Determinants of Aviation Profitability: The case of Ethiopian Airlines

A Thesis Submitted for the Partial Fulfillment of the Requirements for the Degree of Master of Science in Accounting and Finance

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Declaration

I, Gebeyehu Abebe declare that, this study prepared for the partial fulfillment of the requirements for MSC Degree in Accounting and Finance entitled, "Determinants of Aviation profitability: The case of Ethiopian airlines" is prepared with my own effort. I have made it independently with the guidance of my advisor.

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CERTIFICATION

This is to certify that the thesis prepared by Gebeyehu Abebe , entitled: Determinants of aviation profitability: the case of Ethiopian airlines and submitted in partial fulfillment of the requirements for the degree of Master of Science in Accounting and Finance complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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ABSTRACT

In order to be competitive, profitability of a firm plays an undeniable role and investigation of the factors determining profitability of a firm would provide useful insights. Therefore, the main purpose of the study is to show factors that determine Ethiopian Airlines profitability. The dependent variable profit was regressed against growth, liquidity, leverage, tangibility of asset, lease and fuel cost, to show which factor determine Ethiopian profitability. The study used explanatory research design and multiple regression model is used to show the impact of the independent variables on the dependent variable. The study used quantitative and qualitative data, obtained from secondary source from 1981-2015.The data was analyzed using time series econometrics methodology. The analysis is done by using E-view 8. The result revealed that fuel cost, liquidity and leverages are statically significant to explain the dependent variable. Besides, tangibility of asset, lease cost and leverage ratios have negatively correlated with Ethiopian airlines profitability. Finally, it is recommended that the airline should have more concern to liquidity, fuel and leverage than growth and tangibility of asset.

Keywords: Ethiopian airlines, Profitability, internal factors, financial statement.

TABLE OF CONTENT

List of Acronyms and Abbreviations

AFRAA: African Airlines Association

ASK: Available seat kilometer

ASM: Available Seat Miles

ATK: Available tone kilometer

BLUE: Best Linear Unbiased Estimator

CAGR: compound annual growth rate

CCC: cash conversion cycle

CLRM: Classical Linear Regression Model

CR: current ratio

EAL: Ethiopian Airlines

ECM: Error Correction Model

GDP: Gross Domestic Product

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

IOSA: International Operational Safety Audit

KQ: Kenya Airways

LCC: low cost carriers

MRO: Maintenance Repair and Overhaul

NAS: Norwegian Air Shuttle

OLS: Ordinary Least Square

OPEC: Organization of Petroleum Exporting Countries

QR: quick ratio

ROA: Return on asset

ROE: return on equity

RPM: Revenue passenger Mail

SAA: South African Airways

SSA: Sub Saharan Africa

CHAPTER ONE

1. INTRODUCTION

This chapter will give the readers a short background for the chosen topic, back ground of the case company, statement of the problem and also present the main questions I will try to answer over this study.

1.1 Background of the study

Profitability is the primary goal of all business ventures. Whether business are recording profitability for the past period or projecting profitability for the coming period, measuring profitability is the most important measure of the success of the business. A business that is not profitable cannot survive in the long run. Conversely, a business that is highly profitable has the ability to reward its owners with a large return on their investment. So measuring current and past profitability and projecting future profitability is essential. Vieira (2010), the main form of measuring economic success of a firm in terms of the capital invested in and it is not merely a result, but also a necessity for the economically successful and effective movement of individuals and organizations in the market place in which these operates. Profitability can be defined as either accounting profits or economic profits. Accounting profits provide an intermediate view of the viability of your business. Although one year of losses may not permanently harm your business, consecutive years of losses may risk the viability of business, but economic profits provide a long-term perspective of your business. The economic success is determined by the extent of the net accounting profit Vieira (2010), and this accounting profit is the first important aim of any business firm in order to improve its stakeholders‟ level of wealth.

Air travel remains a large and growing industry. It facilitates economic growth, world trade, international investment and tourism and is therefore central to the globalization taking place in many other industries (IATA 2015). The profitability of Global air transport is important because profit is the essential prerequisite to a competitive and complementary transportation system that provides for the economically efficient movement, from origins to destinations in an ever increasingly globally competitive marketing system (Allen, 2011). Therefore, the investigation of determinants of the industry profitability has gained attention from different individuals as well as organizations.

Undoubtedly, the industry stakeholder‟s are continuously concerned with the level of their profitability because their performance is highly dependent on profitability. Wald et al. (2010) argues that airlines are profit-oriented industries and that an airline‟s performance is therefore determined by the result of its efforts expended and results achieved. In comparison with non-international operating companies, the Airlines industry may face complex and multi-dimensional risk factors, resulting in either greater losses or profits for the organization. Even if aviation industry has a great importance for countries, it had faced many challenges in the past which has affected its growth and profitability (Fikre, 2015). In the aviation industry, airlines encounter extensive risks including strategic, financial, and operational risks, as well as unusual events like financial crisis of 2008 which led to economic recession in money countries, the unpredictability of fuel prices and political issues here and there can affect the bottom line of the industry. In the following sections of this paper background of Ethiopian airline is presented.

1.2 Background of Ethiopian airline

Ethiopian Airlines (የኢትዮጵያ) simply Ethiopian hereafter EAL, is Ethiopia‟s flag carrier and is wholly owned by the Government of the Federal Democratic Republic of Ethiopia. EAL was founded on 21 Dec1945 and commenced its first flight took place to Cairo via Asmara on 8th April 1946.The airline has been a member of the IATA since 1959 and of the African Airlines Association (AFRAA) since 1968 and Ethiopian is joined the largest alliance of airlines (star alliance) on December 2011. By originating from its main hub at Bole international airport, EAL serves a network of 92 international and 20 domestic destinations as well as 35 freighter destinations. As of JUN 2016 EAL international destinations are 51 African cities, 25 Middle East & Asia, and 16 Europe & USA respectively. EAL, today more than ever before, aggressively expanded its presence or destinations in all directions of the globe and flies to more destinations in Africa than any other carrier (WWW.Ethiopianairlines.com).

EAL has been playing a pivotal role in advancing economic development of the country. For 70 years now (1946-2016). EAL made a positive net economic value contribution to the national economy by facilitating trade, investment and tourism in line with its vision (Kirbel 2015). The value added is measured in terms of contribution to GDP, employment, and comes in the form of visitor expenditure as well as jobs created in Hotels and facilities at spend. EAL aimed to be fast,

profitable and growing airline by providing excellent air transport services and will be the most competitive and leading aviation group in Africa by providing safe, market driven and customer focused passenger and Cargo Transport, Aviation Training, Flight Catering, Maintenance Repair and Overhaul (MRO), Ground Services, Domestic and regional services by 2025.

On the year ended, June 2015 despite the difficulty in the operating environment, Ethiopian remained profitable with record operating profit of ETB 4.31 billion and a net profit of 3.53 billion (EAL annual report June2015). Besides many operating and management problems, EAL had shown its potential growth and development to the industry. In this regard, EAL won different awards such as:

- EAL won the African Airline of the year award for 2016 during the 25th anniversary African Aviation Air Finance Africa Conference & Exhibition and African Aviation Summit held on May 2016 in, South Africa.
- EAL aviation Academy has been recognized as ICAO Regional Training Center of Excellence on May, 2016 at the ICAO"s Global Aviation Training and Train air plus symposium.
- Ethiopian Airlines has won Airline of the Year Award for the fifth year in a row, at the 48th Annual General Assembly of the AFRAA held on November 21, 2016.

Despite the above and other successes, the researcher believe that prior success is no guarantee for future , as EAL is part of a highly dynamic industry characterized by low profit margins, high competition, unpredictable events, and emerging challenges which continuously keep changing the competitive environment. Therefor this paper tries to addresses what major factors affects Ethiopian airlines profitability from the balance sheet and income statement items. In short the study would address the determinants of Ethiopian airlines profitability from 1981-2015.

1.3 Statement of the problem

The problem, as basis for this research, lies in the broader context of the main research question what are the determinants of EAL profitability in the last thirty five years? Every business should

earn sufficient profits to survive and grow over a long period of time. Profit is a financial benefit that is realized when the amount of revenue gained from a business activity exceeds the expenses, costs and taxes needed to sustain the activity. Any profit that is gained goes to the business's owners, who may or may not decide to spend it on the business. On the other hand profitability refers to the operating efficiency of the firm and it is an outcome of profit and firms having same amount of profit may vary in terms of profitability. Moreover, to the financial manager‟s profit is the test of efficiency, to the owners a measure of the worth of their investment, to the creditors the margin of safety, to the government a measure of taxable income of the business Aggarwal, (2015).

Due to the unique nature of the airlines industry, profitability of the industry has always been less than other industries. looking into African airlines, despite efforts made by respective governments targeting of to improve profitability, efficiency and productivity, the financial performance of the airlines in the continent has relatively weak compared with the industry itself, due to operational inefficiencies, high level of regulatory costs and tax‟s, low levels of credit rating, limited capitalization and higher levels of liquidity risk Raphael, (2013). More over Fikre (2015) examined the determinants of profitability for the three airlines in Sub-Saharan Africa, covering the period of 2003-2013. The result of his analysis in SSA airlines profitability is highly affected by internal factors than that of external one.

Besides Profitability is leading indicator to measure the ultimate performance of airlines Alahyaril (2014) and it helps the airlines to understand scale and scope of their activity and enable them to take appropriate actions to stay competitive in the market place. Several other literatures has also pointed out one factor having greater influence over another in determining profitability depending on single airlines case or panel of airlines located in some parts of the world with their distinct characters. Some of the factors that determine airlines profitability studied by different researchers are applicable in some parts of the world or in some specific airlines, while these same factors may not be applicable for other airlines (Kuribel 2015).

Coming back to the case of the EAL, while a large body of research on profitability has been undertaken in the banking and insurance industry in Ethiopia, to the researcher's best knowledge, the empirical study on the area of factors affecting Ethiopian airline profitability are few in number and rarely available. For instance, Kuribel (2015) studied factors affecting EAL profitability based

on income statement and management accounting data"s. The study doesn"t considered balance sheet variables, as well as basic internal factors. Besides, Eyob (2014) analyzed EAL profitability from 2009 to 2012. Therefore there is a research gap and need to identify these determinants of Ethiopian airline profitability. So, this paper fills the gap by providing information about the determinants of EAL profitability during the last thirty five years (1981-2015).

1.4 Objective of the study

1.4.1. General Objective

The general objective of this study is to identify the determinants of Ethiopian airlines profitability.

1.4.2. Specific Objectives

Based on the above general objective, the studies have the following specific objectives

- To analyze EAL growth and Corresponding effect on profitability.
- To examine EAL short term solvency and Corresponding effect on profitability
- To evaluate EAL capital structure and corresponding impact on profitability.
- To evaluate effect of tangibility of asset on EAL profitability.
- To assess the effect of aircraft lease on EAL profitability.
- To assess the effect of fuel cost on EAL profitability.

1.5 Research questions

The study tries to answer the following research questions;

- What effect growth puts on profitability?
- How the level of liquidity affects profitability?
- What is the effect of financial gearing on profitability?
- What is the impact of tangibility on profitability?
- How Aircraft lease costs affect profitability?
- What is the impact of fuel costs on profitability?

1.6 Hypotheses

Based on the theoretical and empirical literatures, the study has used the multiple regression technique to show the relationship between EAL profitability and the determinants that the

literatures claim to affect Airlines profitability. To achieve the objectives stated above, the following hypotheses were tested.

I. **HO1:** There is a positive relationship between EAL growth and its profitability- growth is one of the independent variable and which represents changes in level of total sales of EAL. 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.

II. **HO2:** There is a negative relationship between EAL Liquidity and its profitability- Liquidity refers the management of the company‟s working capital. 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 adverse effect on profitability.

