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SCHOOL OF GRADUATE STUDIES: DEPARTMENT OF ACCOUNTING AND FINANCE

Factors Affecting Profitability in the Airlines Industry: An Empirical Study on Major airlines in Sub-Saharan Africa

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Declaration

I, Fikre Menta declare that, this study prepared for the partial fulfillment of the requirements for MSC. Degree in Accounting and Finance entitled “Factors Affecting Profitability in the Airline Industry: An Empirical Study on Major airlines in Sub-Saharan Africa” is prepared with my own effort. I have made it independently with the close advice and guidance of my advisor.

FIKRE MENTA

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Date_____

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Certification

This is to certify that Ato Fikre Menta has carried out this research work on the topic entitled “Factors Affecting Profitability in the Airline Industry: An Empirical Study on Major airlines in Sub-Saharan Africa” under my supervision. This work is original in nature and it is sufficient for submission for the partial fulfillment for the award of MSc. in Accounting and Finance.

ATO GEBREMEDHIN GEBREHIWOT

Signature_____

Date _____

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ABSTRACT

This study examines the airline-specific, industry-specific and macro-economic factors affecting airline profitability for the three airlines in Sub-Saharan Africa, covering the period of 2003-2013. To this end, the study adopts a mixed methods research approach by combining financial reports and further documentary analysis for qualitative information. The findings of the study show that load factor and exchange rate fluctuation have statistically significant and positive relationship with airlines' profitability. On the other hand, variables like leverage and liquidity have a negative and statistically significant relationship with airlines' profitability. However, the relationship for airline size, sales growth and major incidents/shocks is found to be statistically insignificant. The study suggests that focusing and reengineering the airlines operations alongside the key internal drivers could enhance the profitability. Moreover, airlines in sub-Saharan Africa should not only be concerned about internal structures and policies, but they must also consider the macroeconomic environment in developing business strategies to improve their financial performance or profits.

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List of Acronyms

AFRAA: African Airlines Association

CLRM: Classical Linear Regression Model

ET: Ethiopian Airlines

GDP: Gross Domestic Product

HP: Hypotheses

IATA: International Air transport Association

ICAO: International Civil Aviation Authority

KQ: Kenyan Airways

LF: Load factor

LEV: leverage or gearing ratio

LIQ: Liquidity

OLS: Ordinary Least Square

PRO: Employee productivity

ROA: Return on Asset

ROCE: Return on Capital Employed

RQ: Research Question

SAA: South African Airways

SSA: Sub Saharan Africa

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Commercial aviation which was born in year 1914 has been transforming the world and it is now supporting 58 million jobs around the globe, it has transported some 3.3 billion passengers and 50 million metric tons of cargo with total economic activity of USD 2.4 trillion per year during the 2014. It has enabled connection of people around globe, created cultural integration between nations, advanced international trade, created jobs, contributed a lot to economic advancements and providing a fast, reliable mode of transport with no comparable alternative for long distance travel (IATA, 2014). The aviation industry is, by its very nature, a global industry and it continues to remain a large and growing industry, facilitating economic growth, world trade, international investment and tourism and therefore remains central to the globalization taking place in many other industries.

The industry's ability to continue in business by providing the above benefits is highly challenged by numerous internal and external factors such as world economic recessions, political arena changes and conflicts, substantial commercial and financial pressure from various stakeholders, technological advancements, epidemics, terrorism, and management quality. The reason why the industry is exposed to such factors heavily is its international connectivity which makes it vulnerable to various concerns be it local, regional or international (Marius, 2010; Dimitrios, 2003; ICAO, 2013; Jurgen and Paul, 2012). Existence of this adverse effect on airlines industry could be further evidenced by the effects witnessed after September 2001(9/11) incident, SARS health treat in 2003, Asian Financial crisis 1997/98, 2008 global financial crisis, just to mention some that have dearly challenged the airlines industry and led the airlines to loss making situation immediately due to dramatic reduction in the number of passengers and weight of cargo being transported (Khalil and Khan, 2011). Besides, the Airline industry is vulnerable to systemic crises and risks which have led to the creation of costly safety regulation which resulted in reduced revenues and excessive capacities. Furthermore, according to Raphael (2013) Air transport growth and operation of airlines in Africa is further affected by high cost of travel, connection irregularity, infrastructure inadequacy, poor safety, restrictive market access and unreasonable visa requirements limiting movement of people and

goods. These constraints add to the airline industry which is already hit by fierce competition and high operating costs resulting from surging oil prices, high finance/insurance costs.

Besides, the industry is exposed to other factors like capital-intensiveness which makes the airlines' financial results highly sensitive to small changes in either costs or revenues because of the historically high level of operational and financial gearing that has prevailed (Peter 2007; Stepanyan, 2014). Furthermore, the Airline Industry faces peaking costs, challenges and ever increasing financial risk apart from compliance burdens, to mention some; fuel prices, maintenance costs, labor rates, airport related charges, restricted access to capital markets (increasing cost of financing), foreign currency exposure, fleet replacement and price of new aircraft, low yield on surplus funds, corporate governance issues, financing mix decisions, aircraft ownership issues and the like which are thinning the profit margin of the airlines and affecting cost structure (Pwc, 2014; Shamshad, 2013; Forbes, 2011; Andrea et al, 2005; Richard et al, 2005). A further critical review of the literature revealed that the airline industry has been struggling with many challenges including the above which forces them to cut costs to manage fluctuating demand and at same time keeping up with tight quality requirements while trying to maintain superior services and satisfy the needs of various customer groups (David, 2013).

In many parts of the world, airlines are government-owned or supported. In recent decades, however, the trend has been moving towards independent, commercial public companies by giving more freedom to non-government ownership of airlines. As the result, increasing number of commercial airline companies has put more pressure on their management to continually seek profits. Besides, increasing demand for air transportation service has compelled airline management to take advantage of opportunities in different markets. On another hand, increasing competition among airlines and peaking costs of operation necessitates that airline management seek efficiency in all their decisions to promote and achieve the required profit. Accordingly, the airline management is using various business strategies to stay profitable and keep the business going. Thus, it demands periodic assessment of determinants of profitability with view taking proactive measures based on the outcomes (Michael, 1993; Durge, 2011). These proactive actions usually follow properly analyzed and selected business strategies which the airlines chose as a very essential approach to turnaround the fortune of the organization and enable them either sustain profitability at current level or grow to the desired level. Some of the actions, airline management takes includes; introducing incentive

system to enhance employee productivity, outsourcing activity to enhance efficiency and effectiveness, improving quality of decision making process, disposing non-core business, implementing stringent cost control tools, reducing the number of flights on less profitable routes, consolidating routes, acquiring regional airlines to enhance resource utilization and also create economies of scale and synergy (Peter,2007; András, 2010; Roxana, 2012). Besides, the airlines are using, hedging practice to manage risk exposures like changing prices of fuel, foreign currency exchange rate fluctuations, interest rate fluctuations and the like which affect profitability of airlines heavily (Denis,2007; Pwc,2009: Sharon, 2006; John and Laux, 2011; Stephen, 2014; Wilfred, 2011).

Apart from the above individual efforts to overcome effect of both internal and external factors on profit, the airlines management have been undertaking mergers with motive to improve cost efficiency, create economies of scale, improve market power and reduce unsystematic risk (Loukia,2012) and also entering into franchise agreements, code share agreements and aggressively formed alliances through the combination of international routes, joint coordination of operations, and consolidation of marketing tools such as frequent flyer programs (Gomes, 1994; Hanlon, 1999; Oum & Yu, 1998; Christian and Dominique, 2007; James and Paul, 2009). The ultimate target of all these efforts is to properly manage the business and improve the bottom-line (profitability) which is reflection of a company's overall efficiency and performance.

Researchers have studied the determinant of profitability in many ways for different types of business organizations in Sub-Saharan Africa. But none of them had studied on the determinant of profitability of airlines in the region. This research is, therefore, aimed to identify determinants of profitability in Airline industry in the region using selected airlines. For the purpose of this study, analyzing the determinants of profitability and selection of variables will be made on the basis of empirical works and existing theory.

1.2 STATEMENT OF THE PROBLEM

Profitability is essential for any firm from both shareholders and economic point of view because as the firm grows or performs well in terms of profitability, it will have strengthening dividend payment to owners, improved capital structure, improved safety and soundness of the financial operation, increased employment opportunity, increased tax payment and other positive impact on shareholders and other stakeholders. Profitability is leading indicator, as such, it measures ultimate

performance of airlines and is important area reviewed by the regulatory bodies, Airline associations and alliances apart from assessments made by investors and creditors and other stakeholders to ensure its sustainability. It helps the airlines to understand scale and scope of their activity and enable them position themselves and take appropriate actions to stay competitive in the market place.

Looking into airlines in SSA region, despite efforts made by respective governments in the region with an aim of improving profitability, efficiency and productivity, the financial performance of the airlines in the region has remained poor with substantial gaps in service delivery to customers. The poor financial performance is resulting in/from low levels of credit rating, limited and/or inadequate capitalization, operational inefficiencies, higher level of regulatory costs and higher levels of liquidity risk; among others (Raphael, 2013). Although these are mentioned as constraint areas affecting SSA airlines financial performance, they are based on a few studies and non-elaborate methods to generate sufficient conclusions. This low profitability levels reflected lack of competiveness and inefficiency in the SSA Airlines industry. According to IATA report (2012), profitability for most of the SSA based airlines have been about less than one percent over the last ten years which is below industry average for the same period. These issues in the profitability of SSA Airlines along with the gap in the literature with respect to the link between profitability and determinant factors raise a need for the detailed investigation. Furthermore, in order to minimize the effect of the above issues on profitability, identifying the factors that affect airlines profitability is vital. Therefore, this study seeks to fill the gap by providing information about the factors that affect profitability of SSA airlines by examining the untouched area.

1.3 OBJECTIVES OF THE STUDY

General Objective

The general objective of this paper is to assess factors that drive financial performance (profitability) of the three major Sub-Saharan Africa Airlines. Profitability measurement is central to the evaluation of a company's financial performance and the practice of which has become increasingly important in recent years. So, it is vital that factors affecting profitability of the airlines are reviewed in detail.

Specific Objectives

The specific objectives of the study are:

- ✓ To assess short term solvency, or the ability, of the selected airlines to meet their financial obligations and their ability to convert current assets to cash to reduce current liabilities and corresponding effect on profitability of the Airlines
- ✓ To analyze efficiency and effectiveness of these selected airlines in using their respective resources and resulting effect on their profitability
- ✓ To review capital structure of the selected airlines, extent of financial leverage and its impact on profitability of airlines
- ✓ To assess whether size and growth of airlines influence their profitability
- ✓ To evaluate effect of general factors like incidents/shocks, currency exchange rate fluctuation and changes in jet fuel prices on profitability of the selected airlines in SSA region

1.4 RESEARCH QUESTIONS

The study tried to answer the following research questions;

- ✓ Is it possible for airlines to be profitable despite economic turbulence?
- ✓ Does the higher capacity utilization lead to increased profitability in the airline industry?
- ✓ Does the level of financial gearing affect profitability of the airlines?
- ✓ Is the liquidity of the airlines affecting their profitability?
- ✓ Does the size of an airline have effect on profitability?
- ✓ Does foreign currency exchange rate movement have impact on profitability and to what extent does the cost of fuel and interest charges affect profitability of airlines?
- ✓ Does the growth of an airline have effect on profitability?
- ✓ Does the effect of identified factors on profitability of the selected airlines follow industry trend or results of similar studies in other regions?
- ✓ Does the level of salaries and benefits offered to employees affect employee productivity and overall profitability of airlines?

1.5 SIGNIFICANCE OF THE STUDY

This study contributes to the existing literature as follows: firstly, examines the expected associations that could exist between the profitability and driving factors affecting financial performance of airline in SSA region. Secondly, it assesses effect of risk management practice on

performance of the selected airlines. On another hand, assessing factors that affect airline's profitability is very important to boards, managers, lenders, and others who make judgments about the financial health of organizations. So, it gives some insight to those who are interested in bottom-line of the airlines.

1.6 SCOPE AND LIMITATION OF THE STUDY

This section stress on importance of recognizing factors affecting results of the research. Though, all the airlines to be considered in the study use International Financial Reporting Standard (IFRS) as basis for preparation of financial statements, differences in practice and culture could affect quality of data and could lead to accuracy and reliability concerns. Besides, effect of inflation, cost of living, effect of geographical variation in costs of other inputs and exchange rate variation have also effect on profitability of airlines and may affect validity of profit figures and efforts made to generate them. Furthermore, even though there are a number of important determinant variables which have significant influence on the profitability of airlines like political affairs, economy, management philosophy, etc, they will not be fully considered in this study. On the other hand, though the balanced scorecard approach gives comprehensive picture of airline's performance and profitability, here financial perspective is used as basis due to the fact that other perspectives of performance management could not be captured easily and the published sources includes only limited nonfinancial information. For instance, non-financial information like customer retention/satisfaction, wait time for check-out/phone-answering, on-time performance, denied boarding, mishandled bags etc are hardly disclosed on annual reports of airlines.

Furthermore, full scale review of factors affecting airlines from published information is very difficult because most airlines disclose minimum possible information and operation data posted on annual financial report is not audited by external auditors. Besides, as most of the airlines managements are secretive about their financial data, they only release the minimum required by company law (Peter 2007). Though, this study used published financial information from various sources as much as possible and made assessment of these data in different ways to ensure its validity.

The airline industry encompasses different types of carriers including Full Service Network Carriers which are defined as scheduled airlines with a business model that focuses on providing a diverse and extensive service. These are typically international operating companies with a network oriented system (normally with one or more hubs), covering a wide geographical area and providing transportation in several different classes. The second groups of airlines are Low Cost Carriers category which comprises those airlines that offer low prices for the majority of their flights and mainly operate on short and medium-distance routes. There are also other groups of airlines which include Regional or Charters airlines. As most of SSA airlines provide domestic, regional and/or very small number of international routes, this study focused on SSA airlines with global alliance membership and large number of international air transport service within the study period. This is aimed to make the study results comparable with that of airlines in other regions and industry averages.

1.7 ORGANIZATION OF THE PAPER

The organization of this study takes the following form: The first chapter is introductory which consists of background of the study and other introductory parts. The second chapter provides summary of literature review on the airline profitability and factors affecting profitability. Chapter three presents data source and methodology; chapter four is devoted to analysis of data and discussion based on data analysis results; finally, chapter five concludes the study and provides relevant recommendation along with insights into future research areas.

CHAPTER TWO

LITERATURE REVIEW

Several factors influence airlines profitability, recognizing and understanding the underlying concepts and definitions of the airline industry is essential in order to vouch results and analyses determinants of profitability. Hence, this chapter serves as background for this study by describing concepts and issues concerning airline profitability. Subsequent chapters will build on concepts and definitions described here. In light of the above, the purpose of this chapter is to review the literatures related to airline profitability and its determinants. The review covers assessment of the theoretical aspects related to airline profitability and its determinants and followed by the review of the previous studies conducted in relation to determinants of airline profitability.

