 Liquidity

Liquidity was another control variable of the study. It was measured by dividing current assets and current liabilities. The findings of the trend analysis are shown in Figure 4.3.
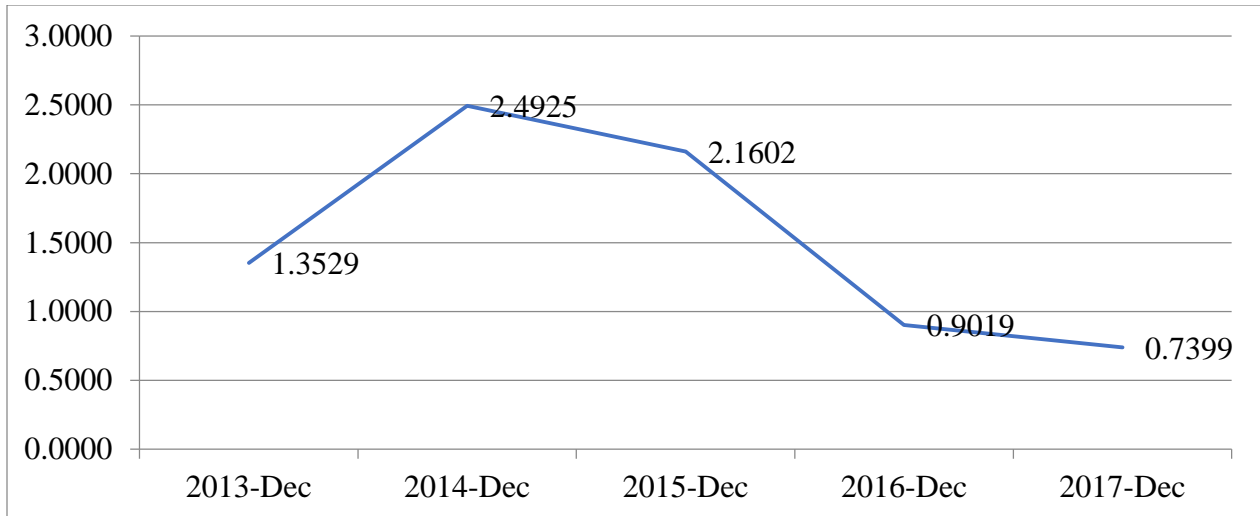
**Figure 4.3: Liquidity**

**Source; Research Data (2018)**

Figure 4.3 indicates that on average, liquidity was not stable across the study period.

### 4.4.4 Return on Assets

ROA was the dependent variable that was used to measure financial performance. To determine ROA, the net income was divided by the total asset base. Figure 4.4 shows the findings on the trend.
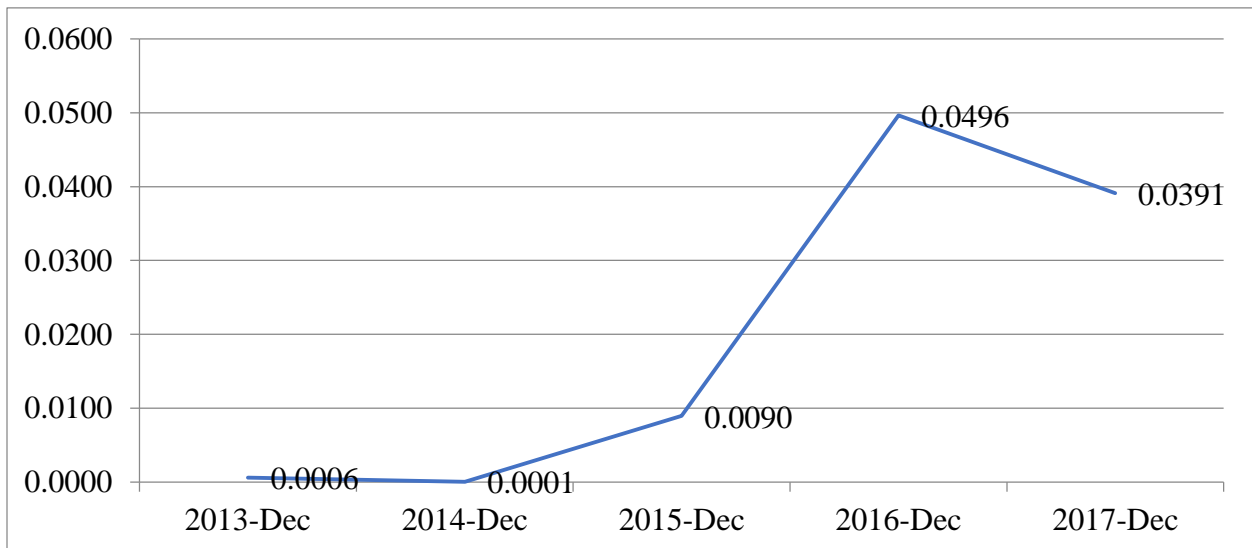


**Figure 4.4: Return on Assets**
**Source; Research Data (2018)**

Figure 4.4 reveals that there was generally an increase in ROA across the study period. This shows that capital structure influenced financial performance of the airlines.

## 4.5 Diagnostic Tests

Before carrying out inferential statistics, the researcher sought to ensure that the data set did not violate any of the regression assumption. This was achieved by carrying out diagnostic tests.