III. **HO3**: There is Negative relationship between leverage and profitability – firms finance their activity by a mixture of equity and debt. Leverage ratio is used to measure the proportion of total debt to total asset of the firm and focuses on the relationship between long term external debts and the equities including accumulated earnings. The higher ratio suggests fixed financial burden on the company‟s profit. Even the lower ratio is no profitable from the view point of the equity holders. So, this study investigates statistical significance of leverage over the ratio of total debt to total asset.

IV. **HO4**: There is a negative relationship between asset tangibility and profitability- tangibility is the ratio of fixed asset to total asset of EAL. So, when a firm increases its tangible assets, it could be interpreted as a firm with higher potential for debt financing. Firms with a higher level of tangible assets are potentially inclined to employ more debt financing. So, when a firm increases its tangible assets, it could be interpreted as a firm with higher potential for debt financing. As asset structure affects leverage ratio of a firm, it could also affect profitability of a firm Alahyaril (2014).

V. **HO5**: There is a negative relation between Lease cost and profitability. Lease cost is the total cost incurred during each accounting period, for renting of aircrafts and corresponding engines. Leasing costs are more flexible because airline first analyses their demand before

incurring lease contract.

VI. HO6: There is negative relation between Fuel cost and profitability of EAL- the total cost of fuel and oils in each accounting year and it is the largest unit cost each year. Actually the cost of fuel isn‟t only related to the price of fuel in the market. But it is highly influenced by ASK & ATK. Thus supply side variables are increased year to year and resulted in increasing fuel cost.

1.7 Significance of the study

The study conducted on the title of Factors Determining Ethiopian airlines profitability. Accordingly significance of this research includes the following:

- First, as it is explained in the review of the literature part studies made so far in Ethiopia with the objective of identifying the factors affecting Ethiopian airlines profitability are very few. As a result, this study makes a number of contributions towards extended research in the area of determinants of profitability in the aviation industry of Ethiopia.
- Second, the study draws some conclusions and identifies the factors affecting Ethiopian airlines profitability. Thus, it gives signal to stakeholders to take corrective action.
- Finally, it helps other researchers as a source of reference, for those who want to make further study more in-depth on the area afterwards.

1.8 Scope and Limitation of the study

The study has its own scope and limitations as it is presented below:

- The scope of this study was limited in terms of coverage and method. With regard to coverage, the study was limited to the Ethiopian airlines financial performance. In terms of time, it covers the time period between 1980/81– 2014/15 G.C, which is EAL accounting year changed from JAN to JUN.
- The study adds value to the previous studies by using more recent data of Ethiopian airlines (last thirty five years); in doing so factors that affect EAL profitability with multiple regression models is discussed. But the study isn‟t distinguishes long-run and short run causality, because of this the study isn‟t conclude for uncovered time periods. Besides the study isn‟t including, management efficiency, various costs and micro-economic factors.

- One of the limitation of this thesis concerned with the quantity or observations of the data employed in the quantitative analysis. Even though, there is no general rule about how many observations are necessary to cover one explanatory variable, the consensus is that more observations are better.
- Finally, this study also limited on secondary data obtained from EAL website, portal and published annual reports. Beside the researcher himself may be biased or mainly focus on internal determinants of financial statement items than external one.

1.9 Organization of the paper

This study is organized into five chapters. The first chapter deals with introduction, back ground of the study and the organization, objectives ,questions & research hypothesis, significance of the study and scope of the study. In the second chapter of the literature, that relates to the topics of the study has been reviewed and presented. In the third chapter, source of data, research design & methodology were discussed. The forth, chapter deals with the presentation, analysis and interpretation of data. Finally, chapter five presents conclusion and recommendations as per basis of analysis and findings.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

2.1. Introduction

This chapter deals with the literature regarding profitability of Airlines, recognizing and understanding the underlying concepts and definitions of the airline industry. So this chapter

serves as background for this study by describing concepts and issues concerning airline profitability. 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 and then the impact of each factor on the firm‟s performance is discussed.

2.2 Airlines Industry

Civil aviation is a sector constantly evolving thinking that in 1903 wright brothers flew for first time in history, in 1912 the first passenger airline ktiengesellschaft was established and nowadays above 2000 Airlines have over the globe and of which more than 85 % has the member of International Airline Trade Association (IATA). The airline industry is a business of transporting paying passengers and freight by air along regularly scheduled routes, typically by airplanes but also by helicopter (Free dictionary). In the past forty years, air travel measured by worldwide scheduled revenue passenger kilometers (RPKs) has expanded significantly and its expansion presents growth three times greater than world‟s GDP (Pinthiropoulos, 2016).

The aviation industry by its nature, a global industry and growing industry, facilitating economic growth, world trade, international investment and tourism and therefore remains central of globalization (Fikre, 2015).Global Airline Industry having a look over the global airline market, it is appearing that about 2000 Airlines, more than 26,000 aircrafts & 3700 airports globally. In 2015, there were on average over 100,000 daily flight departures and carried over 3.5 billion passenger and 51 million metric tons of cargo. In 2015, the Airlines industry generated a return on invested capital exceeding the cost of that capital. Put simply, for the first time in history airlines made a normal level of profitability. In real terms, a $35.3 billion net profit on revenues of $718 billion (IATA annual report, 2015). The $35.3 billion net profit that the industry generated was almost more than double that in 2014 and almost three times achieved in 2012. However, the spread of profitability isn‟t same over the world; about two-thirds of the industry‟s profits are generated by airlines based in North America, European and Asia-Pacific airlines generated moderate profits, but African airlines jointly posted net after-tax losses of $ 500 million (IATA 2015).

2.3 Profitability

Firms are continuously concerned with the level of their profitability because their performance is highly dependent on their profitability (Alahyayi, 2014). Profitability could be mentioned as one of the major aims of any kind of economic activity and it"s a measure to analyze whether a business has been successful or not. The airline industry has go extra miles to ensure its profitability (Fikre, 2015) as the industry is highly affected by numerous factors like, terrorism, sensitivity to economic &political issues technological advancements, inconsistency in unit production costs, quality of management decisions, financial strength& government financial assistance, and others. The reason why the airline industry is exposed to such huge factors is its international connectivity nature.

Furthermore the airlines industry profitability is influenced by various stakeholders like, airport authorities, civil aviation authorities, policy of sovereign national airspace, various safety and security offices and other factors limit its performance and effectiveness as well as the company"s bottom line. A further critical review of the literature revealed that the airline industry has been struggling with many challenges which forces them to cut costs & 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 stakeholders (Raphael, 2013).Besides, by considering the above unique nature the Airlines industry as any business organization, profitability can be assessed using different theories like:

I. Industrial Organization (IO) theories - The industrial organization and the industrial economics theory are a macro- and micro-economic approach to explain the interactions between companies and markets. The central analytical aspect of IO can be used to identify strategic choices. An industrial organization is a field of economics dealing with the strategic behavior of firms, regulatory policy, and market competition. Industrial organization applies the economic theory regarding model of price to industries. Economists and other academics who study industrial organization seek to increase understanding of the methods by which industries operate, improve industries contributions to economic welfare, and improve government policies in relation to these industries.
II. The Market Power (MP) theories - assumes that airline profitability is a function of external market factors, such factors are mainly GDP, Money supply, safety and security, diseases, financial sector stability or inflation and others. The relationship between market structure

and firm profitability was generally found to be positive but not necessarily strong (Fikre, 2015). Risk-return hypothesis - suggests that increasing risks, by increasing leverage of the firm, leads to higher expected returns. As per this hypothesis there is a negative relationship between capital and profitability (Gounder, 2012) .which was applied in the early studies on performance of business organizations. The assumption of the risk-return tradeoff: the higher the risk, the higher the return. Given that the investor is willing to bear more risk, the return on the investment made will be higher (Krantz, 2013). According to the researcher, smaller companies do outperform larger ones, since the large cap portfolio had the lowest rate of return for the given time period.

III. Efficiency Structure (ES) theories - Economic theory clearly establishes the importance of measuring efficiency in the airline industry, because as the industry is highly competitive. As a result, those firms with lower level of efficiency are likely to feel the impact of economic dynamics more strictly. Besides Productivity and efficiency are the two most important concepts in measuring performance. However, these two different concepts have been mistakenly treated the same in most of the literature (Salleh, 2004). Profitability is influenced by efficiencies related to airline specific factors.so, the airlines performance is influenced by those internal factors that are related to internal efficiencies and managerial decisions. Such factors include management efficiency, capital structure, airline size, Growth, asset quality, business diversification, asset Utilization, liquidity and various cost structures. In this regard, Efficiency Structure theory assumes that firm profitability is influenced by internal efficiencies. It points that airlines earn high profits because they are more efficient than compotators. There are also two distinct approaches: The X-efficiency- as per this approach the more efficient firms are the more profitable because of their lower unit costs and the other is Scale–efficiency hypothesis- This approach emphasizes economies of scale. Unit cost of the larger firms can lower and it results with higher profits through economies of scale.

Moreover, both managers and stakeholders are concerned about the measures of profitability of a firm. There are various measures for profitability of a firm, the best known and most widely used

are return on asset and return on equity. In one form or another, they are intended to measure how efficiently the firm uses its assets and how efficiently the firm manages its operations.

I. **Return on asset (ROA)** - which reflects the ability of management to employ firm‟s assets in order to make profits and it is calculated by dividing net income to total asset. ROA is not the best indicator in order to compare the performance of companies in different industries, since the scale factors and capital requirements may differ, however this ratio is good to compare the profitability between companies inside the same sector Vieira (2010).

II. Return on Equity *(*ROE) –it is the most usual indicator to measure profitability of the company and It represents the performance of a firm in an accounting sense by reporting the ratio of net income to total shareholder‟s equity. However some companies have had very small values for equity, even sometimes negative values Vieira (2010).If a firm has a high return on equity, it implies that there are enough internal funds which could be allocated to good investment opportunities.

The financial ratio analysis has always been considered as a fundamental element in financial statement analysis and involves conducting a quantitative analysis of information disclosed in general purpose financial statements of companies under review via various accounting ratios that show relations among different items from the balance sheet and income statement data‟s are used to evaluate companies‟ performance for investing and financing purposes. This study aims to understand the factors which can affect the profitability of Ethiopian airlines. The next step is to find those factors which have significant impacts on the performance and profitability of Airlines.

2.4 . Determinants of profitability in the industry

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. Some determinants of airlines profitability are presented below.

I. Company size

The size of the firm measures the firm‟s ability to attain economics of scale and market power. 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, some studies have mentioned that, the size of a firm is significantly related to its rate of profitability (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. As the firm makes more profit, more funds are available to be invested although those investments are not profitable.

On the other hand (Pi and Timme, 1993) as companies grow; it could result in a withdrawing rate of profitability. This study belied that as the company expands more the agency theory or conflict can rise between agents and owners. In other word the greater company size is, the less control of management‟s behavior would be. This is a supporter of the argument, that managers job is secured as company size grows up. Therefore, it could result in a deviation from the main objective of a firm which is maximizing its shareholders‟ wealth.

II. Company Growth

In business growth is an imperative, not an option, but only few companies succeed in achieving sustained, profitable growth. The few companies that are able to achieve both profitability and growth at the same time span a range that includes all degrees of portfolio diversity, all levels of acquisitiveness, and all types of industry exposure, "balanced" or otherwise. The airlines industry has grown steadily at a rate of about 5% a year over the last 50years (Macintosh and Wallace, 2008). The transportation markets, particularly in the Asia-Pacific region, Africa and Latin America, are expected to continue to grow strongly (IATA 2015 Annual Report), as per the report other more saturated markets, particularly in North–America and Europe, are expected grow more modestly at rates of below 5% per year. On a global level, however, it is estimated that the aviation industry will grow 4.7% in passenger traffic and 4.8% compound annual growth rate for freight traffic (Airbus report, 2013).

