

**THE EFFECT OF MACROECONOMIC VARIABLES ON
FINANCIAL PERFORMANCE OF AVIATION
INDUSTRY IN KENYA**

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DECLARATION

This research project report is my original work and has not been submitted for examination in any other University.

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DEDICATION

This project is dedicated to my wife Phyllis Muthoni, my son Allan Mwangi, my father Samuel Mwangi and to my mother Gladys Nyambura.

ABSTRACT

The purpose of this study was to determine the effects of macroeconomic variables on financial performance of aviation industry in Kenya. The financial performance measures of companies in aviation industry used was the Return on Assets (ROA) which was regressed against the macroeconomic variables including real exchange rate (USD/Ksh), GDP growth rate, the change in money supply (M3), average annual lending interest rates as computed by CBK and inflation rate measured by annual percentage changes in the consumer price index (CPI).

The study used descriptive correlation research design. The population of this study comprised of 109 valid airline companies licensed to operate within Kenya as at June 2013, the Kenya Civil Aviation Authority, and the Kenya Airport Authority. The study employed annual secondary data which was obtained from the Central Bank of Kenya, Kenya National Bureau of Statistics and published annual financial statements from companies selected in the sample. The period of study was five years from 2008 to 2012. The companies which responded were 21 out of a sample of 32 thus the overall response rate was 65.63%. The data was analyzed using descriptive analysis, correlation analysis and multiple regression analysis using SPSS.

The results revealed that return on assets of companies in aviation industry had weak positive insignificant correlation with gross domestic products growth rate (0.102) and annual change in money supply M3 (0.122). The study also found that ROA had weak negative insignificant correlation with exchange rate (-0.082), annual average lending rate (-0.041) and annual average inflation (-0.172). Further the study indicated that the macroeconomic variables influenced the ROA with an adjusted R^2 of 0.019. This means that 1.9% of variation in the dependent variable in the regression model was due to independent variables while 98.1% are due to error term, chance or unexplained. The F-Statistics of 1.499 was significant at 0.208.

The study recommends that Kenya Civil Aviation Authority being the regulator of the aviation industry to initiates policies measures that will control the exchange rate in Kenya in collaboration with CBK. Lower exchange rates would be more appropriate for companies in the aviation industry in Kenya to perform better. The study further recommends that there is need for the Kenya Civil Aviation Authority to initiate policies that will ensure lower inflation rate in the sector and create an aviation investment bank that will provide a low average lending interest rates to the sector. The study also recommends that there is need for the Government to control the broad money supply in Kenya as there is some evidence to suggest that higher money supply may lead to better performance of companies in the aviation industry in Kenya. The results however clearly indicate that there are other variables that affect the financial performance of aviation industry in Kenya this is due to the statistical insignificance between ROA and macroeconomic variables. The study therefore recommends the need for further studies on these variables, taking longer period into account.

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ABBREVIATIONS

APT	-	Arbitrage Pricing Theory
CBK	-	Central Bank of Kenya
CPI	-	Consumer Price Index
GDP	-	Gross Domestic Product
ICAO	-	International Civil Aviation Organization
KAA	-	Kenya Airports Authority
KCAA	-	Kenya Civil Aviation Authority
KNBS	-	Kenya National Bureau of Statistics
MP	-	Market Power
QL	-	Quiet Life
RMP	-	Relative Market-Power
ROA	-	Return on Asset
ROE	-	Return on Equity
SCP	-	Structure Conduct- Performance
UK	-	United Kingdom

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The aviation sector is probably the most important mode of transport intermediary in the economy because of the role it plays as the quickest mode of transport for both passengers and freight (ICAO, 2006). Profitability is one of the important pointers of industry performance that has major insinuation on sector's activities. This study sought to determine the effect of selected macroeconomic variables such as exchange rate, GDP growth, money supply, interest rate and inflation on financial performance of aviation industry in Kenya. In this background of the study, the paper presents the concepts of macroeconomic variables, the financial performance, the effects of macroeconomic variables on financial performance, a brief background of the Aviation Industry in Kenya. Then the chapter also presents the research problem, objectives of the study and the value of the study (Muchiri, 2012).

The aviation industry plays a significant role in economic development of any country. The major contribution is the provision of air transport services to passengers, cargo and mail. The aviation industry in Kenya has for the past decade, undergone many regulatory reforms. These reforms have brought about many structural changes in the sector and have encouraged many operators to enter into the industry. Functioning on a business cycle and being run by individual companies, there are many factors which come into play trying to differentiate amongst the airline, some of these factors include the macroeconomic variables which affect performance. A country such as Kenya which relies heavily on foreign earnings through the export of agricultural produce is a direct

beneficiary of airline services (Omondi, 2006). The Kenyan economy has experienced mixed macroeconomic performance over the years. Likewise the aviation industry has undergone a series of reforms to measure up with emerging markets in the world. The Kenyan government has been providing good regulations through the Kenya Civil Aviation Authority in order to boost the aviation sector. Since cyclical fluctuations are sometimes unexpectedly extreme, macroeconomic variables might well deliver good indicators for the likelihood of mounting stress within the aviation sector.

1.1.1 Macroeconomic Variables

Macroeconomic variables are variables that control the macro-economy, that is, the whole economy (Olukayode and Akinwande, 2009). These variables include interest rates, economic output, employment and unemployment, huge population, inflation, government budget balances and finance, international trade balances and finance, and productivity (Muchiri, 2012). It is a known fact that the investment that promotes economic growth and development requires long term funding, far longer than the duration for which most savers are willing to commit their funds. In most countries commercial aviation provides essential transport services that facilitate economic growth. Given the attribute they make it is possible for the discerning minds to feed the impulse of such an economy. The external shocks are the macroeconomic fundamentals or indicators that are expected to cause variation in the financial performance in the aviation industry.

The study assumed that there exist a positive and negative relationship between the selected macroeconomic variables and financial performance in the aviation industry.

However, our model used five main macroeconomic variables namely, the real exchange rate, GDP growth rate, the money supply, the interest rate and the inflation rate as explained below (Muchiri, 2012).

Real exchange rate is commonly known as a measure of international competitiveness. It is also known as index of competitiveness of currency of any country and an inverse relationship between this index and competitiveness exists. Lower the value of this index in any country, higher the competitiveness of currency of that country will be. It is widely held view that exchange rate volatility should affect corporate expected cash flows and hence its performance by causing changes in the home currency denominated revenues (costs) and terms of competition for firms with international activities (Amihud & Levich, 1994). Opati (2009) did a study on casual relationship between inflation and exchange rates in Kenya where it was established that an increase in inflation leads to depreciation of the local currency. Ndungu (2000) asserts that exchange rate policy in Kenya has undergone various shifts mostly driven to a large extent by the economic events especially balance of payments crisis.

Gross domestic product (GDP) is most commonly used macroeconomic indicator to measure total economic activity within an economy. The growth rate of GDP reflects the state of the economic cycle and was expected to have an impact on the demand for the aviation industry services. The economic conditions and specific market environment affected the companies in aviation mixture of assets and liabilities. Favorable economic conditions affected the demand and supply of companies in aviation industry. Aviation

industry growth and profitability is limited by the growth rate of the economy. Economic growth can enhance the aviation industry profitability by increasing the demand for services offered thus increasing the financial gain. Thus there is a positive relationship between the growth rates and gross domestic product and the profitability of the companies in the aviation industry. In this study profitability was found to be positively correlated with GDP growth. The positive impact of GDP growth supports the argument of the positive association between growth and financial sector performance and is also confirmed by Kosmidou (2006) and Hassan & Bashir (2003). GDP was expected to have impact on the demand for airline services, whereby increase in consumption of the services provided would increase the aviation industry profitability.

Money supply is the sum of currency outside banks and deposit liabilities of commercial banks (CBK, 2012). Deposit liabilities are defined in narrower and broader senses as follows: narrow money (M1); broad money (M2); and extended broad money (M3).

These aggregates are defined as follows:

$M1 = \text{Currency outside banking system} + \text{demand deposits}$

$M2 = M1 + \text{time and savings deposits} + \text{certificates of deposits} + \text{deposits liabilities of Non-bank financial institutions (NBFIs)}$

$M3 = M2 + \text{residents' foreign currency deposits}$

The CBK has been targeting monetary aggregate (broad money M3) in its policy decisions (Rotich, 2007), implying that at times of high inflation, or positive output, the CBK responded by reducing money supply. Rozef (1974) studied the efficiency of USA stock market with respect to money supply and revealed that there is no casual

relationship between money supply and stock return. This finding is consistent with Kraft and Kraft (1977). Sellin (2001) argues that, the money supply will have a significant impact on stock market return if only the change in money growth may change the expectations of stock market participant about the future monetary policy. If there is information regarding increase in money growth this will lead to a tightening policy to be used by monetary authorities in the future. One of the most important tools to absorb excess money in the economy is the interest rate, accordingly once interest rate increased; the discount rate will go up and will lead to decrease in stock price. Also, economic activity will decrease and will cause another negative impact on stock prices. Money supply (M3) was found to be positively correlated with the profitability of companies in aviation industry.

An interest rate is a price that relates present claims on resources relative to future claims on resources. Interest rate is the price a borrower pays for the use of money they borrow from a lender or fee paid on borrowed assets (Crowley, 2007). Interest rates are fundamental to a 'capitalist society' and are normally expressed as a percentage rate over the period of one year. Interest rate as a price of money reflects market information regarding expected change in the purchasing power of money of future inflation (Ngugi, 2001). Economists argue that the interest rate is the price of capital allocation over time. The monetary authorities use the interest rate as an important tool to attract more saving as if the interest rate increases in the market this will attract more saving and the decrease in interest rate will encourage investors to look for another investment that will generate more return accordingly the capital inflow will be increased toward the stock market.

Kipngetich (2011) did a study on the relationship between interest rates and financial performance of commercial banks in Kenya and found that there is a positive relationship between interest rates and financial performances of commercial banks. Thus companies should therefore prudently manage their interest rates to improve their financial performance. Interest rate was found to be negatively correlated with the profitability of companies in aviation industry.