### 4.5.1 Multicollinearity Test

It was important for the researcher to ensure that none of the variables used in the study were highly correlated with each other. This was achieved through the use of multicollinearity test as shown in Table 4.2.

**Table 4.2: Multicollinearity Test**

|  | Collinearity Statistics | |
| --- | --- | --- |
|  | **Tolerance** | **VIF** |
| Debt Equity Ratio | .915 | 1.093 |
| Size | .769 | 1.300 |
| Liquidity | .781 | 1.281 |

a. Dependent Variable: ROA

**Source; Research Data (2018)**

As shown in Table 4.2, all the values of the Variance of Inflation Factor (VIFs) were all within the range of 1-10. Based on this finding, it can therefore be inferred that there was no multicollinearity in the data.

### 4.5.2 Autocorrelation Test

Autocorrelation was detected using Durbin Watson Statistics. Values of -2 or +2 suggest that the data set has no autocorrelation. The findings are shown in Table 4.3.

**Table 4.3: Durbin Watson Statistics**

| **Model** | **Durbin-Watson** |
| --- | --- |
| 1 | 1.835[a] |

**Source; Research Data (2018)**

From Table 4.3, the value of Durbin Watson is 1.835, which is approximately 2. Thus, it can be concluded that there was no autocorrelation in the data set.

### 4.5.3 Normality Test

To test whether the data set was normally distributed, Skewness and Kurtosis values were generated as shown in Table 4.4.

**Table 4.4: Normality Test**

|  | N | Skewness | | Kurtosis | |
| --- | --- | --- | --- | --- | --- |
|  | **Statistic** | **Statistic** | **Std. Error** | **Statistic** | **Std. Error** |
| Debt Equity Ratio | 165 | .755 | .189 | .091 | .376 |
| Size | 165 | -.301 | .189 | .357 | .376 |
| Liquidity | 165 | .787 | .189 | .520 | .376 |
| ROA | 165 | -.421 | .189 | .257 | .376 |

**Source; Research Data (2018)**

Table 4.5 indicates that all the values of Kurtosis were within the range of $\pm2$. This can be interpreted to mean that the data set was normally distributed.

### 4.5.4 Test for Heteroskedasticity

To test for heteroskedasticity, the researcher used scatterplot shown in Figure 4.5.
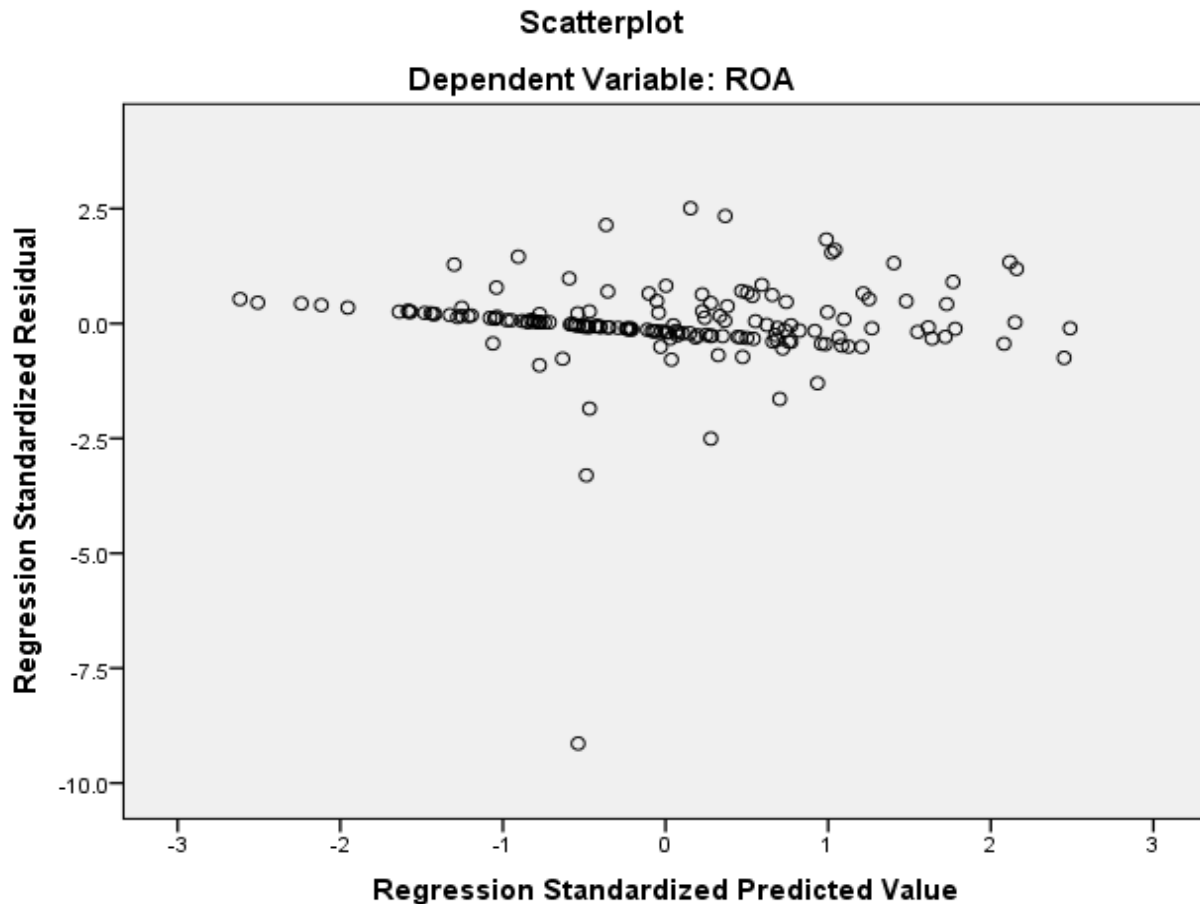
**Figure 4.5: ScatterPlot**