Growth opportunities can be measured using the change in logarithm of total assets or the ratio of capital expenditures to assets and the percentage change in total sales (Spinthiropoulos, 2016). The change in revenues is used as a proxy for growth opportunities. If a firm is growing rapidly, the more is the need for funds to finance the expansion, and the more likely the firm is to retain earning and It is calculated by (Current Revenue - Previous Revenue) / Previous Revenue.

In the previous studies, the impact of company growth on profitability is investigated by various academicians. 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 could be summarized as there is no a uniform and globally accepted theory about the sign of the relationship between profitability and growth.

III. Capital structure or Leverage

Capital structure or financial structure is the specific mixture of long-term debt and equity the firm uses to finance its operations (Ross, 2002).Capital structure of companies is a widely studied subject, Since Modigliani and Miller‟s (M&M) article about the irrelevancy of capital structure in 1958, the capital structure problematic have evolved and become a popular subject of empirical testing. Several new theories have accrued, but none of them have been able to fully explain all capital structure decisions. In this regard there are various studies concentrating on the impact of leverage on performance and profitability. As per (Campello, 2006) suggestion the level of debt could be either helpful or hurtful to the firm‟s performance. On the helpful part, some studies were done. (Frank and Goyal, 2009) suggest, the level of leverage in a firm is positively related to its level of profitability. (Lewis, 1986) also argues that debt enables firms to increase their capacity and boost their performance.

On the other hand (Erickson & Trevino, 1994) provides empirical support for the pecking order among a sample of large U.S. firms. He finds debt ratios to be negatively related to profitability and positively related to growth in assets. Another study by (Goddard, 2005) shows, that there would be a negative relationship between the level of leverage and profitability in a firm. The researcher argues 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.

Moreover 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 to debt repayment, it is

more exposed to financial distress costs and consequently more variability in profits (May, 1995). To sum up, as leverage ratio increases, profitability would turn to be less stable.

IV. Liquidity

Liquidity is the amount of money that is quickly available for investment, spending and liquidity describes the degree to which an asset or security can be quickly sold in the market without affecting the assets price or value. Accounting liquidity measures the ease with which an individual or company can meet their financial obligations with the liquid assets available to them. The management of working capital is one of the most important aspects of Financial Administration. Net working capital is the amount by which a firm"s current assets exceed its current liabilities. Liquidity risk arises in the general funding of the Enterprise"s activities. It includes both the risk of being unable to fund liabilities at appropriate maturities and rates and the risk of being unable to liquidate an asset at a reasonable price and in an appropriate timeframe. This enhances funding flexibility and limits dependence on any one source of funds. If the company fails to keep a satisfactory level of working capital, it will probably become insolvent. The current assets of enterprises must be at a level that can cover the liabilities at reasonable margin of safety, especially current assets must convert into cash in order to do so (Viera, 2010), The researcher examined the relation between profitability and liquidity measured by current ratio and cash gap (cash conversion cycle) on a sample of joint stock companies in Saudi Arabia using correlation and regression analysis. They found a negative relationship between profitability and liquidity indicators, and it was found that CCC had a bigger impact over profitability then Current ratio. Also it was observed that there was great variation among industries with respect to the significant measure of liquidity. Two common ways to measure accounting liquidity are:

- The current ratio, this ratio measures the size of current assets in terms of the current liabilities and thus current values are also easily traced on the balance sheet on the annual reports of the firm. For the purpose of this study, to measure the liquidity level of the companies the current ratio (CR) was chosen.
- The quick ratio- another possible indicator of liquidity is the quick ratio (QR), which is obtained dividing the current assets minus the inventories over the current liabilities.

Profitability and solvency are a necessary condition for the existence of a healthy company and both of them are the subject to the strategy adopted in the medium and long term. Solvency and liquidity are two concepts that are closely related and reflect upon the actions of company‟s working capital policy (Vieira, 2010). A low liquidity level may lead to increasing financial costs and result in the incapacity to pay its obligations. It is common to find reference to the fact that it is desirable to keep the company liquidity ratio higher than 1. That would prove the firm‟s ability to repay short-term commitments, with the liquidation of short term assets. Any ration below 1, may mean that the business may not be generating cash enough to meet the short term obligations. However, if an analyst is observing a company's balance sheet face a liquidity ratio of less than 1, it isn‟t principle to consider unable to pay debts on time. Meaning it may be show the degree of independence of the company against creditors. In the U.S legacy carriers have been operating with negative or low working capital (Stepanyan, 2014). As per the study United Continental Airlines, Delta Air Lines and AMR Corporation, three biggest airlines in the world as of 2012, which have had negative working capital which implies higher riskiness in terms of liquidity matters.

The analysis of airlines‟‟ short-term liquidity risk has showed that during the given period of time they have been operating with negative or very low level of working capital, current ratio less or a bit higher than 1, quick ratio mainly less than 1 which may indicate that airlines under review are quite likely to face liquidity risk in the short run (Vieira, 2010. Furthermore, via profitability ratios we have seen that profitability in the airline industry has been poor throughout the six-year period and remains so in the face of improvements primarily due to losses incurred during the economic recession, slowing demand for air travel and increasing operating expenses (Amidu & Abor, 2006) found a positive relationship between liquidity and profitability explaining that firms earning stable cash flow (high liquidity) are in a position to pay higher dividends as compared to firms facing unstable earning. (Henok, 2015) every firm is required to maintain a balance between profitability and liquidity while conducting its day to day operations. As inadequate amount of working capital impairs a firm's liquidity, holding of excess working capital results in the reduction of the profitability.

According to the research conducted by (Chandra, 2001), normally a high liquidity is seen as a sign of financial strength. This is supported by (Goddard et al, 2005) firms with higher level of liquidity could be more profitable, 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. (Deloof, 2003) argues that companies with greater levels of liquidity are more flexible in terms of providing short-term financing which could lead to a higher profitability. On the other hand, firms with higher level of liquidity could result in decreasing profitability. (Veira, 2010), believe that a high liquidity can be as undesirable as a low one. He adds that current assets are usually less profitable than fixed ones. Money invested in assets generates less revenue than fixed assets, thus representing an opportunity cost. Buckle and Adams (2003), the study show 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. This is supported by Raheman and Nasr (2007) studied the relationship between capital and earnings management for 94 companies listed on the Stock Exchange in Karachi, Pakistan. Their finding indicates a significantly negative relationship between liquidity and profitability of analyzed companies.

V. Tangibility of asset

A tangible asset is an asset that has a physical form or any asset that can be seen and touched are called Tangible asset also called real assets. It includes building, Airplane‟s; machineries‟ etc.
As per EAL financial statement Tangible assets are

- Property, plant and equipment Property -are stated at cost or valuation less accumulated depreciation. Depreciation is recognized so as to write off the cost or valuation of assets less their residual values over their useful lives, using the straight-line method. The estimated useful residual values and depreciation method are reviewed at the end of each reporting period. The useful lives of flight equipment are estimated at between 7 and 18 years, dependent on type of aircraft. Other property is depreciated over between 4 and 20

years. Assets costing less than or between Birr 6,500 and Birr 31,500, each, depending on purpose, is expensed at the time of acquisition.

- Major overhaul- it includes Own aircraft, Leased aircraft, including engines and provision for maintenance is made to match aircraft maintenance costs with the generated revenues.
- Capital work orders in progress Capital work orders in progress are included under property, plant and equipment and comprise costs incurred on ongoing capital works. These costs include material, transport, interest and labor.

For the purpose of this study tangibility of asset is measured by the ratio of fixed asset to total asset. The airlines industry is highly tied by computation and in the competitive markets, airlines need to be innovative to survive and perform healthy. 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). This argument is supported by (Alhary 2014); Tangibility of assets is negatively affecting the profitability of the airline industry. Firms with a higher level of tangible assets are potentially inclined to employ more debt financing rather than equity financing since more costs are tied to equity financing (Biger et al., 2008). In addition, according to the literature (Mjos, 2007, Frank and Goyal, 2009) the asset structure has significant impact on leverage ratio. Therefore, as asset structure affects leverage ratio of a firm, it could also affect profitability of a firm. Considering pecking order theory, there would be a negative relationship between leverage and profitability. So, as tangibility of assets increases, there would be a higher potential for debt financing which could adversely affect the profitability of a firm.

VI. Leasing cost

Lease is a contract that allows the lessor to retain ownership of an asset and that the lessee to enjoy the services of the asset over a stipulated time period (zuo, 2010). In a lease the lessor takes the risks and returns from the ownership of the asset while the lessee takes the risks and returns from the use of the asset. Financial Accounting Standards Board distinguishes between two type of leases based on the lease terms:

- Operational lease: The entire lease payments are reported as operating expense, but are not reported as asset or the lease payments as liability in the balance sheet.

- Capital lease: Listed as acquired asset and the future lease payments as liability on the balance sheet. The interest payments are deducted as an interest expense.

The different accounting type of lease will affect the firm‟s balance sheet as well as the debt-equity ratio. EAL is exposed to changes in interest rates mainly on the aircrafts acquired through finance lease (EAL annual report2015). The current ratio of finance lease as compared to the total fleet of the airline is about 53%. Due to the prevailing low rates at the time of aircraft deliveries in the last four years, the enterprise opted to use fixed interest rate for the major portion of the loan. The risk exposure is minimal and only for junior loans. Ethiopian Airlines was also able to use the capital markets for its recent loans associated with the acquisition of the 787s and 777Fs which provided lower interest rates as compared to the other interest rate offers in the market. Currently the enterprise is reviewing its hedging policies for jet fuel price, currency exchange rates and interest rate risks, in consideration of the various strategies. A dedicated section is established under Treasury and the risk mitigation exercise will be done in a more structured manner.

Lease is computed by dividing leasing costs by sales (Bratlie&Jøtne, 2012), they add in a perfect market the cost of leasing and purchasing the asset is equivalent to the cost of borrowing to purchase the asset. To compare the decision to lease versus borrowing, you must determine the amount of loan that leads to same level of fixed obligations that the firm would have with the lease. This is called the lease-equivalent loan. The lease-equivalent loan is the loan that is required on the purchased asset that leaves the purchaser with the same obligations, 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. Rent most expensive necessity in running an airline (Kuribel, 2015). Rent can be especially dangerous because it is contracted, a rented plane sitting on the ground due to low demand for its use still must be paid for unlike a canceled landing slot or laid off labor.

VII. **Load Factor**

Load is the percentage of seats filled on an airplane in operation and it‟s the ratio of Revenue passenger Mails (RPM) over available seat Mails (ASM). This is a critical factor in determining revenue & net profits. Filling all the aircraft seats before departure would certainly improve the airlines financial performance in general and profitability in particular (Fikre 2015) 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, Load Factor, time utilization on the air, and employees‟ productivity or 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.

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. Load factor is another important factor that affects airlines profitability (Kuribel, 2015), it is important to increase load factor for an airline to increase its revenue because the higher that the seats are filled with passenger, the higher that revenue will be. But a number of factors affect load factor. For example, fares must be kept low on short trips as an airline must take in to account a travelers opportunity cost of going on the ground, and they must be kept high to pay for fixed costs. As the market is competitive, keeping prices low but having high costs keep firms in the industry looking for an amount in fares to cover costs and turn some profit, thus, the later of our yield barring situation should produce the most profits.

Besides as the cost of operating a flight from one point to another going to be almost the same despite the load factor, an airlines objective is to concentrate on maximizing the ratio of filled seats to empty ones. Unlike selling a manufactured product or a utility, a seat on an airline cannot be

stored for later sale when the demand increases. When the gates to a flight are closed, so is the opportunity to sell empty seats, lost forever, along with the cost incurred in offering those seats, for which there will be, no revenue. Thus, having a higher percentage of seats filled will mean higher revenue, offsetting costs and increasing profits, load should have a relatively high value positive coefficient. (Thoren, 2002) and (Kuribel, 2015) showed the importance of load factor to the profitability of airlines.