Inflation is the rate measured by changes in the consumer price index (CPI). Inflation is an important determinant of aviation industry performance. In general, high inflation rates are associated with high loan interest rates and high income. Bashir (2003) stated that the anticipated inflation affects positively while unanticipated inflation affects negatively the profitability of the banks. As for the inflation rate, the earliest studies mainly document the negative relationship between equity returns and inflation (Lintner, 1975; Bodie, 1976). Reilly (1997) provides detailed decomposition of corporate earnings, and relates these components of earnings to inflation. Reilly (1977) examined the effect of inflation on stock return using data for Standard & Poor's 500 firms. Geske and Roll (1983) and Kaul (1987) further analyzed the negative relation between expected inflation and stock returns, elaborating upon the underlying link between expected inflation and expected real activity. Boudoukh and Richardson (1993) study about one hundred years of data, where expected inflation was found to have a positive and nearly one-for-one effect on five-year nominal stock returns. This supports Fisher (1930) hypothesis which asserted that the expected nominal return consists of an expected real return and expected inflation rate. It implies that investors will be fully compensated for expected loss of

purchasing power and that nominal interest rates and expected inflation will have a one-to-one positive relationship. Accordingly, Stocks are good hedge against inflation because, in theory, a company's revenue and earnings should grow at the same rate as inflation over the time. Consequently, companies can react to inflation by raising their prices, but others who compete in the global market will lose their competitive advantage against other international producers who do not have such level of inflation and do not raise their prices. This research found that there is a negative relationship between inflation and financial performance of companies in aviation industry.

1.1.2 Financial Performance

Performance can be defined as an approach to determining the extent to which set objectives or goals of an organization are achieved in a particular period of time (Illo, 2012). The objectives or goals can be in financial or non-financial terms; therefore, performance can also be financial or non-financial. This is one measure of organizations overall performance, and from stakeholders strategic purpose, it is the purpose of the firm (Friendman, 1970). Evaluating aviation industry performance is a complex process that involves assessing interaction between the environment, internal operations and external activities. The primary method of evaluating internal performance is analyzing accounting data. In general, a number of financial ratios are usually used to assess the performance of financial intermediaries. Financial ratios usually provide a broader understanding of the company financial condition since they are constructed from accounting data contained in the company's balance sheet and financial statements.

For the purpose of this study, financial performance of a company relates to profitability, which is a key component of performance. Helfert (1991) described profitability in two dimensions, from the management and also from the shareholders perspective. From management's point of view, profitability is the effectiveness in which management has employed both the total assets and net assets as recorded in the balance sheet, which is judged by relating net profit to the assets utilized in generating it. From the owners' point of view, profitability means the returns achieved through the efforts of management on the funds invested. In this study, the performance of companies in aviation industry is measured by its return on assets (ROA). The ROA, defined as net income divided by average total assets, reflects how well a company management is using the company real investment resources to generates profits and the ROA is widely used to compare the efficiency and operational performance of company as it looks at the returns generated from the assets financed by the company.

Another measure of profitability is the return on equity (ROE). It indicates how effectively the management of the enterprise is able to turn shareholders funds into net profit. It is the rate of return flowing to the company's shareholder (Illo, 2012). The higher ROA and ROE reflects higher managerial efficiency of the company's and vice versa. According to Hassan and Bashir (2003) ROA shows the profit earned per unit of assets and reflects the management ability to utilize bank's financial and real investment resources to generate profit. Theoretical determinant of aviation performance stem from two broad sources: micro specific factors and macroeconomic environment. Micro specific factors include the individual risk exposure of the airline, operating strategies

and the degree of management expertise. Macro factors include the growth domestic product (GDP), inflation, unemployment, interest rate, exchange rate and level of competition.

Although measuring financial performance is considered a simpler task, it also has its specific complications. There is little consensus about which measuring instrument to apply as these measures differs from each other on several dimensions. For example measures may be absolute like sales and profit; or return based measures like profit/sales, profit/capita, and profit/equity. Other measures are the market value of a firm or a mean growth rate over several years. For this reason, ROA was used as the dependent variable since it provides convenience in comparing the study results to other findings reported in the literature.

1.1.3 Effects of Macroeconomic Variables on Financial Performance

According to Oliver (2000) macroeconomic variables are such factors that are pertinent to a broad economy at the regional or national level and affect a large population rather than a few select individuals. It is often argued that financial performance are determined by some fundamental macroeconomic variables such as the interest rate, gross domestic product (GDP), exchange rate, inflation and money supply which are closely monitored by the government, businesses and consumers.

Anecdotal evidence from the financial press indicates that investors generally believe that monetary policy and macroeconomic events have a large influence on the volatility of financial performance (Muchiri, 2012). Economic factors that impact on changing

investment opportunities; the pricing policies; and factors which affect dividends theoretically, affect pricing and financial performance in aviation industry. As Muchiri (2012) revealed, is that prior studies argue that consumer prices index (CPI) is such a specific factor representing several macroeconomic variables such as discount rate, inflation and goods market (Nasseh and Strauss, 2000). A negative effect was found between CPI and stock prices. This can be explained as the results of higher risk of future profitability. An increase in prices level will increase the cost of production which, in turn, would reduce future profitability. However, there are still some other opinions that higher prices level can also have a positive effect on stock prices due to the use of equities itself as equipment for hedging inflation. In this study, the researcher found that the macroeconomic variables selected in the study had both positive and negative correlation on the financial performance of the aviation industry.

Ehrhardt (1991), investigated if the interest rate has an explanatory power on stock return, and revealed that the interest rate can be used as an explanatory power for stock market return. Choi, Elyasiani and Kopecky (1992), studied the effects of interest rate and exchange rate on Turkish stock return and revealed that both macroeconomic variables have a significant impact on share prices. Evans (1998), argue that, the inflation risk and interest rate are integrated assets with higher risk accordingly investor should be compensated by receiving higher return which mean that there is a positive correlation between interest rate and inflation. Ehrmahh and Fratscher (2004) investigate the effect on U.S monetary policy on stock prices with special focus on credit and interest rate for the period 1994-2003. This research concluded that the monetary policy has an effect on

the stock prices but not the only determinant of stock price. The result of this research is not consistent with Modigliani and Chon (1978) who found out that the interest rate is one of the most significant determinate of stock prices. Afar et al. (2008), investigates the effects of interest rate volatility on stock returns and volatility using monthly returns of Karachi stock exchange and 90 days T-bill rate for the period of January 2002 to June 2006. Two distinct GARCH (1, 1) models have been implied, one without interest rates and second with the effects of interest rates. Results revealed that conditional market return has a negatively significant relation with interest rates where as conditional variance of returns has a negative but insignificant relationship with interest rates. These results collectively depict that interest rates have strong positive predictive power for stock returns but weak predictive power for volatility.

1.1.4 Aviation Industry in Kenya

An industry is defined as a group of firms that offers products that are close to substitutes of each other to the market (Grant, 2003; Porter, 1980; Kotler, 1998). The aviation industry is generally composed of international airline, chartered, scheduled, domestic airlines, airport operators and the industry regulator. Omondi (2006) observed that most airlines specialize in passenger business while a few are in the cargo business. Alexa, et al. (2003) observes that air travel remains a large and growing industry. It facilitates economic growth, world trade, international investment and tourism among others. Therefore it is vital to the globalization taking place in other industries. Future estimates of aircraft and passengers activity are based on the history, industry trends and economic trends. Consumer and other stakeholders' confidence has also fallen sharply in aviation over few years, reflected by economic recession, insecurity and government activity.

The Greek legend of Daedulus' and Icarus' attempting a flight by sticking feathers on their arms and the resultant death of Icarus when he got too close to the Sun encapsulates the risks in Aviation as seen in Greek mythology and why Air Safety should be ensured. The Industry grew rapidly following the first air passenger in 1908 and the first regular scheduled passenger service in 1914 and regular daily International commercial services by 1920. This raised the need for national and international regulatory regimes, facilities and services to ensure the orderly and regular development of the Industry globally, (DeNeufville and Odoni, 2002).

The Paris convention of 1919 created the first formal organization for the oversight of international aviation activities and the Havana Convention of 1928, established several new legal principles for governing International Aviation. In 1944, representatives of 54 States met and developed the Convention on International Civil Aviation at Chicago, commonly referred to as the Chicago Convention, with Annexes that formed the basis of Standards and Regulations used in regulating and providing services in the Air Transport Industry in a harmonized, global manner. The International Civil Aviation Organisation (ICAO) came into existence in 1947 as a specialised Agency of the United Nations Organisation to ensure the safe and orderly growth of international civil aviation globally. It was to encourage the design of aircraft for peaceful purposes, to encourage the development of airways, airports and air navigation facilities and ensure safe, regular, efficient and economical air transport, (Speciale, 2006). ICAO through its regional planning groups has defined state requirements based on nature and level of air traffic in

the airspace and following intensive consultation with contracting States and Stakeholders.

Aviation industry consists of Air transport regulations and services and it has both civil and military components with civil aviation referring to all non-military flying both general aviation and scheduled air transport. Air transport has existed in Kenya since 1950s and the necessary infrastructure developed gradually as Air traffic increased. According to KCAA Statistical bulletin (2013), Kenya is well served by major international carriers led by Kenya Airways which uses Jomo Kenyatta International Airport, Nairobi as its hub. The rapid expansion of Kenya Airways with flights to the major cities in Europe and Asia has greatly improved accessibility, travel times and connectivity. This is further enhanced through its partnership with the Dutch Airline KLM and membership to the Sky Team which includes major airlines in the world. In addition, there are scheduled and non-scheduled charter aircrafts that operate between Kenya and Europe bringing tourists mainly to Mombasa and Malindi.