2.1 Theoretical Review

Profitability could be mentioned as one of the major aims of any kind of economic activity. It is one of the main objectives of financial management of a business in way of maximizing the shareholder's value. In other words, profitability is a measure to analyze whether a business has been successful or not. Profitability is used to determine the company's bottom line and it shows a company's overall efficiency and performance as the result it is so important to company managers and owners alike. Specifically, if a firm has outside investors who have put their own money into the company, the primary owner and/or management certainly has to show profitability to those equity investors. However, a business has to pass through various internal and external obstacles to achieve these objectives. The airline industry in particular has to go extra miles to ensure that it is achieving or heading to appropriate direction to achieve its profitability motives as the industry is highly affected by numerous external and internal factors like world economic recessions, political arena changes and conflicts, substantial commercial and financial pressure from various stakeholders, technological advancements, epidemics and terrorism, quality of management decisions, financial strength and others just to mention a few. The reason why the airline industry is exposed to such vast factors heavily is its international connectivity which makes it vulnerable to various concerns be it local, regional or international.

Besides, due to its nature, the industry attracts attention of various stakeholders including airport authorities, civil aviation authorities, various safety and security offices and the like just to mention some which make the airlines operation complicated and limit its performance and effectiveness. Furthermore, the Airline industry is vulnerable to systemic crisis and risks which have led to the creation of costly safety regulation and financial/economic concerns leading to reducing revenues and creation of excess capacities. Furthermore, the capital-intensiveness of airline industry is one factor that has contributed to increased vulnerability of the industry to the various factors as it puts the airlines breakeven point at high level and makes it very sensitive to sales levels. A further critical review of the literature revealed that the airline industry has been struggling with many challenges which forces them to cut costs to manage fluctuating demand and at same time keeping up with tight quality requirements while trying to maintain superior services and satisfy the needs of various customer groups.

Though, the airline industry is different from other industries in many ways due to its diversity in airlines air and ground operations, high public service obligation (high safety and regulatory standards), differential in production processes and inputs, inconsistency in unit production costs because of difference in factor costs and distribution overheads in different markets, strict safety regulations, strategic cooperation among different airlines (alliances doctrine), sensitivity to economic/political upheavals, government financial assistance, high technology equipment & systems usage, high factor cost (fuel/hr), strict functional specializations (lease utilization of cross-functional skills), fast changing distribution mix (as from manual ticketing to computers to web-based to self-ticketing to virtual activity etc), close state controls and regulations, and doctrine of sovereign national airspace, as any business organization the airlines profitability and management can be assessed using different theories like Industrial Organization (IO) theories; the Market Power (MP) and Efficiency Structure (ES) theories and risk-return hypothesis which were applied in the early studies on performance of business organizations. There are two distinct approaches within the MP theory which are the Structure-Conduct-Performance (SCP) and the Relative Market Power hypothesis (RMP).The structure–conduct–performance (SCP) paradigm that dominated IO until the early 1980s held that market structure (the number and size distribution of firms in an industry) determines market conduct (the way in which the firms in that industry interact), which in turn determines firm performance (profitability).

The market power theory assumes that airline profitability is a function of external market factors. Accordingly, one of the external factors (variables) that can affect airline profitability is industry specific factors. Such factors mainly include industry concentration or market share as a major determinant factor of airline profitability. Finally, the macroeconomic factors that can affect airline profitability include factors such as GDP, money supply growth, safety and security, contagious diseases, financial sector stability and inflation rate among others. Besides, Academics from this tradition claimed that market structure was principally influenced by technological factors such as economies of scale and scope, and that the existence of high profit levels in an industry was evidence that the firms in that industry possessed monopoly power (Slade, 2003). Researchers in the SCP tradition, which was principally an attempt to assess empirical regularities, often based their assessments on cross-sectional data for markets.

Typically, the relationship between market structure and firm profitability was generally found to be positive but not necessarily strong. That literature, which is vast, came under attack in the early 1980s on both theoretical and empirical fronts. Among other things, empiricists pointed out that all of the variables were potentially endogenous and that the models therefore produced correlations that could not be given a structural or causal interpretation (Slade, 2003). Finally, the accounting data that were typically used to measure profitability were thought to be poor proxies for economic profits (Slade, 2003). Unlike the SCP, the RMP hypothesis points that airlines profitability is influenced by market share and yields. It assumes that only large airlines with differentiated products can influence prices and increase profits. They are able to exercise market power and earn non-competitive profits. Theoretical analysis shows that MP theory assumes airline profitability is a function of external market factors (Olweny and Shipho, 2011).

On the other hand, the internal (airline-specific factors) are factors that are related to internal efficiencies and managerial decisions. It states that the airlines performance is influenced by those internal factors that are related to internal efficiencies and managerial decisions. Such factors include determinants such as capital structure, airline size, asset quality, business diversification, asset utilization, liquidity risk, risk management practice and operational efficiency (expenses management). In this regard, Efficiency Structure (ES) theory assumes that firm profitability is influenced by internal efficiencies. It points that airlines earn high profits because they are more efficient than others. There are also two distinct approaches within the ES; the X-efficiency and

Scale–efficiency hypothesis. According to the X-efficiency approach, more efficient firms are more profitable because of their lower costs. Such firms tend to gain larger market shares, which may manifest in higher levels on market concentration, but without any causal relationship from concentration to profitability (Athanasoglou et al, 2005). The scale approach emphasizes economies of scale rather than differences in management or production technology. Larger firms can obtain lower unit cost and higher profits through economies of scale. This enables large firms to acquire market shares, which may result in higher concentration and then profitability. ES and Portfolio theory largely assume that firm performance is influence by internal efficiencies and managerial decisions.

On another hand, the risk-return hypothesis suggests that increasing risks, by increasing leverage of the firm, leads to higher expected returns. Therefore, if a bank expects increased returns (profitability) and takes up more risks, by increasing leverage, the equity to asset ratio (represented by capital) will be reduced. Thus, risk-return hypothesis predicts a negative relationship between capital and profitability (Dietrich and Wanzenrid, 2009; Ommeren, 2011; Saona, 2011; Sharma and Gounder, 2012).

Undoubtedly, firms are continuously concerned with the level of their profitability because their going concern status is highly dependent on their profitability. As the result, both managers and stakeholders are concerned about the factors affecting profitability of a firm be it internal or external factor. All the above mentioned theories emphasizes on the growing trend in the literature about the investigation of determinants of profitability in various industries in general and in airline industry in particular. The first important aim of any firm is to acquire more profit in order to improve its stakeholders' level of wealth (Gitman, 2007). Therefore, the investigation of determinants of profitability of a firm has gained attention from different fields of studies. For instance, industrial economics takes the competition as a leading factor for companies in the market in order to discuss firms' profitability (Olson and Slater, 2002). From the strategic management and finance point of view, companies' profitability is investigated based on their internal resources (Barney, 2001).

In addition, some firm-specific characteristics could play important roles in the profitability of a company. Hawawini et al. (2005) stated that profitability of firms depends on their characteristics. They add that the markets in which firms operate should also be taken into consideration. There are

various other theories which focus on the profitability determinants for different sectors. Based on these theories like capital structure theory, profitability is known as one of the main determinants of capital structure. Considering the trade-off theory (Kraus and Litzenberger, 1973), the higher the profitability is, the less the probability of financial distress would be. Therefore, firms prefer to use more leverage to exploit the tax-deductibility of interests. As the firm makes more profit, more funds are available to be invested although those investments are not profitable. Hence, more debt financing forces managers to direct excess cash flows to debt obligations.

There are various measures for profitability of a firm. One of the most known and widely used of all financial ratios is return on equity (ROE). It represents the performance of a firm in an accounting sense by reporting the ratio of net income to total shareholder's equity (Ross et al., 1999). Another measurement is return on assets (ROA) which reflects the ability of management to employ firm's assets in order to make profits (Rugman, 1979; Lin et al., 2005). Return on equity depicts the growth potentials of a company in the long term. So, if a firm has a high return on equity, it could imply that there are enough internal funds which could be allocated to good investment opportunities. However, firms might decide differently whether to invest all of the profits or a proportion of them.

So, it is essential that both internal and external factors affecting profitability of airlines are identified, reviewed and analyzed to enable the management exploit opportunities, take remedial action on weakness, get prepared for challenges and also ensure sustainability of its desired performance.

2.2 Empirical Review

The empirical review of this study is done by identifying similarities and differences across the various studies by previous researchers regarding factors affecting profitability of business organizations in general and airlines in particular. The factors affecting airline's profitability have been empirically examined by many authors, especially in the developed countries. Though, there are context differences for airline profitability in developed and developing nations, the difference could be taken as very small for airlines operating internationally, providing full service and serving long distance routes due to standardization of most of the services and availability of alternative airlines (competitors) in each route. So, the study done in developed nations could be applicable to those international airlines in other economies.

Profitability analysis of firms is of immense significance for shareholders, creditors, employees, suppliers, governments, and so forth in any economy. Accordingly, various studies regarding factors affecting profitability is review in this section. Review of researches on determinants of profitability revealed that airlines profitability is significantly affected by load factor, yield and unit cost (Matthew, 2002; Ganna, 2011). Airline's profitability is also significantly related to capital structure (financing mix), growth, size and leasing (Emil and Andreas, 2012; Suzanne and Ruben, 1994; Lee and Hooy, 2012). It assesses empirical results covering effect of leverage, liquidity, inventory holding, growth, size, employee productivity, asset utilization, unit cost, load factor, yield and incidents/shocks on profitability. Lee and Jang (2007) and Hung and Liu (2005) had also looked into determinants of systematic risk in aviation in and its effect on profitability by focusing on firm size (measured by assets), financial leverage and operating leverage, but do not consider off balance sheet factors, especially the effect of aircraft operating lease. Over the years, leasing of aircraft had been a common practice especially for small company; about half of the world's aircraft in operation are leased, with operating leases account for a third of these (Gavazza, 2010). As operating lease is not capitalized, airlines that operate leased aircraft will show substantial lower assets on their balance sheet as compared to others who own. This can cause a distortion in some of the potential systematic risk determinants, most notably firm size (measured by assets), profitability, financial leverage and operating leverage. Hence, measurement of profitability should consider the effect of these industry specific factors to make the results more meaningful.

` As financial managers perform in different ways, empirical researches have reported various relationships between potential growth and profitability of a firm (Coad and Holzl, 2010). In addition, in the literature, it is suggested that the profitability of firm should not be necessarily be related to its growth (Goddard et al., 2004). This belief is confirmed by Coad's study (2007). His concern could be summarized as there is no a uniform and globally accepted theory about the sign of the relationship between profitability and growth. In the literature, the impact of company growth on profitability is investigated in various studies. As Greiner (1997) states, a growing firm would face a diminishing profitability. A study by Jovanovic (1982) suggests that firms could be categorized into two groups; those which grow by increasing profitability and those which leave the market because of incurring losses. Some studies argue that the result of company growth could be different, either increased or decreased profitability (Delmar et al. , 2003; Wiklund and Shepherd 2003). On the one hand, a

growing firm would experience an inspiration among its agents which leads to better expectations of future economic conditions. Therefore, this process may contribute to a better performance and, indeed, a higher profitability. Meanwhile, company growth could be interpreted differently by the agents leading to a diminishing productivity and motivation among them and as a result to a decreased profitability. So, empirical review shows that there mixed results regarding relationship between growth and profitability.

Firm size, in terms of available seat kilometer is considered to be a fundamental variable in explaining firm performance (Nunes and Serrasqueiro, 2008). The size measures the firm's ability to attain economics of scale and market power (Chhibber and Majumdar, 1997). Despite the fact that the interest of analyzing firm size lies in size's effect on profitability, it is still debatable as to whether large companies have more opportunity than small firms to enhance their profitability by taking advantage of economic scale. As a part of this debate, Fiegenbaum and Karnani (1991) confirmed that the cost structure of small firms was more flexible than that of large ones. Therefore, small companies could vary their output over time to meet the changing market conditions, while the more stable and mature large corporations needed to maintain a relatively constant output level. On the other hand, Goddard et al. (2005), who analyzed the European manufacturing and services industries, showed evidence that a firm's size had a negative relationship to profitability. Unlike this finding, Nunes & Serrasqueiro (2008) addressed that the size of small and medium firms had a positive and significant correlation with profitability, whereas an insignificant relationship between size and profitability was observed in large firms. In order to scrutinize the effect of firms' size on profitability, Lee (2009) confirmed that the rate of profit had a positive relationship with firm size. Babalola (2013), who studied the impact of firm size on profitability in manufacturing companies listed in the Nigerian Stock Exchange, found that firm size, both in terms of total assets and in terms of total sales, had a positive influence on return on assets (ROA). Likewise, Omondi &Muturi (2013), studying the effect of various factors on the financial performance of listed companies in Nairobi, found a significant positive correlation between size and financial performance.

Furthermore, some more studies have mentioned that the size of a firm is significantly related to its rate of profitability (Hardwick, 1997; Gschwandtner, 2005). It could be inferred that as the size of the company grows, it would be able to benefit from economies of scale more. In addition, a larger

company would diversify its assets easier and could exist in a competitive market with the possibility of new competitors. It is worth mentioning that there is another contrary point of view regarding the impact of company size on profitability. Based on a study by Pi and Timme (1993), as companies grow, it could result in a diminishing rate of profitability. Their statement takes its credit from the agency theory, considering conflicts of interests between agents and owners. In other words, they suggest that the greater company size is, the less control of management's behavior would be. Moreover, Jensen and Murphy (1990) showed that job security of manager increases as company size grows, therefore, it could result in a deviation from the main objective of a firm which is maximizing its shareholders' wealth. However, according to the agency theory (Jensen, 1986), the size of the firm and its level of profitability are positively related with each other. Hence, the bigger the size of the firm is, the lower the unit costs are and thus the higher the returns. On the basis of economic theory, the size-profitability relationship is more likely to be curvi-linear and in the initial stage, profitability is high due to big size of the firm, after reaching a certain stage, the advantage of the size comes to an end and beyond that there may be indirect relationship due to problem of the size. These previous researchers who targeted the impact of size on financial performance were far from being unequivocal, as their results were contradictory.