VIII. Fuel cost

It is one of the largest single costs in the airlines industry, since fuel is usually an airline‟s second-highest cost after labor, any reduction in fuel costs or consumption directly leads to higher profits. As Fuel is one of the major determinants of airlines profitability, since the cost of fuel is largely dependent on the price of oil. Airline can optimize fuel expenditure by adopting different mechanism‟s, like acquiring fuel efficiency aircrafts, Reducing the payload (fuel also weighs, so you only refuel the amount of fuel that is needed for the trip and for the alternate Departure airport), optimizing the flight routes, Regular aircraft maintenance and Fuel tankering (lower the fuel cost by buying extra fuel in other countries where the fuel is cheaper), buying forward contracts, putting more efficient engines on existing aircrafts, reducing short haul flights and increasing load factors. From an operating perspective, the only factor likely to impact fuel costs is the scale of purchase, and even scale will only have a marginal impact. The ability to hedge fuel costs is very important but is independent of the network and operating structure and is unlikely to favor any one airline over the other consistently. To earn money, an airline company needs to have their aircrafts up in the air as much as possible. The problem is that fuel is very expensive and it keeps getting more expensive every day (Lindgren & Brynhagen, 2012). You may think that if the fuel is cheaper at the arrival country you can just refuel as much as possible, but it is difficult and risky.

On December 2012 U.S airlines with its annual revenue, more than $20 million paid to Fuel expenses and it‟s on average $ 3.13 per gallon of fuel for domestic scheduled and non-scheduled services, which is 33 percent more than the average fuel price airlines paid in Dec, 2000 (Stepanyan, 2014). As per the researcher U.S airline business has been to a significant extent battered by high historical jet fuel prices which still remain a major obstacle for airlines to generate

higher profit. Moreover fuel prices depend on political situations, availability, demand, contracts, hedging, decisions made by fuel vending bodies (OPEC) and an unlimited number of other factors. Eyob (2014) showed that operating profits declined in 2011 and 2012 due to an increase of flying costs particularly fuel expense. The price of Fuel depend on political situations, availability, demand, contracts, hedging, decisions made by fuel vending bodies (OPEC) and an unlimited number of other factors. Eyob (2014) showed that EAL operating profits declined in 2011 and 2012 due to an increase of flying costs particularly fuel expense.

IX. Labor

One of the key problems with labor and labor costs is simply the power that airline employees can hold over their firms. Opposed to the level in most industries, the level of skill and responsibility involved in any task that is part of airline operations is of the highest. Dealing with wages and contact must reflect this and the fact that airline operations occur 24/7 in a year. Knowing this, almost all airline employees in industrialized nations are part of unions and the unions are based upon the individual task groups, such that mechanics, pilot and others have separate unions. A problem in one group however involves a problem for all as if one group strikes, this shuts down operations, taking away the necessity for operations of the other groups (Thoren, 2002). As per this researcher, Airlines cannot keep their products in inventory to hold over and limp through the strike. When service stops there is nothing to be sold, as well as knowing this, labor unions know peak seasons for airline service, increasing bargaining power to critical levels.

Labor costs account for over a third of total expenses for any airline worldwide, Similar to fuel expense, U.S airlines have experienced a continuous increase in labor costs which has become the second largest operating expense over the past decade due to the labor-intensive airline industry and the expansion of airline operations worldwide, (Stepanyan 2014). The study indicates that the major US airlines are greatly unionized and it is a significant pressure placed by labor unions on management of airlines in regard to salary levels. The result for labor should prove to be interesting, as when more is paid per worker, profit will surly drop. (Eller and Moreira, 2013) and (Shah, 2009) showed labor cost as the most important cost of airlines that affect airlines profitability. However, economic theory states that wages and prices rise and fall together. This would mean it may be more expensive to fly with a Hong Kong or Japan based airline where

prices and wages are high and high prices mean more revenue and profits for the airlines. However, this is only limited as wages are one of many costs to the airlines.

Pilarski (2007) points out that labour union are relatively powerful in the case of the airline industry, the researcher adds, its capital intensive aircrafts are useless unless flown and argues that in contrast with many other industries, a strike could easily bankrupt any airline. The literature goes on to argue that strikes have a critical effect on an airline‟s image and could damage airline‟s brand shortly. Harvey & Turnbull (2006) assessed the effect of different employment systems and human resource management policies in airlines belonging to the same parent company. The authors‟ findings propose that the airlines‟ performances improved through job satisfaction and good union management relationships‟. Eller and Moreira (2013) and (Shah, 2009) showed labor cost as the most important cost of airlines that affect airlines profitability.

2.5 Empirical Review

The factors affecting airlines profitability has been empirically examined by many authors, especially in the western 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 competition in each route. In this section, several empirical studies have been the discussed from previous studies.

Thoren (2002) examined profits and their determinants that keep USA carriers in service. The researcher assessed the impact of revenue components, US GDP, airlines RPK and load factor as well as Fuel, labor, Maintenance, landing and other cost components on profitability of the airline. And it finds that load factor is a major determinant of airlines profitability. A 1% change in the average load on operating flight can make a difference of tens or even hundreds of millions of

dollars in profit. It also finds that unit costs are the determinants of the cost function and profit. Fuel was particularly important as it is the airlines second largest cost. Finally, like any firm in the marketplace, the study shows that airlines benefit from an expanding economy.

Kitaeva (2003) studied the Relation between Productivity Measures and Financial Information in the Airlines industry. The principal purpose of this thesis is to examine the existence of the relation between technical efficiency and financial information based on published annual reports for the period 1991 through 1999 by using as a sample 35 airlines from 25 countries. The result obtained suggest that decomposing of productivity change into technical change and efficiency change does provide supplementary information and the negative relationship between change in operating expenditures and technological change is established. The thesis does not reveal any reflection of productivity changes in to information on earnings or cash flow. Thus, the priority of cash flow information in comparison with earnings, as well as the reverse, has no support from the relationship with productivity measurement.

Chopra &lisiak (2003) studied Comparison of Low Cost and Legacy Carriers, to identify the significant drivers of difference in performance based on statistical analysis under the number of employees per ASK, salary expense per employee, and fuel costs are primary drivers of cost and Revenue per RPK, load factor, and length of flight stage are primary drivers of revenue. Findings show that, the difference in financial performance between low-cost carriers and legacy carriers has been severe, especially between 2001 and 2004. During this period, low-cost carriers earned less operating income than legacy carriers per ASK. Moreover analysis indicates that an airline can either choose to be a cost-driven or revenue-driven airline, but it is hard to be both and Point-to-point network structures are better suited for cost-driven airlines, whereas hub-and-spoke networks are better suited for revenue-driven airlines.

Shah (2009) studied the factors influencing the profitability of European budget airlines through a detailed analysis of the airlines performance from 2000 to 2008. This study will calculate profit as the difference between operating revenue and operating costs and also used profit rate as a key measure of profitability. It begins by defining budget airlines, examining their origins in Europe and then undertakes a detailed analysis. The researcher, studied the impact of variables unit staff cost, unit fuel cost, other miscellaneous cost, the quality of management and business strategy and

load factor on profitability of Ryan air, Easy Jet and Sky Europe best-known low cost carrier. The study concludes by identifying the factors that influence sample airlines profitability and this essay will reach conclusions on different profitability determinants in the European budget airlines industry. The researcher recommend giving employees stock options, discouraging unions, outsourcing and relocating jobs lower labor costs countries, fuel hedging, adopting more fuel-efficient aircrafts, improving management, a clear cut business strategy, a high load factor, the ability to generate ancillary revenue, size, scale and first mover advantage.

Vieira (2010) studied the relationship between liquidity and profitability, an exploratory study on airlines industry .the researcher analyzed the relationship between liquidity and profitability in a group of companies comprising the major carriers in the world between 2005 and 2008.Using the financial data published by the companies, the relationship was studied with the help of statistical procedures and also a two-dimensional analysis. The study was an exploratory nature and its conclusions are restricted to the group of companies and to the periods examined. Surprisingly it was observed a significant positive correlation between liquidity and profitability on the short run and during the year of 2008 companies with a high liquidity indicator had a much better performance than the less liquid companies.

Lee (2010) conducted a study on Determinants of Systematic Risk Exposures of Airline Industry in East Asia region, this study aims to investigate the determinants of systematic risk for East Asia airline industry by using a panel regression of seven long established listed airline companies namely Japan, Korea, Hong Kong, Taiwan, Singapore, Malaysia, and Thailand from 1996-2009. Findings show that only size and operating efficiency are positive and significant related to systematic risk, while airline safety is negative and significant with the systematic risk. More over the research documented that East Asia airline‟s systematic risk are significantly higher during the 2000 Dot-Com crisis, but not significantly affected by the 1997 Asian financial crisis or the 2008 subprime crisis.

Demydyuk (2011) studied optimal financial key performance indicators on the Airlines industry by Selecting relevant Key Performance indicators involves an assessment of both cost- and revenue-driven measures. The researchers distinguish between cost and revenue driving metrics and

compare the effectiveness of two existing models to airline performance measurement per seat and per passenger kilometer. This research, used seats sold with passengers carried, primarily because any existing difference between the two is insignificant and in any case, it is not possible to access the data from most company reports. Specifically it examines the effectiveness of models that characterize performance based on two performance indicators, in particular seats and passenger-kilometers. Findings show that, Operating Profit per Passenger-Kilometer is the most significant variable when it comes to explaining the variation in airline profitability and performance model based on kilometers fits the industry slightly better than the one based on passengers seats. The main results indicate that Operating Profit per Passenger or per Passenger-Kilometer is the most significant variable predicating airline profitability. It was found to be more important than revenue, unit cost and load factor traditionally used by the industry. There was no significant correlation between size, business model or region, which would explain low or high profitability of an airline.

Xlus (2011) conducted a research on Strategic analysis and evaluation of Norwegian Air Shuttle ASA, aimed at providing a number of strategic options which might help the company secure its position as a leading European low-cost carrier in the future. The paper is highly realistic in nature and based on an inductive case study research approach. The thesis consist Company overview, Strategic analysis and Scenario planning. As a result, the main findings in the paper are highly scenario specific. In relation to the first scenario, Enemy at the gates, NAS should pursue the following key strategic options; increase its brand focus, enter a strategic alliance, and adapt its planned long-haul operations. In regards to the second scenario, Survival of the fittest, NAS should develop a pure LCC business model, exploit the high price sensitivity and improve its liquidity. Finally NAS could optimize its current LCC business model, or pursue a hybrid business model with several ticket classes and should follow long-haul low-cost operations, improve its travel convenience, and adapt its route network accordingly.

Hishitongo (2013) studied Cash flow and operational loss in Air Namibia, the researcher aims to investigate the root causes of operational loss and cash flow problem faced by the air Namibia. The annual reports were analyzed by using Microsoft Excel used and comparative study approach is applied between Air Namibia with Kenya Airways, British Airways, Fly Emirates and US

Airways. The study revealed that the Air Namibia had been incurring losses for all financial years starting from 01 April 2006 to 31 March 2011.Air Namibia Ltd is more of social oriented, fly routes depending on the social needs irrespective whether it is profitable or no and politically influenced, because of this and Air Namibia need funds to finance its operations and to be able to remain afloat. If it was not the government bailout, the national airline would have been closed and liquidated and the airline experienced going concern problem, because its liabilities exceeded the assets.

Mwangi (2013) studied the effect of macroeconomic variables on financial performance of aviation industry in Kenya. The purpose of this study was to determine the effects of macroeconomic variables on financial performance of aviation industry in Kenya. The financial performance measures of companies in aviation industry used was the Return on Assets (ROA) which was regressed against the independent variables including real exchange rate, GDP, the change in money supply, average annual lending interest rates and inflation rate. The results revealed that return on assets (ROA) had weak positive insignificant correlation with gross domestic products growth rate and annual change in money supply. The study also found that ROA had weak negative insignificant correlation with exchange rate, annual lending rate and annual average inflation.