In the wake of recent world events major airlines are facing significant losses and potential bankruptcy, the largest annual loss in the history of the Kenyan aviation industry where some airline like Kenya Airways made an after tax loss of 7.64 billion for the year ended March 2013, while others like Jet link express stopped their operations. As result of terrorism the industry is faced with a global economic slowdown, structural weaknesses, high fuel costs and labour problems. Even before the world witnessed the disastrous hijacking of four commercial airlines in USA, the aviation industry was close

to financial ruin. The terrorist attack, elimination of flights and need for major investments in airport security have pushed the airlines into nothing short for survival. The economic aftershocks of the September 11 2001 attack is widespread; in addition to aviation industry, tourism, insurance and the government also suffered substantial losses.

A firm secures its survival through sustained growth and profitability (Pierce and Robinson, 1999). In the 1990s, as governments increasingly divested from business through privatization, airlines that traditionally functioned as national flag carriers by virtue of their state ownership were being either partially or fully privatized. As private entities their survival now depends on their ability to be profitable, as they no longer qualify for state subsidies that many were accustomed to receiving to keep afloat. As such previously loss-making airline must quickly formulate and implement strategies to reduce the effects of macroeconomic variable in order to become profitable world-class airline.

Capacity for expansion becomes the single most significant factor vis-à-vis the limited resources base available for the rapid creation of a global network, coupled with the issue of how to deal with the contending forces of rivalry from well-established competitors (Omondi, 2006). Threats to airline emerge from the fact that protection of traditional markets, previously catered for by regulation and bilateralism is quickly dwindling and the threats of entry by new competitors is fast becoming an additional contending force to deal with. Profitability over the long term is now a key demand on airline management by new shareholders as airlines privatize. Again the airline management should be able to

manage the effects of the macroeconomic variables on the financial performance of the airline business. Kenya Civil Aviation Authority (KCAA) is the state's aviation administration responsible for industry regulation and provision of Air Navigation Services (Civil Aviation Act, 2013).

The aviation industry in Kenya has for the past decade, undergone many regulatory reforms. These reforms have brought about many structural changes in the sector and have encouraged many operators to enter into the industry. Functioning on a business cycle and being run by individual companies, there are many factors which come into play trying to differentiate amongst the airline some of these factors include the macroeconomic variable which affects performance. Each airline industry has four goals: avoid flying with empty seats, maximize to the total net revenue to the airline, attract customers from other airlines and to create customer loyalty programs for regular passengers (Devlin, 2003).

1.2 Research Problem

Macroeconomic factors such interest rate, gross domestic product (GDP), exchange rate, inflation and money supply affects the financial performance of aviation industry in a number of ways. As Levine (1996) revealed, the efficiency of financial intermediation can also affect economic growth. Economies that have a profitable aviation sector are better able to withstand negative shocks and contribute to the stability of the financial systems.

The aviation industry plays a significant role in economic development of any country. The major contribution is the provision of air transport services to passengers, cargo and mail. A country such as Kenya which relies heavily on foreign earnings through the export of agricultural produce is a direct beneficiary of airline service. The Kenyan economy has experienced mixed macroeconomic performance over the years. Likewise the aviation industry has undergone a series of reforms to measure up with emerging markets in the world. The Kenyan government has been providing good regulations through the Kenya Civil Aviation Authority in order to boost the aviation sector. Since cyclical fluctuations are sometimes unexpectedly extreme, macroeconomic variables might well deliver good indicators for the likelihood of mounting stress within the aviation sector.

Most of the studies on the effects of macroeconomic indicators have covered the stock market (Muchiri, 2012) and the commercial banks in Kenya (Illo, 2012). Muchiri (2012) suggested in his research the need to replicate the study of macroeconomic variables in other sectors of the economy like manufacturing, aviation in order to find out whether these variables influence performance of the firm. There was therefore a gap in literature as far as the study on the effects of macroeconomic variables on financial performance of aviation industry in Kenya. Thus this study sought to fill this research gap by answering the following question: How do macroeconomic variables affect the financial performance of aviation industry in Kenya?

1.3 Research Objective

The objective of this study was to establish the relationship between macroeconomic variables and financial performance of aviation industry in Kenya.

1.4 Value of the Study

This study will be of value to different stakeholders including: Scholars and academicians, Kenya Civil Aviation Authority, Kenya Airport Authorities, Kenya Airways and Government through the Ministry of Transport and Infrastructure and policy makers in Kenya.

To scholars and academicians, this study will increase body of knowledge on the effect of macroeconomic variables on financial performance of aviation industry in Kenya. The study will extend the level of knowledge on the relationship between macroeconomic variables and financial performance of aviation industry in Kenya. It also suggested areas for further research studies so that future scholars in the field of finance and economics can pick up these areas and study further.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review. First, a theoretical review is provided focusing on theories that explain the impact of macroeconomic variables on financial performance in aviation industry. Secondly, the empirical review of the studies that has been done on the impact of macroeconomic variables and then presents literature on the measurement of the financial performance of aviation industry.

2.2 Theoretical Framework

The theoretical framework helps to make logical sense of the relationship of the variables and factors that have been deemed relevant to the problem. It provides definitions of relationships between all the variables so that the theorized relationship between them can be understood. The theoretical framework will therefore guide the research determining what factors will be measured, what statistical relationship the research will look for.

2.2.1 The Portfolio Theory

The portfolio theory is an investment approach in which the investor balances risk against expected return to maximize earnings from an entire portfolio (Illo, 2012). Portfolios are an effective way of increasing returns while decreasing risk in investment. The modern portfolio theory introduces approximate ‘mean-variance’ analysis to simplify the portfolio selection problem. Markowitz (1959) attempted to quantify risk and quantitatively demonstrate why and how portfolio diversification works to reduce risk for

investors. The ‘risk’ of a portfolio is quantified as a standard deviation of return from period to period, and the portfolio selection problem is reduced to computing an ‘efficient’ portfolio, that is, one that minimizes the risk for a fixed level of return in a single period.

According to the portfolio theory, the larger the expected return the better the investment, and the smaller the standard deviation of the return the more attractive the investment. Furthermore, the theory shows that one can reduce the standard deviation of the return or risk by combining anti-covariant securities. However, each asset class generally has different levels of return and risk and also behaves uniquely so that one asset may be increasing in value as another is decreasing or at least not increasing as much and vice versa. This theory, however, has a shortcoming; it cannot allow both more and less risk averse investors to find their optimal portfolio, a problem surmounted by the capital asset pricing model (CAPM) (Sharpe, 1964).

2.2.2 Market-Power Hypotheses

A very important contribution to the structure-performance studies is the efficient structure hypothesis proposed by Demsetz (1973, 1974) and Peltzman (1977). The efficient structure paradigm suggests that market structure is determined by the efficiency of the operating firms. In explaining a profit-structure relationship, market-power (MP) hypotheses state that market power is the main variable that causes profitability to change. Concentrated markets often entail market imperfections that may result from collusion, facilitated by high concentration, or by (legislative) entry and exit barriers

which are often presents in aviation industry as a result of strict regulation. Because of these imperfections, firms operate in a market that deviates from perfect competition, which enables them to exert influence on prices charged or paid. These firms achieve higher profits at the expense of their customers through their price setting.

The researchers who defend the efficient structure model criticize the traditional market power model since the relationship between market share, concentration and efficiency is excluded. In this alternative model, important profits are generated by large firms since the concentration is the product of efficiency. These profits are considered as an economic return and not as a return on monopoly (Chortareas, et al., 2009; Seelanatha, 2010). Which market structure variable is the best proxy for market power and thus for market imperfections determines the difference between two main types of market-power hypotheses in this category: the structure conduct-performance hypothesis and the relative-market power hypothesis (Katib, 2004). The structure conduct-performance (SCP) hypothesis assumes that market concentration is the best proxy for market power because more concentrated markets show larger market imperfections enabling all firms to set prices at levels less favorable to customers. Through market-wide price setting, each individual firm is able to improve its profitability (Samad, 2008). The relative market-power (RMP) hypothesis asserts that only firms with large market shares and well-differentiated products have the power to set prices for their products and thus to earn supernormal profits. In this case there is no market wide price setting, but only price setting by dominant firms. Firms with smaller market shares are forced to operate as if under perfect competition and unable to earn the same supernormal profits. This implies

that the firm-specific market share is the better proxy for market power and market imperfections.

A third hypothesis, mainly used to explain the possible absence of a profit-structure relationship, is the so-termed quiet life (QL) hypothesis. This special case of the market hypothesis argues that as firms have more market power, either through market share or concentration, the management becomes less focused on efficiency, since setting prices at more favorable levels can increase revenues. The quiet life hypothesis states that firms do increase revenues as a result of increased market power but as a result of higher inefficiencies, do not show a superior profitability.

2.2.3 Macroeconomist Hypothesis

The usual methods of using factor analysis approach to determine the factors affecting assets returns, some scholars have measured macroeconomic factors to explain firm return and found that changes in interest rate are associated with risk premium. They interpreted the observation to be reflection of changes in the rate of inflation, given the finding of Fama (1977) that changes in the rate of inflation are fully reflected in interest rates (Emenuga, 1994). The macroeconomic approach attempts to examine the sensitivity of firms' prices to changes in macroeconomic variables. The approach posits that firms' prices are influenced by changes in money supply, interest rate, inflation and other macroeconomic indicators. It employs general equilibrium approach, stressing the interrelations between sectors as central to understanding of the persistence and co-

movement of macroeconomic time series, based on the economic logic, which suggests that everything does depend on everything else (Muchiri, 2012).

2.2.4 Structure-Conduct Performance Theory

Structure-Conduct-Performance model was the first framework applied in the research in order to investigate factors which influence firms' performance. The main idea in this theory is that market "structure" (i.e., concentration level of the market) through conduct link determines the performance (profitability) of firm. Markets with high concentration level induces firms to behave (conduct) in a collusive way. As a result, performance of the firms grows up (Goddard, 2004).

Initially, Structure-Conduct-Performance theory was widely used in the industrial organization literature with aim to explain the profitability of a firm. The idea that profits of firm are determined by concentration level of the market firstly was proposed by Bain (1951). Based on data of American manufacturing industry in period between 1936 and 1940, he showed that the profits of firms operating in the industry with significant level of concentration on the average are higher than of firms from industry with less degree of concentration.