**Source; Research Data (2018)**

Figure 4.5 shows that all the data points are spread with no clearly distinct pattern. It can be deduced from this observation that there was homokedasticity as opposed to heteroskedasticity.

## 4.6 Inferential Analysis

In order to draw significant and meaningful inferences and deductions on the collected and analyzed data, it was important to carry out inferential analysis. This entailed the use of correlation and regression analysis.

### 4.6.1 Correlation Analysis

To establish how capital structure and financial performance were correlated, the researcher used correlation analysis. The findings are reported in Table 4.5.

**Table 4.5: Correlation Analysis**

| | | ROA | Debt Equity Ratio | Size | Liquidity |
|---|---|---|---|---|---|
| ROA | Pearson Correlation | 1 | | | |
| | Sig. (2-tailed) | | | | |
| | N | 165 | | | |
| Debt Equity Ratio | Pearson Correlation | -.174 | 1 | | |
| | Sig. (2-tailed) | .000 | | | |
| | N | 165 | 165 | | |
| Size | Pearson Correlation | .227** | .262** | 1 | |
| | Sig. (2-tailed) | .003 | .001 | | |
| | N | 165 | 165 | 165 | |
| Liquidity | Pearson Correlation | -.285 | -.233** | -.453** | 1 |
| | Sig. (2-tailed) | .000 | .003 | .000 | |
| | N | 165 | 165 | 165 | 165 |

**. Correlation is significant at the 0.01 level (2-tailed).
**Source; Research Data (2018)**

Table 4.5 indicates that debt equity ratio (r=-0.174, p=0.000) had a negative but significant relationship with financial performance. Size (r=0.227, p=0.003) had a positive and significant relationship with financial performance. Liquidity (r=-0.285, p=0.000) had a negative but significant effect on financial performance.

### 4.6.2 Regression Analysis

In order to determine how capital structure affected financial performance, the researcher employed regression analysis. Table 4.6 presents the findings on the model summary.

**Table 4.6: Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .847a | .717 | .706 | 1.57292 |

**Source; Research Data (2018)**

Table 4.6 reveals that $R^2$ is 0.717; this shows that 71.7% change in financial performance of airlines in Kenya is explained by the capital structure.

In order to determine the overall significance of the regression model, it was important to carry out an Analysis of Variance at 5% level of significance as indicated in Table 4.7.

**Table 4.7: ANOVA**

|  | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 645.837 | 3 | 215.279 | 135.994 | .000[b] |
| Residual | 254.830 | 161 | 1.583 |  |  |
| **Total** | **900.667** | **164** |  |  |  |

**Source; Research Data (2018)**

The findings from Table 4.7 indicate that $F_{calculated}$=135.994 while $F_{critical}$=2.661. Since $F_{calculated}$>$F_{critical}$, it can be deduced that there was fitness in the overall model.

The significance of the individual variables of the study was determined by their p values. The interpretation of significance was conducted at 5% level of significance as shown in Table 4.8.

**Table 4.8: Coefficients**

|  | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|
|  | B | Std. Error | Beta | t | Sig. |
| (Constant) | 2.732 | 1.246 |  | 2.193 | .031 |
| Debt-Equity Ratio | -.150 | .058 | -.206 | -2.568 | .012 |
| Liquidity | -.475 | .086 | -.487 | -5.506 | .000 |
| Size | .182 | .084 | .170 | 2.151 | .034 |

**Source; Research Data (2018)**

The resultant equation becomes;

**$Y= 2.732 + 0.150X_1+0.475X_2+0.182X_3$**

Where **Y** is = Financial Performance (ROA= Net Income/Total Assets)

   $X_1$ =Debt-Equity Ratio (Total Debts/Total Equity)

**X₂** =Liquidity (Current assets/Current Liabilities)

**X₃** =Size (Natural Log of Total Assets)

Table 4.8 indicates that at 5% level of significance, debt equity ratio $p=0.012$ with a negative beta coefficient had an inverse and significant effect on financial performance. Liquidity $p=0.000$ with a positive beta coefficient had a direct and significant effect on financial performance. Size $p=0.034$ with a negative beta coefficient had an inverse and significant effect on financial performance.