Eller and Moreira (2013) studied the main cost factors in airlines management. They analyzed the main factors that affect the strategies to reduce airlines costs. These costs factors were presented to experts from the airline industry through two rounds of questionnaires in sense to be weighed and questionnaires answered by experts from the industry. It was applied a method based on the structure of the Analytic Hierarchy Process and the results show that the main important factors for a cost-related airlines strategy are route structure and type &characteristics of the aircraft, cost of labor and management quality. This hierarchy can help the decision maker when facing the need of defining priorities in reduction costs.

Eyob (2014) studied profitability analysis of Ethiopian Airlines, The main objective was to study the financial statements of the commissioning company and analyze its financial performance from 2009 to 2012 financial years. The researcher analyzes income statement of the case company and, through benchmarking against its direct competitors and using financial statement analysis ratios. In the stated period, the case company expanded its service to international destinations through

latest airplanes, alliance and code share agreements signed with different airlines. The data analysis revealed that an increase of flying cost is the major cause for declining profit of the case company. In addition, slight cuttings of marketing & sales expense and weak results from non-operating activities have contributed to the poor profit reports. More over The analysis showed that Sales revenue of Ethiopian airlines increased in consistent during the four years. It has increased in 10% and over in comparison to preceding years mainly because of the company,,s strategy increase in its destination, due to its buying of latest aircrafts, increase in demand of air transport due to economic recovery and the like. Total operating expenses increased very high reaching to 97% of the total revenue. Operating profits declined in 2011 and 2012 financial years in comparison to previous year,,s results mainly due to an increase of flying costs. Particularly, jet fuel expense with a great magnitude affected the operating results produced by the company. Besides, this has declined in 2012 when the company incurred an interest expense higher than interest income produced. The benchmarking and ratio analysis conducted indicate that the overall performance of Ethiopian airlines profitability in the four years financial period were better than its direct competitors.

Alahyari (2014) studied determinants of profitability for the Turkish airlines industry. The data was collected from DataStream software for a sample of 13 major airline companies for the period of 1994 to 2013 and panel data analysis was used by focusing on the financial ratios which measure profitability, tangibility of assets, firm size, leverage ratio, growth opportunities and liquidity as an independent variable. The results showed that among all explanatory variables which were regressed on the profitability of the firms in the sample, only tangibility of assets, growth opportunities and liquidity ratios have significant impacts on the profitability of the firms. Tangibility of assets is negatively affecting the profitability of the firms in the airline industry, while growth opportunities are also inversely affect the profitability of airline companies in the sample. In addition, liquidity ratio is another factor which represents a negative and statistically significant relationship with the profitability of the firms. Moreover, the empirical analysis showed that growth opportunities are also inversely affect the profitability of airline companies in the sample.

Stepanyan(2014) studied Traditional Ratio Analysis in the Airline Business: A Case Study of Leading U.S Carriers, conducting a ratio analysis aims to reveal the airline industry-specific

behavior of the selected liquidity, profitability and solvency ratios computed for eight U.S largest airlines over the period 2007-2012. The paper presents a quantitative analysis of information reported in financial statements of selected U.S leading airlines. The finding showed that profitability in the airline industry has been poor throughout the studied period and remains so in the face of improvements primarily due to losses incurred during the economic recession, slowing demand for air travel and increasing operating expenses mainly driven by rising fuel expenses and labor costs whereas the analysis of long-term solvency risk has indicated high financial leverage in the U.S airline industry which puts the leading carriers at higher risk.

Fikre (2015) studied the determinants of SSA airlines profitability. This study examines the airline-specific, industry-specific and macro-economic factors affecting the profitability of Ethiopian, Kenyan and South Africa airlines covering the period of 2003-2013. The researcher uses both quantitative and qualitative information. Findings shows 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 are statistically insignificant. The study suggests that focusing and reengineering the airline‟s operations alongside the key internal drivers could enhance the profitability.

Kirubel (2015) conducted a study on determinants of Ethiopian Airlines profitability based on income statement data from year 1987 -2014 by using explanatory research design and error correction model to show the impact of the independent variables, load, yield, available seat kilometer (ASK), labor cost, fuel cost, maintenance cost, lease on the dependent variable profitability. The result revealed that load and yield have large impact on Ethiopian airlines profitability, ASK and lease have an impact on Ethiopian airlines negatively. On the other hand labor cost is statically insignificant in the determination of Ethiopian airlines profitability.

Spinthiropoulos (2016) conducted a study on Determinants of profitability in aviation industry of Europe and America by considering the firms size, efficiency and in general their economic growth through multivariate regression on balanced panel data. Determinants of profitability are investigated through econometric regression based on 50 airlines data from 2005 -2011. Principal

Component Analysis is used in order to eliminate the number of variables and exclude the observations of possibly correlated. The finding shows that six explanatory variables are statistically significant at 1% level of significance, while variable of firm size is statistically significant at 5% level of significance. The results indicate that the main differences of more profitable aviation firms are the size, cash flows to liabilities return on invested capital, net margin, location, quick ratio and short term investments suggesting that larger aviation firms from America are more profitable than smaller firms from Europe. Location of the firms have significant role in profitability as American firms seem to be more profitable than European. In addition, larger enterprises appear to gain more profits than smaller indicating that increased total assets lead on an increase of profitability. Also, investments in short term present negative sign suggesting negative impact in profits of aviation firms, while Property, Plant & Equipment seem to have no impact to profitability.

2.6 Summary and literature gap

Although lot of scholars provided much descriptive and empirical evidence on determinants of airlines profitability and some of the variables have strong effect on airlines profitability in some of the studies, other studies found weak relationship and also the sign of the relationship is mixed, it appears that there are still some gaps in the literature which need to be addressed.

First, there is no agreement on the sign of relationship between the above mentioned variables and their impacts on profitability. If we take growth opportunity, same literatures suggested that growth is positively related to Airlines profitability and this argument is supported by Alahyari (2014). On the other hand, Eyob (2012) the growth of EAL and its net profitability was negatively related, besides the relationship for airline size and sales growth statistically insignificant Fikre (2015), this study further reviewed empirical studies: for instance Thoren (2002) studied the impact of GDP, load factor, yield, and different costs of airlines on profitability of US carriers. Kitaeva (2003) studied the Relation between Productivity Measures and Financial Information in 35 US & Europe

Airlines. Chopra &lisiak (2007) studied the impact of Fuel, labor, load factor on low cast carriers financial performance. Shah (2009) studied the factors influencing the profitability of European budget airlines from 2000 to 2008. Vieira (2010) studied the relationship between liquidity and profitability, an exploratory study on airlines industry. Demydyuk (2011) studied optimal financial key performance indicators on both cost and revenue driven measures. Mwangi (2013) studied the impact of various macroeconomic variables like GDP on profitability of Kenyan airlines. Eller and Moreira (2013) pointed out type and characteristics of aircraft, labor cost, and management quality has an impact on profitability. Spinthiropoulos (2016) conducted a study on Determinants of profitability in aviation industry of Europe and America by considering the firms size, efficiency and in general their economic growth.

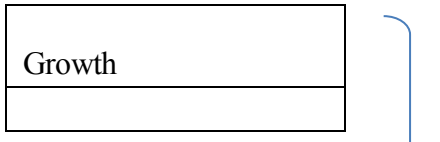
Second, the review of literature clearly found a research gap in Ethiopia, as most of the studies done in the area had focused on the impact of various variables affecting the airline industry profitability worldwide. In this study, six independent variables are explored in the model to show its effects on EAL profitability. Namely, Growth, liquidity, leverage, rent or lease cost of aircrafts, tangibility of asset and fuel cost are independent variables. Growth opportunity, Fuel and lease costs are extracted from the income statement data while liquidity, Capital structure and tangibility of asset are from the balance sheet of EAL.

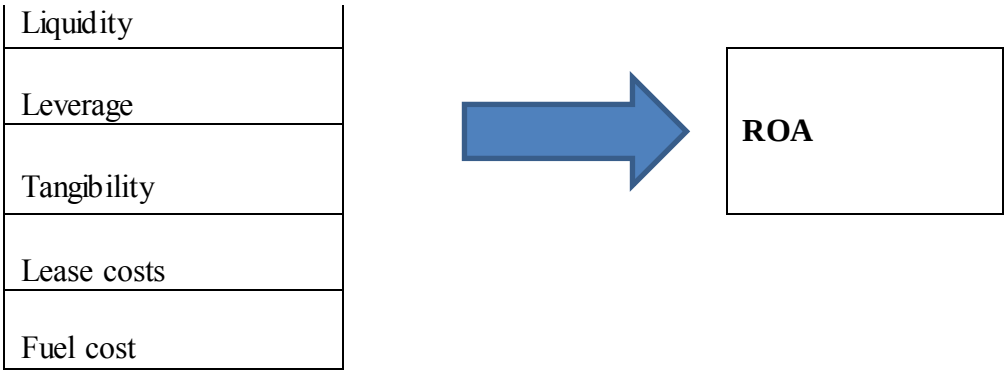
Finally, to the knowledge of the researcher the empirical studies on the area of EAL profitability and its determinants were not well done. This study therefore, seeks to contribute to this research gap and identify which independent variables of the study significantly affect EAL profitability in the past thirty five years.

2.7. Conceptual Framework

As a result of the literature and empirical reviewed above; the study has developed the following schematic representation of the conceptual framework.

Figure2.1. Conceptual frame work of dependent and independent variables.





Source: own construction (by taking the theoretical and empirical review)

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

As discussed in the previous chapters, the main aim of this study is to investigate determinants of EAL profitability. So, this chapter describes the sources of data, the research design, variables definitions and empirical model proposed in the study. Afterwards, the analysis is done by EVIEW8 software.

3.2 Research Methods Adopted

As noted by McKerchar (2008), the choice among the three research approaches (Quantitative, qualitative & mixed) is guided by mainly the research problem apart from the underlying philosophy of each research methods. In this study Quantitative methods approach would applied to meet the overall objective of the study and to answer research hypothesis under it. Quantitative research employs a review of the existing literature to deductively develop theories and hypotheses

to be tested Fikre (2015). Quantitative approach, the research problem is translated to specific variables and hypotheses. Moreover in quantitative analysis of this study, First: The researcher used correlation to measure the degree of association between different variables under consideration. Secondly, Regression analysis has been conducted to estimate the causal relationships between the chosen dependent and independent variables.

The natures of data used in this study enable to use time series. Therefore, the researcher uses time series econometrics on the variables to examine the effect of sales growth, liquidity, Leverage, Tangibility of asset, lease and fuel cost on the dependent variable profit. The paper presents a quantitative analysis of information reported in financial statements of Ethiopian airlines using multiple regression model, to not only understand the impact of specific variables and trends in the course of time, but also assess the level of significance. Moreover, regression analysis is mathematical method to do this. A regression analysis that includes more than two explanatory variables is called Multiple Regression Analysis (Wooldridge, 2010). Finally, multiple regression models may accommodate many explanatory variables that may be correlated. Naturally, if we add more factors to our model for explaining dependent variable, then more of the variation in dependent variable can be explained. Thus, multiple regression analysis can be used to build better models for predicting the dependent variable.

3.3. Source of Data and sample size

Data collection is one of the critical parts in conducting research. In this step or process the researchers tried to accumulate data‟s for the next step. The data used for this study was secondary data which is obtained from various sources, mainly EAL websites, magazines, newspaper, aircraft manufacturer, various reports and Publications of International Air Transport Association (IATA). In order to test the hypothesis & analyze the regression result, only audited annual report (balance sheet and income statement data‟s) of EAL from 1981 to 2015 was used. Regarding the trust worthiness of the sources the researcher have no reasons to doubt the validity, since the entire material are from the official reports of EAL which were all audited by external auditing firms and all data, that are used on the hypothesis testing are collected directly from EAL annual reports. But there is also the possibility of transference errors, such as typing the wrong number in to excel. To avoid this kind of mistake the data had been double checked, however there may be always the possibility that something has gone unnoticed. So the

researcher takes full responsibility for any mistake of this kind.