It is assumed that higher profits of firms in aviation are not due to their collusive behavior but because of high efficiency level, which in turn, leads to larger market shares that firm possess. That is profitability of firms is determined not by the market concentration but

by firm efficiency. Market share of the firms in aviation industry is assumed to be a measure of efficiency here.

2.3 Empirical Literature

Koima (2011) did a study on the relationship between financial performance for multinational corporations in Kenya and exchange rates volatility and found that sterling Pound, United States Dollar, Euro exchange rate and Japanese Yen exchange rate influence the financial performance of Multinational Corporations. Hamao (1988) used Japanese data for the period January 1975 to December 1984 to practically examine the APT model considering macroeconomic state variables similar to those used in Chen et al. (1986). These variables were industrial production, inflation, risk premium, term structure, foreign exchange, market indices, and oil prices. This study revealed that there is a significant impact of the mentioned macroeconomic variables on stock market return.

Mukherjee and Naka (1995) studied the relationship between the Japanese Stock Market and exchange rate, inflation, money supply, real economic activity, long-term government bond rate, and call money rate. This study revealed that there is a cointegration relationship existed. Islam and Watanapalachaikul (2003) investigated the relationship between stock prices and macroeconomic factors (interest rate, bonds price, foreign exchange rate, price-earnings ratio, market capitalization, and consumer price index) during 1992-2001 in Thailand. This study revealed that there is a significant long-run relationship between the macroeconomic variables and Thailand stock market return.

Omran (2003) examined the relationship between the real interest rate as a key factor in the performance in the Egyptian stock market using error correction mechanism (ECM) and concluded that there is a significant impact of real interest rate on stock market performance. Abeyratna, Pisedtasalasai and Power (2004) examined the influence of macroeconomic variables on stock market equity values in Sri Lanka, using the Colombo All Share price index to represent the stock market and the money supply, the treasury bill rate (as a measure of interest rates), the consumer price index (as a measure of inflation), and the exchange rate as macroeconomic variables. With monthly data for the 17-year period from January 1985 to December 2001 and employing the usual battery of tests, which included unit roots, co integration, and VECM, they examined both long-run and short-run relationships between the stock market index and the economic variables. The VECM analysis provided support for the argument that the lagged values of macroeconomic variables such as the consumer price index, the money supply and the Treasury bill rate have a significant influence on the stock market.

Maysami, Howe and Hamzah (2004), examined the long term relationship between selected macroeconomic variables namely (Interest rate, Inflation, Exchange rate, money supply and Industrial Production) and stock market return in Singapore. This research revealed that there is a significant positive relationship between inflation and Singapore stock return, there is evidence that stock returns are positively and significantly related to the level of real economic activity as proxies by the industrial production index, short- and long-term interest rates have significant positive and negative relations respectively

with the Singapore's stock market based on the results of the current study and there is a positive correlation between money supply changes and stock returns.

Günsel and Çukur (2007) investigated the effect of five pre-specified macroeconomic variables on stock market return in UK using arbitrage pricing theory. These macroeconomic variables are interest rate, the risk premium, the exchange rate, the money supply and inflation. The results indicate that macroeconomic factors have a significant effect in the UK stock exchange market; however, each factor may affect different industry in different manner. Kandir (2008) investigated the role of macroeconomic factors in explaining Turkish stock returns for the period from July 1997 to June 2005. Macroeconomic variables used in this study are, growth rate of industrial production index, change in consumer price index, growth rate of narrowly defined money supply, change in exchange rate, interest rate, growth rate of international crude oil price and return on the MSCI World Equity Index. The empirical findings revealed that exchange rate, interest rate and world market return seem to affect all of the portfolio returns, while inflation rate is significant for only three of the twelve portfolios. On the other hand, industrial production, money supply and oil prices do not appear to have any significant effect on stock returns.

As for the inflation rate, the earliest studies mainly document the negative relationship between equity returns and inflation (Lintner, 1975; Bodie, 1976). Reilly (1997) provides detailed decomposition of corporate earnings, and relates these components of earnings to inflation. Reilly (1977) examined the effect of inflation on stock return using data for

Standard & Poor's 500 firms. Geske and Roll (1983) and Kaul (1987) further analyzed the negative relation between expected inflation and stock returns, elaborating upon the underlying link between expected inflation and expected real activity. Boudoukh and Richardson (1993) study about one hundred years of data, where expected inflation was found to have a positive and nearly one-for-one effect on five-year nominal stock returns. This supports Fisher (1930) hypothesis which asserted that the expected nominal return consists of an expected real return and expected inflation rate. It implies that investors will be fully compensated for expected loss of purchasing power and that nominal interest rates and expected inflation will have a one-to-one positive relationship. Accordingly, Stocks are good hedge against inflation because, in theory, a company's revenue and earnings should grow at the same rate as inflation over the time. Consequently, companies can react to inflation by raising their prices, but others who compete in the global market will lose their competitive advantage against other international producers who do not have such level of inflation and do not raise their prices.

However, the empirical evidence for the inflation announcement effect is not strong as the money supply announcement effect. For instance, Pearce and Roley (1985) find no significant CPI announcement effects on stock prices. It is widely believed that changing exchange rates affect the competitiveness of firms engaged in international competition. Luehrman (1991), argue that if the value of the home currency decreased "depreciated" this will enhance the competitive advantage of the country and allow the firms to export more product in a competitive price comparing to the international prices. On the other

hand if the exchange rate appreciated it will have a negative impact on the competitiveness of the export market which will affect the firm's profit, accordingly decreasing stock prices. Conversely, if the country is import denominated, exchange rate appreciation may have a positive impact on input cost which will lead to decrease in prices and increase in profit consequently increasing stock prices. Another explanation of the relationship between the exchange rate and stock market return is known as "Portfolio balanced Model" which asserts that foreign investors are trying to internationally diversify their investment and asset allocation, Accordingly increasing the capital inflow to the stock markets which increase the supply of foreign currency and increase the demand of local currency. Such scenario will lead to home currency appreciation and cause depreciation in the value of the foreign currency (Mishra, 2004). This research found a negative relationship between inflation and financial performance of companies in aviation industry.

Adjasi and Biekpe (2005) investigated the relationship between stock market returns and exchange rate movements in seven African countries. Co integration tests showed that in the long-run exchange rate depreciation leads to increases in stock market prices in some of the countries, and in the short-run, exchange rate depreciations reduce stock market returns.

The relationship between money supply and stock market return has attracted many researchers in the economic and investment fields. Money supply might be considered as one of the most important tool to explain the stock return fluctuation. Sprinkel (1964)

investigated the relationship between money supply and stock prices in the United States of America using the historical data from 1918 to 1960. This research revealed that there is a significant impact of money supply on stock return and it could be used as an explanatory variable to explain stock market return fluctuation. Sprinkel (1964) further explain how change in money supply may lead to change in stock return based on the portfolio model, as investors are willing to hold assets like cash, gold, durable goods and stocks and determine the fraction of wealth they wish to hold in the form of money. When money supply increase in the economy, investors may rebalance their portfolio and reduce the portion of cash to purchase stocks or other assets which lead to increase in stock prices and may cause increase in inflation, too. Fama (1981) and Jensen, Mercer and Johnson (1996) support the Sprinkel's argument concerning increase in the money supply will lead to portfolio rebalancing and will lead to upward pressure on stock prices. Kipngetich (2011) did a study on the relationship between interest rates and financial performance of commercial banks in Kenya and found that there is a positive relationship between interest rates and financial performances of commercial banks. Thus companies should therefore prudently manage their interest rates to improve their financial performance. Interest rate was found to have negative relationship with the profitability of companies in aviation industry. Muchiri (2012) did a study on the impact of macroeconomic variables on the performance of the Nairobi Securities Exchange in Kenya and found that there was a general rise in shares price, money supply, exchange rate, inflation and interest rate over the period under study. The study also found that money supply and inflation rate had positive but insignificant effects on share prices while interest rate had a negative but insignificant effect on share prices. He concluded

that exchange rate has a significant negative impact on stock market performance. Illo (2012) conducted a study to determine the effect of macroeconomic factors on financial performance of commercial banks in Kenya. The performance measure of commercial banks used was the Return on Assets (ROA) which was regressed against the macroeconomic variables including GDP growth rate, exchange rate (US dollar), the money supply (M3), inflation (CPI), and lending rate of the sampled commercial banks. The study found that financial performance of commercial banks as measured by ROA was found to be positively correlated with GDP growth rate, money supply (M3), lending interest rate of individual banks and inflation, and negatively correlated with exchange rate.

2.4 Summary of Literature Review

The chapter covered literature on macroeconomic variables on financial performance in the aviation industry. It first started by reviewing the theories on which the study was build, including portfolio theory which looks at both risk and return. The study also reviewed the market power hypothesis which states that market power is the main variable that causes profitability of firms to change. The study also reviewed the macroeconomic hypothesis that attempts to examine the sensitivity of firms' prices to changes in macroeconomic variables. It further reviewed the Structure-Conduct-Performance theory that argues that market structure through conduct link determines the performance (profitability) of firm.

The study further reviewed the empirical studies: for instances, Koima (2011) did a study on the relationship between financial performance for multinational corporations in

Kenya and exchange rates volatility and found that sterling Pound, United States Dollar, Euro exchange rate and Japanese Yen exchange rate influence the financial performance of Multinational Corporations. Kipngetich (2011) did a study on the relationship between interest rates and financial performance of commercial banks in Kenya and found that there is a positive relationship between interest rates and financial performances of commercial banks. Muchiri (2012) did a study in Kenya that concluded that exchange rate has a significant negative impact on stock market performance.

The review of literature clearly found a research gap in Kenya as most of the studies done in the area had focused on three to four variables in different sector. The empirical studies also indicated that the researchers in Kenya only considered banking sector and stock market. In this study, five macroeconomic variables were explored in the same model. There was therefore a gap in literature as regards to the effects of macroeconomic variables on financial performance of aviation industry. The current study therefore contributed towards this research gap by establishing the effect of macroeconomic variables on financial performance in aviation industry.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This Chapter describes the procedures and methodologies that were undertaken in conducting the study to arrive at conclusions regarding the effects of macroeconomic variables on financial performance of aviation industry in Kenya. Specifically, the chapter covers; research design, population, sample and sampling methods, data collection techniques, data analysis and model specification.