## 4.7 Research Findings

At 5% level of significance, both correlation and regression results indicated that debt equity ratio had an inverse and significant effect and relationship with financial performance. This is particularly true because too much debt in the capital structure is not good since they may result into bankruptcy that would adversely affect financial performance of an organization. This finding is supported by the pecking order theory. According to Chen (2011), debt ratio in an organization is usually determined by the demand for and the supply of funds. However, the decision on the sources to use in financing investments in the company is made on the basis of a preference order.  This preference order starts with internal sources of finances (retained earnings and reserves), followed by debts and lastly equity. Similarly, Sivalingam and Kengatharan (2018) did a study on how capital structure affected financial performance. The study was done in the banking sector of Sri Lanka and confirmed that capital structure had and inverse relationship with financial performance.

The study further established that liquidity had an inverse and significant effect on financial performance. This finding is supported by the fact that too much liquidity in the company is undesirable since it results into tied up capital that would have otherwise been used in

undertaking investments for maximization of the wealth of shareholders. The finding is in line with Riaz (2015) who noted that too much liquid would mean that the company has huge amount of tied up capital that would have otherwise been used in other profitable investments. The study further established that size had a direct and significant effect and relationship with financial performance.

# CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

## 5.1 Introduction

The chapter gives a summary of the findings while presenting conclusions. The chapter also recommends and suggests areas which future studies need to be conducted in.

## 5.2 Summary of the Findings

The study analyzed the effect of capital structure on financial performance of airlines. The study was guided by the Capital Structure Irrelevance Theory (MM1 Hypothesis), the Tradeoff Theory and the Pecking Order Theory. A total of 46 airlines were targeted. A census was undertaken on all these airlines. Secondary data was collected on a five year period.

From the trend analysis, the study established that there was generally a rise in debts equity ratio among airlines for the period under consideration. On average, there was stability in size of the studied airlines. Liquidity was not stable across the study period. There was generally an increase in ROA across the study period. In order to ensure that the data set did not violate the regression assumptions, diagnostic tests were conducted. In particular, normality tests, autocorrelation, multicollinearity and heteroskedascity were carried out. All the values from these tests were within the required thresholds showing that the data set was suitable for analysis.

Correlation results showed that debt equity ratio (r=-0.174, p=0.000) is negatively correlated with financial performance. Size (r=0.227, p=0.003) has a direct link with financial performanc. Liquidity (r=-0.285, p=0.000) has an inverse link with financial performance. From regression results, $R^2$= 0.717, which shows that 71.7% change in financial performance is explained by capital structure. At 5% level of significance, debt equity ratio p=0.012 with a negative beta coefficient had an inverse and significant effect on financial performance. Liquidity p=0.000

with a positive beta coefficient had a direct and significant effect on financial performance. Size p=0.034 with a negative beta coefficient had an inverse and significant effect on financial performance.

## 5.3 Conclusion

Debt equity ratio has an inverse and significant effect and relationship with financial performance. This conclusion is particularly supported by the Pecking Order Theory and the Tradeoff Theory. This theiry according to Myers and Majluf (1984) argues that the decision on the sources to use in financing investments in the company is made on the basis of a preference order. This preference order starts with internal sources of finances (retained earnings and reserves), followed by debts and lastly equity.

The study further concludes that size and liquidity were significant control variables in the relationship between capital structure and financial performance. Too much liquidity according to Riaz (2015) however would mean that the company has huge amount of tied up capital that would have otherwise been used in other profitable investments. A firm is said to have liquid assets when the same can be easily converted into cash.

## 5.4 Recommendations of the Study

The study recommends that the management team of all airlines in Kenya should be cautious on the amount of debts and equities in the capital structures. This is because too reliance on debts would adversely affect financial performance of their companies. The finance managers of all airlines in Kenya should exercise care when maintaining liquidity levels because too much liquidity would adversely affect financial performance of their companies. The airlines in Kenya

should invest a lot of resources in expanding their sizes because this would positively influence financial performance.

The study further recommends that regulatory bodies including IATA and the Capital Market Authority (CMA) for those airlines listed on NSE (KQ) should come up with sound policies and guidelines that would strengthen the capital structure of these companies and therefore financial performance.

## 5.5 Limitations of the Study

The study was limited to capital structure and how it affects financial performance. The study focused on airlines in Kenya. Specifically, 46 airlines were studied. The study was limited to debt equity ratio, liquidity, size and ROA as the variables. The study further was limited to secondary data.

## 5.6 Suggestions for Further Studies

Since the focus of the current study was on all airlines in Kenya, future studies should focus on listed airlines or in other sectors and industry for example in banking sector or the manufacturing sector. The value of R square in the current study was 71.1% which shows that there are other factors apart from capital structure that explain financial performance of airlines which future studies should concentrate on. Only independent and control variables were used in the current study, future studies should consider introducing the moderating or the intervening variables.