3.4. Model Variables

A main variable of this study is EAL profitability and its determinants. As presented in the literature part numerous factors affect profitability. For the purpose of this study growth of sales, liquidity, leverage, tangibility of asset, leasing and fuel cost are included as explanatory variables and others are collectively contained in error term. Thus six independent variables were selected by their ambiguity relation with airlines profitability in the literature part of this study, besides the data used for the independent variables can be verifiable.

The following table shows the independent variables and their corresponding measurement used for the data in the analysis.

Table 3.1 Measurement of model variables

Variable	**Measurement**
Company Growth	Change in the level of sales
Liquidity	Ratio between Current Assets and Current Liabilities
Leverage	Ratio between Total Debt and Total Assets
Lease cost	Logarithm of the total cost of lease
Tangibility of asset	the ratio of fixed asset to total asset
Fuel cost	Logarithm of the total cost of fuel

Source, own creation based on the literature

3.5. Model specification

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

Profitability = f (Growth, Liquidity, Leverage, Tangibility, lease, fuel)

It means profitability is a function of its growth, liquidity, leverage, tangibility, Lease and fuel Cost. In addition to analyze the relationship between variables econometrically, Ordinary Least Squares estimation method was employed, as per the empirical and theoretical frameworks.in order to plug in EVIEWS for regression analysis, the model is presented as follows:

$$ROA = \alpha + \beta_1 growth + \beta_2 Liquidity + \beta_3 leverage + \beta_4 Tangibility + \beta_5 Lease + \beta_6 Fuel + \varepsilon_t$$

Where,

- ROA is the dependent variable used for the study. Here the profit means the bottom line of the company after interest and other payments are deducted, i.e. it is what the company announces at the end of each fiscal year 30JUN, XX.
- $\beta 1$ to $\beta 6$ are coefficients
- Growth is change in the level of sales volume.
- Liquidity is the ratio of current asset and liability
- Leverage is the ratio between Total Debt and Total Assets
- Tangibility of asset the ratio of fixed asset to total asset
- Lease is the total cost of renting or leasing airplanes
- Fuel is the total cost of fuel
- ε is representing the random error term of the multiple regression model. It also represents all the relevant variables, which are not explained by the included independent variables (Wooldridge, 2010). This may include variables like GDP, Maintenance cost, Load factor and others, which is likely to influence the dependent variable. This is because some of these error variables can be influential as well as correlated to the variables under study. Besides, residual represents the difference between the predicted value in the model and the actual value for each observation of the time series. β represent the estimated parameters or represent the slope co-efficient to the dependent variable.

3.6 Analysis Technique

Econometrically speaking, data for analysis 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 gather for different unites at one specific point in time. The

combination of these two would result in a third form recognized as panel data. This study use time-series method of analysis. 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. To test the proposed hypotheses, statistical analyses carried out using the following methods and the ***E - views software*** have been used to analyze financial data. First, descriptive statistics (mean, standard deviation, maximum and minimum) will be calculated from 1981-2015 time periods. It helps in picturing the existing situation and allows relevant information. At this stage, mean, standard deviation, maximum and minimum values of the required variables have been computed and discussed. Correlation analyses between dependent and independent variables are also presented. Finally, the study used regression analysis where multi-factor regressions is applied to verify that factors presumed to be affecting profitability of EAL have statistically significant relationship. In doing so, time series observations are combined to estimate the regression output.

3.7. Diagnostic test

A common way of conducting econometric analysis is by using the OLS method. The method estimates model coefficients that minimize the squared sum of residuals or the error term. The OLS estimates to be, best linear unbiased estimator (BLUE) the Gauss Markov assumptions (1-5) has to be valid, Wubitu (2012). Several critical assumptions have to be matched however, before accepting the results of an OLS analysis as unbiased. In particular, the time series must be linear in its parameters, the independent variables must not be highly correlated and the residuals of a regression have to be homoscedastic, normal distributed and not auto correlated. If one or more of these is or are violated the results of the OLS will be biased, Wooldridge (2010). The researcher tests, if these assumptions are violated or not and the method used to test these assumptions described as follows:

1. **The average value of the error is zero**- This assumption is not violated if the regression line did not force to pass through the origin. This assumption is violated if the model does not have constant term since the line will be forced to pass through the origin.

2. **The Assumption of Homoscedasticity**- The variance of the errors should be constant; this assumption is called homoscedasticity assumption. If the errors do not have a constant variance, they are said to be heteroscedastic Brooks (2008). It is possible to use the visual inspection through graphical method such as plotting the residuals versus fitted value or numeric computational methods such as Breusch-Pagan, white test for detecting heteroscedasticity. This study carries out white test for heteroskedasticity at five percent level of significancy.
3. **The Assumption of Autocorrelation**- Covariance between the error terms over time is zero. It is assumed that the errors are uncorrelated with one another Brooks (2008). If the errors are not uncorrelated with one another, it would be stated that they are auto correlated or that they are serially correlated.
4. **The Independent Variables are Non Stochastic**- OLS estimator is consistent and unbiased in the presence of stochastic repressors, provided that the repressors are not correlated with the error term of the estimation equation Brooks (2008). However, if one or more of the explanatory variables is contemporaneously correlated with the disturbance term, the OLS estimator will not even be consistent (Wubitu, 2012). The repressors are not correlated with error term of the estimation equation is the assumption that is violated if the constant term does not exist.
5. **The Assumption of Disturbances are Normally Distributed** - In order to undertake OLS regression, the residuals must be identically (when the residuals have the same distribution) and independently (the value of the error associated with one observation provides no information about the value of the error of any other observation) distributed Tadess (2016). The study uses BeraJarque(BJ) normality test and p-value is used to identify whether normality exists or not. But normality may be tasted, either numerically with the help of Skewnes or graphically with the help of histogram and dot plot tests. The decision rule behind for normality states that if the p-value of the error term is greater than at the chosen level of significances Tadess (2016), i.e., 1%, or 5 %, or 10 % indicates that, the error terms are normally distributed. For the purpose of this study Jarque-Bera‟s test is used at five percent level of significances.

CHAPTER FOUR

4. DATA PRESENTATION, ANALYSIS AND DISCUSSTIONS

4.1. Introduction

The previous chapter discussed the research methodology employed to achieve the overall objectives of the study and to test the research hypothesis. In this chapter, the study analyzes the collected data using statistical tool, present the result and discussions accordingly. The main objective of this paper was to investigate the determinants of EAL profitability, over the period between 1981 – 1915. The data was obtained from Ethiopian airlines portal, published annual reports, magazines and different publications from IATA.

4.2 Descriptive analysis

Descriptive analysis is the first step in this part of the study. The descriptive statistics gives a broader picture that the residuals from the regression using these variables were expected to follow

a normal distribution for efficient and unbiased estimators. It includes mean, median, maximum, minimum, standard deviation and others. The outcome of descriptive statics and its overall description about data used in the model was presented. The table below shows the descriptive statistics of the variables used in the model and its interpretations are presented as follows.

Table 4.1 Descriptive Statistics of dependent and independent variables

Variables	ROA	Fuel	Growth	Lease	Leverage	Liquidity	Tangibility
Mean	0.03	8.841	0.187	6.358	0.679	1.23	0.604
Median	0.024	8.676	0.155	7.945	0.68	1.247	0.626
Maximum	0.12	10.288	0.97	9.539	0.905	1.694	0.822
Minimum	-0.016	7.95	-0.102	0	0.441	0.803	0.307
Std. Dev.	0.027	0.772	0.186	3.612	0.103	0.241	0.097
Observations	35	35	35	35	35	35	35

Source: *Descriptive statistics results from Eview 8*

According to Table 4.1, all variables comprised 35 observations and the profitability measure used in this study, ROA indicates that EAL on average achieve a positive net profit over the last thirty five years. The summary descriptive statistics of the variables used is presented above, shows us over the study period, the average ROA was 3% with a minimum of -1.6 % and a maximum of 12. %. The standard deviation statistics for ROA was 0.027 which indicates that the profitability variation in the study period was a little bit high. The result implies that, EAL profitability is too sensitive. The Average earning of EAL is a little bit higher as compared to industry average for the same period which stood at 2.5 % (IATA annual report, 2015).

In relation to 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 ROA there could be seen relatively very high variation in fuel, which is measured by the total cost of fuel during period with the value of 8.841, 10.23 & 7.95 mean, maximum & minimum values respectively. Besides, the outputs of the descriptive statistics indicate that, the ratio of liquidity of airlines on average is 1.23 with a minimum of 0.80 and a maximum of 1.69. This means despite the inverse relationship that exists between liquidity and profitability, the

liquidity measure indicates that EAL have, on average, nearly acceptable level of liquidity position. Leverage is 68% on average.

In addition, the standard deviation statistics for tangibility of asset was 0.097 which shows the existence of relatively lower variation in tangibility of assent. It is especially important to notice that the mean of tangibility is 0.604, meaning that on average 60 % of EAL assets are tangible. Besides EAL have been grow by 18.7 % on average over the past three and half decades which is better as compared to overall industry growth near to 5% over same period (EAL annual report, 2014). As shows in the above table mean of Aircraft lease cost is 6.36 % over the last thirty five years on average, with a maximum of 9. 54% and a min of, zero between1983-1989.

4.3 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. Diagnostic test suggests that the model passes the test of serial correlation, non-normality of the errors and heteroscedasticity associated with the model. Consequently, the results of each test are presented as follows:

4.3.1. Test for Multi-collinearity

The results of correlation tests are shown in the below correlation matrix table. In this point there isn't a clear point indicating multi-collineality problem. Kennedy (2008) stated that multi-collinearity problem exists when the correlation coefficient among the variables are greater than 70%. The result of multicollinarity test shows that, the maximal absolute correlation value among independent variables is 0.698 between lease and fuel cost. In this study there is no any correlation coefficient higher than 0.70, meaning the Correlation between independent variables was reasonably low. The low correlation coefficients indicate that, there is no problem of multi-

collinearity. Therefore it can be concluded that there is no correlation between the explanatory variables of the study.

Table 4.2 Correlation matrixes of independent variables

Variables	Fuel	Growth	Lease	Leverage	Liquidity	Tangibility
Fuel	1.000	0.274	0.698	0.088	-0.300	-0.268
Growth	0.274	1.000	0.233	0.218	0.029	-0.184
Lease	0.698	0.233	1.000	0.057	-0.226	-0.101
Leverage	0.088	0.218	0.057	1.000	-0.317	0.516
Liquidity	-0.300	0.029	-0.226	-0.317	1.000	-0.372
Tangibility	-0.268	-0.184	-0.101	0.516	-0.372	1.000

Source: Results from correlation analysis done using Eviews8

4.3.2. Tests for Hetroscedasticity

The other important assumption for the OLS regression is the homogeneity of variance of the residuals or assumption of homoscedasticity and it has been assumed that the variance of the errors is constant. If the errors do not have a constant variance, they are said to be heteroscedastic. To test the assumption or hypothesis white"s test was used as below.

Ho: there exists Hetroscedasticity

H1: There is homoscedasticity

Table 4.3 Heteroskedasticity Test: White

F-statistic	0.331091	Prob. F(6,28)	0.9148
Obs*R-squared	2.318679	Prob. Chi-Square(6)	0.8882
Scaled explained SS	1.473259	Prob. Chi-Square(6)	0.9613

Source: heteroskedasticty test results from Eviews 8

As shown in the above table the F-statistic, P- value is 88.8 %. Therefore we can"t reject the null. Since the p-values exceed 5% or the study concludes that the residual has no problem of heteroscedasticity.