3.2 Research Design

The research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure (Claire et al., 1962).

The study employed descriptive correlation research designs, which according to Kothari (2004), is used when the researcher wants to establish the relationship between two or more variables. This research design was used to obtain information concerning the current status of the phenomena to describe what exists with respect to variables or conditions in a situation. The method involves range from the survey to the correlation study which investigates the relationship between variables (Key, 1997). The researcher used time series empirical data on the variables to examine the relationship between selected macroeconomic variables i.e real exchange rate, GDP growth, money supply (M3), average lending interest rate, and inflation rate (CPI) by establishing correlation

coefficients between the variables and financial performance of companies in the aviation industry measured by ROA. This method was selected because it most captures the objectives of the study.

3.3 Population

The population of this study comprised all airline licensed to operate within Kenya, the Kenya Civil Aviation Authority and Kenya Airport Authority. According to the Kenya Civil Aviation Authority database on licensed air operator, there were 109 valid airline operators' that operate within Kenya and through the Kenyan airports as at June 2013 (Appendix 1).

3.4 Sample and Sampling Method

A sample of the population was studied with each organization taken as a sampling unit. Purposive and stratified random sampling methods were used. This was based on the assumption that a systematic sample is an optimum sample that fulfils the requirements of efficiency, representativeness, reliability and flexibility (Kothari 1984). The population was divided into two strata based on their job function. The first strata was all licensed air operator whereby systematic random sampling was used to select the first sample member (n) and the interval (k) determines the entire sample and every k^{th} member on the list was then selected (Kothari, 2004) and the second strata was KCAA and KAA. This assisted in systematically selecting the sample for the study. Stratified random sampling was used to achieve desired representation from various subgroups in the population as supported by Lewis, Saunders, and Thornhill (2004) since the population of the study was heterogeneous.

The sample was made up of 32 companies: 30 airline operators accounting for 28% of licensed operators selected randomly on the basis of market size, years of operations and data availability, and both KAA and KCAA which are good player in the aviation industry operations. The companies that responded to the study is attached (Appendix II).

3.4 Data Collection Technique

The study used secondary data to investigate the relationship between independent and dependent variables. The study used annual secondary data on the macroeconomic variables from 2008 to 2012: Inflation (consumer price index), GDP growth, interest rate, real exchange rate and money supply. The data on inflation (CPI) and GDP growth rate were obtained from Kenya National Bureau of Statistics (KNBS) while data on money supply (M3), interest rate and exchange rate (USD and Ksh) were obtained from CBK. The data is public data as it is published in websites of relevant government agencies including CBK and KNBS. The annual financial data from 2008 to 2012 was used in the study to calculate ROA of the individual companies. The five year period was long enough to capture fluctuations in time series data and was also recent hence very reliable for the study.

3.5 Data Analysis

The data was analyzed using descriptive analysis, correlation analysis and regression analysis. The correlation analysis was used to test for any relationship between the independent and dependent variables. The analysis was done using Statistical Package for Social Sciences (SPSS). The results are presented in tables.

3.5.1 Analytical Model

Based on literature reviewed, a panel regression was employed to examine the effect of selected macroeconomic variables on financial performance of companies operating in the aviation industry in Kenya. The variable of the study comprised the ROA of Company_{it} as the dependent variable and exchange rate, GDP growth, Money supply (M3), average lending interest rate, and inflation rate as the independent variables. The regression model is a multivariate model starting with company_{it} ROA as a function of the selected macroeconomic variables.

Thus, the following economic model was applied. The model is extended from Muchiri (2012).

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \zeta_i$$

Where,

Y = ROA;

β_0 = Constant of proportionality i.e the intercept

X₁ = Real Exchange rate

X₂ = GDP growth rate

X₃ = Money supply (M3)

X_4 = Average lending interest rate

X_5 = is the Inflation rate

ξ_i = the error term assumed to have zero mean and independent across time period which represents the effects of factors other than the selected macroeconomic factors on the financial performance of the aviation industry.

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = Are the coefficient of the explanatory variables of macroeconomic variables i.e x_1, x_2, x_3, x_4, x_5 .

The strength of the model was tested through ANOVA using significance of F statistics at 5% level of significance as well as using coefficients of determination (R^2). The variables in the model were measured as shown in the table below.

Table 3.1: Measurement of the Variables

No	Variable	Measurement
1	Return on Asset (ROA)	Measured as the Net income/ Average Total Assets
2	Real Exchange Rate	Measured as the nominal exchange rate between USD and KSh
3	GDP Growth Rate	Measured as change in total economic activity within an economy ie Measure of the final output of goods and services
4	Money supply (M3)	Measured as annual change in money growth of M3
5	Interest Rate	Measured as the average annual lending interest rate as computed by CBK
6	Inflation Rate	Measured by the annual percentage changes in the consumer price index (CPI)

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the results and findings of the study based on the research objective which was to determine the effect of macroeconomic variables on financial performance of aviation industry in Kenya. The analysis is based on data collected from 2008 to 2012. The results are presented in the form of summary tables. The data for this study was obtained from annual financial statements of the selected companies in the aviation industry in the sample, from Central Bank of Kenya and Kenya National Bureau of Statistics. The companies which responded were 21 out of a sample of 32 thus the overall response rate was 65.63%. The data was analyzed using descriptive analysis, correlation analysis and multiple linear regressions to answer the research objective using SPSS.

4.2 Descriptive Analysis Results

The result (Table 4.1) shows that a total of 105 occurrences of each variable were used in the study. The macroeconomic variables are 105 since the research data of each variable was analyzed against the return on assets for individual companies in the sample per year over the research period of five years. The result indicates that the overall average return on assets for companies in aviation industry in the period under study was 5.27% indicating that the average performance of aviation industry was good over the study period, the average exchange rate was 79.82, the average gross domestic product growth in the period was 3.78%, average annual change in money supply (M3) was 17.34%, the

annual average lending rate was 15.58% and average annual inflation was 10.62%. All the series have a coefficient of kurtosis of either less than or greater than 3 against the standard value of 3 for a normal distribution. The findings therefore show features of non-normality which is common in financial time series data.

The results (Table 4.1) also indicate the minimum and maximum of each variable in the period under consideration. The standard deviations from means of return on assets, exchange rate; gross domestic product growth rate; annual change in money supply (M3); annual average lending rate and annual average inflation were 20.18, 6.7, 1.53, 2.68, 2.07, and 3.91 respectively. The finding indicates that the macroeconomic variables are differently dispersed from the means which is in agreement with coefficient of kurtosis that features of non-normality in the data exist.

Table 4.1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Return on Assets	105	-50.60	144.73	5.2673	20.17981	3.107	.236	21.918	.467
Exchange Rate	105	69.19	88.81	79.8220	6.70207	-.264	.236	-.986	.467
GDP Growth Rate	105	1.50	5.80	3.7800	1.53888	-.252	.236	-1.326	.467
Annual Change in M3	105	14.06	21.60	17.3360	2.68730	.451	.236	-1.192	.467
Annual Average Lending Rate	105	14.02	19.65	15.5840	2.07291	1.412	.236	.175	.467
Annual Average Inflation	105	4.08	15.10	10.6240	3.91126	-.530	.236	-.925	.467

Source: Research Data

4.3 Correlation Analysis Results

The researcher used the correlation analysis to determine the extent to which macroeconomic variables are associated with financial performance of the aviation industry in Kenya. Table 4.2 shows the correlation results for dependent and independent variables. The result indicates that there is a weak positive insignificant correlation between return on assets of companies in aviation industry and gross domestic products growth Pearson correlation coefficient of +0.102 which is very low with the significance of two tailed test figure being 0.299 which is greater than 0.01. There is also a weak positive insignificant correlation between return on assets of companies in aviation industry and annual change in money supply M3 of +0.122 which is very low with the significance of two tailed test figure being 0.214 which is greater than 0.01. The study further (Table 4.2) revealed that there is a weak negative insignificant correlation between ROA of companies in aviation industry and exchange rate of -0.082 which is very low with the significance of two tailed test figure being 0.406 which is greater than 0.01. There is also a weak negative insignificant correlation between ROA of companies in aviation industry and average lending rate of -0.041 which is very low with the significance of two tailed test figure being 0.679 which is greater than 0.01. Finally there is also a weak negative insignificant correlation between ROA of companies in aviation industry and annual average inflation rate of -0.172 which is very low with the significance of two tailed test figure being 0.08 which is greater than 0.01.

The results (Table 4.2) also indicate the correlation relationship between the independent variables. Gross domestic product growth rate had high positive significant correlation with Exchange rate (0.693) and annual change in money supply M3 (0.579). GDP growth

rate also had strong negative significant correlation with annual average inflation (-0.746). Further the finding indicates that annual change in money supply (M3) is negatively significantly correlated with annual average lending rate (-0.581) and annual average inflation (-0.468) respectively. The serially correlated independent variables were dropped in the final model that was used in the regression analysis.

