



Capital structure in the Airline Industry – An Empirical study of determinants of capital structure

هيكل رأس المال في صناعة الطيران - دراسة تجريبية لمحددات هيكل رأس المال

by

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Abstract

In the business environment, decisions that are associated with the capital structure are very critical in nature. The strategic team of an organization is mainly involved in analyzing the appropriate capital structure for a company. The decisions of capital structure mainly involve decisions in respect of the portfolio mix of debt and equity. This research aimed to identify determinants of capital structure in the airline industry. Total of 8 airlines belonging to different countries were selected for this study. Data for a period of five years for the mentioned airlines were collected and panel regression was done. The airlines selected for the study were Southwest Airlines, British Airways, Emirates Airlines, Singapore Airlines, South African Airlines, Oman Air, Turkish Airlines and Air New Zealand. Out of the 13 determinants that were identified based on literature review, the results of the study showed that profit, size, leasing policies, ownership, and difference of return and average return (study period) are the determinants the capital structure in the airline industry

في بيئة الأعمال، تكون القرارات المرتبطة ببنية رأس المال بالغة الأهمية في طبيعتها. ويشارك الفريق الاستراتيجي للمنظمة بشكل رئيسي في تحليل هيكل رأس المال المناسب للشركة. تتضمن قرارات هيكل رأس المال بشكل رئيسي القرارات المتعلقة بمزيج محفظة الديون وحقوق الملكية. يهدف هذا البحث إلى تحديد محددات هيكل رأس المال في صناعة الطيران. وقد تم اختيار ما مجموعه 8 شركات طيران تابعة لبلدان مختلفة لهذه الدراسة. تم اختيار أسلوب البحث الكمي الأحادي لهذه الدراسة. تم جمع البيانات لمدة خمس سنوات لشركات الطيران المذكورة وتم إجراء تراجع الفريق. وكانت شركات الطيران المختارة للدراسة هي شركة طيران ساوث ويست، والخطوط الجوية البريطانية، وخطوط طيران الإمارات، والخطوط الجوية السنغافورية، وخطوط جنوب أفريقيا الجوية، والطيران العماني، والخطوط الجوية التركية، ونيوزيلندا. ومن بين المحددات الـ 13 التي تم تحديدها بناء على مراجعة الأدبيات، أظهرت نتائج الدراسة أن الربح والحجم وسياسات التأجير والملكية وفرق العائد ومتوسط العائد (فترة الدراسة) هي المحددات الهيكل الرأسمالي في صناعة الطيران.

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CHAPTER 1-OVERVIEW

1.1 Introduction

Decision with respect to capital structure is considered as the most difficult of all the decisions made by the management of any business organization. Determining an appropriate capital structure for the company is considered as a strategic decision which is required to be taken by the management of the company. Effectiveness and efficiency of capital structure depends upon the appropriateness of debt and equity mix. Management has to decide whether to include shareholders' capital or debt from third parties in capital structure of a company or not. Importance of this decision can be determined from the fact that it involves various factors such as the cost of capital and risk associated with each option, which are essential to be considered as such factors depict the profitability of the company in the long run. Past researches such as (Capobianco & Fernandes, 2004) and (Harris & Raviv, 1991) have identified various factors which are relevant for deciding which capital structure is the most beneficial for the business organization. Decision with respect to choice of capital structure must be taken on the basis of type of industry, cost of choosing a particular option and the benefits that will accrue to the interested parties. Characteristics of different industries are different from one another. Standard capital structure to be adopted must, thus, be altered as per the requirements of that particular industry.

The main research question that will be addressed throughout this study is "What are the major determinants that affect the choice of capital structure in the airline companies? The significance of this research study is that it will help in identifying the best capital structure

that must be adopted by the airline companies so that their profitability in the long run increases. Thus, in this research study, an attempt to adopt a managerial approach with respect to choice of capital structure in the airline industry has been done. The research has identified top airline company operators and a comparison has been made between the operators which determine which company has best capital structure. Furthermore, the research also determines the type of capital structure that must be adopted by the companies operating in the airline industry which will help them to become profitable in the long run. In addition to this, various advantages of types of capital have also been enumerated which will help the companies operating in the airline industry in choosing the best and appropriate capital structure for their own company.

The dissertation is divided into five chapters which are as under:

Chapter 1 – Introduction

Chapter 2 – Literature Review

Chapter 3 – Research methodology

Chapter 4 – Data collection and analysis

Chapter 5 – Conclusion and Recommendations

1.2 Background of the Research

The research has been conducted with respect to the capital structure which must be adopted by the companies operating in the airline industry. As per Modugu (2013) capital structure can be considered as the different options that are utilized by an organization to finance its assets (Modugu, 2013). Usually, the business organizations have varied options of types of capital to be incorporated in capital structure. A business organization has an

option to adopt any mix of debt and equity, as per its requirements. Research on capital structure can be traced back to the year 1958, when the theoretical model proposed by Modigliani and Miller was introduced which is considered to be a turning point in the modern theories related to corporate finance. Theory proposed by Modigliani and Miller provides an in-depth insight into the capital structure of a business organization operating in a capital market wherein there are no transaction costs and taxes. Other than the Modigliani and Miller approach, various other theories have also been proposed, such as trade off theory, pecking order theory and agency theory. All the above-mentioned theories help in explaining the concept of capital structure through the introduction of various frictions which were not included by Modigliani and Miller in their theory. As per the views of Myers (2001), no specific and universal capital structure theories have been framed over the years which will provide the business organizations with standard structure of capital. However, there are various theories available which can help the business organizations in framing most appropriate theory for their organization (Myers, 2001). As per the authors of previous researches conducted on appropriate capital structure, there are various factors influencing the decision of management with respect to capital structure. An example of research conducted by Salawu (2007) can be cited in this context. As per Salawu (2007), key factors impacting bank's capital structure are "*ownership structure and management control, growth, profitability, issuing cost, and tax issues associated with debt*". Similarly, in the airline industry also various factors impact the decisions regarding capital structure to be adopted. Since it is a capital-intensive industry, the need of capital occurs at every stage of operations. Thus, the capital structure in airline industry depends

upon huge amount of capital required and the capability of such companies in paying of its debt.

As per Bratlie (2012), the airline industry or the aviation industry involves all those companies that conducts their business by transporting cargo and paying passengers by air along regularly scheduled routes either though airplanes or helicopter. Income of the companies operating in the airline industry is basically derived from facilitating transportation of passengers from one place to another. In addition to this, some companies of the airline industry also deal in transportation of goods, which generates extra income for the companies. However, on comparing both the sectors, major income comes from passenger transportation (Bratlie, 2012).

Aviation sector or the airline industry is considered to be one of the biggest industries across the world. Airline industry plays an important role in the economy of almost all the countries of the world. Because of increase in globalization, the importance of the airline industry has increased at exceptionally fast pace. Major characteristics of the aviation industry include requirements to make huge investments and complex rules and regulations framed by the government of various nations. Resources which are required by the aviation industry can easily be met through equity capital or procuring funds from external parties such as loans from banking institutions. Overall performance of the airline industry has not always been outstanding. With the passage of time, the volatility with respect to performance of the aviation sector has increased tremendously. The reason behind this is the increase in dependency of the aviation sector on external sources of finance, particularly loans and debt. As per the research study conducted by Tomoiaga (2015), most of the

companies selected for the research, 40% of the capital structure is composed of equity and 60% of the capital structure is comprised of debt(Tomoiga & Lipara, 2015).

Research study conducted by Bjelicic (2010), explains the impact of financial crises that occurred in the year 2007-2008, on the aviation industry. The research study particularly concentrated upon aircraft financing. As per the author, the major reason behind such a huge impact of the financial crises on the aviation sector is the formulation of capital structure of the airlines company. In addition to this, the study also tries to establish the importance of fast access to the long -term capital which plays an essential role in development of airline industry (Bjelicic, 2012). Since, the airline industry has become one of the most essential areas which help the economy of a nation to grow and therefore, it has become important to develop an appropriate capital structure which can ensure that an airline company has the capability to bear any sort of financial shock.

Apart from the above, capital structure of a company is also based on the size of a company. As per Titman and Wessel (1988), *“firm size functions as a natural diversification mechanism of company earnings, hence reducing the probability of default”*. Thus, the companies which fall in the category of large sized companies have the capability to bear debts than firms which are small sized.