4.3.3. Test for non-normality test

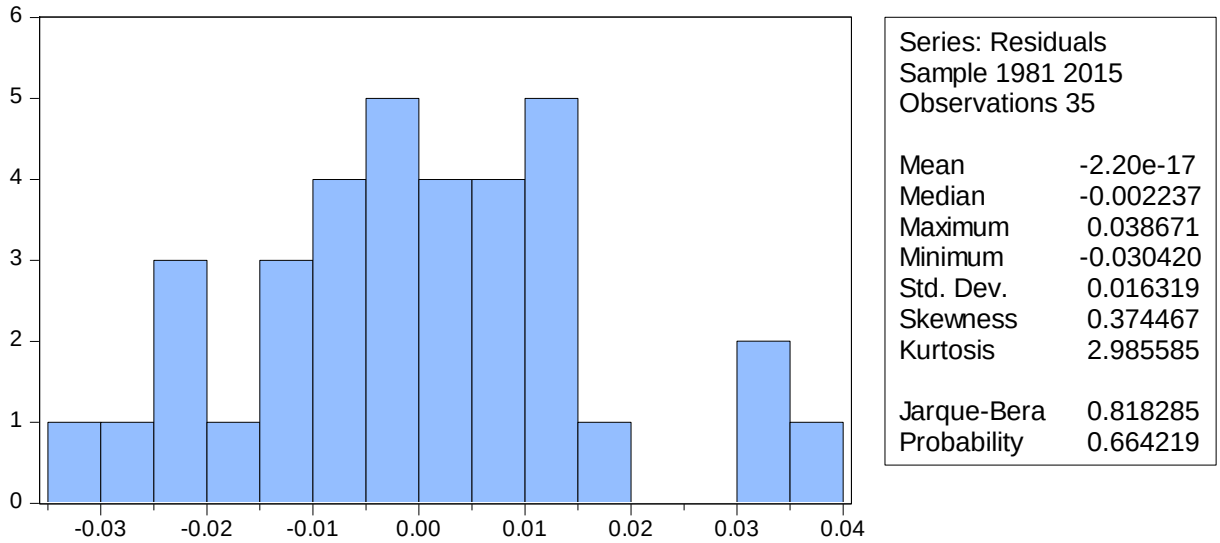
A normal distribution is not skewed and it is defined to have a coefficient of kurtosis 3. Bera Jarque formalizes this by testing the residuals for normality as follows.

Ho: The residuals are normally distributed

H1: The residuals are not normally distributed

The normality test result below, Jarque-Bera"s indicates that the residuals are normally distributed having the value 66% which is greater than 5%. Therefor we accept the null that is residuals are normally distributed or tests for normality, the p-value (0.6642) is much greater than 0.05.As a result we conclude that the error terms of the specified models are found to be normally distributed.

Figure 4.1 Normality test for residuals



Source: *Normality test generated from Eview 8*

4.3.4. Test of autocorrelation

In using the OLS model, the other most important assumption need to be tested is that, the residuals associated with one observation are not correlated with the residuals of any other observation.

Ho: The residuals are serially correlated

H1: The residuals are not serially correlated

As per the below serial correlation LM test, there is no serial correlation for the selected error correction model because we have no significant evident to reject the null hypothesis of no serial correlation at 5% level of significance.

Table 4.4 serial correlation test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.064503	Prob. F(2,26)	0.1472
Obs*R-squared	4.796548	Prob. Chi-Square(2)	0.0909

Source, serial correlation test Eveiw 8

4.4. Correlation analysis among dependent and independent variables

Correlation is a statistical relation between two or more variables, changes in the value of one variable is accompanied by systematic changes in the other. (wordnetweb.princeton.edu). and it‟s also a way to index the degree to which, two or more variables are associated each other. Therefore, prior to regression result, it is important to check the correlation between different variables on which the analysis is built. As shown below the result of the correlation analysis of profitability measure (ROA) with the firm‟s growth, liquidity, leverage, tangibility of asset, lease and fuel costs are presented as follows.

Table4.5. correlation matrix

Correlation	ROA	Fuel	Growth	Lease	Leverage	Liquidity	Tangibility
ROA	1.000						
Fuel	0.423	1.000					

Growth	0.143	0.274	1.000				
Lease	0.215	0.698	0.233	1.000			
Leverage	-0.428	0.088	0.218	0.057	1.000		
Liquidity	0.447	-0.300	0.029	-0.226	-0.317	1.000	
Tangibility	-0.546	-0.268	-0.184	-0.101	0.516	-0.372	1.000

Source: Correlation results from Eview 8

As per table 4.5, fuel and liquidity ratio were the most positively correlated variables with ROA. This correlation clearly shows that, as the both variables increase, profitability also moves to the same direction. In the meantime growth and lease also positively correlated with profitability. On the other hand, the leverage ratio and tangibility of asset is negatively correlated with the profitability measure, indicating that, when the level of debt and the portion of fixed asset increases, profitability moves to the opposite direction.

4.5. Summary of regression analysis and results interpretations

This study focuses on the relationship between EAL profitability and the determining factors. The researcher had used the econometric model of multiple regressions. The model contains one dependent variable (ROA), six independent variables namely growth of sales, liquidity, Leverage, Tangibility of asset, aircraft lease cost, fuel cost and the error term. The data were analyzed in light of the specific research question and hypotheses stated. Hence, the analysis focuses mainly on the results of the regression, for the selected factors that have an impact on EAL profitability. Besides the study also considered qualitative information"s obtained from various reports of Ethiopian, to support the analysis.

4.5.1 Empirical model

As presented in the third chapter the empirical model used in the study in order to identify the factors that can affect EAL profitability was provided as follows.

Profitability (ROA) = (Growth, Leverage, Liquidity, Tangibility, Lease, Fuel).

Figure 4.2 regression result

Dependent Variable: ROA (Dependent variable)

Method: Least Squares

Date: 12/18/16 Time: 16:18

Sample: 1981 2015

Included observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.192763	0.074887	-2.574057	0.0156
Fuel	0.024514	0.006413	3.822342	0.0007
Growth	0.005777	0.018577	0.311002	0.7581
Lease	-0.001101	0.001216	-0.906141	0.3726
Leverage	-0.085081	0.038949	-2.184400	0.0375
Liquidity	0.058455	0.015520	3.766407	0.0008
Tangibility	-0.002743	0.045554	-0.060218	0.9524

R-squared	0.641601	Mean dependent var	0.030486
Adjusted R-squared	0.564801	S.D. dependent var	0.027258
S.E. of regression	0.017982	Akaike info criterion	-5.022003
Sum squared resid	0.009054	Schwarz criterion	-4.710933
Log likelihood	94.88505	Hannan-Quinn criter.	-4.914621
F-statistic	8.354186	Durbin-Watson stat	2.106678
Prob(F-statistic)	0.000031		

Source, regression result from Eview 8

As per the above figure *4.2*, the overall results of the regression analysis are shown that, ROA is taken into account as the profitability proxy, the R-square is 64.16% representing that 64.16 % of the changes in the profitability of the firms in the sample could be explained by the changes in the independent variables of the study namely growth, liquidity, leverage, lease, tangibility and fuel cost. Besides from the total of the explanatorily variables Fuel, leverage and liquidity are statically significant at 5% level of significant. On the other hand growth, tangibility of asset and Aircraft lease cost are not significant during the study period.

4.6. Research hypotheses and discussions

As stated in chapter one the broad objective of this study was to identify the factors that affect Ethiopian airlines profitability. As noted in chapter one and three, in order to achieve this broad objective six hypotheses were developed. The result of each hypothesis is presented below.

HO1: There is a positive relationship between EAL sales growth and its profitability.

Sales growth is one of the explanatory variables under the study. One would expect that the impact of growth on profitability is positive and significant. However, as shown in the regression above, even if the coefficient of growth is positive as expected, isn"t significant at 5% and 10 % level. The P-value of growth is 75 %, which is negligible to on determination of EAL profitability. Therefor the hypothesis that states, there is a positive and significant relationship between EAL growth and profitability is rejected, because the data didn"t support to accept the null hypothesis. In the previous studies of the airlines industry, the results of growth and profitability are mixed. Alhyari (2014), find a negative relationship between airlines growth and profitability. On the other hand growth and airlines profitability is positive, but statically insignificant (Fikre 2015). So, to summarize the impact of growth and profitability remains ambiguous and further research is required.

HO2: There is a negative relationship between EAL Liquidity and its profitability. One would expect that the impact of liquidity on profitability is negative and significant as current asset have low return. As expected liquidity is significant, but surprisingly the sign is positive (0.05) and statistically significant in this regression (prob. = 0.08%). The regression coefficient of this explanatory variable suggests a positive relationship between the liquidity of assets and ROA during the studied period. Therefor the hypothesis that states, there is a negative relationship between EAL Liquidity and its profitability is rejected or the data didn"t support to accept the null. According to the previous studies, the lower level of liquidity would result in reduction of profitability Viera (2010). The low liquidity level may lead to increasing financial costs and result in the reduction of profitability and the finding of this paper is consistence with Chandra (2001) and goddard el al. (2005), which a greater level of liquidity is associated with the financial strength. On the other hand, the research by Fikre (2015) as well as alhayari (2014) showed that the higher level of liquidity is associated with decreased profitability.

Moreover of the regression result is supported by different qualitative documents" of EAL. As shown in the financial statement of the airline most of the aircrafts are collateralized to different loans. If, the operation or inflow of cash is not gone as it is maintaining sufficient liquid asset is obligatory, to cover thus severe obligations and as well as holding enough amount of liquid asset is mandatory due the airlines current obligation is high for current inputs of the operation, that

includes crew & employee related costs, overflying charges by various governments, airport and landing charges and fuel. This fact forces the airline to hold more liquid assets, as any failure to settle claims could result in penalty, various operational hassles and costs. To overcome the issue EAL have department of treasury, which is responsible for both the inflow and outflow of the most liquid asset or cash.

HO3: There is Negative relationship between leverage and profitability.

As expected, the coefficient of leverage ratio which is measured by total debt to total asset was negative and statistically significant at 5% significance level (p-value=0.0375). As per the regression result we accept the null hypothesis, i.e there is Negative relationship between leverage and profitability. The coefficient of the leverage (-0.085) adversely affects EAL profitability. Considering pecking order theory, there would be a negative relationship between leverage and profitability. The theory is supported by the findings of Fikre (2015) concluded that airlines capital structure and profitability has negative correlation. Similarly the airlines financial performance is influenced by the level of debt alahyari (2014).besides the finding of this paper is consistent too.

Moreover the result was also consistent with the existed reality in the in airlines industry, which Shows the existence of inverse relationship between level of leverage and profitability i.e., the most profitable airlines were those with lower fixed cost or burden. Correspondingly, the qualitative information obtained from Ethiopian 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 their objective as they desire.

HO4: There is a negative relationship between asset tangibility and profitability. The coefficient of tangibility is negative (-0.0027) which is as expected and it implies that as the portion of tangibility of assets increases and keep other things fixed EAL profitability decreases which is measured by return on assets. The data supports to accept the null, that is asset tangibility and profitability is negatively related. This result is consistent with the results of other studies by alahyari (2014).Tangibility is defined as the ratio of fixed assets to total assets. So, when Ethiopian

increases its tangible assets, it could be interpreted as a firm with higher potential for debt financing. Firms with a higher level of tangible assets are potentially motivated to employ more debt financing, as shown in the third hypothesis, debt and Ethiopian profitability has inverse relation. So, considering pecking order theory, there would be a negative relationship between leverage and profitability. In the meantime as tangibility of assets increases, there would be a higher potential for debt financing which could adversely affect the profitability of a firm. In general the regression result of the paper is consistent with all the above.

HO5: There is a negative relation between Lease cost and profitability. One would expect that the impact of lease cost on profitability is negative by expecting the opportunity of lease flexibility is supported by the regression result of this paper. Therefor the hypothesis that states, there is a negative relation between lease cost and profitability is accepted or the data support to accept the null. As per the regression result the coefficient of lease cost and corresponding P- value is -0.0011 and 0.37 % respectively. Meaning when lease cost goes up by one percent profitability goes down by 0.37 %, but the level of significant is negligible. Besides the finding of this paper is consistent with, Kirbel (2015) the cost lease is negatively affect EAL profitability.