Table 4.2: Correlation Statistics for Dependent and Independent Variables

		Return on Assets	Exchange Rate	Gross Domestic Product Growth Rate	Annual Change in M3	Annual Average Lending Rate	Annual Average Inflation
Return on Assets	Pearson Correlation	1					
	Sig. (2-tailed)						
Exchange Rate	Pearson Correlation	-.082	1				
	Sig. (2-tailed)	.406					
Gross Domestic Product Growth Rate	Pearson Correlation	.102	.693**	1			
	Sig. (2-tailed)	.299	.000				
Annual Change in M3	Pearson Correlation	.122	.185	.579**	1		
	Sig. (2-tailed)	.214	.059	.000			
Annual Average Lending Rate	Pearson Correlation	-.041	.489**	.323**	-.581**	1	
	Sig. (2-tailed)	.679	.000	.001	.000		
Annual Average Inflation	Pearson Correlation	-.172	-.146	-.746**	-.468**	-.149	1
	Sig. (2-tailed)	.080	.138	.000	.000	.130	

** . Correlation is significant at the 0.01 level (2-tailed).
a. Listwise N=105

Source: Research Data

4.4 Regression Analysis Results

The effect of macroeconomic variables on financial performance of aviation industry in Kenya was investigated using multiple linear regressions. The results are presented in Table 4.3 below. The study established the economic model as follows:

$$Y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_5 + \zeta_i \text{ which becomes;}$$

$$Y = -19.139 - 0.311x_1 + 0.0x_2 + 0.375x_3 + 0.330x_4 + 0.007x_5$$

According to the regression equation established, taking all variables constant at zero, ROA will be negative 19.139%. At 5% level of significance and 95% level of confidence, the researcher established that the exchange rate had a significance level of 0.125, annual Change in money supply (M3) had 0.21 level of significance; annual average lending rate had 0.273 level of significance and annual average inflation had 0.968 level of significance thus indicating that these variables affects financial performance in the aviation industry.

Table 4.3: Regression Results for Dependent and Independent Variables

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	-19.139	55.195		-.347	.730	-128.645	90.367
Exchange Rate	-.937	.607	-.311	-1.545	.125	-2.141	.266
Annual Change in money supply M3	2.814	2.229	.375	1.262	.210	-1.608	7.236
Annual Average Lending Rate	3.211	2.911	.330	1.103	.273	-2.565	8.987
Annual Average Inflation	.038	.951	.007	.040	.968	-1.849	1.925

a. Dependent Variable: Return on Assets

Source: Research Data

4.4.1 ROA and Exchange Rate

From Table 4.3 above, the study found that there is negative relationship between the ROA and the exchange rate (USD/Ksh) of -0.311. This means that when exchange rate depreciates by 1%, ROA reduces by 0.311%. The results are consistent with correlation analysis which indicated a negative correlation exists between the two variables. At 5% level of significance and 95% level of confidence, the researcher established that ROA and exchange rate had insignificant level of 0.125. Therefore exchange rate did not have a significant impact on return on assets of companies in aviation industry.

4.4.2 ROA and Money Supply (M3)

The results (Table 4.3) established that the ROA and money supply as measured by broad money (M3) have positive impact with each other of 0.375. This implies that when the CBK increases money supply, households get more money at their disposal and therefore use some of it in consuming services of aviation industry. At 5% level of significance and 95% level of confidence, the study found that ROA and money supply (M3) had insignificant level of 0.21. Therefore money supply (M3) did not have a significant impact on return on assets of companies in aviation industry. This is inconsistent with other studies Illo (2012) found that the variable significantly affects the bank's profitability.

4.4.3 ROA and Annual Average Lending Interest Rate

The results (Table 4.3) established that the ROA and annual average lending interest rate had a positive impact in that a unit change in lending interest rate will lead to a 0.33 increase in ROA. This finding is consistent with the empirical finding of Kipngetich

(2011). At 5% level of significance and 95% level of confidence, the study found that ROA and annual average lending interest rate had insignificant level of 0.273. The result shows that annual average lending interest rate did not have a significant impact on return on assets of companies in aviation industry.

4.4.4 ROA and Annual Average Inflation

The results (Table 4.3) established that the ROA and annual average inflation rate had a positive impact in that a unit change in inflation will lead to a 0.007 increase in ROA. This therefore implies that during the period under study the levels of inflation were anticipated by companies in the aviation industry giving them the opportunity to adjust their prices accordingly and consequently earning higher income. This empirical finding is consistent with the finding of Illo (2012). At 5% level of significance and 95% level of confidence, the study found that ROA and annual average inflation had insignificant level of 0.968. The result therefore reveals that annual average inflation did not have a significant impact on return on assets of companies in aviation industry.

4.5 Robustness of the Study Model

This entailed testing the ‘goodness of fit’ of the model to the actual data and the extent to which the independent variables explained the variation in the dependent variables. Table 4.4 shows that the adjusted R^2 , which is the coefficient of determination measuring the proportion of variation in ROA is 0.019 indicating that about 1.9% of variation in the dependent variable in the regression model are due to independent variables while 98.1% are due to error term, chance or unexplained.

Table 4.4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.238 ^a	.057	.019	19.98875	.057	1.499	4	100	.208

a. Predictors: (Constant), Annual Average Inflation, Exchange Rate, Annual Change in M3, Annual Average Lending Rate
b. Dependent Variable: Return on Assets

Source: Research Data

4.6 ANOVA Model Analysis

Table 4.5 shows that the F-statistics is 1.499 and is significant at 0.208. Thus the independent variable in the model influence return on assets (ROA) at 20.8% level of significance (5%) and 95% level of confidence. The model was therefore considered robust or fitted well to the actual data of the variables.

Table 4.5: ANOVA Model Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2396.350	4	599.087	1.499	.208 ^a
	Residual	39955.022	100	399.550		
	Total	42351.372	104			

a. Predictors: (Constant), Annual Average Inflation, Exchange Rate, Annual Change in M3, Annual Average Lending Rate
b. Dependent Variable: Return on Assets

Source: Research Data

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the study, conclusion, recommendations, limitations of the study and suggestions for further research.

5.2 Summary

The study sought to establish the relationship between macroeconomic variables and financial performance of aviation industry in Kenya. The study used a descriptive correlation research design. Multiple regression analysis of annual secondary data on macroeconomics variables and the financial performance measured by ROA was also performed. The population of this study comprised of 109 valid airline operator licensed to operate within Kenya as at June 2013, the Kenya Civil Aviation Authority, and the Kenya Airport Authority.

The companies which responded were 21 out of a sample of 32 thus the overall response rate was 65.63%. The macroeconomic variables which included real exchange rate (USD/Ksh), GDP growth rate, the change in money supply (M3), Average annual lending interest rates as computed by CBK and inflation rate measured by annual percentage changes in the consumer price index (CPI) were the independent variables whereas the Return on Assets (ROA) of companies in aviation industry used was the dependent variable. The study covered a period of five years from 2008 to 2012 and data was analyzed using SPSS.

The studies revealed that return on assets of companies in aviation industry had weak positive insignificant correlation with gross domestic products growth rate (0.102) and annual change in money supply M3 (0.122). The study also found that ROA had weak negative insignificant correlation with exchange rate (-0.082), annual average lending rate (-0.041) and annual average inflation (-0.172). Further the study indicated that the macroeconomic variables influenced the ROA with an adjusted R^2 of 0.019. This means that 1.9% of variation in the dependent variable in the regression model is due to independent variables while 98.1% are due to error term, chance or unexplained. The F-Statistics of 1.499 was significant at 0.208. Thus the independent variable in the model influence return on assets (ROA) at 20.8% level of significance (5%) and 95% level of confidence.

5.3 Conclusion

The main objective of this study was to determine the effects of macroeconomic variables on financial performance of aviation industry in Kenya. From the summary of the finding above, the study concludes that macroeconomic variables influenced the financial performance of companies in the aviation industry in Kenya at 20.8% level of significance (5%).

The study also found that the ROA had a weak positive insignificant correlation with gross domestic products growth rate and annual change in money supply (M3). The study further concludes that there is a weak negative insignificant correlation between ROA and real exchange rate, annual average lending rate and annual average inflation.

A review of the related literature revealed a general consensus from the theoretical and empirical studies that there is indeed a relationship between macroeconomic variables and financial performance of companies in aviation industry in Kenya. Empirical studies reviewed included Illo (2012), Koima (2011), Kipngetich (2011), Muchiri (2012), Fama (1981) and Jensen, Mercer and Johnson (1996), Pearce and Roley (1985) and Sprinkel (1964).

5.4 Recommendation for Policy Makers

The study recommends that in order for the aviation industry in Kenya to improve, there is need for the Kenya Civil Aviation Authority being the regulator of the industry to initiate policies measures that will control the exchange rate in Kenya. Lower exchange rates would be more appropriate for companies in the aviation industry in Kenya to perform better since they are negatively correlated with financial performance of these companies.

The study also recommends that there is also need for the Government to control the broad money supply in Kenya as there is some evidence to suggest that higher money supply may lead to better performance of companies in the aviation industry in Kenya. This may be attributed to high disposable income by individual thus consuming services offered by aviation industry companies.

The study further recommends that there is need for the Kenya Civil Aviation Authority to initiate policies that ensure lower inflation rate in the sector and create an aviation investment bank that will provide a low average lending interest rates which will improve

the financial performance of companies in aviation industry as they are negatively correlated with each other. The lower interest rates will help improve the liquidity in the general sector and therefore lead to more investments and consumption.

5.5 Limitations of the Study

A number of limitations could be pointed out for this study. Firstly the study only focused on five independent variables namely; the real exchange rate (USD/Ksh), GDP growth rate, the change in money supply (M3), Average annual lending interest rates and inflation rate measured by annual percentage changes in the consumer price index (CPI). The interpretation of these results as concerns to the macroeconomic variables should be restricted to variables under study.

Secondly, the sample size taken could be considered small and other researcher could use a larger sample size. The study suffers from the fact that it is country-specific therefore the results cannot be applicable to other countries with different operating environment from Kenya. Interpretations of these results outside Kenya should therefore be approached with care.

Thirdly, this study made use of one measure of financial performance that is ROA. There are other measures of financial performance including return on equity (ROE). The study used the aviation industry as basis of analyzing the data and hence the study cannot be generalized to other sectors of the economy without taking into considerations this assumption.

Lastly, this descriptive and correlation study relied on secondary data which had already been compiled by the CBK, KNBS and published annual financial statements of the sample selected companies. Data were used as they were obtained and the researcher had no means of verifying for the validity of the data which were assumed to be accurate for the purpose of this study. The study results are therefore subject to the validity of the data.

5.6 Suggestions for Further Research

The objective of this study was to establish the relationship between macroeconomic variables and financial performance of aviation industry in Kenya. This research could be replicated by increasing the sample of analysis and establish whether the results would be different from the current study.