The financial structure of a firm, on another hand, plays an important role in its financial performance (profitability). Financial structure, or capital structure, is referred to the proportion of debt and equity in a firm. According to the pecking order theory, companies would prefer to firstly finance their investments by internal sources (Myers and Majluf, 1984). There are various studies concentrating on the impact of leverage on performance and profitability. Campello (2006) suggests that debt level could be either helpful or hurtful to the firm's performance. Considering the helpful part, some studies (Maksimovic, 1986; Brander and Lewis, 1986) support helpfulness of debt by saying that debt enables firms to increase their capacity and boost their performance. The modern theory of capital structure was developed by Modigliani and Miller (1958), who pointed out that capital structure, had no impact on firm value. In 1963, Modigliani & Miller discussed the impact of tax firms on the valuation of firms. They indicated that because of debt tax shields, leveraged firms had value higher than firms without debt. This result had much subsequent discussion by Stiglitz (1969) who showed that if the rate of debt went up, the value of the firm would decrease, because of the existence of the risk of bankruptcy. On the other hand, it was indicated that an increased level of leverage tends to raise the value of firm because of tax savings (Pathirawasam, 2013). Although, the

relationship between capital structure and financial performance of a firm can be either negative or positive (Pathirawasam, 2013), Umer (2014) confirmed that a capital structure had a negative correlation with profitability. For example, Titman (1988) found that levels of debt had a negative influence of firms' financial performance. This result was supported by Rajan and Zingales (1995) who addressed that profitability was negatively correlated with leverage.

However, Gill et al. (2011) indicated that short-term debt to total assets; long-term debt to total assets; and total debt to total assets had positive impact on profitability. Gill et al.(2011) presented that the impact of short-term debt to total assets and total debt to assets on ROA was positive in both the service and manufacturing industries, whereas Omondi &Muturi (2013) showed that leverage had a significant negative effect on financial performance. Likewise, by examining the impact of adjustment in capital structure, Bouraoui and Louri (2014) addressed that leverage changes have a negative impact on performance. Another study by Goddard (2005), shows that there would be a negative relationship between the level of leverage and profitability of a firm. They argue that as a company employs more debt, due to debt repayment obligations, it would have a lower capacity for profitable investment opportunities; therefore, this phenomenon could result in a diminishing profitability. The relationship between leverage ratio and the profitability of a firm could also be analyzed in the risk-return trade-off that is the direct relationship between degree of risk and rate of return (Fletcher, 2000). Hence, when cash flows of a firm are obligated by debt repayment, it is more vulnerable to financial distress costs and consequently more variability in profits (May, 1995). Frank and Goyal (2009) suggest that the level of leverage in a firm is positively related to its level of profitability. To sum up, as leverage ratio increases, profitability would turn to be less stable. However, higher debt level is a tool in hands of shareholders to prevent managers from wasting firm's resources.

According to the previous studies, higher levels of liquidity in a firm could lead to agent-principal conflict (Fama and Jensen,1983; Myers and Rajan,1995). It is stated that managers would exploit the resources to increase their individual benefits rather than allocating resources in investment opportunities which enhance firm's profitability. Similar studies by Pottier (1998) as well as Buckle and Adams (2003) showed that greater level of liquidity is associated with decreased profitability because managers would more likely allocate firm's resources in a way that increase their prestige which would not be the optimal allocation of investments. On the other hand, firms

with higher level of liquidity could be more profitable according to Goddard et al. (2005). They state in their study that companies holding more liquidity would be more likely to adopt with market movements. In addition, those companies could benefit from a greater probability of allocating their investments optimally to grow. Similarly, Deloof (2003) showed that companies with greater levels of liquidity are more flexible in terms of providing short-term financing which could lead to a higher profitability. Based on the risk-return hypothesis, more liquidity risk is associated with higher expected returns. Otherwise stated more cash and other liquid non-earning assets result in a lower expected return because these assets do not generate any return (Pasiouras & Kosmidou, 2007).

Liargovas &Skandalis (2008) addressed that firms utilize their liquidity to finance their investments when external funding is not available. In Lamberg (2009), the adaptation of liquidity strategies had no a significant effect on ROCE. Saleem and Rehman (2011), however, they found a significant impact of liquidity ratio on ROA while insignificant on ROE and ROI. Also, Almajali et al., (2012) showed that liquidity as a financial factor had a positive statistical effect on financial performance. This result was consistent with Pathirawasam (2013), who found a positive impact between liquidity and ROCE. In contrast to the above reasoning, Jovanovic's (1982), theoretical model found that the effect of liquidity on firms' financial performance was ambiguous.

In the competitive markets, companies need to be innovative to survive and perform well. Therefore, companies with higher proportions of intangible assets have more potential for innovation (Nucci et al.,2005). Accordingly, there would be a negative relationship between tangibility of assets and profitability of a firm (Deloof, 2003). The studies also suggest that labor productivity is the most significant predictor of profitability. Besides, researches indicate that employee salary levels are significant predictors of productivity and then profitability. The relationship between labor productivity and employee salary with profitability is positive (Mahour, 2010). With reference to the "service profit chain" one can argue that human resource practices in the airline industry are directly linked to profitability. One of the measures that can capture both human resource practices and productivity is labor productivity (Mahour, 2010). A growing body of literature addresses the impact of properly developed and implemented operational strategy and its on profitability with employee productivity and quality of management on driving seats. Boyer, Hallowell and Roth (2002) examined three operations strategies available to services providers to expand offerings and streamline services which includes consideration of the operations strategy trade-off between cost,

delivery, flexibility and quality that advanced manufacturing plants make. Boyer and Lewis' (2004) finding constructs a strong link between operations strategies and profitability. Tsikriktsis (2007) provides review of additional studies that supports the link between the notion of focused firms and their profitability level. Tsikriktsis' empirical analysis suggests that the focused airlines' business model outperformed non-focused airlines in terms of profitability.

Furthermore, several literatures study the relationship between productivity and profitability in manufacturing and service operations. Hammesfahr, Pope, and Ardalan (1993) indicate that production capacity decisions have direct impact on firms' competitive positions and profitability, and that improving productivity is most efficient when the process is operated at full capacity. Banker, Chang and Majumdar (1993) study the impact of productivity, price recovery, product mix and capacity utilization on firms' profitability in U.S. telecommunications industry—an industry which has also gone through a deregulation process. They conclude that productivity is highly associated with changes in overall profitability, and show an increasing trend in productivity after the deregulation. Heskett, et al. (1997) study service profit chain, establishes the links between productivity and financial performance measure. An important finding from this study is that high employees' satisfaction leads to higher productivity and quality of service, which ultimately results in superior financial performance. The service profit chain from Heskett et al. (1997) is also related to "the resource-based model of sustained competitive advantage" discussed in Barney (1991, 1995). Anderson, Fornell and Lehman (1994) study the relationship between productivity, customer satisfaction, and profitability between different goods and services in Sweden. The findings indicate that both productivity and customer satisfaction are positively correlated with profitability for goods and services, yet the interaction between the two is positive for goods, but significantly negative for services. Hence, increasing both customer satisfaction and productivity simultaneously is likely to be more challenging in service industries. Other studies that highlight the importance of productivity and the links to profitability include, e.g., D'Aveni (1989) and Smith and Reece (1999).

The integration of process is one of the major requirements for ensuring survival and cost-effectiveness for organizations, and also provides the framework to make optimum decisions complying with corporate policies and strategy. The combined long-term result of a successful structured resource management system enables the organizations to become more dynamic and responsive, as well as more competitive. Research finding revealed that there are number of

quantifiable and unquantifiable benefits resulting from integration, such as improved decision making, better utilization of resources, enhanced communication, improved people motivation, stronger customer orientation, cultural change and enhanced positive corporate image. However, for the benefits to be realized, it is essential that organizations are aware of the challenges and obstacles accompanied by integration. If these challenges are not addressed early in the process, they can delay the completion and limit the effectiveness of the integration process. Integration should cover all standards of application, being general or sectoral, of voluntary use or compulsory, and management processes should extend into all parts of the business, in order to help the organization to increase competitiveness (López-Fresno, 2010).

Several studies specifically examine the impact of productivity on profitability in the airline industry. Using data envelopment analysis (DEA), Schefczyk (1993) validates that productivity is positively correlated with the return on equity, and further illustrates that productivity measures are one of the important factors in predicting overall performance. Oum et al. (2005) measure and compare the performance of ten major North American airlines, and one of their major finding is that productivity improvements result in greater operational profits. They indicate that airlines need to perform well in both productivity and pricing strategy to be financially successful. Tsikriktsis (2007) studies the impact of productivity and service quality measures on profitability using time-series regression analysis. An important finding from this paper is that productivity measures like loading factors and aircrafts' capacity utilization are statistically significant and have positive coefficients when predicting profitability, with different magnitudes for Full Service and focused airlines. Weiss and Mahler (2009) add another insight to the importance of load factors: in their study on operational risk against adverse events, they find that load factors are positive and significant determinants of their hedging score, suggesting that high load factors indicate airlines that operate with small capacity cushion a beneficial feature when demand declines. In the context considered in this paper, I account for load factors, aircraft utilization, and available seat miles or revenue per employee which represent the seats productivity, plane productivity, and employee productivity, respectively.

According to Manuela (2011) the airlines have a strong incentive to fill a seat before departure, justifying the practice of heavy discounting to stimulate passenger traffic during periods of low demand and increasing load factor. According to Doganis (2002), the profitability of an airline depends on the interplay of three variables, unit costs, unit revenues or yields and load factors

achieved. Airline managers must adjust costs, fares and load factors to produce profitable combinations. He characterized the industry by short-run marginal costs, which are close to zero. Marginal cost of carrying an extra passenger on a flight, which is due to leave with empty seats, is no more than a cost of additional meal, an airport passenger charge, the cost of ground handling and a few pounds of fuel burnt as a result of extra weight. The run of these costs is short, because if the seats remain unsold, these seats flown or seat-kilometers produced will be lost forever. Therefore, he suggests maximizing revenues and load factors. For the airlines, the average revenue per output sold is called Yield and measures average revenue per passenger, per passenger kilometer or per passenger ton kilometer performed. Thus, he reasons possibility of achieving profitability targets, stating that by combining yields with low cost and relatively high load factors one can achieve profitability. He also demonstrates that low cost itself does not provide big margins interacting with low revenues, nor does high cost necessarily mean low profits if the revenues are high enough. Doganis concludes that airlines deciding on their pricing strategy, and working out various tariffs, must balance and assess all these factors, which transform the various fares into average yield. He states that it is the yield in conjunction with the achieved load factor and the unit costs, which will determine whether an airline's revenue and financial targets can be met. A high load factor and the ability to generate ancillary revenue are also important profitability determinants. Load factor improves profitability for obvious reasons, and ancillary revenue is a necessary tool for airlines to supplement scheduled revenues especially given the recent spurt in competition, falling fares and economic downturn.

The airline industry is an industry where high levels of risk exist. This is an industry with traditionally low levels of profit and high overhead costs along with volatile input costs. This, combined with the many influences on demand such as security concerns and fashions, currency exchange rate fluctuations along with the low profit rates increase risk. This danger and the impact of the risk can be seen when looking at the US airline industries where most of the airlines under a chapter 11 bankruptcy (Adams and Reed, 2005). As the result, the airlines are using various financial instruments to manage risk exposure like changing prices of fuel, foreign currency exchange rate fluctuations, interest rate fluctuations and the like which affect profitability of airlines heavily (Denis,2007; Pwc,2009). Fuel costs have contributed hugely to an increase in unit costs of operation for all airlines, though this increase was not as fast as anticipated given the high increases in oil prices. This indicates that fuel hedging is a valuable profitability technique. Future contracts could come back to haunt an airline if fuel prices fall, but the definite price they provide makes them

important. However, the use of derivatives does not guarantee profitability or a reduction in risks as seen with Japan Airlines, and other companies such as Gibson Greetings that sought to use derivatives to reduce risk and when it actually led to their down fall (Gillani, 1996). Likewise it was the abuse of derivatives that brought down a firm when a single trader used futures and options. Here there was a case of the use of derivatives appearing to correspond to the entire hypothesis with the way performance was measured, but the firms still failed as there was not a full disclosure of the real position and as such this is not a good comparator. Furthermore, these also indicate that it is not only the use of derivatives, but also the way in which they are used, or not used. In the case of Northwest and Delta, these two airlines were dwelling on hopes that business would improve, with fuel process decreasing and demand increasing. However, this did not happen and there was little risk management in the form of hedging, when fuel prices increased and demand dropped they were unable to survive (Adams and Reed, 2005).

According to Denis (2007) results of properly managed hedging process appears to have a normal distribution if charted, with an "n" shape. This means that the use of derivatives needs to be balanced, too little use may have a negative impact, just as too great use may also have a negative impact, rather than being a balancing act taking away all potential for gain as well as loss and indicating a too conservative approach. Besides, successful and effective risk management may even be the source of a competitive advantage (Rose, 2001, Porter, 1985), but at the very least it is required to ensure survival (Nellis and Parker, 2000). In the Airline Industry, some companies like Southwest and British Airline have successfully used derivatives as their tool to manage risk exposure.

Furthermore, firms face countless financial risks ranging from foreign exchange risks, interest rate risk and commodity price risk. Due to this fact, these firms have thus practiced the use of both derivative and non-derivative hedging practices. The most prevalent derivative instrument used by the firms is forward contracts followed by swaps then futures. Other hedging practices revolves around price adjustments, making sales in foreign currencies, buying and saving currency in advance, delayed payment of financial obligations, prepayment of goods among others. The study by Christopher et al. (2014) concluded that firms that hedge are motivated more by managerial interests like compensation systems and job protection which are often tied to maintaining more stable earnings. The results show that hedging strategy choice depends on management who seem to adopt a

hedging strategy pegged on performance outcome. This is more so for firms that use bonus remuneration system based on performance. However, hedging practices had little to do with managers/directors being owners of the firms, stock purchase/allocation options or otherwise. Thus, although the hedging behaviors of managers in the non-financial sector are inconsistent with and unexplainable to some extent by their risk aversion, generally, making managers responsible by giving them performance-based payment would motivate them to hedge against financial risks. A study by Geoffrey (2004) investigated the exposure of the two dominant airlines in Australia and New Zealand to key financial risks facing airlines. The study revealed that returns for these are not significantly exposed to interest-rate or currency risk in the short term. However, both are negatively exposed to fuel-price risk in the short term. The incidence of significant exposures to these risks becomes more prevalent as the horizon length is extended. Besides, adding asymmetric terms does not tend to increase the incidence of significant exposure, at short horizon lengths.

According to Peter (2010), Countries are moving to implement climate change mitigation policies which include air transport. Most of these, especially carbon taxes and ETSs, will have the effect of raising costs to airlines, though the effects of Emission Trading Schemes (ETSs) with free allocation of permits will have ambiguous effects on costs. With carbon taxes or requirements to purchase permits, airline costs will rise and the airlines will seek to preserve their profitability by passing the higher costs on to their passengers but the extent to which they are able to do this will depend on how they affect competition. This fact has vividly reflected a need for active management of major costs to reduce unit cost of operation. Vivid (2007& 2008) argues that airline profits are likely to fall as a result of ETS, even with cost pass-through. This is because the rise in prices will be more than off-set by the increase in cost and a reduction in flights sold.