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# APPENDICES

## APPENDIX I: DATA COLLECTION SHEET

| Year | Current Assets (a) | Non-current assets (b) | Current Liabilities (c) | Total Assets (d=a+b) | Equities € | Debts (f) | Net Income (g) |
|------|------|------|------|------|------|------|------|
| 2013 | | | | | | | |
| 2014 | | | | | | | |
| 2015 | | | | | | | |
| 2016 | | | | | | | |
| 2017 | | | | | | | |

## APPENDIX II: LIST OF AIRLINES IN KENYA

| | |
|---|---|
| 1. | 748 Air Services |
| 2. | Aberdair Aviation |
| 3. | Aero-Pioneer Group |
| 4. | Acariza Aviation |
| 5. | AD Aviation Aircharters |
| 6. | Aeronav Air Services |
| 7. | AeroSpace Consortium |
| 8. | African Express Airways |
| 9. | Air Direct-Connect |
| 10. | Airkenya Express |
| 11. | Airlink (Kenya) |
| 12. | AirTraffic Africa |
| 13. | ALS - Aircraft Leasing Services |
| 14. | Astral Aviation |
| 15. | Avro Express |
| 16. | Blue Bird Aviation (Kenya) |
| 17. | Blue Sky Aviation Services |
| 18. | Capital Airlines (Kenya) |
| 19. | DAC East Africa |
| 20. | Fly540 |
| 21. | Fly-SAX |
| 22. | Freedom Airline Express |
| 23. | Global Airlift |
| 24. | Great Airways |
| 25. | Jambojet |
| 26. | Jubba Airways (Kenya) |
| 27. | KASAS |
| 28. | Kenya Airways |
| 29. | Tubania Aviation Group |
| 30. | Knight Aviation |
| 31. | LadyLori |
| 32. | Mombasa Air Safari |
| 33. | Pan African Airways |

| | |
|---|---|
| 34. | Phoenix Aviation (Kenya) |
| 35. | Queensway Air Services |
| 36. | Reliance Air Charters |
| 37. | Ribway Cargo Airlines |
| 38. | Safari Express Cargo |
| 39. | Safarilink Aviation |
| 40. | Safe Air (Kenya) |
| 41. | Skytrail Air Safaris |
| 42. | Skyward International Aviation |
| 43. | Solenta Aviation Kenya |
| 44. | Tamarind Air |
| 45. | Trans world Safaris |
| 46. | Trident A |

**Source; IATA (2018)**

**APPENDIX III: DATA COLLECTED FOR THE STUDY**

| Year | Company | Debt Equity Ratio | Size | Liquidity | ROA |
|------|---------|-------------------|------|-----------|-----|
| 2013 | Aberdair Aviation | 0.42640 | 5.50962 | 1.39651 | -0.00162 |
| 2013 | Acariza Aviation | 0.41121 | 5.37693 | 1.26880 | 0.00147 |
| 2013 | Aeronav Air Services | 0.20237 | 5.35960 | 1.29079 | 0.00007 |
| 2013 | AeroSpace Consortium | 0.33244 | 5.34346 | 1.56083 | 0.00118 |
| 2013 | African Express Airways | 0.22926 | 5.23230 | 1.63533 | -0.00011 |
| 2013 | Airkenya Express | 0.42365 | 5.31599 | 1.72128 | -0.00037 |
| 2013 | Airlink (Kenya) | 0.50834 | 5.05276 | 1.45059 | -0.00026 |
| 2013 | AirTraffic Africa | 0.20412 | 5.09650 | 1.56691 | 0.00110 |
| 2013 | ALS - Aircraft Leasing Services | 0.12615 | 5.05742 | 1.43567 | 0.00042 |
| 2013 | Astral Aviation | 0.07257 | 5.04264 | 1.26641 | 0.00059 |
| 2013 | Blue Bird Aviation (Kenya) | 0.42897 | 4.85274 | 1.48977 | 0.00165 |
| 2013 | Blue Sky Aviation Services | 0.54680 | 4.88405 | 1.06802 | 0.00109 |
| 2013 | Capital Airlines (Kenya) | 0.27728 | 4.72167 | 1.14071 | 0.00281 |
| 2013 | DAC East Africa | 0.22557 | 4.71618 | 1.22145 | -0.00094 |
| 2013 | Fly540 | 0.10241 | 4.96611 | 1.54143 | 0.00046 |
| 2013 | Fly-SAX | 0.54401 | 4.69426 | 1.31486 | 0.00112 |
| 2013 | Global Airlift | 0.43898 | 4.66983 | 1.11952 | 0.00518 |
| 2013 | Great Airways | 0.31852 | 4.63353 | 1.40194 | -0.00161 |
| 2013 | Jambojet | 0.06239 | 4.56711 | 0.93369 | 0.00001 |
| 2013 | Jubba Airways (Kenya) | 0.21909 | 4.63850 | 1.18635 | -0.00025 |
| 2013 | KASAS | 0.42806 | 4.48744 | 1.40865 | 0.00118 |