HO6: There is a negative relationship between fuel cost and profitability. Surprisingly this isn't supported by the regression result or the data didn't support to accept the null. Fuel is the largest single cost during the studied period and this cost driven by the ASK & ATK as well as the price of fuel per barrel. Referring to previous empirical studies, it isn't consistent with kirbel (2015), Breistein (2009) and other similar studies.

As per various documents, the higher management of Ethiopian identified and tries to overcome the fuel cost. As per reports the largest portion of fuel cost comes from the rough, and destination expansions as well as the increasing of ASK and ATK. Each and every additional rough increase the cost fuel and such type of fuel cost increment isn't natural and not avoidable. Besides, the price of fuel isn't in the control of the management. So the ups and downs of fuel price have its impact on the bottom line of EAL. Moreover EAL flies over fifty African destinations and the price of fuel in these destinations are higher by 20 % than other parts of the world (IATA annual report 2016). In addition the decline of fuel price in the international market affect the demand of air ticket in the

region, specially fuel exporting countries like Nigeria, Angola and Sudan (www.AFAA.), unlike other commodities unsold seats per flight is highly perishable. To overcome the impact fuel on profitability, the management of Ethiopian is doing a lot of things (EAL annual report 2015). As per the report the management is concerned in aircraft acquiring for example: acquiring fuel efficient aircrafts, reducing the payload, optimizing the flight routes, Regular aircraft maintenance, and Fuel tankering or buying extra fuel in countries where the fuel is cheaper. You may think that if the fuel is cheaper at the arrival country you can just refuel as much as possible. Unfortunately, it is risky (WWW.Ethiopianairlines.com). To conclude the variability of Fuel cost and Profitability needs further research by adding more observation.

CHAPTER FIVE

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

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 whereas the second section presents the recommendations.

5.2 Conclusion

The aviation industry of Ethiopia is one of the developing sectors with growth rate greater than the country GDP. It is significant for the country and continent development as it contributes to reduction of unemployment, increase of growth and development. Therefore, this research investigates the factors affecting the profitability of Ethiopian airlines and to what extent these determinants affect Ethiopian profitability during the time period 1981 -2015. In doing so, previous studies on airlines profitability have been reviewed and it is summarized that the profitability of

airlines is affected by both the internal and external factors. In the literature part of this study, a number of explanatory variables have been discussed for both categories, according to the nature and purpose of each study. Studies dealing with internal determinants employ variables such as growth, liquid, capital structure, asset tangibility, size, Maintenance cost Fuel cost, lease cost, load factor, employee productivity, and as external determinants of profitability macroeconomic environment variables ,such as exchange rate fluctuation, GDP, and inflation rates were assessed.

The result of privies studies shows that internal factors explain a large proportion of airlines profitability. Thus internal or Airline specific factors originating from airlines management efficiency and strategy on running the operation or day to day activity would result in ups and downs of profitably. In this regard previous studies were assessing financial as well as management accounting information‟s as an internal factor. Therefore, based on previous studies and theories relevant to airline profitability, the present study investigated the impact of some airline specific factors on the profitability of Ethiopian airlines over the period 1981 to 2015. The factors that were used in this study includes, sales growth, liquidity, leverage, tangibility of asset, aircraft lease cost and fuel cost as a determinant of profitability of EAL. To meet the research objectives, the paper was mainly based on quantitative research method which is supplemented by qualitative data to some variables. The quantitative and qualitative data were obtained from EAL website, published annual reports, various reports of the airline and IATA annual reports. To test the effect of independent variables on the dependent one quantitatively, multiple regression analysis is used. For testing the research hypotheses Ethiopian airlines financial statement data were collected from 1981 to 2015.In general, empirical findings on the profitability of EAL conclude as follows:

As per the regression result, the coefficient of Aircraft lease, tangibility of asset and leverage is negative (-) this shows that as the portion of each variables increase and other things constant profitability which is measured by ROA goes down. When we come to the significances, the relationship between leverage ratio and profitability has strong statistical significance. But Asset tangibility and aircraft lease costs aren‟t statically significant, even if negatively correlated with ROA. On the other hand Fuel cost, growth opportunity and liquidity ratios are positively correlated with ROA. Fuel and liquidities are significant at 1 % level; this shows that there is strong statistical significance between the variables. But growth isn‟t significant both at 5 % 10 % level of

significant. In general Fuel, leverage and liquidity ratios are statically significant than that of asset tangibility, lease cost and growth opportunities over the studied period.

5.2 Recommendations

Based on the research findings and conclusions above, the following were recommended for stockholders of this study.

- ✈ It is well known that, making profit is a core activity in the airline industry. Similarity EAL major activity is generating profit as per its fast and profitable growth strategy.as per the regression result of the study fuel cost, liquidity and leverage ratio have appositive correlation with the profitability measure ROA. Therefore stakeholders of Ethiopian airlines, give emphasis to its profitability by considering the impact and level of significance of fuel cost, liquidity and leverage ratio than other variables covered in the study.

- ✈ Profitability isn"t possible without knowing and controlling the determinants. As the finding and conclusion of the study shows that Fuel cost, liquidity and Leverage ratio are statically significant, but it doesn"t mean the only. There for EAL management"s should critically assess all possible factors affecting its profitability including those mentioned in the literature and identify their level of significance to take corrective actions as per the order of level of significance and correlation with profitability.
- ✈ Finally, the objective of this study was to investigate determinants of EAL profitability. However the variables included in the analysis aren"t the only factors affecting profitability. So, the next researchers who are interested for further study, it is highly recommended that replicate by studying with more variables like macro- economic variables, management efficiency, overflying and landing charges, fleet type & ages, maintenance cost and other variables.

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Appendix

Appendix I: Estimation Result of regression model

Dependent Variable: ROA of EAL

Method: Least Squares

Date: 12/18/16 Time: 16:18

Sample: 1981 2015

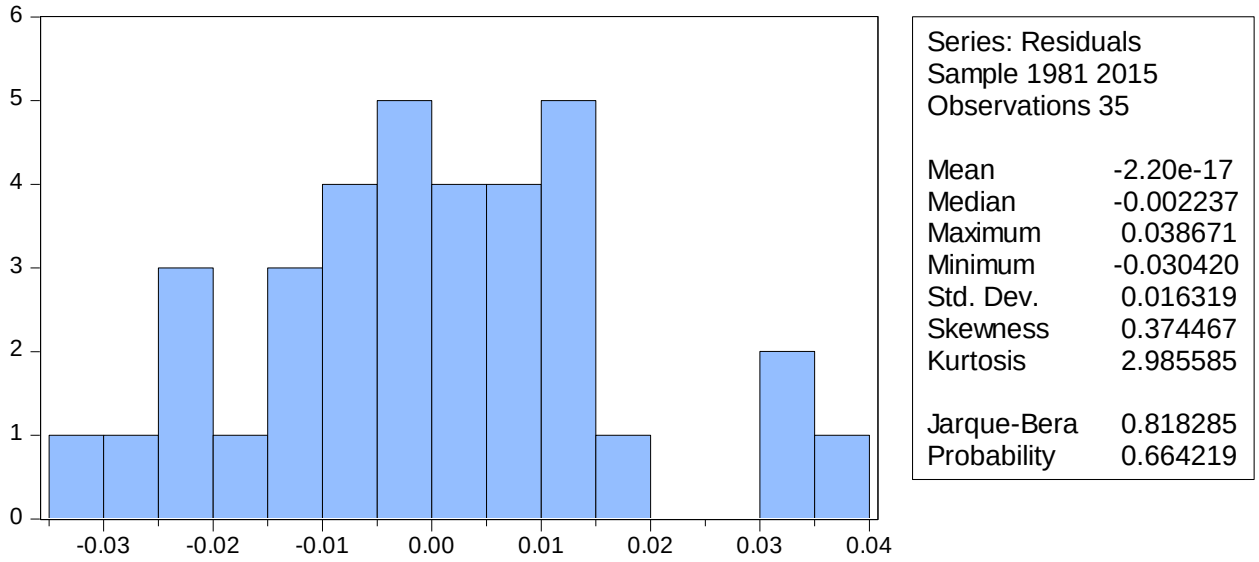
Included observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.192763	0.074887	-2.574057	0.0156
Fuel	0.024514	0.006413	3.822342	0.0007
Growth	0.005777	0.018577	0.311002	0.7581
Lease	-0.001101	0.001216	-0.906141	0.3726
Leverage	-0.085081	0.038949	-2.184400	0.0375

Liquidity	0.058455	0.015520	3.766407	0.0008
Tangibility	-0.002743	0.045554	-0.060218	0.9524

R-squared	0.641601	Mean dependent var	0.030486
Adjusted R-squared	0.564801	S.D. dependent var	0.027258
S.E. of regression	0.017982	Akaike info criterion	-5.022003
Sum squared resid	0.009054	Schwarz criterion	-4.710933
Log likelihood	94.88505	Hannan-Quinn criter.	-4.914621
F-statistic	8.354186	Durbin-Watson stat	2.106678
Prob(F-statistic)	0.000031		

Appendix II: Normality test



Appendix III LM test result

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.064503	Prob. F(2,26)	0.1472
Obs*R-squared	4.796548	Prob. Chi-Square(2)	0.0909

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 12/27/16 Time: 05:35

Sample: 1981 2015

Included observations: 35

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	-0.012158	0.072441	-0.167835	0.8680
Fuel	-0.000798	0.006198	-0.128693	0.8986
Sales growth	-0.005299	0.018957	-0.279507	0.7821
Lease	0.000233	0.001184	0.196770	0.8455
Leverage	0.016412	0.038601	0.425165	0.6742
Liquidity	0.002994	0.015101	0.198245	0.8444
Tangibility	0.005920	0.044280	0.133705	0.8947
RESID(-1)	-0.166437	0.198722	-0.837536	0.4099
RESID(-2)	-0.380904	0.195265	-1.950702	0.0619

R-squared	0.137044	Mean dependent var	-2.20E-17
Adjusted R-squared	-0.128481	S.D. dependent var	0.016319
S.E. of regression	0.017335	Akaike info criterion	-5.055109
Sum squared resid	0.007813	Schwarz criterion	-4.655162
Log likelihood	97.46440	Hannan-Quinn criter.	-4.917047
F-statistic	0.516126	Durbin-Watson stat	2.080624
Prob(F-statistic)	0.833301		

Appendex IV, hetroskedasticity test

Heteroskedasticity Test: White

F-statistic	0.331091	Prob. F(6,28)	0.9148
Obs*R-squared	2.318679	Prob. Chi-Square(6)	0.8882
Scaled explained SS	1.473259	Prob. Chi-Square(6)	0.9613

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 12/27/16 Time: 05:39

Sample: 1981 2015

Included observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000364	0.000777	0.467913	0.6435
FUEL^2	-5.90E-06	8.79E-06	-0.671712	0.5073
GROWTH^2	-0.000226	0.000455	-0.495432	0.6242
LEASE^2	1.46E-06	3.52E-06	0.415737	0.6808
LEV^2	0.000121	0.000676	0.178669	0.8595
LQD^2	9.54E-05	0.000129	0.741504	0.4646
TAN^2	0.000243	0.000870	0.279288	0.7821

R-squared	0.066248	Mean dependent var	0.000259
Adjusted R-squared	-0.133842	S.D. dependent var	0.000370
S.E. of regression	0.000394	Akaike info criterion	-12.66451
Sum squared resid	4.34E-06	Schwarz criterion	-12.35344
Log likelihood	228.6290	Hannan-Quinn criter.	-12.55713
F-statistic	0.331091	Durbin-Watson stat	2.550738
Prob(F-statistic)	0.914808		