Airlines industry is vulnerable to various incidents and shocks as can be witnessed by results of the 2001 terror attacks in the United States, and the most recent global financial crisis, which collectively resulted in billions of reduction in profits, underscoring the vulnerability of the airline industry to unanticipated events (Manuela, 2011). Besides, over the last few decades, the world airline industry has been exposed to frequent external shocks. Among others, the outbreak of SARS and H1N1, earthquake and tsunami that hit South and East Asian as well as economic based turbulences including the outbreak of the 1997 Asian Financial, the bursting of dot-com bubbles in the early 2000s, the 2008 subprime crisis, and the recent European sovereign debt crisis. This

incidents demonstrated that the industry is competitively uncertain and strongly affected by the world's economic changes and at the same time the political upheavals and global uncertainties which have dearly challenged the airlines industry and led the airlines to loss making situation immediately due to dramatic reduction in the number of passengers and weight of cargo being transported (Khalil and Khan, 2011).

The empirical tests suggest that the pandemic variable (SARS) is never relevant at a global level. Statistically, SARS acts more like an epidemic through its effects on airlines in Asia. The economic and financial variables exert complex effects. In regard to measures of violence (terror and war), the one-off 9/11-event is fairly consistently relevant for most of airlines, and the Iraq war somewhat more than the Gulf war. They also observed considerable statistical mingling of the effects of specific shocks on specific airlines that, once amalgamated into the larger sample, appears to signal results that may not in fact be justified: Building up a joint sample from diverse individual airlines may yield misleading results, an outcome which may cast some doubt on the findings in the aggregate studies that tend to dominate the literature *(*Jurgen and Dunne, 2012).

In general, researches indicate that there are positive relationships between size, employee productivity, load factor, leverage, cost efficiency, growth and profitability while liquidity, inventory holding and shocks/incidents have negative relationships with profitability. So, the hypotheses described in the next chapter are developed based on the above theories in the area and the empirical studies.

2.3 Conceptualization

Conceptual framework means that concepts that relate to one another were used to explain the research problem. Since business performance is influenced by various factors, airlines need to understand what influences airline businesses to reach peak performance. The factors include politico-legal, socio-economic, technological, infrastructural, commercial, and resource based factors. The influence of these factors to the firm performance is very important but it is noteworthy that the management has no (little) control over some of these factors specifically external factors. Nevertheless, these factors must be closely monitored to ensure that stringent measures are taken within the best time to either take advantage of the opportunities or combat the threats found in the external environment. On the other hand, the internal (airline specific) factors that influence the

firm's performance can be classified as management and entrepreneurial factors. To align the conceptual framework with the research objectives, business performance is the dependent variable whereas both the airline specific and macro-economic factors are all independent variables. The relationship can be expressed shown in figure 2.1.

Figure 2.1: Conceptual Framework

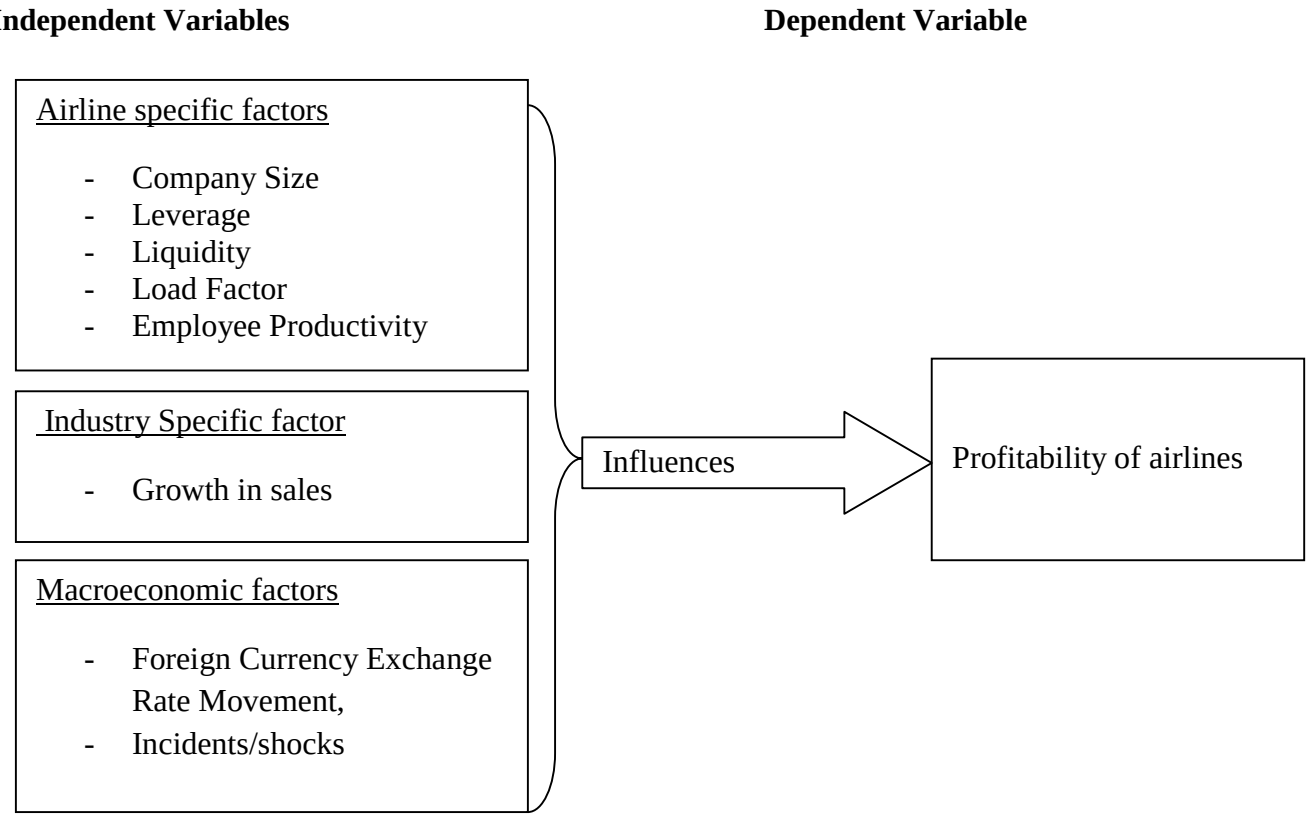

Figure 2.1 Conceptual frameworks (Own Model)

CHAPTER THREE

RESEARCH METHODOLOGY

The preceding chapter presented the review of the existing evidence on factors affecting the profitability of airlines. Accordingly, the results from a review of the literature are used to establish expectations for the relationship of the different determinants. Therefore, the purpose of this chapter is to introduce framework for analyzing determinants of airline profitability, the underlying principles of research methodology and the choice of the appropriate research method for the thesis. Econometrically, in order to test whether there is any relationship between variables, one needs to conduct a regression analysis. In this respect, there are statistical techniques which are employed by researcher. Moreover, conducting a regression analysis demands a researcher to collect enough observations by mass numeric data. Afterwards, the analysis is done by econometrical software, EVIEWS. This chapter is organized as follows. In the first section 3.1 data set used in the study is described and the source of data and the list of companies are represented, in the second section 3.2 the empirical model of the study is proposed including the variables definitions while lastly in section 3.3 the methodology employed to analyze the model of the study is discussed briefly.

3.1 Data selection and collection

This study started with an overview of the airline industry and its development in order to give the readers a broad picture of the current state of the airline industry. After readers have acquired a surface understanding, the angle is then narrowed down to look at analysis of the determinants of profitability of the airlines in Sub-Saharan Africa (with particular attention to the three major airlines in the region namely South African airways, Ethiopian airlines and Kenyan airways). The Sub-Saharan Africa has various types of air transportation service providers like full service (network carriers), domestic and regional carriers and low cost carriers. In this region, South African airways, Ethiopian airlines and Kenyan airways occupy top three positions in the past decade in terms of international network coverage, membership in global airline alliances, fleet size, level of customer services and number of passengers transported according to various reports and publications from IATA, ICAO, AFRAA, SKYTRAX and Heinrich, (2008). Besides, by its very nature airlines business is very sensitive to security and safety issues, which calls involvement of government

affecting its financial performance. However, as the business gets more international this influence reduces and the airlines become more of business organization which is partly due to economies of scale and a need to keep up with international business protocols. This fact enables benchmarking and comparison with other airlines in terms of performance thus this study used the above airlines on this basis.

Data collection is crucial to all researches, as it is this process that the researchers use to accumulate empirical material on which to base their research (Ibert et al, 2001). The data used for this study is secondary data which is extracted from various sources mainly respective airlines websites, magazines, extracts of newspaper, aircraft manufacturer forecasts and various reports and publications of International Air Transport Association (IATA) and International Civil Aviation organization (ICAO). In this respect, three major airlines in Sub-Saharan Africa are identified as indicated above and then their corresponding financial statements are gathered for eleven years time period covering a period starting from 2002/03 to 2012/13. As the focus here is, to assess determinants of profitability of these airlines by using the information gathered from their respective annual reports for eleven years period as stated above through use of pre-set data structuring mechanism, the data gathered from these sources is critically reviewed. In addition, various financial and non-financial information from different sources, including those produced by international civil aviation organization and regional and international airline associations, are used together with specific developments and trends of the industry as published by these organizations.

Econometrically speaking, data collected can be categorized into different forms: time-series, cross section and panel data. In time series analysis, the same units are gathered over a time period, while cross sectional data are gathered for different units at one specific point in time. The combination of these two would result in a third form recognized as panel data which is used for this study. There are several reasons why panel data approach is employed in this study. First, in the framework of panel data analysis, firms are considered heterogeneous, while time-series and cross-section analysis do not include this issue in their analysis which might result in biases. Secondly, panel data approach provides both higher variations in data sets and less multi-collinearity among the variables. Simultaneously, due to higher observations, they are associated with more degrees of freedom. Multi-collinearity is a major problem in time-series analysis (Hsiao, 2007).

3.2 Variables definition and hypothesis development

3.2.1 Variable Definition

This study aims to test the determinants of profitability as identified in the previous chapter which encompasses company size, company growth, leverage, liquidity, load factor, employee productivity, foreign currency exchange rate fluctuation, tangibility of assets and shocks as possible explanatory factors of airline profitability. There are different proxies for the company's profitability. In order to measure profitability of the airline, the overall profitability ratios are used as proxy measures. There are many ways of measuring profit and many accounting conventions to do so. These are return on sales, return on assets and return on capital employed. Generally, profitability in terms of return on sales focuses on short-term perspective of profitability because sales are annual flows, while return on capital employed or return on assets focuses on long-term perspective of profitability.

According to the literature (Rugman, 1979; Lin et al., 2005), return on assets or ROA is one of the most common proxies to measure the profitability of a firm which is measured by the ratio of net income to total assets. However, this measurement is affected by off balance sheet factors, especially the effect of aircraft operating lease. Over the years, leasing of aircraft had been a common practice especially for small company; about half of the world's aircraft in operation are leased, with operating leases account for a third of these (Gavazza, 2010). As operating lease is not capitalized, airlines that operate leased aircraft will show substantial lower assets on their balance sheet as compared to others who own or use finance lease. This can cause a distortion in measuring profitability using ROA and affect risk exposure of airlines. It is due to this fact that this study, considers return on capital employed (ROCE) as proxy for measuring profitability of airlines in order to accommodate the effect of industry specific factors and make the results more meaningful. Besides, return on capital invested which measures the profitability in perspective of the investor and other stakeholders, takes into account long-term ability of airlines to attract capital by staying profitable.

Table 3.2: The variables and their corresponding measurement are described as follows:

Variables	**Measurement**
Return on Capital Employed	Profit before interest and tax divided by long term sources of funds

Company Size	Measured by taking the logarithm of Available seats kilometers
Growth	Measured by changes in US dollars sales level
Leverage	Measured by the ratio between total long term debt and total long term source of fund
Liquidity	Measured by the ratio between current assets and current liabilities
Load Factor	Measured by proportion of total available seat kilometers (ASM) occupied by revenue passengers
Employee Productivity	Calculated by dividing revenue earned by average number of employees during the period
Foreign Currency Exchange Rate Movement	Percentage change in average exchange rate against US dollars on yearly basis
Dummy Variable	a dummy variable represent unanticipated events that affect airline profits

3.2.2 Hypothesis development

Having identified the above variables in previous chapter, the below hypothesis are developed. The central hypotheses are that firms are heterogeneous in their profit performance and that differences in various factors help to explain differences in profitability. The analysis connects with the abundance of theoretical and empirical research devoted to the analysis of firm profits. In light of the research objective of this study, the following hypotheses (HP) are developed and tested to answer the research questions raised herein.

HP1: There is a positive relationship between firm size and profitability. It is hypothesized for this study that one of independent variables affecting profitability is size which represents the available seat kilometer of the firm, that is, the total seat kilometers the airline availed to the market. The reason for taking size of the firm as the determinants of profitability is that the bigger the size of the firm is, the lower the unit costs are and thus the higher the returns. On the basis of economic theory, the size-profitability relationship is more likely to be curvi-linear and hence in the initial stage, profitability is high due to big size of the firm, after reaching a certain stage, the advantage of the size comes to an end and beyond that there may be indirect relationship due to problem of the size. On the basis of economic theory normally a positive hypothesis is set for size-profitability relationship.

HP2: There is a positive relationship between firm growth and profitability. It is hypothesized for this study that one of independent variables affecting profitability is growth which represents changes in level of total sales of the firm. The reason for taking growth of the firm as positively affecting profitability is that a growing firm would experience an inspiration among its agents which leads to better expectations of future economic conditions. Therefore, this process may contribute to a better performance and, indeed, a higher profitability. On the basis of this assumption a positive hypothesis is set for growth-profitability relationship.

HP3: There is a negative relationship between liquidity and profitability of firms. Liquidity on the other hand refers to the management of the company's working capital. The management of the working capital is significant to maintain liquidity in the enterprise. To get an idea about liquidity of various firms, current ratio of each firm is compared with one another. The firm having higher current ratio is considered to be having better liquidity position while it also indicates poor credit management and thus indicates loose or liberal management practices and have adverse effect on profitability. The firm having lower current ratio is considered to be having inadequate margin of safety and thus poor liquidity.

HP4: There is a positive relationship between foreign currency exchange rate movement and profitability of firms. Foreign exchange fluctuation refers to the change in the exchange rates between two or more currencies by specifying how much one currency is worth in terms of the other. An exchange rate is simply the price of one currency in terms of another (Eleftherioss, 2007). It is the value of a foreign nation's currency in terms of the home nation's currency (O'Sullivan, 2003). The differentials in interest rates, terms of trade and high level of inflation can cause exchange rate fluctuations. Hence, sales volume and cost structure of the international firms is dependent on foreign exchange fluctuations which implies that unfavorable fluctuations affect profits negatively whereas favorable fluctuations affect profits positively. Since it was evident that foreign exchange risk greatly affects the profits, it was recommended that the firm should develop a robust foreign exchange risk management framework which clearly shows their currency risk assessment. Here it is worth mentioning that when currency of one country weakens against other countries currency, its exports are encouraged as buyers in the other country can buy it cheaply which increases profitability of company in that country and the reverse is true when the exchange rate strengthens.