| Year | Airline | | | | |
|------|---------|---------|---------|---------|----------|
| 2013 | Kenya Airways | 0.26831 | 4.29313 | 1.56048 | 0.00173 |
| 2013 | Knight Aviation | 0.40986 | 4.22476 | 1.18508 | 0.00160 |
| 2013 | LadyLori | 0.10513 | 4.19208 | 0.77226 | -0.00038 |
| 2013 | Pan African Airways | 0.26954 | 4.20558 | 1.45383 | -0.00055 |
| 2013 | Phoenix Aviation (Kenya) | 0.37279 | 4.19258 | 1.37127 | 0.00128 |
| 2013 | Queensway Air Services | 0.30438 | 4.40888 | 1.57546 | 0.00041 |
| 2013 | Ribway Cargo Airlines | 0.38270 | 4.13428 | 1.21615 | 0.00016 |
| 2013 | Safari Express Cargo | 0.11889 | 4.10648 | 1.20575 | 0.00076 |
| 2013 | Safe Air (Kenya) | 0.32048 | 4.10838 | 1.51910 | 0.00057 |
| 2013 | Skyward International Aviation | 0.12792 | 4.13495 | 1.48570 | -0.00054 |
| 2013 | Tamarind Air | 0.12336 | 4.05327 | 1.25593 | 0.00068 |
| 2013 | Trans world Safaris | 0.06071 | 4.04176 | 1.62551 | 0.00075 |
| 2014 | Aberdair Aviation | 0.09973 | 4.12054 | 1.67475 | 0.00095 |
| 2014 | Acariza Aviation | 0.06878 | 3.98488 | 1.27178 | 0.00039 |
| 2014 | Aeronav Air Services | 0.12709 | 3.90465 | 1.26264 | 0.00071 |
| 2014 | AeroSpace Consortium | 0.15250 | 3.90731 | 1.54562 | -0.00005 |
| 2014 | African Express Airways | 0.06124 | 3.86386 | 1.45624 | -0.00286 |
| 2014 | Airkenya Express | 0.03785 | 3.84550 | 1.20530 | 0.00198 |
| 2014 | Airlink (Kenya) | 0.02177 | 3.76085 | 1.40714 | -0.00281 |
| 2014 | AirTraffic Africa | 0.12869 | 3.84574 | 0.51194 | -0.00223 |
| 2014 | ALS - Aircraft Leasing Services | 0.16404 | 3.56933 | 0.72285 | 0.00049 |
| 2014 | Astral Aviation | 0.08319 | 3.46639 | 1.53314 | 0.00356 |
| 2014 | Blue Bird Aviation (Kenya) | 0.06767 | 3.68470 | 5.00920 | 0.00037 |

| | | | | | |
|---|---|---|---|---|---|
| 2014 | Blue Sky Aviation Services | 0.03072 | 3.50093 | 3.77987 | -0.00017 |
| 2014 | Capital Airlines (Kenya) | 0.16320 | 3.43989 | 3.88332 | 0.00351 |
| 2014 | DAC East Africa | 0.13169 | 3.09629 | 3.48741 | -0.00037 |
| 2014 | Fly540 | 0.09556 | 2.87269 | 4.08904 | 0.00070 |
| 2014 | Fly-SAX | 0.01872 | 2.37288 | 4.37584 | -0.00506 |
| 2014 | Global Airlift | 0.06573 | 4.65366 | 1.54160 | -0.00319 |
| 2014 | Great Airways | 0.12842 | 4.64018 | 1.61693 | 0.00083 |
| 2014 | Jambojet | 0.08049 | 4.59609 | 0.92542 | 0.00047 |
| 2014 | Jubba Airways (Kenya) | 0.12296 | 4.53774 | 4.90775 | 0.00079 |
| 2014 | KASAS | 0.03154 | 4.59110 | 5.68485 | -0.00087 |
| 2014 | Kenya Airways | 0.08086 | 4.43432 | 4.19707 | -0.00050 |
| 2014 | Knight Aviation | 0.11184 | 4.27257 | 2.78759 | 0.00194 |
| 2014 | LadyLori | 0.09131 | 4.24454 | 2.92249 | -0.00005 |
| 2014 | Pan African Airways | 0.11481 | 4.19326 | 2.97545 | 0.00079 |
| 2014 | Phoenix Aviation (Kenya) | 0.03567 | 4.16732 | 2.40648 | 0.00150 |
| 2014 | Queensway Air Services | 0.09614 | 4.14324 | 2.62745 | 0.00033 |
| 2014 | Ribway Cargo Airlines | 0.21320 | 4.51217 | 4.36481 | 0.00002 |
| 2014 | Safari Express Cargo | 0.20560 | 3.78996 | 0.88222 | -0.00292 |
| 2014 | Safe Air (Kenya) | 0.10118 | 3.67302 | 0.71704 | -0.00128 |
| 2014 | Skyward International Aviation | 0.16622 | 4.14304 | 2.16000 | 0.00021 |
| 2014 | Tamarind Air | 0.11463 | 4.07113 | 2.16000 | 0.00049 |
| 2014 | Trans world Safaris | 0.21182 | 4.10637 | 2.16000 | 0.00408 |
| 2015 | Aberdair Aviation | 0.25417 | 4.40610 | 1.45145 | 0.00193 |