As per Titman and Wessels (1988), the choice of capital structure is based on various determinants such as collateral value of assets, growth, non-debt tax shields, and uniqueness of the work, classification of industry, size, volatility and profitability. Of the above determinants, profitability, volatility and growth are considered to be most relevant for the airline industry. As per (Myers, 2001), most of the business organizations prefer to raise capital from sources in the following order, that is, from retained earnings, debt and

issuing new equity capital. The choice and mix of capitals determine the profitability of the business organization. Furthermore, the financials of the airline industry are generally volatile, which means the profitability of the companies is not assured. This is because of huge amounts of costs incurred by the airline companies in carrying on their operations. One of the factors that affect volatility is the amount of debt held by a company.

Thus, it can be said that since airline industry is a complex industry and hence, it is rather essential to understand the major determinants that directly affect the capital structures in such companies.

1.3 Problem Statement

Capital structure plays an essential role in determining the financial performance of any industry. Even though determination of an appropriate capital structure is essential for every company, the airline companies are not able to frame an effective capital structure which can make them immune to all the major financial and structural shocks that affect their profitability and development in the long run. In this research study, the issues related to the capital structure behavior, particularly in the aviation industry are being addressed. In order to address the issues, it is required to undertake investigations regarding specific factors associated with the company and their relationship with the capital structure of the company. In addition to this, various traditional theories related to classical capital structures will also be investigated which have further been used to explain and justify the outcomes of our research. Whether the outcomes of our research study are in alignment with the outcomes of previous studies or not has also been investigated.

Thus, the problem statement of this research is to identify the determinants of capital structure of the companies operating in the airline industry and whether the results which are obtained in our research are in agreement with other researches or not.

1.4 Research Objectives

Research Objectives are essential to be determined in every research since defining objectives of the research throws light on the major issues that the researcher is going to address in the research that is being conducted by him. With the help of research objectives, a research can be conducted in a systematic manner. The primary research objective that has been identified for this research is to identify all the major determinants that are affecting the structure of capital in the aviation industry. Other objectives of the research study are detailed in the below section:

- To find out the importance of capital structure in determining the profitability of companies, particularly, the companies operating in the airline industry.
- Since the indebtedness of the aviation sector is on the increasing side and therefore, a research is being conducted with an objective to identify those companies in the aviation sector which have adopted varied strategies in order to procure required funds and the financial performance of such companies is also good.

1.5 Research Questions

Research Questions help a researcher to conduct a research without any ambiguity with respect to the topic of research. The research questions which have been identified in this research study are as follows:

- What are the major determinants that affect the choice of capital structure in the airline companies

The above-mentioned research questions have been attempted to be answered in the entire research. The research seeks to provide solutions based on reliable data procured from sources which are scientific in nature.

1.6 Scope of the Study

Importance of choice of appropriate capital structure in the business organizations cannot be neglected. Selection of capital structure is one of the most important decisions that the management of any company is required to take. Capital is required to fund day to day operations of the business organizations. Anytime the business does not have enough capital, the operations of the company are adversely affected. Thus, capital structure is considered as one of the most crucial practice of finance which directly affects the profitability and success of business organizations. This research study aims to explore the major determinants of selecting a capital structure by the airline companies. The scope of this research study is to cover some companies operating in the aviation industry globally and is conducted to understand the financial position of such companies. In addition to this, the financial impact of choice of capital structure in these companies has also been explored. Various theories have been evaluated to determine the views of previous authors about importance of appropriate capital structure and the outcomes of those researches have been compared with our research to address the research questions.

1.7 Significance of the Research

This research has been conducted on determinants of capital structure in the airline industry. The topic is significant because the concept of capital structure is one of the most crucial topics related to finance. The airline industry also holds a significant position in shaping the economy of a nation and with the increase in globalization the importance of the airline industry has also increased. Furthermore, the aviation industry is an energy intensive sector which makes use of fuel in large quantities. Hence, with the help of this research, determination of capital structure of an energy intensive industry can be undertaken. Thus, the research is significant from the perspective of determining the financial perspective of the airline industry.

1.8 Thesis Structure

This section of the research report provides a brief summary of the manner in which the report will be presented. The research report is divided into five major chapters. Below section explains a brief summary of each chapter.

Chapter 1 of a research study provides an introduction of the chapter which includes background of the study, research objectives, questions, significance, scope, limitation and delimitations. Statement of problem which has prompted the researcher to conduct a research on this topic has also been included in this chapter.

Chapter 2 of the report is literature review. Literature review has been undertaken on a wide scale and is based on many previous literatures which are available online as well as in the library. The literature review has been compiled on the basis of various journals, books, reports of prescribed authorities and various scholarly articles.

Chapter 3 of the report is concerned with covering various philosophies which are related to research methodology. Furthermore, research methods which are chosen to be implemented in this study are also provided along with reasons for selecting the same.

Chapter 4 of the report deals with data interpretation and analysis. The results of the research are obtained with the help of relevant statistical tools and techniques. Furthermore, the outcomes of a research are discussed on the basis of various theories identified in literature review.

Chapter 5 provides conclusion of the entire research study. Furthermore, this chapter also details limitations of a research study. Scope for future researches has also been presented in the chapter.

CHAPTER 2 – AVIATION INDUSTRY OVERVIEW AND LITERATURE REVIEW

2.1 Introduction

This chapter provides an overview of the aviation industry, a brief note detailing its history, its present status, characteristics and its economic performance over years. In addition to this, detailed information on capital structure theories and determinants has been presented. Furthermore, capital structure which is the best suited in the aviation industry has also been detailed in this chapter. Many literatures have been reviewed in the process of detailing the information on the topic of research.

2.2 Industry Analysis

Airline industry can basically be classified as a service industry as it provides its services in almost all the nations across the world. Integral role is being played by the aviation industry in development of economy of nations around the world. Aviation industry is itself a major economic force considering the impact it has on other industries which include tourism and hospitality industry and the volume of its operations. However, there are various parties which affect the operations of airline industries. Government policies, regulations, media industry and the customers of airline industries are few of such parties having a huge impact on operations of an airline industry. In other words, aviation industry is a huge industry which provides the nation a great economic support (Belobaba et al., 2009).

Although, the airline or aviation industry undertakes the business using both airplanes and helicopter (Bratlie & Jøtne, 2012), in this research report helicopters are excluded from the scope.

2.2.1 History of Airline Industry

Inception of airline industry, particularly its commercial use can be traced back to the 1950's. Since then, the airline industry has come a long way. Owing to the major technological changes and innovations, since the year 1950, the airline industry has witnessed exceptional growth. Followed by the inception of commercial airlines, in the 1970's, wide-body jumbo jets were developed. These jumbo jets were created in an environment in which major importance was given to advancements in technology and government policies rather than increasing competitiveness and profitability. However, the focus of the airline industry shifted to achieving cost efficiency, adopting a competitive behavior and increasing the operational profitability in the year 1978. Reason behind this shift in focus was due to economic deregulation of the aviation industry in the United States of America. Deregulation of airline industry, which is termed as 'liberalization', though initially prevailed over the United States of America, spread quickly to other parts of the world. Such deregulation affected domestic air travel in many nations and led to the evolution of an international airline industry which is highly competitive (Belobaba et al., 2009).

Deregulation of aviation industry in the United States of America resulted in increasing the adoption of point-to-point system, even by various low-cost airlines such as Southwest Airlines. However, the major drivers that increase the efficiency of airline industry are favorable economic conditions which must be both at regional as well as global level. During the time when the gulf war was going on, that is, during the period 1990-1993, the airline industry across the world witnessed record possibility. However, the industry again faced economic downturn during the time when the world was hit by financial crises, i.e. in

the year 2007(Bratlie & Jøtne, 2012). One of the major impacts of deregulation is that it has led to the increase in competition in the industry.

2.2.2 Present Airline Industry

The scope of aviation industry across the world, in the present scenario cannot be underestimated as over the years its importance in the lives of people and also in the economy of a nation has increased to a great extent. Importance of airline industry is reflected in the annual report by IATA (2016), in which it has been stated that in the year 2015, the airlines operating across the world transported approximately 3.5 billion people safely. In addition to this, the volume of cargo transported by the airlines across the world was approximately 51 million metric tons. Safe transportation of cargo and passengers was accomplished with the help of a workforce comprising nearly 10 million employees who managed a fleet of 26000 aircrafts. Per day flight average comes to approximately 100,000 flights over an international airline network of 51,000 routes. In addition to safe transportation of passengers and goods, the aviation industry also contributes to bringing prosperity to a nation. Livelihood of around 63 million people worldwide is supported by aviation industry. Contribution of the industry to the world GDP is \$2.7 trillion (IATA, 2016). Thus, above data clearly reflects the increase in size of aviation industry since its inception and its importance in development of an economy.