HP5: There is a negative relationship between debt level used by the airlines and their profitability. Companies rely on a mixture of owners' equity and debt to finance their operations. A leverage ratio is any one of several financial measurements that look at how much capital comes in the form of debt (loans), or assesses the ability of a company to meet financial obligations. Too much debt can be dangerous for a company and its investors. Uncontrolled debt levels can lead to credit

downgrades or worse. On the other hand, too few debts can also raise questions. If a company's operations can generate a higher rate of return than the interest rate on its loans, then the debt is helping to fuel growth in profits. A reluctance or inability to borrow may be a sign that operating margins are simply too tight. There are several different specific ratios that may be categorized as a leverage ratio, but the main factors considered are include debt, equity, assets and interest expenses. A leverage ratio may also refer to one used to measure a company's mix of operating costs, giving an idea of how changes in output will affect operating income. Fixed and variable costs are the two types of operating costs; depending on the company and the industry, the mix will differ. Finally, the consumer leverage ratio refers to the level of consumer debt as compared to disposable income and is used in economic analysis and by policymakers. However, the most well known financial leverage ratio is the debt-to-equity ratio which is for this study. The leverage ratio measured by Debt to Equity ratio focuses on the relationship between long term external debts and the equities including accumulated earnings. The higher ratio suggests greater pressure and interference from external debt providers. It also suggests fixed financial burden on the company's profit. Even the lower ratio is no profitable from the view point of the equity shareholders because of non-availing of the benefit of trading on equity. So, this study investigates statistical significance of this variable in explaining the dependent variable (Return on Capital Employed or net profit margin) for the selected airlines.

HP6: There is a positive relationship between load factor and profitability of firms and HP7: There is also a positive relationship between employee productivity and profitability of firms. Airline productivity measures are used to evaluate the firms' efficiency of resource usage. There are three productivity measures which reflect three types of productivity within the operations of airlines. These are; seat usage of the plane (Load Factor), time usage of the planes (Aircraft Utilization), and employees' productivity (revenue per Employee). Load factor is the capacity utilization in terms of passengers or cargo, and it is determined by dividing revenue passenger miles (the summation of the products of revenue aircraft miles flown on each inter-airport multiplied by the number of revenue passengers carried) over Available Seat Miles (ASM). Aircraft Utilization is the percentage of total block hours that aircrafts operate in the air, discarding on-ground services. Revenue per employee is the revenue produced by each employee in the firm. For this study purpose, only load factor and employee productivity are used as factors affecting airline profitability as information on aircraft utilization is not disclosed publicly. Load factor is a measure of an airline's passenger carrying capacity utilization. It is also known as a measure of efficiency and hence most commonly used to describe the performance of an airline. Achievement of high load is deemed essential for airline's profitability and it is interesting to investigate factors that are expected to affect load factors. Employee productivity, on another hand, the airline industry there are a few studies that show the link

between productivity and performance (Schefczyk, 1993; Tsikriktsis, 2007). While the general findings suggest that productivity is related to performance in the airline industry. With reference to the "service profit chain" one can argue that human resource practices in the airline industry are directly linked to profitability. One of the measures that can capture both human resource practices and productivity is labor productivity.

HP8: There is a negative relationship between unanticipated events (shocks) and profitability of firms. The dummy variable represents the shocks to the industry indicating the vulnerability of airlines to unanticipated events such as financial crises and terror attacks. The study considers instant or lagged effect of economic shocks as driving factor affecting profitability of airlines.

3.2.3 Model Specification

In order to assess extent of effect of the above variables on profitability, Multiple Linear Regression model consisting of eight independent variables are used to test the effect on dependent variable and are modeled as shown below;

ROCE = ($\beta 0$ + $\beta 1$LSIZE + $\beta 2$GRWTH+ $\beta 3$LIQ + $\beta 4$FOREX + $\beta 5$LEV+$\beta 6$LF +$\beta 7$PRO + $\beta 8$SHOCK + μt)

Where, ROCE - Profitability (Return on Capital Employed)

$\beta 0$ to $\beta 8$- coefficients

SIZE – logarithm of available seat kilometers

GRTH- Growth of UD dollar sales

LIQ - Liquidity

FOREX – Foreign Currency Exchange rate Movement

LEV - Debt-to-total capital Ratio

PRO- Employee productivity

LF- Load factor

SHOCK – a dummy variable representing unanticipated events that affect airline profits; it assumes a value of 1 for 2004 SARs health epidemics and value of 1 for 2009 for the lagged effect of impact of the most recent global financial crisis from 2008–2009; and 0 otherwise

μt - Represents the error term

The above discussion has shown the variables considered and development of hypotheses based on the broad and specific objectives of the study. The research problem along with the philosophy of research methodology would guide the choice of the appropriate research method. Depending on the nature of the research problem and the research perspective, a research method based on the philosophy of quantitative analysis mainly and/or combination of quantitative and qualitative approaches as appropriate.

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3.3 Methods adopted and Data analysis

3.3.1 Quantitative Method

Quantitative research is one in which the investigator primarily uses positivist claims for developing knowledge (Creswell 2003, p. 18). Merriam (1998, p. 9) also noted that quantitative research design is based on the philosophy of positivism, logic and empiricism. Quantitative research employs a review of the existing literature to deductively develop theories and hypotheses to be tested i.e., in this approach, the research problem is translated to specific variables and hypotheses. As the literature on research methodology shows, quantitative research approach tends to assume that there is a cause and effect relationship between known variables of interest. In line with this, quantitative research tests the theoretically established relationship between variables using selected data with the intention of statistically generalizing for the population under investigation.

Well designed and implemented quantitative research has the merit of being able to make generalizations. To enhance the generalization of findings, quantitative research methods follow, at least theoretically, standardized procedures in sample selection, instrument design, implementation and analysis. This standardization in turn increases the replicability of procedures and the reliability of findings. Notwithstanding the above advantage, quantitative research design has a number of limitations. The first limitation is that quantitative research is based on the assumption that research procedures, including instrument design, sample selection and implementation, can be standardized and would lead to reliable outcomes. In reality this may not be easy nor true for several reasons. Firstly, the research problem may require exploration of new ideas, which may not be achieved by following structured procedures. Secondly, due to lack of information about or access to the population and for convenience, the sample selected may not be representative of the population under study. This would introduce a bias, which may compromise the reliability of findings. The second limitation of quantitative research approach is that it does not assess human behavior in its

entirety and it reduces human behavior to predetermined variables. Further, this approach has been criticized for its attempt to study human or social phenomenon independently of its contextual setting. Such a focus of quantitative research on examination of human or social phenomenon separately from its contextual appearance would not enable one to make a comprehensive assessment of a research problem which involves social or human phenomenon. Thirdly, quantitative research appears to lack flexibility in design which may be crucial when additional information revealed through data collection needs further exploration for knowledge. Pure quantitative research design appears also to lack interpretive and exploratory examination of a research problem.

3.3.2 Qualitative Methods

Qualitative research approach, on another hand, is the one in which the investigator often makes knowledge claims based primarily on the multiple meanings of individual experiences, socially and historically constructed meanings, participation in issues, collaboration or change oriented with an intent of developing a theory or pattern (Creswell 2003). In contrast to quantitative research design, qualitative approach is rooted on the philosophy of phenomenology, symbolic interactionism and is based on naturalistic, grounded, constructivist, interpretive and participatory perspectives (Merriam 1998; Creswell 2003). Qualitative research is not intended to test a predetermined theory or hypothesis; instead, it is exploratory in nature and through induction it builds theories or hypotheses. As a result, in qualitative research approach there are no hypotheses, which would guide the study, to be deduced through examination of the existing theoretical and empirical studies.

Qualitative research design has its own strengths and weaknesses. The advantage of a qualitative research design is that it is flexible and emergent without being constrained by standardized procedures (Liamputtong and Ezzy 2005). This feature of qualitative research enables the investigator to explore and understand phenomena entirely in their natural environment and discover emerging theories. Notwithstanding the above advantage, qualitative research design has its own limitations. First, the lack of standardized rules in the research design and the emphasis on giving meanings and interpretations to events and things reduces the objectivity and replicability of the research process. This in turn compromises the reliability of findings. In this connection, quantitative researchers have argued that the interpretive nature of qualitative data makes it soft science lacking in reliability and validity (Liamputtong and Ezzy 2005). Secondly, the findings of qualitative research cannot be statistically generalised for a broader population of interest for it is based on a small and

unrepresentative number of investigated cases. As the above discussion shows, both quantitative and qualitative methods have limitations. The merits of a quantitative research design may be limitations for a qualitative design and vice versa. The limitations of these research approaches could be mitigated by adopting a combined strategy. In connection to this, Creswell (2003) noted that through a mixed methods approach, biases and weaknesses inherent in any single method could be reduced.

3.3.3 Mixed Method

Mixed methods approach, which is believed to mitigate the biases of quantitative and qualitative approaches, is one in which a researcher tends to base knowledge claims on pragmatic grounds employing strategies of inquiry that involve collecting both quantitative and qualitative data either concurrently or sequentially to best understand research problems (Creswell 2003). Adopting a mixed methods approach has a number of benefits. According to Greene et al. (1989) the first benefit is triangulation pertaining to a situation where researchers seek convergence, corroboration, correspondence of results from quantitative and qualitative methods to increase validity of constructs and inquiry results. Secondly, by mixing methods complementarily, researchers seek elaboration, enhancement, illustration, clarification of the results from one method with the results from the other method. Thirdly, by mixing methods with developmental intent, researchers seek to use the results from one method to help develop or inform the other method. Fourthly, mixing methods with initiation intent seeks the discovery of paradox and contradiction, new interpretations, the recasting of questions or results from one method with questions or results from the other method. Finally, to increase the scope of inquiry mixed method with expansion intent seeks to extend the breadth and range of inquiry by using different methods for different inquiry components.

Mixed methods approach can be implemented in different ways. The literature identifies three strategies in integrating the two approaches (quantitative and qualitative methods). Specifically, the integration may be concurrent, where the quantitative and qualitative phases occur simultaneously; sequential, in which the researcher starts with gathering qualitative data and then gathers quantitative data or vice versa in two different phases; and transformative where the researcher (either concurrently or sequentially) may be able to give voice to diverse perspectives, to better advocate for participants or to better understand a phenomenon or process that is changing as a result of being studied (Creswell 2003).

3.3.4 Selection of Appropriate Method

In general, the choice among the three research approaches is guided by mainly the research problem apart from the underlying philosophy of each research method. That is, whether the research problem is based on a framework developed deductively through a review of the literature and prefigured information to be collected in advance of the study or to allow it to emerge from participants in the project or both. Also the type of data may be numeric information to be gathered on scales of instruments or more textual information, recording and reporting the voice of the participants (Creswell 2003). Examination of previous studies on determinants of airline profitability as reviewed in the preceding chapter revealed that these studies had employed quantitative and/or mixed methods approaches. In order to address the research problem comprehensively several hypotheses and specific research questions were developed in this chapter. In light of the research questions and the underlying philosophy of each research approach, in this study, the quantitative method is predominantly used. However, to have a better insight and gain a richer understanding about the research problem, the quantitative method is supplemented by the qualitative method of assessment. That is, to get the benefits of a mixed methods approach, as presented earlier, and to mitigate the bias in adopting only either quantitative or qualitative approach, this research combines both quantitative and qualitative research approaches.

The mixed approach contains many ways of combining quantitative and qualitative approaches. However, in this study only one of the strategies is applied which is concurrent triangulation strategy. This strategy helps the researcher to employ separate quantitative and qualitative data to corroborate the results. It enables the researcher to counter-balance the limitations of quantitative and qualitative results. Equal priority is given to both results and collection of quantitative and qualitative data are done concurrently. Creswell (2009) noted that this strategy is the most familiar of all the strategies and it takes shorter data collection time than other strategies. This logic of triangulation helps generate validated and substantiated results (Creswell 2009). The results of each component also help enrich interpretations of the other (Punch 1998). Therefore, in this study, quantitative and qualitative data were collected simultaneously and the results were integrated to cross-validate and supplement each other.

Given the objective of trying to identify drivers of profitability of airlines, the secondary data as described above is used as it is viewed as the most appropriate way of gathering objective and

empirical evidence (Oppenheim, 1992). Hence, quantitative approach is adopted to analyze this data. In addition to the financial statement data, there are number of published statistical reports, narrations and qualitative data regarding performance of the airlines. So, this study uses such information too. In order to facilitate analysis process, the individual airlines data in the form of annual financial statements, annual filings and business reports will be transferred into US dollars using internationally recognized sources of historical currency exchange rates (www.oanda.com) and processed into a consistent basis. While assessing derivers of profitability using information contained in annual reports, the study uses metrics like operating profit which is the most informative and consistent variable to express financial contribution produced by the key activities of the airline. This operating profit is distinguished from net profit because the latter contains extraordinary items, government grants, write offs and the like. However, in cases where net profit is used, the study uses net profit before profit tax to reduce effect of variation in tax rules in these selected countries.

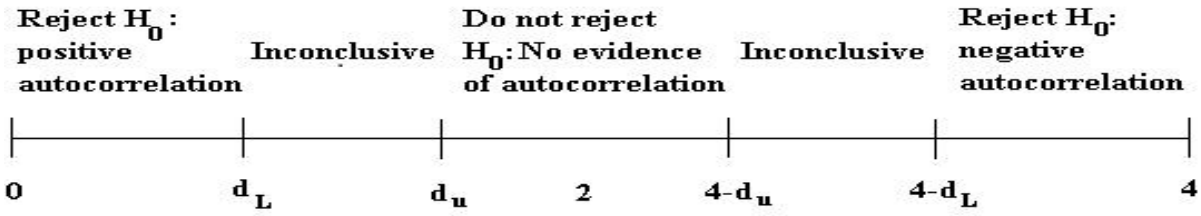
Apart from quantitative analysis, the documentary analyses were conducted using documents which may take a variety of forms such as public documents, archival records, mass media outputs, personal documents, administrative documents and formal study reports. Document study, especially basic document analysis, may employ schemes including descriptive analysis, categorical analysis, exploratory analysis and comparative analysis (Sarantakos, 2005). Documentary analysis has its own strengths and weaknesses. The literature on documentary study identifies strengths including convenience, low cost and replication. Weaknesses include the lack of representativeness, personal bias and could have reliability issue. This study has employed qualitative review of documents and use the information obtained in collaboration with quantitative analysis results using concurrent triangulation strategy as stated above.