| 2015 | Acariza Aviation | 0.10206 | 4.27044 | 1.10221 | 0.00001 |
|------|------------------|---------|---------|---------|---------|
| 2015 | Aeronav Air Services | 0.06308 | 4.19021 | 1.09429 | 0.00056 |
| 2015 | AeroSpace Consortium | 0.03629 | 4.19287 | 1.33954 | 0.00030 |
| 2015 | African Express Airways | 0.21448 | 4.14942 | 1.26207 | -0.00052 |
| 2015 | Airkenya Express | 0.27340 | 4.13106 | 1.04459 | 0.00107 |
| 2015 | Airlink (Kenya) | 0.13864 | 4.04641 | 1.21952 | 0.00021 |
| 2015 | AirTraffic Africa | 0.11278 | 4.13129 | 0.44368 | 0.00063 |
| 2015 | ALS - Aircraft Leasing Services | 0.05120 | 3.85488 | 0.62647 | -0.00062 |
| 2015 | Astral Aviation | 0.27201 | 3.75195 | 1.32872 | -0.00078 |
| 2015 | Blue Bird Aviation (Kenya) | 0.21949 | 3.97026 | 4.34131 | -0.00003 |
| 2015 | Blue Sky Aviation Services | 0.15926 | 3.78649 | 3.27589 | 0.00075 |
| 2015 | Capital Airlines (Kenya) | 0.03120 | 3.72545 | 3.36555 | 0.00020 |
| 2015 | DAC East Africa | 0.10955 | 3.38184 | 3.02242 | -0.00011 |
| 2015 | Fly540 | 0.21403 | 3.15825 | 3.54383 | 0.00078 |
| 2015 | Fly-SAX | 0.13415 | 2.65843 | 3.79239 | 0.00019 |
| 2015 | Global Airlift | 0.20493 | 4.93922 | 1.33605 | 0.00146 |
| 2015 | Great Airways | 0.05257 | 4.92574 | 1.40134 | -0.00107 |
| 2015 | Jambojet | 0.13477 | 4.88164 | 0.80203 | 0.01292 |
| 2015 | Jubba Airways (Kenya) | 0.18639 | 4.82329 | 4.25338 | 0.07121 |
| 2015 | KASAS | 0.15219 | 4.87666 | 4.92687 | 0.03482 |
| 2015 | Kenya Airways | 0.19135 | 4.71988 | 3.63746 | -0.00203 |
| 2015 | Knight Aviation | 0.05944 | 4.55812 | 2.41591 | 0.04114 |
| 2015 | LadyLori | 0.16024 | 4.53009 | 2.53282 | 0.01730 |

| 2015 | Pan African Airways | 0.25584 | 4.47882 | 2.57873 | -0.19228 |
|------|---------------------|---------|---------|---------|----------|
| 2015 | Phoenix Aviation (Kenya) | 0.24672 | 4.45287 | 2.08562 | 0.03395 |
| 2015 | Queensway Air Services | 0.12142 | 4.42880 | 2.27713 | -0.00613 |
| 2015 | Ribway Cargo Airlines | 0.19946 | 4.79773 | 3.78283 | 0.07555 |
| 2015 | Safari Express Cargo | 0.13755 | 4.07552 | 0.76459 | 0.02769 |
| 2015 | Safe Air (Kenya) | 0.25419 | 3.95857 | 0.62144 | 0.01986 |
| 2015 | Skyward International Aviation | 0.30501 | 4.42860 | 1.87200 | 0.01871 |
| 2015 | Tamarind Air | 0.12247 | 4.35668 | 1.87200 | 0.04376 |
| 2015 | Trans world Safaris | 0.07569 | 4.39193 | 1.87200 | 0.09412 |
| 2016 | Aberdair Aviation | 0.04354 | 5.78838 | 0.93100 | 0.01130 |
| 2016 | Acariza Aviation | 0.25738 | 5.65568 | 0.84587 | 0.04563 |
| 2016 | Aeronav Air Services | 0.32808 | 5.63835 | 0.86053 | 0.02933 |
| 2016 | AeroSpace Consortium | 0.16637 | 5.62221 | 1.04055 | 0.03282 |
| 2016 | African Express Airways | 0.13534 | 5.51105 | 1.09022 | 0.05817 |
| 2016 | Airkenya Express | 0.06145 | 5.59474 | 1.14752 | 0.03363 |
| 2016 | Airlink (Kenya) | 0.32641 | 5.33151 | 0.96706 | 0.10922 |
| 2016 | AirTraffic Africa | 0.26339 | 5.37525 | 1.04460 | 0.02729 |
| 2016 | ALS - Aircraft Leasing Services | 0.19111 | 5.33618 | 0.95711 | 0.06175 |
| 2016 | Astral Aviation | 0.03743 | 5.32139 | 0.84427 | 0.05964 |
| 2016 | Blue Bird Aviation (Kenya) | 0.13145 | 5.13149 | 0.99318 | 0.01836 |
| 2016 | Blue Sky Aviation Services | 0.25683 | 5.16281 | 0.71202 | 0.09971 |
| 2016 | Capital Airlines (Kenya) | 0.16099 | 5.00043 | 0.76047 | 0.02540 |
| 2016 | DAC East Africa | 0.24592 | 4.99494 | 0.81430 | 0.04719 |