2.2.3 Characteristics of Airline Industry

Aviation industry provides two types of services to the people at large which are transportation of passengers and transportation of goods from one place to another. Both the services offered by the airlines contribute to the revenue of the industry; however,

major contribution to the revenue is by the passenger sector. The fate of both the branches of the commercial aviation industry, in the year 2015, has been quite contradicting. The revenue passenger kilometer (RPK) across the entire industry grew by 7.4%. This increase has been exceptional because the industry has been witnessing a downturn and was finding it difficult to come out from the depth of international financial crises that happened during the year 2010. The passenger market of the commercial airline industry surpassed 3.5 billion in the year 2015 which was higher by 240 million in the year 2014. The contribution of the passenger segment in the world GDP over the years has been depicted in the following graph:

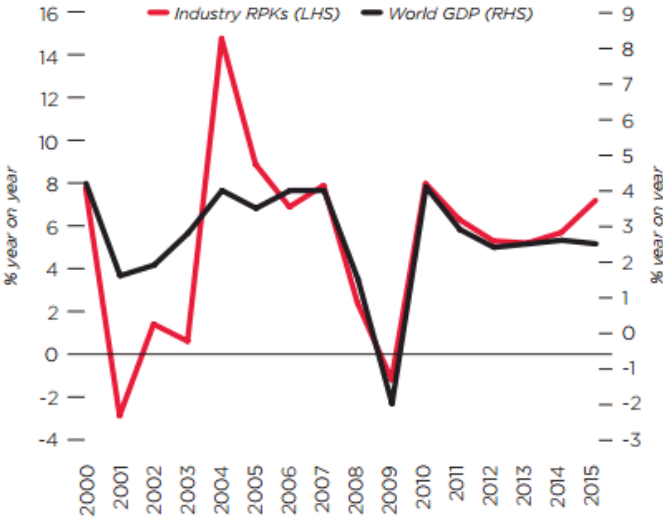


Figure 1: RPK versus world GDP growth (IATA, 2016)

The above graph depicts the performance of the passenger segment over the years. The performance has improved greatly from the year 2009 and 2010. On the other hand, the freight carrier segment of the commercial aviation industry did not perform well. In the beginning of the year 2015, due to disruption caused to the sea ports in the western coast of the United States of America, freight transportation segment benefited a lot. However, the

performance of the segment in the rest of the year was weaker. The freight tonne kilometers (FTK) across the entire aviation industry saw an increase of only 2.3% in the year 2015 as compared to the year 2014 (IATA, 2016). Reason behind this can be attributed to the financial crises of the year 2008 due to which there has been a slowdown in the growth of trade across the world. Decline in trade growth has been a major setback to the freight transportation segment of airline industry. Normally, the world trade grows around twice in comparison to global output. However, this relationship has seen a drastic change over the years and now volume of trade grows broadly in alignment with global output. The figures of growth were quite disappointing in the year 2015, with a growth of just 2% in global trade (IATA, 2016). This is quite slower than the pace which has been estimated for global GDP growth. The graph below depicts the comparison between air freight and trade growth across the world:

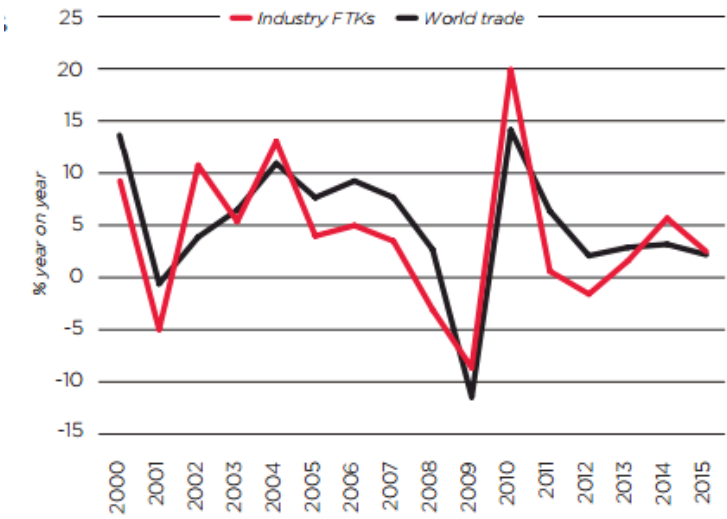


Figure 2: Air freight versus global (IATA, 2016)

2.2.4 Economic Performance over years

The aviation sector holds a prominent position while evaluating the economic performance of a nation. Economic performance of the aviation industry has been noteworthy, particularly in the year 2015. Profitability of the aviation industry is greatly affected by the intensity of competition among the major players in the industry (IATA, 2016). Furthermore, intense competition and various challenges of undertaking business in this industry, has led the capital invested by the equity shareholders in these companies to shrink. Financial performance of the airlines industry has been the strongest in the year 2015. The after-tax profit generated by the industry in the year 2015 is \$35.3 billion (IATA, 2016). Operating margin of the industry in 2015 is 8.3% of the total revenues which was also higher than the operating margin of 4.7% in the year 2014 (IATA, 2016). The same when compared to the year 2012, depicts that the operating margin has become almost three times. However, when this profit of \$35.3 billion is compared to profits of other industries, this profit depicts a slim margin with just \$ 9.89 per passenger profit (IATA, 2016). The profitability of the aviation industry over the years, the operating margin and per passenger profitability is depicted in the below graphs:

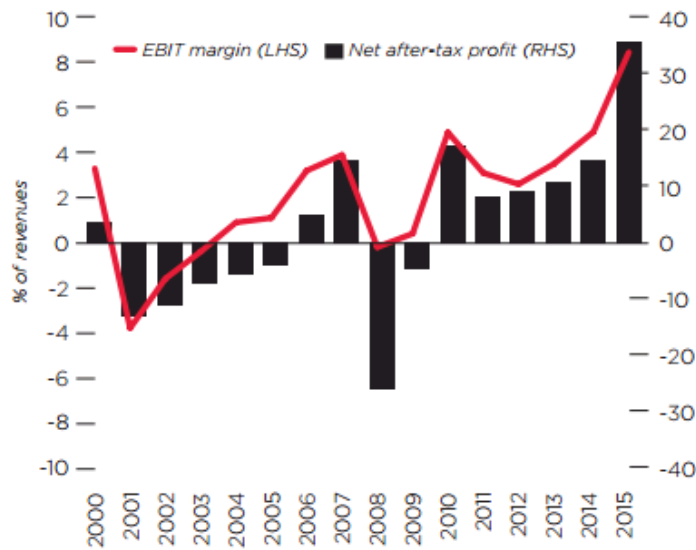


Figure 3: Global commercial airline profitability (IATA, 2016)

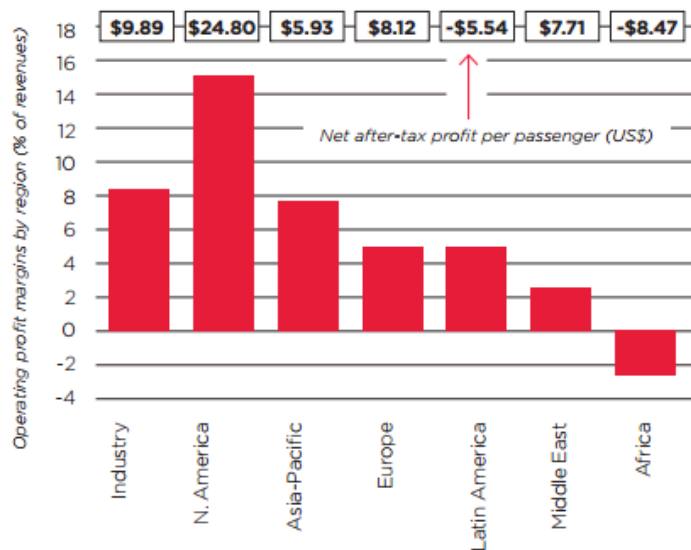


Figure 4: Operating margin and net (IATA, 2016)

From the above graph, it can be seen that the profitability of all the airlines operating in Africa is the lowest among all the major areas. The highest profitability is witnessed by North America aviation industry. Middle Eastern Region is also moderately profitable.