3.3.5 Method of Data Analysis

Accordingly, after the data collected is converted into appropriate format, multiple regressions is applied to data as stated above. The Data Analysis describes results of analysis and empirical testing. It covers variables and ratios used in financial performance measures and reflect statistical correlation between dependent and independent variables. For the empirical testing of the models described above, the study used regression analysis where multi-factor regressions is applied to verify that factors presumed to be affecting profitability of airlines have statistically significant relationship. In doing so, a fixed cross-sectional effect is specified in the estimation so as to capture unobserved

idiosyncratic effects of different airlines. In addition, as noted in Gujarati (2004) if the number of time series data is large and the number of cross-sectional units is small, there is likely to be little difference in the values of the parameters estimated by fixed effect model and random effect model. To this effect, fixed effect model may be preferable than random effect model (Gujarati 2004). Since the number of time series (i.e. 11 year) is greater than the number of cross-sectional units (i.e. 3 airlines) and adjusted R2 value and Durbin-Watson stat value increases with the use of cross-sectional fixed effect model, fixed effect model is preferable than random effect model in this case. However, in this study Huasman test is used choose between fixed and random effect models. As noted in Brooks (2008) there are basic assumptions required to show that the estimation technique, OLS, had a number of desirable properties, and also so that hypothesis tests regarding the coefficient estimates could validly be conducted. If these Classical Linear Regression Model (CLRM) assumptions hold, then the estimators determined by OLS will have a number of desirable properties, and are known as Best Linear Unbiased Estimators. Therefore, for the purpose of this study, diagnostic tests are performed to ensure whether the assumptions of the CLRM are violated or not in the model. Thus, the following section discusses about the nature and significance of the model misspecification tests.

The next step after preparing data and identification of proxy variables with appropriate model is testing whether there are any relationships between the dependent variables and the independent variables. To analyze the relationship between variables, one should convert the functional form to an equation in order to be plugged in software for regression analysis. in this study, EVIEWS software (sixth version) is used to run the model proposed above. With the above multivariate regression equation, the impact of each of the explanatory variables on the profitability of airlines was assessed in terms of the statistical significance of the coefficients. Using a 10 per cent level of significance, the estimated coefficient was considered to be statistically significant if p-value is 0.10 (one-tailed test) or p-value _ 0.05 (two-tailed test). The natural logarithm of all continuous variables used in the regression model was taken to reduce impact of size and any hetero-scedasticity that might exist. In this regard, Gujurati (2003) stated that log transformation very often reduces hetero-scedasticity compared with the use of OLS without transformation.


Reject H_0: positive autocorrelation
Inconclusive
Do not reject H_0: No evidence of autocorrelation
Inconclusive
Reject H_0: negative autocorrelation
0
d_L
d_u
2
$4-d_u$
$4-d_L$
4

This Chapter has outlined and explained the detailed research methodology employed in the study. It has described the triangulation strategy adopted to integrate qualitative and quantitative components of the study. It has also discussed measurement, data collection instruments, the sample, and data collection procedures. It further discussed data analysis in terms of the statistical techniques and procedures employed to understand the nature of the data, make appropriate transformations, and test the hypotheses. Finally, it outlined the procedures employed in qualitative data analysis. The next chapter presents the results of data analysis.

CHAPTER FOUR

DATA ANALYSIS

The preceding chapter presented the research methods adopted in the study. The purpose of this chapter is to present the results of model testing and ensures that the model appropriate to test the hypothesis developed in the previous chapter. It analyzes regression results and discusses findings.

4.1. Documentary analysis

The major purpose of this study is to identify the internal as well as the external factors affecting airline profitability in SSA region. The following discussion presents the results of the documentary analysis as follows. Section 4.1.1 presents tests for the classical linear regression model assumptions followed by the descriptive statistics in section 4.1.2. Section 4.1.3 presents the correlation analysis among the dependent and independent variables. The outcomes of the panel data regression analysis are presented in section 4.1.4.

4.1.1. Test results for the classical linear regression model assumptions

In this study as mentioned in chapter three diagnostic tests were carried out to ensure that the data fits the basic assumptions of classical linear regression model. Consequently, the results for model misspecification tests are presented as follows:

Test for Multi-collinearity

The Correlation matrix between independent variables is presented in tables 4.1 and 4.2. As shown in tables 4.1 and 4.2 below, there were fairly low data correlations among the independent variables except the correlation between size and employee productivity variables. The low correlation coefficients indicate that, there is no problem of multi-collinearity in this study. Moreover, Kennedy (2008) stated that multi-collinearity problem exists when the correlation coefficient among the variables are greater than 0.70, but in this study there is no correlation coefficient that exceeds 0.70 except the correlation coefficient between the variables stated above which stood at 0.89(as shown in table 4.1) and latter corrected by removing employee productivity as it has inappropriate regression results which is influenced by South African airlines employee

productivity which is better than that of other airlines in study but in terms of profitability it has the lowest figures. To illustrate it a little bit more, employee productivity is USD 187,886, 204,263 and 286,178 per employee on average for ET, KQ and SAA respectively while ROCE is 19%, 18% and -10% on average in same order. Accordingly, after the above correction there is no problem of multicollinearity in this study which enhanced the reliability for regression analysis. The table 4.2 shows revised outputs for correlation of independent variables.

Table 4.1 Correlation matrixes of independent variables (Before correction of multicollnearity)

Correlation	LIQ	LF	GRWTH	LEV	SHOCK	LSIZE	FOREX	PROD
LIQ	1.000000							
LF	0.308093	1.000000						
GRWTH	0.267259	-0.014056	1.000000					
LEV	-0.582313	-0.166669	0.038989	1.000000				
SHOCK	-0.009581	-0.042805	-0.028662	0.262423	1.000000			
LSIZE	-0.456567	0.169535	-0.480890	0.271812	-0.212941	1.000000		
FOREX	0.226759	0.357631	-0.034527	-0.300646	-0.001978	0.138922	1.000000	
PROD	-0.341288	0.291942	-0.521227	0.145967	-0.081074	**0.888875**	0.201765	1.000000

Table 4.2 Correlation matrixes of independent variables (After correction of multicollnearity)

Correlation	LIQ	LF	GRWTH	LEV	SHOCK	LSIZE	FOREX
LIQ	1.000000						
LF	0.308093	1.000000					
GRWTH	0.267259	-0.014056	1.000000				
LEV	-0.582313	-0.166669	0.038989	1.000000			
SHOCK	-0.009581	-0.042805	-0.028662	0.262423	1.000000		
LSIZE	-0.456567	0.169535	-0.480890	0.271812	-0.212941	1.000000	
FOREX	0.226759	0.357631	-0.034527	-0.300646	-0.001978	0.138922	1.000000

*Source: Results from correlation analysis done using E*views

Test for Autocorrelation

The Durbin-Watson test statistic value in table 4.3 was 2.1055. As mentioned in the previous chapter to empirically analyze factors affecting airline profitability in SSA 33 (3*11) observations were used in the model. Moreover, there were 7 regressors and an intercept term in the model. Therefore, the relevant values for the test are dL= .816, dU = 1.776, i.e., for 33 observations and 7 regressors excluding the constant term. Hence, 4 - dU = 4-1.776=2.224; 4 - dL = 4-.816=3.184. The Durbin-Watson test statistic of 2.1055 is clearly between the upper limit (dU) which is 1.776 and the critical value of 4- dU i.e.2.224 and thus the null hypothesis of no autocorrelation is within the non- rejection region of the number line and thus there is no evidence for the presence of autocorrelation.

Table 4.3: regression result of Durbin-Watson test

R-squared	0.814761	Mean dependent var	0.035361
Adjusted R-squared	0.762894	S.D. dependent var	0.288197
S.E. of regression	0.140333	Sum squared resid	0.492336
F-statistic	15.70870	Durbin-Watson stat	**2.105512**
Prob(F-statistic)	0.000000		

Source: Regression results from Eviews

Tests for Hetroscedasticity

In this study as shown in table 4.4, both the F-statistic and Chi-Square versions of the test statistic gave the same conclusion that there is no evidence for the presence of heteroscedasticity, since the p-values were in excess of 0.05. The third version of the test statistic, Scaled explained SS, which as the name suggests is based on a normalized version of the explained sum of squares from the auxiliary regression, also gave the same conclusion that there is no evidence for the presence of heteroscedasticity problem, since the p-value was considerably in excess of 0.05.

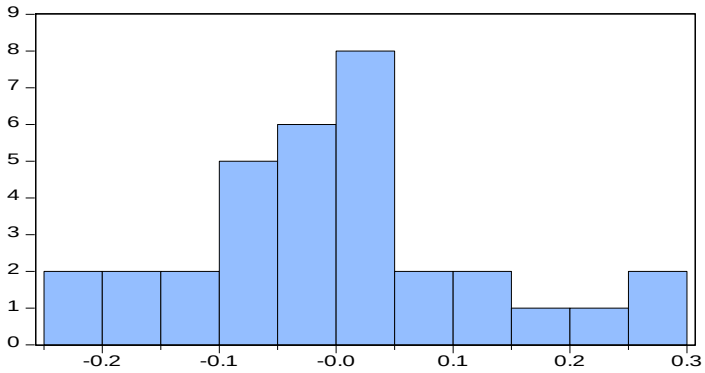
Table 4.4: Heteroskedasticity Test: White

F-statistic	0.564639	Prob. F(7,25)	0.7772
Obs*R-squared	4.505027	Prob. Chi-Square(7)	0.7201
Scaled explained SS	2.747082	Prob. Chi-Square(7)	0.9074

Source: heteroskedasticty test results from Eviews

Test for normality

The normality tests for this study is as shown in figure 4.5 below where the coefficient of kurtosis is around 3, and the Bera-Jarque statistic had a P-value of 0.3935 implying that the data were consistent with a normal distribution assumption.



Series: Standardized Residuals
Sample 2003 2013
Observations 33

Mean	-3.66e-16
Median	-0.000425
Maximum	0.295167
Minimum	-0.212351
Std. Dev.	0.124038
Skewness	0.579042
Kurtosis	3.124966
Jarque-Bera	1.865564
Probability	0.393458

	Observations	Mean	Median	Maximum	Minimum	Std. Dev.	Industry
ROCE	33	3.54%	9.78%	50.00%	-140.00%	28.82%	3.8%
SIZE(in Millions)	33	18,800	13,900	35,200	5,560	10,900	
GRWTH	33	13.40%	13.46%	34.21%	-5.73%	11.24%	4.55%
LIQ	33	0.99	0.92	1.66	0.39	0.33	
FOREX	33	3.07%	2.15%	25.49%	-26.31%	10.38%	
LEV	33	69%	61%	229%	19%	37%	
LF	33	69.47%	69.21%	78.99%	60.48%	4.68%	76.5%

during study period which is one of the main factors that forced the airline request subsidy from South African Government (SAA annual report, 2004). The standard deviation statistics for ROCE was 0.2882 which indicates that the profitability variation between the selected airlines was a little bit high. The result implies that these airlines profitability is very sensitive and have huge fluctuations which in turn prevails existence of difference between the airlines level of optimization of internal factors and quality of approaches used to handle various external factors. Average earning of SSA airlines is a little bit lower as compared to industry average for the same period which stood at 3.8%.

Regarding the explanatory variables of the model there are some interesting statistics that have to be mentioned. Despite existence of a little bit higher dispersion in the minimum and maximum observation of ROCE there could be seen relatively very high variation in the airlines size which is measured by natural log of available-seat-kilometers (ASK) with mean value standing at 18,800million. Besides, the outputs of the descriptive statistics indicate that, the ratio of liquidity of airlines on average is 0.99 with a minimum of 0.39 and a maximum of 1.66. This means despite the inverse relationship that exists between liquidity and profitability, the liquidity measure indicates that the selected airlines have, on average, nearly acceptable level of liquidity position. While the financial leverage is at 69% on average which is worrying for the airline management given a very small profit margin of the airlines which is 1.65% on average during the study period. The profit margin for the industry is a little bit higher than that of an average for SSA airlines for the same period where the industry average stood at 2.09%.

In addition, the standard deviation statistics for load factor was 0.05 which shows the existence of relatively lower variation in capacity utilization between the selected airlines compared to the variation in ROCE. It is especially important to notice that the mean of load factor is 0.695, meaning that the aircrafts of the selected airlines operate with 69.5% seats occupied on average. This lower than industry average for the same period which stood at 76.5%. Filling aircrafts seats with revenue passengers is a big deal for the airline management as industry's short-run marginal costs are close to zero and lets the airline bear all the associated fixed costs as the seats remain unsold. The revenue associated to unoccupied aircrafts seats are lost forever. In other words, carrying an extra passenger on a flight, which is due to leave with empty seats, is no more than a cost of additional meal, an airport passenger charge, the cost of ground handling and a few pounds of fuel burnt as a result of extra weight.

The selected airlines have grown by 13.52% on average over the past eleven years which is better as compared to overall industry growth which is 4.55% over same period. Table 4.6 shows that the mean foreign currency exchange rate movement is 3.07% over the last eleven years on average, with a maximum of 25.49% and a minimum of -26.31 %. Table 4.6 also presents that foreign exchange rate movement has standard deviation of 0.1038; this implies that there was huge fluctuation of currency exchanges in the SSA region.

4.1.3. Correlation analysis among variables

As could be seen in table 4.7, the load factor and currency exchange rate movement were the most positively correlated variables with ROCE. This correlation clearly shows that, as the both variables increase, profitability also moves to the same direction. On the other hand, the leverage ratio is negatively correlated with the profitability measure, indicating that, when the level of debt increases, profitability moves to the opposite direction. Surprisingly, the size of airlines is negatively correlated with ROCE. As expected, growth in sales is positively correlated with profitability while the liquidity and incidents/shocks are negatively correlated with ROCE.

Table 4.7: Correlation analysis

Correlation	ROCE	LSIZE	GRWTH	LIQ	FOREX	LEV	LF	SHOCK
ROCE	1.000000							
SIZE	-0.095787	1.000000						
GRWTH	0.056085	-0.480890	1.000000					
LIQ	-0.372302	-0.456567	0.267259	1.000000				
FOREX	0.548164	0.138922	-0.034527	0.226759	1.000000			
LEV	-0.726752	0.271812	0.038989	-0.582313	-0.300646	1.000000		
LF	0.516019	0.169535	-0.014056	0.308093	0.357631	-0.166669	1.000000	
SHOCK	-0.308283	-0.212941	-0.028662	-0.009581	-0.001978	0.262423	-0.042805	1.000000

Source: Correlation results from Eviews

4.1.4. Results of regression analysis

This section presents the empirical findings from the econometric results on the factors affecting profitability of SSA airlines. The section covers the empirical regression model used in this study and the results of the regression analysis.

Empirical model: As presented in the third chapter the empirical model used in the study in order to identify the factors that can affect SSA airlines profitability was provided as follows after removing one variable that is employee productivity.

$ROCEit = \beta o + \beta 1 LIQit + \beta 2 LFit + \beta 3 GRWTHit + \beta 4 LEVit + \beta 5 Sizeit + \beta 7 FOREXit + \beta 8 SHOCKit + \varepsilon it$

The estimation result of the operational panel regression model used in this study is presented in table 4.8. From table 4.8 the R-squared statistics and the adjusted-R squared statistics of the model was 81% and 76% respectively. The result indicates that the changes in the independent variables explain 76% of the changes in the dependent variable. That is the above variables; liquidity, load factor, sales growth, leverage, size, foreign currency exchange rate movement, and shocks or incidents collectively explain 76% of the changes in ROCE. The remaining 24% of changes was explained by other factors which are not included in the model. Thus these variables collectively, are good explanatory variables of the profitability of SSA airlines. The null hypothesis of F-statistic (the overall test of significance) that the R-squared is equal to zero was rejected at 1% as the p-value was sufficiently low. F_value of 0.000 indicates strong statistical significance, which enhanced the reliability and validity of the model.