Secondly, another study could be done but with more variables like passengers traffic, cargo traffic and aircraft movements other than the macroeconomic variables to establish the unexplained effect on the financial performance of companies in aviation industry.

Lastly, this study can be replicated to other sectors of the economy in order to find out whether these factors influence performance of other firms. Thus it can be replicated in the insurance industry or manufacturing industry to determine how macroeconomic variables influences their performance.

REFERENCES

- Abeyratna, G., Pisedtasalasai, A. & Power, D. (2004). Macroeconomic influence on the stock market: evidence from an emerging market in South Asia. *Journal of Emerging Market Finance* 3(3): 85-304.
- Adjasi, C. K. D., and Biekpe B. N., (2005). Stock Market Return and Exchange Rate Dynamics in Selected African Countries: A biivariate analysis, *The African Finance Journal* 21, 36-43.
- Ajayi, R. A., and Mbodja M., (1996). On the Dynamic Relation between Stock Prices and Exchange Rates. *Journal of Financial Research* 19, 193–207.
- Amihud, Y., (1994). Exchange rates and the valuation of equity shares. In Exchange Rates and Corporate Performance, eds. Y. Amihud & R. Levish. Illinois: *Business One Irwin*.
- Bain, J. S. (1951). The Relation of Profit Rate to Industry Concentration: American Manufacturing, 1936-1940. *Quarterly Journal of Economics* 65 (3): 3-17.
- Bartov, E., and Bodnar G. M., (1994). Firm Valuation, Earnings Expectations, and the Exchange-Rate Exposure Effect. *Journal of Finance* 49, 1755–1785.
- Bashir, A. (2003). Determinants of profitability in Islamic banks: Some evidence from the Middle East. *Islamic Economic Studies*, 11, 31-57.
- Bodie, Z., (1976). Common stocks as a hedge against inflation. *Journal of Finance*, 31, 459-470.

- Boudoukh, J., and Richardson M., (1993). Stock returns and inflation: A long horizon perspective, *American Economic Review*, 83, 1346-1355.
- Brooks, C. (2008). *Introductory Econometric for Finance*: Cambridge University Press.
- Bruce C. & Lynn B., (2010). A Framework of theoretical lenses and strategic purpose to describe relationships among firm environmental strategy, financial performance, and environmental performance. *Management research review*, 33, 395-405.
- Cairo and Alexandria Stock Exchange –online <http://www.egyptse.com>.
- Chen, N.F. (1991). Financial Investment Opportunities and Macro economy. *Journal of Finance*, 46, 529-554.
- Chen, N.F.; Roll, R. and Ross, S.A. (1986). Economic Forces and Stock Market. *Journal of Business*, 59 (3): 383-403.
- Chortareas, G. E.; Jesus, G.G. and Claudia, G., (2010). *Banking Sector Performance*.
- Claire, S. (1962). *Research Methods in Social Sciences*, 1962.
- Crowley, J., 2007. Interest Rate (2007). Interest Rate Spreads in English- Speaking Africa. *IMF Working paper*. April 2007.
- Cifter, A., and Ozun, A., (2007). Estimating the Effects of Interest Rates on Share Prices Using Multi-scale Causality Test in Emerging Markets: Evidence from Turkey. Munich Personal RePEc Archive.
- Demsetz, H. (1973). Industry Structure, Market Rivary and Public Policy *Journal of Law and Economic* 18 (3).

- DeNeuf V., and Odoni, A. R., (2002). *Airport Systems: Planning, Design and Management*, McGraw Hill professional publishers.
- Ehrhardt, M. C. (1991). Diversification and Interest Rate Risk. *Journal of Business Finance & Accounting*, 18: 43–59. doi: 10.1111/j.1468-5957.1991.tb00578.x.
- Ehrmahh, M. and Fratscher M., (2004). Taking Stock: Monetary Policy Transmission to Equity Markets, *Journal of Money, Credit and Banking*, 36,719-737.
- Emenuga C.A., (1994). Systematic Factors and Returns on Equities in the Nigerian Securities Market. Unpublished Ph.D Thesis, University of Ibadan, 1994. *Ibadan*, 5156.
- FAA, (1997). A report on issues related to public interest in aviation safety data, *Federal Aviation Administration*, Washington. Office of System Safety.
- Fama E. F. & Schwert, W. G. (1977). Asset Returns and Inflation. *Journal of monetary Economics*, 38, 327-348.
- Fama, E. F., (1981). Stock returns, real activity, inflation, and money, *The American Economic Review*, vol. 71, 545-565.
- Geske, R. and Roll, R., (1983). The fiscal and monetary linkage between stock returns and inflation, *Journal of Finance*, 38, 1-33.
- Goddard, J., Molyneux, P., and Wilson, J. S., (2004). The Profitability of European Banks: *Across-Sectional and Dynamic Panel Analysis*. *The Manchester School* 72 (3), 363-381.

- Günsel N. and Çukur S. (2007). The Effects of Macroeconomic Factors on the London Stock Returns: A Sectoral Approach. *International Research Journal of Finance and Economics*.
- Hamao, Y., (1986). An Empirical examination of the arbitrage pricing theory using Japanese data, *Working Paper, Yale School of Management, Yale University, USA*, in Das, Dilip K.,Ed., 1993.
- Hamao, Y., (1988). An empirical examination of Arbitrage Pricing Theory: Using Japanese data, *Japan and the World Economy*, 1, 45-61.
- Hassan, M. K., and Bashir A. H. M., (2003). Determinates of Islamic banking profitability. *Paper presented at the Economic Research Forum (ERF) 10th Annual Conference*, Marrakesh, Morocco, 16-18 December.
- Hawawini, G., (1993). Market efficiency and equity pricing: international evidence and implications for global investing, in Das, D.K., 1993.
- ICAO, (2006). *Convention on International Civil Aviation Doc 7300 Ninth Edition ICAO Montreal Canada*.
- ICAO, (2006). *Article 44 of the ICAO convention on the international civil Aviation-Doc 7300, ICAO, Montreal Canada*.
- Illo A. D., (2012). The effect of Macroeconomic Factors on Financial Performance of Commercial Banks in Kenya. Unpublished MSC project, University of Nairobi, 2012.

- Islam, S. M. N., & Watanapalachaikul, S. (2003). Time series Financial Econometrics of the Thai stock Market: a Multivariate Error Correction and Valuation Model. Available:<http://blake.montclair.edu/~cibconf/conference/DATA/Theme2/Australia2.pdf>.
- Kandir, Y. S., (2008). Macroeconomic Variables, Firm Characteristics and Stock Returns: Evidence from Turkey. *International Research Journal of Finance and Economics*, 16, 35.
- Katib, M. N., (2004). Market Structure and Performance in the Malaysian Banking Industry: A Robust Estimation, 8th Capital Markets Conference, Indian Institute of Capital Market Paper.
- KCAA, (2013). *Statistical Bulletin, 2013*.
- Kipnetich K. M., (2011). The relationship between interest rates and financial performance of commercial banks in Kenya. Unpublished MBA project, University of Nairobi, 2011.
- KNBS, (2013). *Economic Survey, 2013*. Kenya National Bureau of Statistics.
- Kosmidou, T., and Pasiouras D., (2006). Determinants of profitability of domestic UK commercial banks: Panel evidence from the period 1995-2002, Applied Research Working Paper Series, Coventry University Business School.
- Kothari, C. R., (2004) Research Methodology (2nd Ed). New Delhi: *New Age International Publishers*.
- Kraft, J., and Kraft A., (1977). Determinants of Common Stock Prices: A Time Series Analysis. *Journal of Finance* 417–725.

- Levine, R. (1996). Financial Development and Economic Growth: Views and Agenda, *Journal of Economic Literature*, 35, 688-726.
- Lewis, P.; Saunders, M.; and Thornhill, A., (2000). Research. Methods for Business Students, Pearson Education Ltd, Essex.
- Lintner, J., (1975). Inflation and Security Return, *Journal of Finance*, 30, 259-280.
- Luehrman, T. A. (1991). Exchange rate changes and the distribution of industry value. *Journal of International Business Studies*, 22, 619-649.
- Markowitz, H. M., (1959). *Portfolio Selection*, New York: John Wiley and Sons.
- Maysami, R. C., and Kho, T. S., (2000). A Vector Error Correction Model of the Singapore Stock Market, *International Review of Economics and Finance*, 9, 79-96.
- Mercer, J., and Johnson, R., (1996). Business Conditions, Monetary Policy, and Expected Security Returns. *Journal of Financial Economics* 40, 213-237.
- Muchiri. H. G. (2012), The impact of macroeconomic variables on the performance of the Nairobi securities exchange. Unpublished MBA project, University of Nairobi, 2012.
- Mugenda, O. M., and Mugenda, A. G., (1999). Research Methods, *Quantitative approaches African centre for studies*.
- Mukharjee, T. K. and Naka, A., (1995). Dynamic relations between Macroeconomic Variables and the Japanese stock market: an application of a vector error-correction model, *The Journal of Financial Research*, 18 (2), 223-237.

- Mutuku K. (2004). The relationship between corporate social responsibilities and financial performance: a case of public quoted companies in Kenya. Unpublished MBA project, University of Nairobi, 2009.
- Nasseh, A. & Strauss, J. (2000). Stock Prices and Domestic and International Macroeconomic Activity: A Co-integration Approach, *Quarterly Review of Economics and Finance*, 40, 229-245.
- Ngugi, R. W., 2001. An Empirical Analysis of Interest Rate Spread in Kenya. *African Economic Research Consortium, Research paper 106*.
- Nyamute M. N., (1998). The relationship of the NSE index of major economic variables: inflation rate, treasury bills rate and exchange rate.
- Oliver B., (2000): *Macroeconomics, 2nd edition* Practice Hall New York.
- Olukayode, E.M. & Akinwande, A. A. (2009), *Does Macroeconomic indicators exert shock on the Nigerian Capital Market?* MPRA paper No. 17917 posted 17 October 2009/ 03:36.
- Omondi E. M. A., (2006). Competitive Strategies Adopted by Airlines in Kenya. Unpublished MSC project, University of Nairobi, 2006.
- Omran, M. M., (2003). Time series analysis of the impact of real interest rates on stock market activity and liquidity in Egypt: Co-integration and error correction model approach. *International Journal of Business*.
- Opati, B. J. D., (2009), A study on casual relationship between inflation and exchange rates in Kenya Unpublished MBA project, University of Nairobi, 2009.