2.3 Introduction to selected Airlines

2.3.1 Southwest Airlines

Southwest Airlines is one of the low-cost carrier airlines company and is a major airline of the U.S. It was founded by Rolling King and Herb Kelleher in the year 1967. The operations of the company started in 1971 covering intrastate Texas cities, Dallas, Houston and San Antonio. It is headquartered in Dallas, Texas.(southwest, 2016). The company provides its scheduled services to 101 destinations in United States and other eight countries. The mission of the company is to provide "the high quality of Customer Service along with a sense of warmth, friendliness, individual pride, and Company Spirit." The airline kept the mantra of cost cutting and remained insolvent over the 39 years even in crisis situation. The fleet of airline comprises of only one type of aircraft i.e. the Boeing 737.(southwest, 2016). Where other airlines are focused on the luxury, complementary and in-flight services the southwest airline keep their focus on fun loving attitude for in-flight entertainment. While other airlines adhered to disciplinary and sophisticated travel the southwest airline welcome pets. While other airlines keep only cash payments for onboard services southwest airlines facilitate cashless cabin or credit card facility for onboard purchase.(southwest, 2016). While other airlines followed the hub and spoke model the southwest airline followed the point to point model. In other airlines there are average six cabin crew members while southwest airlines focus on lower number of cabin crew and keep maximum three cabin crew. This low-cost leadership strategy has influenced to study the capital structure strategy of the southwest airlines. In the year 2016, the company's total operating revenue topped 20 billion dollars and there was increased change of 3.1 percent.

(southwest, 2016). The aim of the company is to grow revenues. The fare of the company fell 3.7 percent due to decrease in the operation revenue per available seat but the net profit of the company was still in the healthy condition.(southwest, 2016).

2.3.2 British Airways

British Airways is the largest international scheduled airline of United Kingdom. The airline is a leading global premium airline. The airline is headquartered in London. This airline operates in the most extensive airline route networks. The airline provides its services to more than 300 destinations worldwide. The fleet size of the British Airways is one of the largest and modern fleet in comparison to any other airline in the world. (British Airways , 2016)

British airway is one of the globally known company and leading company in the airways sector. It is the only company that achieved a collective profit in the year 2004. According to the financial report of British Airways, it stated that the operating margin of the company enhanced from 1.5 points to 6.9 percent that result in approaching the 10 percent goal that the company has established (British Airways , 2016). Profitability of the company has improved across the world and in short pull the loss has reduced from 300 million euro five years ago to 26 million euro. Moreover, net debt has decreased to below 3 billion euro and it is at its lowest point since March 1993 along with that the company still maintaining strong cash position.(British Airways , 2016). It has been observed that group profits prior to tax for the year were 415 million euro, in contrast with a 230 million euros profit in the prior year. The operating profit in the year was 540 million euro, which reveals increment in turnover up to 3.3 percent (British Airways , 2016).

2.3.3 Emirates Airlines

Emirates Airlines is a subsidiary of The Emirates Group and it is a leading airline of the United Arab Emirates. The Airlines is owned wholly by the Government of Dubai. The Emirates Airline operates over 3600 flights every week. The airline provides its services to more than 154 cities in 81 countries across the six continents. In terms of scheduled revenue passenger-kilometer flown the airline is the world's fourth largest airline. The airline offers the best travel and transportation services along with the first-class lounges, air catering, in-flight entertainment and young flyer accommodations. (Emirates Airlines, 2016) Emirates Airlines is the world's fourth largest airline company. The company serves 151 airports in around 80 countries. According to the annual report of the financial year 2015-2016 of Emirates Airlines, the company's profit margin increased from 5.7 percent to 8.8 percent and received profit by the change of 3.1 pts. (The Emirates Group, 2017). The operating margin of the company increased to 10.1 percent. The revenue and the other operating income of the company was 92,896 million AED and the operating profit of the company was 9,391 million AED in the year 2015-2016. The financial position of the company enhanced in comparison to the previous year (The Emirates Group, 2017).

2.3.4 Singapore Airlines

Singapore Airlines is the national airline of Singapore and a leading carrier in the Pacific region. Singapore Airlines is known for its unmatched customer service and its nonstop efforts to upgrade its aircraft and technology. The airline provides its services over 90 cities of more than 40 countries of East Asia, Europe, South West Pacific, the Americas, West Asia, and Africa. The airline flies the most modern fleet in the industry and the largest

operator of Boeing 747-400s. The airline is pioneer in the in-flight services such as free drinks and complimentary headsets.(Singapore Airline, 2016).

Singapore Airlines Limited was founded in 1947. It is named as world's second largest airline by market capitalization. According to the financial statistics of year 2015-2016, Singapore airlines received high operating profit of 485.1 million dollars by the increased change of 42.6 percent in comparison to the previous year. The group received 6.4 percent return on equity holders' funds with an increased change of 3.5 points.(Singapore Airline, 2016). The profit of the company prior taxation was 766.2 million dollars and the profit after taxation was 672.0 million dollars in comparison to the year 2014-2015. The company experienced profit in contrast to the previous year (Singapore Airline, 2016).

2.3.5 South African Airlines

South African Airways is the largest airlines of South Africa. The headquarters of the company is in Ekurhuleni, Gauteng. The turnover of the company in the year 2015 was R32.3 billion. The company's operating profit was R807 million in the year 2011 and after that the company suffered loss. (Flysaa, 2017).The South African airways groups include South African Airlines and Mango operations. In the year 2007, the company paid R55 million to the Competition Commission of South Africa because of anti-competitive behavior such as price fixing (Flysaa, 2017).

2.3.6 Oman Airways

Oman airways is the national airways of Oman. Oman Airways provides services to the domestic and the international passengers. Oman Air is a member of the Arab Air Carriers Organization.(Oman Air, 2013).As compared to previous year, the revenue of the company increased by 10 percent in the year 2013. The net loss of the company increased to RO

113.345 million in the year 2013 from RO 97.467 million in the year 2012.(Oman Air, 2013). In the year 2013, the net expenditure of the company increased by 12 percent (Oman Air, 2013). The non-current liabilities of the company increased slightly by RO 3.039 million as at 31 December 2013 in comparison to 2012. The current liabilities of the company increased by RO 75.227 million as of 31 December 2013. This increase can be attributed to additional loan for pre-delivery payments of aircraft. The current assets of the company reduced by RO 34.966 million. This can be attributed to decline in cash and bank balances (Oman Air, 2013).

2.3.7 Turkish Airlines

Turkish Airlines (TK) came into existence in 1933 as a state-owned enterprise. It started its operations with 5 aircraft and a total seat capacity of 28. Turkish Airline is Europe's leading carrier airline whose success has become a case study in the most prestigious universities of the world such as Harvard Business School. In terms of number of flight destinations, Turkish Airlines is among the world's top ten airlines. Turkish Airlines is strengthening its global brand identity by advancing towards a leading position in the aviation industry. The company amplifies its effectiveness and strength in the aviation industry through a system of arrangements and agreements that increase the quality, productivity and flexibility of its operations. In terms of considering the determinants of capital structure the company focused on use of efficient aircraft to manage the rising fuel costs. The company reduced the average age of the fleet by around 5 years by the year 2015. This shows that the company has a relatively young fleet in comparison to its main rivals. This benefits the company in terms of fuel efficiency (Dursun et al., 2014).

2.3.8 Air New Zealand

The Air New Zealand Group operates globally, and provides air passenger services and other cargo services to more than 15 million domestic and international passengers every year. The strategic approach of the airline is focused and competitive and lies within the Pacific Rim. The network of the airline expands from New Zealand to Australia, Asia, The South West Pacific, South America, North America and the United Kingdom. The vision of the company is to be leading airline globally and serve by creating a workplace where teams are committed to the customers in a distinctively New Zealand way, resulting in superior industry returns. Air New Zealand currently operates a fleet of Boeing 777, Airbus A320 and Boeing 787 aircraft. Air New Zealand's consolidated operating revenue for the year 2015 was \$4.9 billion, generated by a fleet of over 100 aircraft. In terms of operating lease as of 2015 reports out of 108 aircraft fleet 22 aircraft were under operating lease contracts. As of June 2015, the company recognized \$159 million of operating lease expenses in relation to aircraft (Air New Zealand Group, 2015).

In terms of dividend policy guidelines, target capital structure including capitalized aircraft operating leases as debt is within the range of 45% to 55%. In terms of risk management, the Air New Zealand is subject to fuel price, foreign currency, interest rate, and credit risks. Air New Zealand handles jet fuel price risk by using crude oil hedges mainly Brent Crude. Air New Zealand discloses its fuel hedging position every three months (Air New Zealand Group, 2015).