Based on the results shown in table 4.8, four of seven independent variables had statistically significant impact on profitability. Among the significant variables, Load factor, leverage ratios and foreign currency exchange rate movement were significant at 1% significance level since the p-value for all the three variables were less than 1%. Whereas variable like Liquidity is significant at 5% significance level.

Table 4.8: Regression result

Dependent Variable: ROCE
Method: Panel EGLS (Cross-section random effects)
Date: 05/20/15 Time: 01:19
Sample: 2003 2013
Periods included: 11
Cross-sections included: 3
Total panel (balanced) observations: 33
Wansbeek and Kapteyn estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.424390	1.410588	0.300860	0.7660
LSIZE	-0.067279	0.061400	-1.095748	0.2836
GRWTH	0.283750	0.278251	1.019763	0.3176
LIQ	-0.271370	0.111119	-2.442151	0.0220**
FOREX	0.801828	0.279184	2.872044	0.0082*
LEV	-0.529201	0.098274	-5.384969	0.0000*
LF	2.556280	0.626056	4.083149	0.0004*
SHOCK	-0.103448	0.073936	-1.399145	0.1741

Effects Specification

	S.D.	Rho
Cross-section random	0.000000	0.0000
Idiosyncratic random	0.142157	1.0000

Weighted Statistics

R-squared	0.814761	Mean dependent var	0.035361
Adjusted R-squared	0.762894	S.D. dependent var	0.288197
S.E. of regression	0.140333	Sum squared resid	0.492336
F-statistic	15.70870	Durbin-Watson stat	2.105512
Prob(F-statistic)	0.000000		

*** and **denote significance at 1 and 5% levels respectively**

Source: Regression results from Eviews

Besides, table 4.8 also shows that the coefficient of size of airlines and incidents/shocks against ROCE were negative. This indicates that there was an inverse relationship between the aforementioned two independent variables and ROCE. Thus, the increase of those variables will lead to a decrease in ROCE. On the other hand, variable growth of sales had a positive relationship with profitability with coefficients of 0.283750. This revealed that there was a direct relationship between this independent variable and ROCE. In general as per the regression results provided in table 4.8 among the seven regressors used in this study, four of them were significant.

In general, so far, the results of the documentary analysis which includes tests for the classical linear regression model, descriptive statistics, correlation matrix & regression analysis have been

presented. The results of the tests for the classical linear regression model showed that the data fits the basic assumptions of CLRMs. On the other hand, the remaining results of the documentary analysis were used to assess the link that exists between factors affecting airlines profitability and ROCE. The following section details analysis of results and discussion.

4.2 Analysis and discussions

The previous section presented mainly the outputs of the documentary analysis and checked appropriateness of the model selected. Accordingly, based on the outputs presented in the previous section, this section presents the analysis and discussion which is organized in two parts, 4.2.1 presents the research hypotheses presented in chapter three and part 4.2.2 discusses the results and attempts to test hypotheses.

4.2.1. Research hypotheses and questions

As stated in chapter one the broad objective of this study was to identify the factors that affect airline profitability in SSA. Further, as noted in the previous chapters (chapter 1 and three), in order to achieve this broad objective the study developed the following seven hypotheses and corresponding research questions.

HP1: There is a positive relationship between firm size and profitability.

HP2: There is a positive relationship between firm growth and profitability.

HP3: There is a negative relationship between liquidity and profitability of firms.

HP4: There is a positive relationship between foreign currency exchange rate movement and profitability and profitability of firms.

HP5: There is a negative relationship between debt level used by the airlines and their profitability.

HP6: There is a positive relationship between load factor and profitability of firms

HP7: There is a negative relationship between unanticipated events (shocks) and profitability of firms.

Research questions (RQ) are;

RQ1: Is it possible for airlines to be profitable despite economic turbulence?

RQ2: Does the higher capacity utilization lead to increased profitability in the airline industry?
RQ3: Does the level of financial gearing affect profitability of the airlines?
RQ4: Is the liquidity of the airlines affecting their profitability?
RQ5: Does the size of an airline have effect on profitability?
RQ6: Does foreign currency exchange rate movement have impact on profitability and to what extent does the cost of fuel and interest charges affect profitability of airlines?
RQ7: Does the growth of an airline have effect on profitability?
RQ8: Does the effect of identified factors on profitability of the selected airlines follow industry trend or results of similar studies in other regions?
RQ9: Does the level of salaries and benefits offered to employees affect employee productivity and overall profitability of airlines?

In order to be able to investigate whether each of the research hypotheses presented above hold in the context of SSA airlines and in order to address the specific research question presented above, the next section tries to present the analysis concurrently.

4.2. 2 Analysis of results

This section of the chapter discusses the analysis of the results. The analysis is based on the theoretical framework and the data collected through the data collection instruments.

The data are analyzed in light of the specific research question and hypotheses stated. Hence, the analysis focuses mainly on the results of the regression analysis for the selected factors that have an impact on airline profitability. These selected factors are Size, Growth, Load Factor Financial Leverage, Liquidity, Exchange rate fluctuation, and incidents/shocks. Moreover, the study also analyzed the results of the regression against other qualitative information interviews obtained from annual reports of the airlines.

Size

Airline size which is measured by the natural log of available seat kilometer (ASK) had a negative impact on the profitability of SSA airlines. However, the variable was not statistically significant even at 10% level of significance (p-value= 0.28). This shows that the size had little impact on the profitability of SSA airlines. Thus the hypothesis that states there is a significant relationship between size and profitability may be rejected or data did not support the hypothesis. The insignificant relationship between airlines size and profitability could indicate that the SSA airline are entering

into a situation where the size-profitability relationship is changing from positive to negative and size is being a problem due to high fixed costs leading to small and very sensitive profit margins. Furthermore, the annual reports of Ethiopian airlines in its annual report for the year 2011/12 indicated that the airlines that are profitable or successful are those which use their resources efficiently and providing value for money services to their customers not just the large companies. Nunes & Serrasqueiro (2008) addressed that the size of large companies have insignificant relationship with their profitability.

Growth in sales

One would expect that the impact of growth on profitability is positive and significant. However, even if the coefficient of growth was positive as expected, it was not statistically significant even at 10% significance level (p-value= 0.32), insinuating that its influence is negligible. Moreover, the insignificant parameter indicates that the growth structure does not affect Airline profitability. Thus, the hypothesis that states there is a significant relationship between growth and profitability may be rejected or data did not support the hypothesis. Referring to previous studies, the results concerning growth are mixed. Molyneux & Thorton (1992) and Guru et al. (2002) find a negative relationship between liquidity and airline profitability. However, Delmar et al. (2003) and Wiklund and Shepherd (2003) argue that the result of company growth on profitability could be different, either increased or decreased profitability. Therefore, conclusion about the impact of SSA airlines growth on their performance remains ambiguous and further research is required.

Load Factor

The coefficient of the ratio of Revenue passenger kilometer to Available seat kilometer, which provides information on the efficiency of the management in utilizing aircrafts was positive and statistically significant at 1% significance level (p-value=0.0004) which is in line with a prior expectation and makes the variable an important determinant of airline profitability. This showed that filling aircraft seats before departure would certainly improve the airlines financial performance in general and profitability in particular. This finding was consistent with many previous studies, e.g. Manuela (2011) the airlines have a strong incentive to fill a seat before departure, justifying that practice of heavy discounting to stimulate passenger traffic during periods of low demand and increasing load factor. According to Doganis (2002), the profitability of an airline depends on the interplay of three variables, unit costs, unit revenues or yields and load factors achieved. Airline

managers must adjust costs, fares and load factors to produce profitable combinations. The results imply that an increase (decrease) in load factor increasse (reduces) the profits of selected airlines in SSA.

Coming back to this particular study, the result revealed that in the context of the SSA airlines and thus reveals statistical significance of load factor in explaining the variability in ROCE of SSA airlines. Therefore, load factor exists as one of the major determinant factor that can influence SSA airlines profitability in a favorable way. Moreover, this result was also consistent with the existed reality in the airline industry where the airlines have huge incentive to attain at least break-even point load factor given the massive level and fixed nature of airline expenses.

Leverage/Gearing ratio

The coefficient of leverage ratio which is measured by the long term debt to total capital employed was negative and statistically significant at 1% significance level (p-value=0.0000). The negative coefficient for leverage ratio was signaling bankruptcy costs. Moreover, the coefficient of the leverage ratio hugely and adversely affects profitability. This is in line with the expectation as an airline already with high fixed cost of operation could be heavily affected by additional debt which affects flexibility to deal with problems arising from unexpected losses, thus reducing the already thinning profitability. So from the findings we can conclude as leverage ratio was one of the main determinants of profitability of SSA airlines. Further, the finding was also consistent with previous studies for instance; Umer (2014) confirmed that a capital structure had a negative correlation with profitability. Besides, Titman (1988) found that levels of debt had a negative influence of firms' financial performance. This result was supported by Rajan and Zingales (1995) who addressed that profitability was negatively correlated with leverage. Omondi &Muturi (2013) also showed that leverage had a significant negative effect on financial performance. Likewise, by examining the impact of adjustment in capital structure, Bouraoui and Louri (2014) addressed that leverage changes have a negative impact on financial performance. Another study by Goddard (2005), showed that there would be a negative relationship between the level of leverage and profitability of a firm.

Moreover the result was also consistent with the existed reality in the in airlines industry, which shows the existence of a inverse relationship between level of leverage and profitability i.e., the most profitable airlines were those with lower fixed cost burden. Correspondingly, the qualitative information obtained from airlines annual reports and industry publications reveal the existence of

similar facts or the result which clearly supports the regression output. That means an increase in leverage leads to a reduction in profitability by increasing fixed cost burden to them, which raises breakeven point of the airline operation and putting undue pressure on airlines to achieve same.

Liquidity

One would expect that the impact of liquidity on profitability is negative and significant as excess amount held in current asset have a very low or zero earnings. As expected the coefficient of liquidity was negative, it was statistically significant at 5% significance level (p-value= 0.0220), insinuating that its influence is very strong. Thus the hypothesis that states there is a significant relationship between liquidity risk and profitability may be accepted or data did support the hypothesis. Referring to previous studies, the findings are consistent with these studies; the researches by Pottier (1998) as well as Buckle and Adams (2003) showed that greater level of liquidity is associated with decreased profitability. Besides, based on the risk-return hypothesis, more liquidity risk is associated with higher expected returns. Otherwise stated more cash and other liquid non-earning assets result in a lower expected return because these assets do not generate any return (Pasiouras & Kosmidou, 2007).

In addition to the findings of the regression analysis, the result of the qualitative review of airlines annual reports and airline industry publications, the level of significance of effect of liquidity on profitability is lower than normally expected because as airlines usually deal with monopolistic supply markets for most of its inputs including but not limited to landing, overflying, airport charges, fuel and interest charges where there is only one or a few suppliers which heavily and adversely affect bargaining power of airlines. This fact require the airlines to stay sufficiently liquid as any failure in settling bills could result in heavy penalty, various operational hassles and goes up to seizure of aircrafts. Hence, the lower than expect impact per the output of the regression analysis is supported by the qualitative reports and publications from airlines industry.

Foreign currency exchange rate movement

As expected, the exchange rate depreciation against US dollars was positively related to profitability, mainly through the impact on prices of international goods and services. The Exchange rate movement is statistically significant at 1% significance level. The parameter, of 0.0082 in the operational panel regression model, indicated that the exchange rate movement is quite a substantial determinant of airline profitability in SSA region. Researches by Denis (2007) and Pwc (2009)

reached to the conclusion that foreign currency exchange rate fluctuations along with changing prices of fuel and interest rate fluctuations affect profitability of airlines heavily. It is further stated that as these risk factors increase volatility of airline earning, thus management should properly manage it through hedging process but they warn that use of strategies should be balanced.

As differentials in interest rates, terms of trade and high level of inflation can cause exchange rate fluctuations, the sales volume and cost structure of the international firms is dependent on foreign exchange fluctuations which implies that unfavorable fluctuations affect profits negatively whereas favorable fluctuations affect profits positively. Accordingly, as it is evident that foreign exchange risk greatly affects the profits, so firms should develop a robust foreign exchange risk management framework which clearly shows their currency risk assessment. Besides, the exchange rate variation also contributes to fluctuation in price of fuel which constitutes 31% total costs on average for the selected airlines and its prices are pegged to US dollars. Here it worth mentioning that airlines is higher than that of industry average for the same period which stood at 25%. Furthermore, these selected airlines interest expense takes up about 57% of the earnings before interest and tax which indicates the level of sensitivity of airline earning to changes in interest rate which again calls management attention to have sound risk management practice to reduce its impact on profitability.

Incidents/shocks

The coefficient of shocks was negative as anticipated, but it was not statistically significant, thus, the effect of shocks on selected airlines profitability is not significant. The findings also suggested that as incident is not a determinant of airline profitability in SSA as far as the parameter for this variable is insignificant as illustrated by the p-values of 0.1741. In terms of shocks impact on ROCE, previous studies by Khalil and Khan (2011) revealed that shocks like September 2001(9/11) incident, Iraq Wars, economic recessions at various times, Afghan Crisis, SARS health treat in 2003, Tsunami, security situations, ash plummet, global political crises, Gulf war recession, Asian Financial crisis 1997/98, 2008 global financial crisis, 2014 Ebola epidemics just to mention some have dearly challenged the airlines industry and led the airlines to loss making situation immediately due to dramatic reduction in the number of passengers and weight of cargo being transported.

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This chapter discussed the analysis of the results of multiple linear regressions model and qualitative review of associated documents jointly. From the above data analysis SSA airlines

profitability is highly affected by airline specific (internal) factors than that of external one. Finally, the next chapter discusses the conclusions and recommendations of the study.

CHAPTER FIVE
CONCLUSIONS AND RECOMMENDATIONS

The previous chapter presented the analysis of the findings, while this chapter deals with the conclusions and recommendations provided based on the findings of the study. Accordingly this chapter is organized into two subsections. The first section presents the conclusions where as the second section presents the recommendations.

5.1. Conclusions

This study aimed to identify the main factors that affect SSA airlines profitability and extent to which these determinants exert impact on airlines profitability. In doing so, previous studies on airlines profitability have been reviewed and it is summarized that the profitability of airlines is usually expressed as a function of internal and external determinants. The internal determinants refers to the factors originating from airlines accounts (balance sheets and/or profit and loss accounts) and therefore could be termed airline specific determinants of profitability. The external determinants are variables that are not related to airlines management but reflect the economic and legal environment that affects the operation and performance of aviation industry. Empirical results from previous studies conclude that internal factors explain a large proportion of airlines profitability; nevertheless external factors do have an impact on the performance.