- Peltzman, S. (1977). The gains and Losses from industrial concentration, *Journal of Law and Economic*, 20: 229-263.
- Porter, M. E., (1998), *Competitive Strategy: Technigue for Analyzing Industries and Competitors*, *Free Press*.
- Reilly, F. (1997). The Impact of Inflation on Roe, Growth and Stock Prices. *Financial Services Review* 6 (1): 3–17.
- Rotich, H. (2007). A monetary policy reaction function for Kenya. *A paper presented during the 13th annual African Econometric Society Conference in Pretoria, South Africa From 9th to 11th July 2008*.
- Rozeff, M. (1974). Money and Stock Prices. *Journal of Financial Economics* 7: 245–302.
- Seelanatha, L., (2010). Market Structure, Efficiency and Performance of Banking industry in Sri Lanka. *Banks and Banks Systems*.
- Sharpe, W. F., (1964). Capital asset prices: A theory of Market equilibrium under conditions of risk. *Journal of Finance* 19:425-442.
- Speciale, R. C., (2006). *Aviation Law*, McGraw hill.
- The Kenya Civil Aviation Act, (2013).

APPENDIX I: List of Air Operators as at June 2013

No	AIR OPERATOR
1	ABERDAIR AVIATION LTD
2	ACG AIR CARGO GERMANY GMBH
3	ADVENTURES ALOFT (K) LTD
4	AEROSPACE CONSORTIUM LTD
5	AFRICA ECO-ADVENTURES LIMITED
6	AFRICAN EXPRESS AIRWAYS(K) LTD
7	AIM AIR
8	AIR AMANI LIMITED
9	AIR DIRECT CONNECT LIMITED
10	AIR EXCEL LIMITED
11	AIR FRANCE CARGO
12	AIR ITALY S.P.A.CORSO SEMPIONE 111, 21013 GALLARTE (VA)
13	AIR LAMU LIMITED
14	AIR TRAFFIC LIMITED
15	AIRBORNE AFRICAN ANTICS LTD
16	AIR WORKS KENYA
17	ALLIED AIR LTD
18	ALS LIMITED
19	AMREF FLYING DOCTOR SERVICE
20	AURIC AIR SERVICES LIMITED
21	AVIENT AVIATION (PVT) LTD
22	BALLOON SAFARIS LTD
23	BLUEBIRD AVIATION LIMITED
24	BLUESKY AVIATION SERVICES LTD
25	BUSH AIR SAFARIS LTD
26	BUSINESS AIRCRAFT MANAGEMENT T/A
27	CAPITAL AIRLINES LTD
28	CARGOLUX AIRLINES INTERNATIONAL S.A
29	CEZILLO AIR EXPRESS LIMITED
30	COASTAL TRAVELS LTD
31	EAST AFRICAN AIR CHARTERS LTD
32	EAST AFRICAN SAFARI AIR EXPRESS LIMITED
33	ENTER AIR SPOLKA Z.O.O
34	ETHIOPIAN AIRLINES
35	EVERETT AVIATION CHARTER LIMITED
36	FARMLAND AVIATION LTD
37	FIVE FORTY AVIATION LIMITED
38	FLEX AIR CARGO LTD
39	FLIGHT TRAINING CENTRE LIMITED
40	FLOWERWINGS AVIATION LTD
41	FREEDOM AIRLINES EXPRESS LTD
42	GEOAIR LIMITED
43	GLOBAL AIRLIFT LIMITED
44	GOVERNORS AVIATION LIMITED
45	GOVERNORS' BALLOON SAFARIS LTD
46	GREAT AIRWAYS LIMITED
47	HELICOPTER CHARTER (E.A) LIMITED
48	HELIPROPS LIMITED
49	HELISERVICES LIMITED
50	JAMBO JET LTD
51	JETLINK EXPRESS LTD
52	JUBBA AIRWAYS LIMITED
53	KASAS LIMITED

No	AIR OPERATOR
54	KENYA AIRWAYS LIMITED
55	KENYA HOMES COMPANY LTD dBA TIMBIS AIR SERVICES
56	KENYA SAFARI WINGS LIMITED
57	KENYA WILDLIFE SERVICES
58	KIJIPWA AVIATION LTD
59	KULAL ENTERPRISES
60	KWAE ISLAND DEVELOPMENT LIMITED
61	LADY LORI (K) LIMITED
62	LUCA SAFARI LTD
63	MARA WILDLIFE BALLOON SERVICES LTD
64	MARTINAIR HOLLAND N.V
65	MERIDIANA FLY S.P.A
66	MOMBASA AIR SAFARI LTD
67	MUHWAI LIMITED
68	MUSIARA LIMITED
69	NAIROBI FLIGHT TRAINING LTD
70	NEOS S.P.A.
71	NOMAD AVIATION LIMITED
72	NORTHERN AIR LIMITED
73	NORTHWOOD AGENCIES LIMITED
74	PAN AFRICAN AIRWAYS LTD
75	PEGASUS FLYERS (EA) LTD
76	PENIAL AIR LIMITED
77	PHOENIX AVIATION LTD
78	PHOTOMAP (K) LTD
79	PIONEER INTERNATIONAL UNIVERSITY
80	PLANES FOR AFRICA LTD
81	PREMIER SAFARIS LIMITED
82	PROACTIVE AGENCIES LIMITED
83	RAMANI GEOSYSTEMS LIMITED
84	SAC (K) LTD
85	SAFARI EXPRESS CARGO LIMITED
86	SAFARILINK AVIATION LIMITED
87	SAUDI ARABIAN AIRLINES CORPORATION
88	SEVEN FOUR EIGHT AIR SERVICES (K) LTD
89	SEVERIN AIR SAFARIS LIMITED
90	SICHAM AVIATION LIMITED
91	SILVERSTONE AIR SERVICES LIMITED
92	SKY RELIEF (K) LTD
93	SKYLINK FLIGHT SERVICES COMPANY LTD
94	SKYSHIP COMPANY LIMITED
95	SKYWARD INTERNATIONAL AVIATION LIMITED
96	SKYWAYS AVIATION LIMITED
97	STANDARDS AVIATION LIMITED
98	TANZANIAN AIR SERVICES LIMITED
99	THOMSON AIRWAYS LIMITED
100	TITAN AIR LIMITED
101	TRANSWORLD SAFARIS (K) LTD
102	TRAVEL SERVICE A.S.
103	TRIDENT AVIATION (K) LTD
104	TROPIC AIR LIMITED
105	TUI AIRLINES NEDERLANDS B.V
106	VALENTINE AIR SERVICES LTD
107	YELLOW WINGS AIR SERVICES LTD
108	YOUTH LIMITED
109	ZANAIR LIMITED

Source: KCAA

APPENDIX II: ROA of Sampled Companies in Aviation Industry

No	Companies Name	Return on Assets (ROA) in Years				
		2008	2009	2010	2011	2012
1	Air works Kenya	-16.19%	17.30%	11.65%	35.55%	2.13%
2	Allied Air Ltd	14.69%	16.02%	144.73%	3.67%	4.88%
3	ALS Ltd	0.74%	-3.83%	0.15%	-1.68%	40.81%
4	Balloon Safaris Ltd	11.82%	-5.47%	-5.33%	35.10%	19.34%
5	Bluebird Aviation Ltd	-1.05%	12.75%	13.74%	-3.74%	0.11%
6	Costal Travels Ltd	-3.71%	4.07%	14.45%	7.04%	5.61%
7	East African Safari	-2.62%	1.58%	-9.34%	-50.60%	2.96%
8	Governors Balloon Safaris Ltd	11.03%	7.55%	13.37%	-31.89%	-5.17%
9	Kenya Airport Authority	4.22%	5.74%	6.26%	8.34%	10.68%
10	Kenya Airways	5.94%	-5.35%	2.73%	4.66%	2.13%
11	Kenya Civil Aviation Authority	16.51%	6.84%	6.85%	7.94%	6.26%
12	Kijipwa Aviation Ltd	10.94%	7.46%	-9.79%	-8.67%	-6.23%
13	Lady Lori (Kenya)	28.12%	9.52%	27.96%	-5.04%	-7.78%
14	Mombasa Air Safaris Ltd	-9.39%	3.90%	1.39%	19.39%	-0.26%
15	Musiara Ltd	4.63%	7.05%	-5.57%	-0.53%	7.50%
16	Phoenix Aviation	11.20%	-0.52%	4.42%	7.94%	2.01%
17	Photomaps Ltd	51.83%	-28.58%	10.72%	15.00%	-1.11%
18	Planes for Africa Ltd	-16.14%	19.76%	46.80%	3.32%	7.82%
19	Sac (K) Ltd	0.11%	-28.06%	10.19%	0.18%	1.92%
20	Seven Four Eight Ltd	-2.52%	-22.32%	9.25%	-29.16%	14.60%
21	Tropicair	11.76%	4.94%	-5.42%	-12.79%	-10.65%

Source: Research Data

APPENDIX III: Selected Macroeconomic Variables in Kenya

Year/Title	Exchange Rate (USD/KSH)	Annual Real GDP rate	Annual Change in M3	Average interest rate (AVG)	Annual overall inflation
2007	67.32	7.1	19.07	13.33	4.26
2008	69.19	1.5	15.88	14.02	15.10
2009	77.35	2.6	16.05	14.8	10.54
2010	79.23	5.8	21.60	14.4	4.08
2011	88.81	4.4	19.09	15.05	14.00
2012	84.53	4.6	14.06	19.65	9.40

Source: CBK and KNBS