2.4 Theoretical framework and Capital Structure Determinants

One of the most debatable theories of finance, during the last 25 years has been the capital structure theory. The inception of the modern capital structure theory began in the year 1958, when some of the contributions of Modigliani and Miller were presented with the help of a paper (Modigliani & Miller, 1958). General view point of the academicians at that time was that the capital structure is considered to be optimal only when it involves taking advantage of tax saving on debt alongside present value of costs of bankruptcy. However, not all the academicians are in favor of this view. (Harris & Raviv, 1991). As per the views presented by Modigliani and Miller, the appropriateness of theories must be determined by identification of those conditions under which capital structure becomes irrelevant. Many economists after followed the path paved by Modigliani and Miller (Harris & Raviv, 1991). Thus, the main aim of this particular research study is to collect meaningful information necessary to understand the importance of capital structure and the theories related to it, particularly from perspective of aviation industry. Reviewing existing literatures on the topic is one manner of ensuring a gain of an in-depth knowledge and understanding about capital structure.

2.4.1 Meaning of Capital Structure

The term capital structure fundamentally means the mix of equity capital and debt capital used by a business organization for meeting financial requirements on day to day basis as well as in seeking long term financial safety (Ani & Amri, 2015). Capital structure varies from industry to industry. Some industries may prefer more leveraged capital structure and the others might adopt equity based capital structure. While some other organizations prefer

to adopt a mixed capital structure. The aviation industry, from the view point of corporate finance, is fundamentally a highly levered industry (Guzhva & Pagiavlas, 2003). Furthermore, the implications of being highly levered are widespread. The authors of the study have stated that impact of high leverage varies according to situation meaning in good times it is helpful while in bad times it has a devastating effect (Guzhva & Pagiavlas, 2003). During recession, extreme dependency of aviation industry on general economic conditions prevailing along with both the leverages, i.e. operating as well as financial results in huge losses. As suggested by (Opler & Titman, 1994), industries which work on high leverage position have a tendency to lose their market share during economic downturn in comparison to those industries which are financially conservative.

However, appropriate capital structure of aviation industry has not been discussed in much detail, as the capital structure of other industries been discussed. Since the time of deregulation of aviation sector in the United States of America, the industry has been driven by strong competition which has been greatly affected by general economic and financial conditions (Shearman, 1992). Thus, for improving the profitability position of aviation industry and achieve reduction in bankruptcy, appropriate management of capital structure and increasing its flexibility must be strived for (Marsh, 1982).

In the below section, various theories of capital structure and the determinants of appropriate capital structure have been discussed.

2.5 Theories of Capital Structure

Most essential capital structure theories that attempt to detail the financing decisions taken by various business organizations include the pecking order theory, the tradeoff theory,

operating leverage theory, the market timing theory and the agency theory. The above-mentioned theories have been detailed as under.

2.5.1 The Trade-Off Theory

As per (Qayyum, 2013), the trade-off theory explains the impact of agency costs, cost distress, financial distress and taxes on the optimality of capital structure. The author also enumerates that optimal capital structure can be derived when the net tax advantage of debt financing equals the leverage related costs such as bankruptcy” (Qayyum, 2013). In other words, it can be said that the selection of an appropriate capital structure is determined with the help of a trade-off between costs and advantages of debts. There are various forms in which the costs and advantages of debt are available to the business organizations. On one side, the perspective of tax-bankruptcy needs to be considered while on the other, agency costs of debt are required to be evaluated. Benefits that arise from tax on account of acquiring debt must be compared with the costs associated with financial downturn and distress. Evaluation of agency costs associated with debt normally arises from overinvestment and substitution of assets and must be analyzed against the agency costs associated with the equity (Jensen, 1986). As per the views of (Aggarwal & Kyaw, 2010), based on trade-off theory relationship between leverage and bankruptcy costs is negative while relationship between relationship between leverage and firm's marginal tax rate is positive.

There are various benefits of having more debt in the capital structure of a business organization. Cost of debt, i.e. interest helps in increasing the free cash available with a business organization since it is tax deductible. Highly levered firms have greater capacity to earn more than organizations which are unlevered. Therefore, in nations where the rates

of taxation are high, business organizations prefer to include more and more debt in the capital structure. Hence, it can be said that leverage and taxation are positively related to each other. However, acquiring increased debt in the capital structure also increases the risk of default as the organizations will not be able to pay off their debts in case the economy is going through a financial distress (Guzhva & Pagiavlas, 2003). Failure to repay the loans and debt on time will lead to shift of control over organization from shareholders to parties which provided such debt. Such a scenario will require the business organization to change its investment policies and even undergo restructuring and ultimately results in losing of reputation (Qayyum, 2013). On considering the whole scenario, it can be said that even though increase in leverage helps in mitigating the agency costs associated with equity, but it increases the conflicts between debt holders and shareholders. The view presented by (Guzhva & Pagiavlas, 2003) corresponds to the view of (Qayyum, 2013).

Since, the aviation industry is classified as a highly levered industry, above factors are required to be considered for framing an appropriate capital structure.

2.5.2 The Pecking Order Theory

While the assumption of trade off theory is that development of appropriate capital structure is dependent on market imperfections, for example, taxes, costs of bankruptcy and agency costs, the pecking order theory assumes dependency on asymmetric information between insiders and outsiders of the organization. Such difference in information results in adverse selection of manner of raising capital. As per the views of (Drobtz et al., 2012), the pecking order theory prioritizes financing sources based on extent to which they are impacted by information asymmetry. No prediction with respect to optimal leverage ratio is done by this particular theory. The theory rather states that the capital structure of a

business organization is the outcome of its financial needs which arise over time. In addition to this, the theory also states that the capital structure is also developed based on the attempts of the business organizations to minimize the costs of inappropriate selection of capital and achieving overall cost reduction. As a result, various business organizations prefer to use internal funds as compared to external funds. However, even if the business organizations choose to make use of external funds, most of them prefer to issue debt rather than meeting capital requirements through equity financing (Drobetz et al., 2012). Most of the business organizations avoid issuing equity because it increases the risk of dilution of wealth of existing equity shareholders. Thus, needs of financing new projects is strived to be met by internal sources such as retained earnings and then if more funds are required, they are met by external sources. In the external sources also debt is preferred and not equity. Thus, as per (Qayyum, 2013), issuing equity for meeting fresh requirement of funds will not increase the wealth of existing shareholders rather it will lead to decline in the prices of already existing shares.

Thus, adoption of manner of financing depends upon industry to industry. If any industry operates on more of free cash flows, it must apply the pecking order theory and use retained earnings for financing new ventures. On the other hand, those industries which do not have a huge margin of cash must opt for debt financing which will help in tax saving and will lead to increase in the wealth of shareholders of the organization. However, the proportion of debt and equity in an organization differs from organization to organization.

2.5.3 The Agency Theory

Agency issue is created in the business organizations due to the presence of free cash flows in excessive quantities. The reason behind this can be attributed to the illegal use of money

of business by the managers of the business organization. Such an activity on part of managers contributes to the decline in value of the organization in the market. In order to protect the image of business organization in the market against this substandard behavior of the managers, organizations which have high cash flows must adopt higher leverage. The asymmetric information model proposed by Ross states that the relationship between profitability of an organization and its use of debt must essentially be positive. As per (Aggarwal & Kyaw, 2010), agency theory is indicative of the fact “*that firms with higher growth opportunities will hold less debt controlling for profitability*”. However, the author also notes that because of the issue related to under investment, organizations which have growth opportunities on the higher side must opt for holding less amount of debt in their capital structure. However, the view presented by Chang (1992), contends the view presented by (Aggarwal & Kyaw, 2010). Chang (1992) states “*that firms with high profitability use more debt in its capital structure controlling for investment opportunities*” (Chang, 1992).

There is a similarity between the agency issue that arises while taking decisions of dividend payout and the agency cost present while taking decisions with respect to capital structure. As per the agency model which is suggested by (Jensen, 1986) agency costs pertaining to overinvestments can be controlled by dividends and debts. However, it is possible only when some conflict of interests is present between the management of the organization and its shareholders. Therefore, agency costs provide appropriate prediction of a positive relationship between dividend payment and organizations’ free cash flow. As per the hypothesis which is proposed by Ross in his study, organizations which are highly profitable tend to pay higher amounts as dividends because of costly credible signals (Ross,

1977). On the other hand, organizations which have greater opportunities for growth tend to pay fewer dividends, particularly when an alternative such as issuing debt is available (Easterbrook, 1984).