A number of explanatory variables have been proposed for both categories, according to the nature and purpose of each study. Studies dealing with internal determinants employ variables such as size, capital structure (leverage), load factor, growth in sales, employee productivity etc while for external determinants two factors have been suggested as impacting the profitability and these factors can further distinguish between control variables that describe the macroeconomic environment, such as exchange rate fluctuation, and incidents/shocks variables that represent general impacts from business environment.

Based on the review on previous studies and theories relevant to airline profitability, the present study investigated the impact of some selected airline-specific and general factors on the profitability of the airlines in SSA over the period of 2003 to 2013. The airline-specific factors that were used in this study include variables such as size, liquidity risk, load factor, leverage, sales growth and

employee productivity while general factors include exchange rate movement and incidents/shocks. To comply with the objective of this research, the paper is primarily based on quantitative research method which is supplemented by qualitative one. The quantitative data were mainly obtained from respective airlines annual reports and IATA annual reports through documentary analysis in order to identify and measure the determinants of airline profitability. In specific, multiple regression analysis is adopted to measure the effect of determinants on airlines profitability quantitatively. On the other hand, qualitative data were collected through review of various aviation industry related reports and magazines.

For testing the research hypotheses, a sample size of three major airlines in SSA were selected and the necessary financial data were collected for the time period of 2002 to 2013. The empirical findings on the impact of airline profitability in SSA for the sample suggest the following conclusions. First, as expected, the result showed a positive relationship between load factor and profitability with strong statistical significance. The coefficient of the ratio load factor is relatively highest as compared with other variables, showing that an increase in load factor result in increased profitability. This is in line with the expectation as an airline with a good load factor can easily reach to break-even point and move to profitability position by overcoming the burden imposed by huge fixed costs and so has more time and flexibility to deal with problems arising from unexpected losses, thus achieving increased profitability.

Secondly, the result showed a negative relationship between leverage ratio and profitability with strong statistical significance. This shows that increasing debt for selected airlines in SSA would certainly hamper financial performance of airlines. Third, the result showed a negative relationship between liquidity and profitability as expected with strong statistical significance. The coefficient of the liquidity ratio is relatively the low compared with other variables. This indicates that holding more of non-income generating assets would adversely affect the profitability but the impact is lower due to the fact that airlines required holding more liquid assets to satisfy the needs of monopolized supplier market of the aviation industry. This empirical result is consistent with the studies of Pottier (1998) and Buckle and Adams (2003).

Fourth, the result showed a positive relationship between foreign currency exchange rate movement and profitability as expected with strong statistical significance. The coefficient of the

ratio FOREX is relatively the high compared with other variables, showing that a depreciation of local currency against US dollars have increased profitability as it makes the air ticket price cheaper and hence increase sales value in local currency.

Fifth, sales growth has a positive impact on profitability with low coefficient and weak significance. This indicates that for airlines it is difficult to peruse successful strategies of growth and profit simultaneously. However, previous studies are distinctly various in their findings of the relationship between growth opportunities and profitability. Some studies argue that the result of company growth could be different, either increased or decreased profitability (Delmar et al. , 2003; Wiklund and Shepherd 2003). Sixth, the natural logarithm of total available seat kilometers has a negative impact on ROCE with weak significance. This indicates that being profitability is not a matter of having larger size rather it is being efficient and providing quality service that are key in airline industry to be successful and profitable. Lastly, the incidents/shocks have negative relationship with profitability but it is statistically insignificant. This indicates that airlines are not exposed to both SARs and financial crisis of 2007/2008 significantly because of nature of economic attachment of the region to the rest of the world.

Besides, variables such as routes efficiency, customer satisfaction, distribution channels, and management quality also considered as possible internal factors that can affect airline profitability. Moreover, external variables such as the countries tax system, technology, government regulation, alternative source of finance, barriers to air travel, increasing level of competition, level of GDP and effect of globalization also contributes their own share for the good or bad performance of airlines in the region. In the SSA aviation industry, as per the result of descriptive statistics there was positive profit margin. Though, it is lower than industry average over same period. Besides, variables like load factor and ratio of fuel cost to total cost are at negative side as compared to industry average while growth rate is higher than industry average. This supported by various studies sighting the region as area with immense growth potential. On another hand, liquidity is at moderate level enabling the airlines pay their bills within due dates to avoid heavy penalties and other operational hassles including seizure of aircrafts.

5.2 Recommendations

Based on the findings of the study the following possible recommendations were forwarded: Airlines' load factor, capital structure, liquidity and exchange rate movement are key drivers of profitability of airlines in SSA. Indeed focusing and reengineering the airlines alongside these indicators could enhance the profitability as well as the overall performance of the airlines. The study also established that airlines in SSA region face myriad financial risks ranging from foreign exchange risks, interest rate risk and commodity price risk. These airlines have practiced the use of both derivative and non-derivative hedging practices; the commonly used hedging practices revolve around fuel price adjustments, swaps for managing interest rates and natural hedging through making sales in foreign currencies to manage foreign currency exposure among others.

The explanatory powers of airline-specific variables are far more important in explaining the variability in ROCE for selected airlines than external variables. But among the external factors included in this study exchange rate movement exists as a significant key drivers of profitability of airlines in SSA. This is a clear signal to all airlines SSA that they cannot ignore the macroeconomic indicators like exchange rate movement when strategizing to improve on their profits or financial performance. Thus, airlines in SSA region should not only be concerned about internal structures and policies, but they must consider both the internal environment and the macroeconomic environment together in fashioning out strategies to improve their performance or profits. The airlines should critically assess all possible factors affecting its profitability including those mentioned above and identify their level of significance so that appropriate remedial actions are taken in the order of importance.

Finally, the study sought to investigate the factors that influence profitability of airlines in SSA region. However, the variables used in the statistical analysis did not include all factors that can affect airline performance. Thus, future research could incorporate additional factors such as routes efficiency, revenue optimization process, customer satisfaction, distribution channels, management quality, the countries tax system, technology, government regulation, alternative source of finance, barriers to air travel, increasing level of competition, level of GDP and effect of globalization just to mention a few.

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APPENDICES

Appendix –I: Tests for the Heteroskedasticity
Test: White

Heteroskedasticity Test: White

F-statistic	0.564639	Prob. F(7,25)	0.7772
Obs*R-squared	4.505027	Prob. Chi-Square(7)	0.7201
Scaled explained SS	2.747082	Prob. Chi-Square(7)	0.9074

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 06/01/15 Time: 00:18
Sample: 1 33
Included observations: 33

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.041494	0.110571	0.375272	0.7106
LSIZE^2	-1.72E-05	0.000207	-0.083503	0.9341
GRWTH^2	0.136979	0.150515	0.910074	0.3715
LIQ^2	-0.001019	0.007681	-0.132604	0.8956
FOREX^2	0.173115	0.271805	0.636908	0.5300
LEV^2	0.003490	0.006385	0.546611	0.5895
LF^2	-0.049345	0.074283	-0.664283	0.5126
SHOCK^2	-0.001840	0.012466	-0.147577	0.8839

R-squared	0.136516	Mean dependent var	0.014919
Adjusted R-squared	-0.105260	S.D. dependent var	0.022085
S.E. of regression	0.023219	Akaike info criterion	-4.480500
Sum squared resid	0.013478	Schwarz criterion	-4.117711
Log likelihood	81.92826	Hannan-Quinn criter.	-4.358433
F-statistic	0.564639	Durbin-Watson stat	2.038774
Prob(F-statistic)	0.777249		

Source: Eviews regression result

Appendix-II: Regression Results For Factors affecting Airline Profitability

Dependent Variable: ROCE
Method: Panel EGLS (Cross-section random effects)
Date: 05/20/15 Time: 01:19
Sample: 2003 2013
Periods included: 11
Cross-sections included: 3
Total panel (balanced) observations: 33
Wansbeek and Kapteyn estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.424390	1.410588	0.300860	0.7660
LSIZE	-0.067279	0.061400	-1.095748	0.2836
GRWTH	0.283750	0.278251	1.019763	0.3176
LIQ	-0.271370	0.111119	-2.442151	0.0220**
FOREX	0.801828	0.279184	2.872044	0.0082*
LEV	-0.529201	0.098274	-5.384969	0.0000*
LF	2.556280	0.626056	4.083149	0.0004*
SHOCK	-0.103448	0.073936	-1.399145	0.1741

Effects Specification

	S.D.	Rho
Cross-section random	0.000000	0.0000
Idiosyncratic random	0.142157	1.0000

Weighted Statistics

R-squared	0.814761	Mean dependent var	0.035361
Adjusted R-squared	0.762894	S.D. dependent var	0.288197
S.E. of regression	0.140333	Sum squared resid	0.492336
F-statistic	15.70870	Durbin-Watson stat	2.105512
Prob(F-statistic)	0.000000		

Appendix- III: Summary Data used for the study

Airline	ROCE	LSIZE	GRWTH	LIQ	FOREX	LEV	LF	PRO	SHOCK	year
ET	0.1535	22.43803	0.144166	1.56	0.0065	0.19	0.716380217	80,663.39	0	2003
ET	0.1112	22.5276	0.134612	1.36	0.0103	0.53	0.651464328	87,627.98	1	2004
ET	0.0766	22.70348	0.242715	1.19	0.0057	0.56	0.64370811	106,098.95	0	2005
ET	0.0266	22.93086	0.256352	1.05	-0.0028	0.53	0.638879298	124,482.79	0	2006
ET	0.026	23.15308	0.237484	1.18	0.0303	0.51	0.637760707	162,050.00	0	2007
ET	0.0978	23.23632	0.309658	1.44	0.0306	0.51	0.723415567	204,384.21	0	2008
ET	0.2131	23.24096	0.198719	1.59	0.1242	0.43	0.78177419	239,567.76	1	2009
ET	0.2067	23.42005	0.103254	1.66	0.2283	0.4	0.74175027	238,230.43	0	2010
ET	0.1116	23.63534	0.202435	0.96	0.2549	0.66	0.714922533	253,144.51	0	2011
ET	0.0449	23.83206	0.224277	1.06	0.0728	0.62	0.682291685	297,019.40	0	2012
ET	0.0767	23.97085	0.072768	0.98	0.0544	0.69	0.716106965	273,477.19	0	2013
KQ	0.0572	22.49346	0.096674	0.87	-0.0001	0.57	0.680177112	102,408.49	0	2003
KQ	0.134	22.5512	0.165826	0.66	-0.0331	0.57	0.701816428	137,076.43	1	2004
KQ	0.1994	22.73296	0.304175	0.9	0.0429	0.61	0.754188447	165,177.85	0	2005
KQ	0.1601	22.91436	0.342125	1.13	-0.061	0.68	0.74175517	198,467.03	0	2006
KQ	0.1213	23.04261	0.147786	1.39	-0.0351	0.65	0.735470548	197,362.43	0	2007
KQ	0.1147	23.1187	0.091203	1.52	-0.0596	0.59	0.703909596	209,659.19	0	2008
KQ	-0.075	23.15565	0.088231	0.91	0.1014	0.68	0.647974706	232,962.16	1	2009
KQ	0.0794	23.22002	0.002442	0.85	0.0623	0.62	0.664662769	236,130.21	0	2010
KQ	0.113	23.27692	0.063152	1.06	0.0532	0.59	0.692080286	238,245.17	0	2011
KQ	0.065	23.35335	0.185147	0.92	0.083	0.57	0.656612613	254,376.99	0	2012
KQ	-0.1243	23.35781	-0.05391	0.56	-0.0427	0.57	0.627307168	275,027.98	0	2013
SAA	0.1041	24.18317	0.249392	0.39	0.0215	1.28	0.684258503		0	2003

								149,169.09		
SAA	-1.4	23.22147	0.233391	0.5	-0.2631	2.29	0.604794288	189,950.55	1	2004
SAA	0.5	23.23083	0.242339	0.78	0.127	0.69	0.684438517	244,099.33	0	2005
SAA	0.0967	24.28494	0.077596	0.64	-0.0243	0.8	0.695247289	264,797.93	0	2006
SAA	-0.0906	24.2399	-0.03897	0.8	-0.0991	0.24	0.653794066	291,861.35	0	2007
SAA	-0.1114	24.21006	0.093797	0.95	0.0122	0.37	0.653312322	389,898.52	0	2008
SAA	0.1153	24.18015	-0.05725	0.86	0.2422	0.87	0.75548143	378,525.75	1	2009
SAA	0.1407	24.17462	-0.05347	0.79	-0.1155	0.79	0.770553847	356,279.48	0	2010
SAA	0.1783	24.20075	0.102137	0.82	0.0805	0.9	0.789888813	313,682.02	0	2011
SAA	-0.1834	24.20213	0.018204	0.68	-0.034	0.9	0.686065756	290,848.14	0	2012
SAA	-0.1723	24.23305	-0.00497	0.55	0.1408	1.35	0.69399689	278,847.60	0	2013

Source: data compiled from various sources including airlines annual reports

Appendix- IV: Industry data (from IATA reports and Publications)

YEAR	RR	PP	CC	EE	Fuel	PLF	OPL	FTC	Margin(%)	Growth(%)	ROCE(%)
2003	322.00	249.00	40.00	323.00	44.00	72.3	-7.5	0.1362229	(0.31)	8.1	2.2
2004	379.00	294.00	47.00	376.00	65.00	73.5	-5.6	0.1728723	0.79	10.1	2.9
2005	413.00	323.00	48.00	409.00	91.00	74.9	-4.2	0.2224939	0.97	5.7	3
2006	465.00	365.00	53.00	450.00	116.00	76	5	0.2577778	3.23	4.8	4.6
2007	510.00	399.00	59.00	490.00	133.00	77	14.7	0.2714286	3.92	6.6	5.5
2008	570.00	444.00	63.00	571.00	187.00	76	-26.1	0.3274956	(0.18)	2.7	1.4
2009	476.00	374.00	48.00	474.00	123.00	76.1	-4.6	0.2594937	0.42	-4.2	2
2010	564.00	445.00	66.00	536.00	138.00	78.5	17.3	0.2574627	4.96	3.7	6.3
2011	642.00	500.00	67.00	623.00	174.00	78.4	7.5	0.2792937	2.96	6	4.7
2012	706.00	541.00	64.00	687.00	208.00	79.4	6.1	0.3027656	2.69	3	4.3
2013	717.00	571.00	61.00	692.00	208.00	79.7	12.9	0.300578	3.49	3.6	4.9
Mean	524	409.54545	56	511.90909	135.18	76.527	1.4091	0.2534441	2.09	4.55	3.8

Legends

RR	Total Revenue(USD Millions)
PP	Total Passenger revenue(USD million)
CC	Total Cargo revenue(USD million)
EE	Total Expenses (USD million)
FUEL	Fuel cost (USD million)
PLF	Passenger load factor achieved
OPL	Operating profit or loss (in USDmil)
FTC	Fuel to total cost ratio
ROCE	Return on invested capital