| 2016 | Fly540 | 0.06308 | 5.24486 | 1.02762 | 0.04551 |
|------|--------|---------|---------|---------|---------|
| 2016 | Fly-SAX | 0.16172 | 4.97301 | 0.87657 | 0.02996 |
| 2016 | Global Airlift | 0.22367 | 4.94858 | 0.74635 | 0.28100 |
| 2016 | Great Airways | 0.18263 | 4.91228 | 0.93462 | 0.10654 |
| 2016 | Jambojet | 0.22962 | 4.84586 | 0.62246 | -0.00777 |
| 2016 | Jubba Airways (Kenya) | 0.07133 | 4.91725 | 0.79090 | 0.21470 |
| 2016 | KASAS | 0.19229 | 4.76619 | 0.93910 | 0.04022 |
| 2016 | Kenya Airways | 0.29848 | 4.57189 | 1.04032 | -0.97500 |
| 2016 | Knight Aviation | 0.28784 | 4.50351 | 0.79005 | 0.10732 |
| 2016 | LadyLori | 0.14166 | 4.47083 | 0.51484 | -0.01424 |
| 2016 | Pan African Airways | 0.23271 | 4.48433 | 0.96922 | 0.23851 |
| 2016 | Phoenix Aviation (Kenya) | 0.16048 | 4.47134 | 0.91418 | 0.07064 |
| 2016 | Queensway Air Services | 0.29655 | 4.68764 | 1.05030 | 0.08377 |
| 2016 | Ribway Cargo Airlines | 0.35584 | 4.41303 | 0.81077 | 0.07308 |
| 2016 | Safari Express Cargo | 0.14288 | 4.38523 | 0.80384 | 0.08670 |
| 2016 | Safe Air (Kenya) | 0.08831 | 4.38714 | 1.01273 | 0.29278 |
| 2016 | Skyward International Aviation | 0.05080 | 4.41370 | 0.99047 | 0.03684 |
| 2016 | Tamarind Air | 0.30028 | 4.33202 | 0.83728 | 0.14887 |
| 2016 | Trans world Safaris | 0.38276 | 4.32052 | 1.08368 | 0.11911 |
| 2017 | Aberdair Aviation | 0.19410 | 6.05083 | 0.76376 | 0.08533 |
| 2017 | Acariza Aviation | 0.15790 | 5.91814 | 0.69391 | 0.22471 |
| 2017 | Aeronav Air Services | 0.07169 | 5.90080 | 0.70594 | 0.08134 |
| 2017 | AeroSpace Consortium | 0.38081 | 5.88466 | 0.85363 | 0.22183 |

| 2017 | African Express Airways | 0.30728 | 5.77350 | 0.89437 | 0.12553 |
|------|--------------------------|---------|---------|---------|---------|
| 2017 | Airkenya Express | 0.22297 | 5.85720 | 0.94138 | 0.11547 |
| 2017 | Airlink (Kenya) | 0.04367 | 5.59396 | 0.79334 | 0.21013 |
| 2017 | AirTraffic Africa | 0.15336 | 5.63770 | 0.85695 | 0.03904 |
| 2017 | ALS - Aircraft Leasing Services | 0.29964 | 5.59863 | 0.78518 | 0.24462 |
| 2017 | Astral Aviation | 0.18782 | 5.58384 | 0.69261 | 0.11516 |
| 2017 | Blue Bird Aviation (Kenya) | 0.28691 | 5.39394 | 0.81476 | 0.09176 |
| 2017 | Blue Sky Aviation Services | 0.07359 | 5.42526 | 0.58411 | 0.16848 |
| 2017 | Capital Airlines (Kenya) | 0.18868 | 5.26288 | 0.62386 | 0.07548 |
| 2017 | DAC East Africa | 0.26095 | 5.25739 | 0.66802 | 0.10528 |
| 2017 | Fly540 | 0.21307 | 5.50731 | 0.84302 | 0.11331 |
| 2017 | Fly-SAX | 0.26789 | 5.23547 | 0.71911 | 0.12733 |
| 2017 | Global Airlift | 0.08322 | 5.21103 | 0.61227 | 0.20165 |
| 2017 | Great Airways | 0.22433 | 5.17474 | 0.76673 | -0.13561 |
| 2017 | Jambojet | 0.34112 | 5.10831 | 0.51064 | 0.00407 |
| 2017 | Jubba Airways (Kenya) | 0.32896 | 5.17970 | 0.64882 | 0.05514 |
| 2017 | KASAS | 0.16189 | 5.02865 | 0.77040 | 0.03794 |
| 2017 | Kenya Airways | 0.26595 | 4.83434 | 0.85344 | 0.10778 |
| 2017 | Knight Aviation | 0.18341 | 4.76596 | 0.64813 | -0.24057 |
| 2017 | LadyLori | 0.33892 | 4.73328 | 0.42235 | -0.34835 |
| 2017 | Pan African Airways | 0.40667 | 4.74679 | 0.79511 | -0.10022 |
| 2017 | Phoenix Aviation (Kenya) | 0.16330 | 4.73379 | 0.74996 | -0.04474 |
| 2017 | Queensway Air Services | 0.10092 | 4.95009 | 0.86163 | -0.09188 |

| 2017 | Ribway Cargo Airlines | 0.05806 | 4.67548 | 0.66512 | -0.01735 |
|------|-----------------------|---------|---------|---------|----------|
| 2017 | Safari Express Cargo | 0.34317 | 4.64768 | 0.65943 | -0.08100 |
| 2017 | Safe Air (Kenya) | 0.43744 | 4.64959 | 0.83080 | -0.05772 |
| 2017 | Skyward International Aviation | 0.22183 | 4.67615 | 0.81254 | -0.03523 |
| 2017 | Tamarind Air | 0.18046 | 4.59448 | 0.68687 | -0.06333 |
| 2017 | Trans world Safaris | 0.08193 | 4.58297 | 0.88900 | -0.04427 |