2.5.4 The Market Timing Theory

The market timing theory concentrates upon structuring the capital after taking into consideration the prevailing market situation. As per Baker and Wurgler (2002), the organizations make efforts in analyzing the market and accordingly take capital structure decisions. When the conditions prevailing in the stock market are more favorable to the business organizations and when market ratios are higher than book ratios, then equity capital must be issued. It has been further argued that the tradeoff theory and the pecking order theory provide an explanation with respect to consistent negative effect placed by the weighted average of market as well as book ratios on organization's leverage. Furthermore, organizations issue equity share capital only after taking into consideration the conditions prevailing in the stock market. Organizations do not usually focus upon whether they must issue equity share capital or debt for meeting their financing needs but the selection is based on the situation prevailing in the market at that particular point of time. Any changes in the capital structure which has occurred due to issue of equity share capital persists because later on the organizations do not prefer to readjust the debt ratios for meeting the target. The resultant capital structure merely reflects the market conditions prevailing at that time and that particular capital structure is not a result of any dynamic strategy used for optimization (Baker & Wurgler, 2002).

2.5.5 The Leverage Theory

Business risk in financial term is determined by the operating leverage of the organization. Organizations having high operating leverage have a greater probability of becoming bankrupt than organizations which are less leveraged. However, as per (Aggarwal & Kyaw, 2010), “*higher operating leverage is generally associated with higher levels of fixed tangible assets*”. It is often believed that the fixed assets of the organization must be positively related with leverage because these assets have the capability from being used as collateral security for obtaining loans required for financing needs of business. Apart from the assets being used as a collateral security, non-debt tax shield is also essential to be considered. Organizations which have huge amount of non-debt tax shield are believed to have low level of debt. Thus, it can be said that the selection of appropriate capital structure for the organization is greatly affected by the practices followed by various institutions and the increased competition between the bankers and financiers. The capital structure policy also varies based on the size of the firm and classification of industry (Aggarwal & Kyaw, 2010).

2.5.6 The Cost of Capital Theory

As per (Qayyum, 2013), “*Theory of cost of capital structure suggests that the market value of a firm is determined by its earning power & the risk of its under lying assets & is independent of the way it chooses to finance its assets*”. In other words, capital structure is not affected by the manner in which the needs of the business are being satisfied but is affected by its revenues and the assets it holds. It is often argued that the value of an organization depends upon the structure of its capital. In such a situation, an arbitrage opportunity is available to the business organization in the perfect capital market. In addition to this, this theory also argues that opportunity cost does not exist. It means the

investor has the capability of neutralizing the decisions regarding capital structure of the organization, if the rate of interest is same for the investor as well as the business organization. However, this theory is characterized by many unrealistic assumptions. Few of such unrealistic assumptions include no transaction costs, no opportunity costs and perfect capital market. Even though the theory does not provide a realistic approach but it forms the basis of further researches on the appropriate structure of capital (Qayyum, 2013).

After the connotation of this theory, all the above-mentioned theories were developed. Almost all the organizations operating in various industries across the world use the theories detailed above for preparing an appropriate capital structure for their own organization. Such capital structures fulfill the financing needs of the business organizations and are one of the reasons which ensure success of the organizations.

2.6 Determinants of Capital Structure

Capital structure of an organization is based upon numerous factors which may be internal as well as external to the organization. Major external factors that determine the capital structure of a business organization consists of all macro variables of an economy such as taxation system prevalent in the country; rate of inflation and; conditions of capital market. Characteristics of a business organization, usually called as micro factors also have a huge impact on the determination of a suitable capital structure.

In this section, an in-depth analysis of the above-mentioned factors is enumerated along with a reference to various theories of capital structure which have been detailed in the above section.

2.6.1 Micro Factors (Internal) Affecting Capital Structure

There are various factors which are internal to the business organization that have a direct impact on the type of capital structure which must be adopted by an organization. The internal factors discussed in this study include growth rate, business risk, profitability, dividend payout, debt service capacity and operating leverage.

2.6.1.1 Growth Rate

The contradictory relationship between the capital structure of a business organization and growth rate is clearly explained by the pecking order theory and agency cost theory. As per the theory of agency costs, the business organizations which are controlled by equity usually have a tendency of investing sub optimally, so that the wealth of the organization does not reach to the bondholders. In the business organizations which are operating as growing firms are likely to have higher agency costs. The reason behind this is that the growth firms possess more flexibility while making selection of the manner in which investment is to be made in future. In other words, it can be said that there is a negative relation between the long-term debt level and rate of growth (Bauer, 2004).

On the other hand, pecking order theory states that there is a positive relationship between the debt level of an organization and its growth rate. Reason behind this is that if the growth rate of an organization is high, it can be implied that the demand for funds is on a higher side, which means that the dependency of business organization is on external financing, which can be secure through the chosen source of debt. It is contended by pecking order theory that management of a business organization prefers internal financing rather than opting for external financing. Organizations also prefer to opt for more debt financing

rather than opting for equity financing, in case, it is issuing securities. In other words, it is suggested by the pecking order theory that capital structure of the growth firms is composed of high proportion of debt than the stagnant organizations (Bauer, 2004).

However, as per Myers (1977), business organizations which have high opportunities of growth in future must opt for equity financing than debt financing, because organization which is highly levered have a tendency to pass investment opportunity which is profitable. Similar view is shared by Huang and Song (2002) who suggest that “*such an investment effectively transfers wealth from stockholders to debt holders*”. Hence, here it is predicted that there is a negative relationship between leverage and growth opportunities. For evaluating the growth opportunities, market to book ratio is usually used which provides another reason for expecting the negative relationship between leverage and growth opportunities. As per Rajan and Zingales (1995), negative correlation can be explained by the theory which suggests that firms with high market-to-book ratios have higher costs of financial distress. Other studies which confirm these relations are Titman and Wessels(1988) and Kim and Sorensen(1986). However, there are some studies which demonstrate a positive relationship between the two such as Huang and Song(2002) and Kester(1986).

2.6.1.2 Business Risk

Theories such as agency theory and bankruptcy theory state that there is a negative relationship between business risk and structure of capital of a business organization. The contention of bankruptcy cost theory is that if the earnings of a business organization are less stable then the chances of failure of business are higher. In addition to this, the weight of costs of bankruptcy also has a huge impact on the financing decisions made by the

business organization. In the similar manner, the agency issues that are associated with debt become more intense with the increase in probability of bankruptcy. Therefore, the bankruptcy theory states that with the increase in risks related to business, the level of debt in the capital structure of a business organization must decline. However, the above issue can be argued as increase in debt level in the capital structure means that the business organization has its focus on increasing the wealth of shareholders, which is the ultimate objective of organizations across the world (Panigrahi, 2010).

The business risk can also be called as volatility. It may be understood as something which is a proxy for business risk or the probability that a business organization may become bankrupt. Hence, as per Bauer (2004), “*it is assumed that volatility is negatively related to leverage*”. The relationship between leverage and volatility is negative is also suggested by (Titman & Wessels, 1988).

On the other hand, Huang and Song(2002) state that when there is increase in the variance of the value of the firm’s assets, there is corresponding decrease in the systematic risk of equity. As a result of this business risk is likely to be positively related to leverage. Furthermore, the positive relationship between leverage and business risk (i.e. volatility), is also suggested by (Kim & Sorensen, 1986).

2.6.1.3 Profitability

The hypothesis based on static trade-off vouches for lower debt component in the capital structure of business organizations which are risky. If the profitability of business organizations is on the higher side, it implies that business organizations have high debt capacity and thus, considered as less risky for debt holders. Therefore, as per this particular theory, there is a positive relationship between profitability and structure of capital of a

business organization. On the contrary, pecking order theory states that there is a negative relationship between profitability and capital structure. The reason behind this statement can be attributed to the preference of business organizations to finance their needs through internal sources. Furthermore, business organizations also tend to prefer the policy to pay dividends. However, in situations in which the internal finance is not enough to meet the financial needs of the business organizations, equity financing is usually preferred over debt financing. Therefore, high profitability of business organizations is indicative of their engagement in sourcing the requisite finance through internal sources and such organizations place less reliance on meeting the financial needs through debt financing (Panigrahi, 2010). Out of the above mentioned two theories, usually pecking order theory is used.

As per Bauer (2004), "*there are no consistent theoretical predictions on the effects of profitability on leverage*". However, as per the trade-off theory, the business organizations which are more profitable have a greater leverage as they have higher income which they are required to shield from taxes. As per the free cash flow theory, the business organizations which are more profitable must include more debt in the capital structure for making the managers more disciplined and induce them to make cash payments so that spending funds on projects which are inefficient can be easily avoided. The pecking order theory, however, is more in favor of financing using internal sources than through external sources. Therefore, the theory suggests that more profitable business organizations require fewer funds through external sources as they have sufficient internal sources to finance their needs and therefore must have a lower leverage. Various studies such as (Rajan & Zingales, 1995), (Huang & Song, 2002), (Kester, 1986), and (Titman & Wessels,

1988) have also observed a negative relationship between profitability of an organization and its leverage position.

2.6.1.4 Dividend Payout

Bankruptcy theory observes a negative relationship between debt levels in the capital structure of a business organization and the payout of dividends by it. If the dividend payout ratio is on the lower side, it implies that the probability of the business organization of going into liquidation is lower. As a result of lower probability of going into liquidation, the cost of bankruptcy in the organization is also low. As per the bankruptcy cost theory, if the cost of bankruptcy is on the lower side, it is indicative of high level of debt component in the capital structure of a business organization. However, the pecking order theory offers a contradictive view. As per the theory, the relationship between level of debt in the business organization and its dividend payout ratio is positive. Furthermore, the theory also suggests that management of a business organization usually prefers financing through internal sources rather than opting for external financing sources. Rather than distributing high amount of dividend to the shareholders and meeting the financial needs of the organization by issuing debt, the management concentrates upon retaining a portion of earnings. In other words, lower dividend payout ratio signifies less amount of debt component in the capital structure of a business organization (Panigrahi, 2010).

2.6.1.5 Debt Service Capacity

Increase in debt component in the capital structure of a business organization enhances the probability of liquidation and also bankruptcy costs of the organization. The term probability of bankruptcy can be understood as "*the chances of cash flows to be less than the amount required for servicing the debt*" (Panigrahi, 2010). The ratio which determines

the relationship between operating income and total interest charges is called as the debt service ratio. This ratio indicates the ability of a business organization to meet its interest obligation from the existing annual operating incomes. Hence, if the debt service ratio of an organization is on the higher side, it means that the capacity of a business organization to meet its debt obligations is high. Therefore, the debt capacity theory explains that the relationship between meeting debt obligations by a business organization and its capital structure is positive (Panigrahi, 2010).

2.6.1.6 Operating Leverage

The capital structure of a business organization is also affected by the use of various fixed costs while carrying out the production process. Variability of the income earned in future is affected due to high percentage of fixed costs in the entire costs of the business organization, employed over a period of time. The negative relationship between the operating leverage and level of debt component in the capital structure of a business organization is suggested by both the agency cost theory as well as bankruptcy cost theory. The contention of the bankruptcy cost theory is that if the operating leverage of an organization is high, then the chances of failure of business organization is also higher. Furthermore, in such a situation, the bankruptcy costs of an organization are also higher which have a huge impact on financing decisions of a business organization. If the operating leverage of a business organization is on the higher side, then the operating risks of such an organization are also high. Therefore, complementary measures to assess the business risks of an organization are assets risks and operating leverage. Those organizations which have high fixed costs generally opt for lower financial leverage because such organizations have high risks of cash flows (Panigrahi, 2010).

2.6.1.7 Size of an Organization

Usually, size of a business organization is considered as a determinant of capital structure. However, the effect of using size as a determinant for capital structure is ambiguous. When viewed from the perspective of trade-off, business organizations which are large are generally more diversified and there is lower probability of default in such organizations. Thus, this implies that the relationship exists between expected costs of bankruptcy and size of an organization. However, the relationship between leverage and size of the organization is positive. As against this, the pecking order theory suggests that size can be said to be a proxy through which the information irregularity between capital markets and insiders of an organization can be removed. In other words, larger organizations require dissemination of information to outside investors and thus, they are able to avoid adverse costs of selection, at the time when equity is issued. This particular view suggests that there is a negative relationship between size and leverage. However, the empirical tests usually portray a positive relationship between the size of an organization and leverage and thus support the tradeoff theory (Rajan & Zingales, 1995).

2.6.1.8 Tangibility of Assets

Tangible assets are present in physical form such as airplane, buildings etc. Tangible assets are considered as the most secure assets to be accepted by a creditor as a security deposit for the issues debt. It is the collateral that a firm can offer to its debtors. In a case of bankruptcy, debtors are given the authority that they can liquidate the asset. Tangible assets are considered easiest to value and liquidate as compared to other intangible assets. If the ratio of fixed to total assets is high, then it leaves large collateral for the debtors and therefore, it is considered less risky debt and indicates lower interest payments. According

to Jensen and Meckling (1976) there is a positive relationship between high fixed to total assets ratio and leverage. Since tangible assets are secured against the debt, it gives higher probability to the creditors to recover their debt payments which give an expected positive relationship between the size of the tangible assets and debt. Some previous studies were also conducted to evaluate the level of relationship between tangible assets and leverage (Bratlie & Jøtne, 2012).

According to Rajan and Zingales (1995) there is a cross-sectional relationship between tangible assets and leverage. It means they both are positively correlated but, the relationship is not significant and it can be autocorrected. Gaud, Hoesli, and Bender (2005) found positive relationship between tangibility and leverage. They measured the relationship by dividing the sum of total assets and inventories with the total assets. As per the analysis of the Frank and Goyal (2007) firms with more tangible assets tend to have higher leverage. On the other hand, Daskalakis and Psillaki (2008) in their sample asset stated that tangibility is negatively significant with leverage in most of the countries (Bratlie & Jøtne, 2012).

2.6.1.9 Energy Intensity

High level of energy related cost also increases the probability of becoming insolvent and increases the cost of debt. Energy prices are volatile and may increase any time. This unavoidable increase in the energy prices has demanded the more fuel-efficient airplanes. Fuel cost is a major part of the overall cost of the airline companies which imply a lower level of leverage when using the trade-off theory. Hence, there is a negative relationship between the increased high intensity energy and profitability. High degree of fuel costs increases the risk for a company and in result debtor demand an additional risk premium for

the lending funds they have provided to the company. Pecking order theory argues that companies can expect a negative relationship between the energy intensity and leverage (Bratlie & Jøtne, 2012).

2.6.1.10 Ownership Structure

Ownership structure states that whether a company is state owned or public owned, there is a relationship between ownership concentration and capital structure. There is a positive relationship between ownership concentration and leverage in the companies of some countries like Korea and Indonesia. High ownership concentration firms tend to be more robust and have lower probability of financial distress. They get lower premium when borrowing funds. There is found a positive relationship between ownership structure and financial performance. From the trade-off theory, these firms have a higher level of tax benefit due to increasing level of their debt levels. Pecking order theory stated that there is lower degree of leverage due to high level of retained earnings (Bratlie & Jøtne, 2012).

2.6.1.11 Capital structure and degree of competition

The level of competition is one of the industry specific factors and a number of tests have been conducted to explore how the increasing competition is affecting the choice of the capital structure. According to some researchers, a firm which is highly levered tends to lose market share to their less levered competitive firms. There are several reasons behind this issue and the first issue is distressed firms that face the underinvestment problems. These distressed firms are forced to sell off their assets and minimize their selling efforts. The second reason is the rival competitors which consider highly leveraged firms as vulnerable competitor and seize the opportunity to steal customers. The third reason is the

highly levered firms that face difficulty in attracting and retaining customers who are concerned about quality of the product and long- term viability (Bratlie & Jøtne, 2012).

As per author low, levered firms have deep pockets and they are more engaged and predatory practices which are designed to financially exhaust highly leveraged rivals in a highly competitive environment to exclude them from the competition. In this type of competitive behavior, the highly levered firm may not survive if it can no longer secure financing for its investment costs and operating costs (Bratlie & Jøtne, 2012).

In terms of airline industry, it has experienced a shift in the degree of competition. Initially, it was a regulated industry but now it has become the deregulated industry and much more competitive. Due to deregulation, the new low cost players have entered into the market. Low cost firm are expected to bear less debt as compared to the airline companies that follow the full business service model (Bratlie & Jøtne, 2012).

2.6.1.12 Leasing

Leasing is a contract that authorized the lessor to retain the ownership of the asset and the lessee enjoys the services of the asset over a stipulated period of time. In return he lessee pays the rental for the particular asset to the lessor. The two main elements in the cost of leasing is the risk in ownership and the liquidation value. Basically, there are two types of leases named operational lease and capital lease. The type of lease affects the balance sheet and debt equity ratio of the firm (Bratlie & Jøtne, 2012).

As per the previous study conducted by Gavazza (2011) where he studied the commercial aircraft leasing market to analyze the impact of the liquid assets on the cost of external financing. According to him, more liquid assets decrease the cost of external financing and this makes the leasing more attractive. The reason behind this is that more liquid assets are

more redeploy able and are also less specific, especially in aircrafts. In airline industry, more than half of the aircrafts are leased and the active secondary market makes aircrafts liquid assets. As per the findings of the study, if an aircraft is more liquid it has the high probability to be leased on an operational lease (Bratlie & Jøtne, 2012).

The second market plays an important role as airlines trade aircrafts to adjust their productive capacity. Airlines expand and acquire aircrafts in a case when positive demand shock affecting profitability and in a case of negative shock they sell aircrafts. From these statements, it can be stated that leasing helps to efficiently locate the capital goods. It also facilitates carriers to transfer some risk to the operating lessors. Lessors bear the aircraft ownership risk through their knowledge, economies of scale, geographic regions and diversification of the aircrafts (Bratlie & Jøtne, 2012).

As per Gavazza (2010) high-volatility airlines lease aircrafts and low-volatility airlines own aircrafts. The reason behind this is adjustment of the capacity more frequently in case of high volatile airlines and that's why they value leasing aircrafts more than low volatility airlines. As per their analysis, aircrafts which are leased are less inactive as compared to the aircrafts which are owned by the airlines. Under the using condition, leased aircrafts have higher capacity utilization as compares to owned aircrafts (Bratlie & Jøtne, 2012).

2.7 Capital structure and industry effects

The characteristics of the industry and the specifics of the firms have some important implications on the choice of the capital structure of the companies. The industry characteristics consist of level of technology, the competitive nature of the industry, barriers of entry, need of continuing innovation, excess to close substitutes, regulations etc.

all these industry characteristics are evaluated in several empirical studies. A study conducted by Sanyal and Mann (2010) stated that the financial structure of the high-tech and non-high-tech startup companies vary significantly from each other. Companies alter their capital structure with an aim to gain better competitive position in the market. An analysis conducted by Rotemberg and Scharfstein (1990) explained that airline industry has strong characteristics, and these characteristics are have significant effects on capital structure of the company (Bratlie & Jøtne, 2012).

2.8 Capital Structure in Airline Industry

There are various determinants of capital structure of an organization. Choice of capital structure also depends upon the characteristics which are both organization specific as well industry specific. Industry characteristics include features such as level of technology that is employed by a business organization, requirement for innovation in those industries, regulations imposed by the government, barriers of entry and exit etc. Since the aviation sector has some specific characteristics therefore, it is essential to develop the capital structure of the companies operating in this sector after considering the particular characteristics. The main feature of the aviation industry is that lease forms a major part of their balance sheets. Leasing is considered to be an attractive option in the aviation industry. The reason behind this is that leasing option increases the liquidity of an airline company which helps in decreasing its dependency on external sources of finance. In the aviation companies, more than half number of commercial fleet of aircrafts is procured on lease which indicates the presence of an active capital market, which means that aircrafts are liquid assets. The leasing connected with the aircrafts which makes them more liquid is

called operating leasing. The trading of aircrafts is done by airlines for adjusting their capacity of production. Thus, when the airlines company acquires any aircrafts, it affects the profitability of the company in a positive manner. As against this, selling of aircrafts leads to negative profits for the airlines. Furthermore, it is also argued that the aircrafts which are acquired on lease tend to utilize more capacity than the aircrafts which are owned by the company (Bratlie & Jøtne, 2012).

Given the increasing volatility in terms of performance in the airline industry, several studies have been conducted to address the issues of risk in financial strategies and their impact on the efficiency of the aviation industry. Features of aviation industry include complex regulations and need to invest large. The financial resources come from equity financing and borrowed capital. This sector has high level of indebtedness and the author identified that aviation companies who adopt different strategies for funding, have good financial performance. In aviation sector equity represents only 40 percent and debt represents rest 60 percent of the finance (Tomoiaga, 2014).

In air transport sector, a variety of approaches are used to manage the debt of the company. High cost industries like aviation have large debt and small turnover. In the aviation industry some companies recorded negative equity. It means that funds are not derived from the shareholders rather the financial structure is based on the debt. After deregulations, airlines industries generally maintain a highly leverage regardless of economic cycles (Tomoiaga, 2014).

A study was conducted by Tomoiaga (2014) to study the effect of the capital structure on Airline value. A sample of 111 airlines was selected and grouped into nine classes to highlight the funding structure of the companies. The empirical results of the study

indicated that there are four main components, which provide the principal supraunitary components. The first main component is turnover which gives the information about company size and EBIT. It gives details about the profitability of the company (Tomoiaga, 2014).

The second main component indicated in the study is machinery equipment inventories and tangible assets. The third main component is interpreted in the form of capital expenditures to total assets representing class growth and the last fourth main component is interpreted in the form of financial needs. The results of the study indicated that Credit institutions support the investment in aircrafts. Airlines that choose to finance through equity are not rewarded for risking their capital (Tomoiaga, 2014).

Based on the capital structure theory, profitability is also a determinant of capital structure. Considering the trade-off theory, probability of financial distress is less if profitability is more. Therefore, the level of leverage in a firm is positively related to the level of profitability. By keeping this fact in mind, a study was conducted by Alahyari (2014) to evaluate the determinants of profitability in the Airline industry. The study was based on the Turkish Airline. The study stated some determinants of profitability named: company size, liquidity, tangibility of assets, leverage and company growth. In terms of company size, the size of the firm is significantly related to its rate of profitability. As the size of the firm grows it would be able to achieve economies of scale. From another point of view, as the company size increases the level of job security of the managers also increases and finally it results in deviation from the main objectives of the firm which ultimately maximizes the wealth of the shareholders. In term of company growth and profitability, a firm with high growth rate will have better expectations of future economic conditions

among its agents. This process results in a better performance and higher profitability (Alahyari, 2014).

Capital structure is referred to as the proportion of debt and equity in a firm. Giving leverage in the debt level could be either hurtful or helpful to the performance of an organization. In terms of helpfulness of debt, it enables the firm to increase the capacity and boost the performance. In hurtfulness terms, there would be a negative relationship between the level of leverage and profitability. When company employs more debt, it has lower capacity for profitable investment opportunities. This could result in a diminishing profitability (Alahyari, 2014).

The one determinant of profitability is liquidity. If there is higher level of liquidity in the firm the managers would exploit the resources for their personal benefit rather than allocating them in investment opportunities. Hence, greater level of liquidity is associated with decreased profitability. On the other hand, some researchers stated that firms with higher level of liquidity would be more profitable because they are likely to adopt with changing movements of the market. Companies with higher proportion of intangible assets have greater potential for innovation. So, there is a negative relationship between tangible assets and profitability of a firm. Companies with more tangible assets are inclined towards debt financing rather equity financing. So, as the tangibility of assets increase there would be higher potential for debt financing which adversely affects the profitability of a firm. The literature review of the study showed mix results (Alahyari, 2014).

The results of the study stated that growth opportunities, tangibility of assets and liquidity ratio have significant impacts on the profitability of the airline firms. Tangibility of assets and growth opportunities are negatively related to the profitability of the firms in the airline

industry. Liquidity ratio is another factor that shows negative and statistically significant relationship with the profitability of the airline firms (Alahyari, 2014).

2.9 Empirical Studies on Capital Structure Determinants

A managerial approach to the airline industry in terms of capital structure was presented by Capobianco and Fernandes (2004). To study the determinants that influenced the capital structure in the airline industry, the authors tested the hypothesis that stated that financial performance of the airline industry depends upon the reasonable level of leverage. The research was conducted on the biggest airline companies which make use of capital for generating return by keeping a low level of fixed assets. The capital of the shareholders of these types of companies represents at least 40% of all funds employed. It is possible to recognize the least and the most efficient companies by studying their indebtedness and their return on assets. As per the current scenario a large number of companies are taking steps to reduce their level of indebtedness and increase their returns over the course of time. The results of the study revealed that the performance of the companies fundamentally depends upon the management structure of the companies (Capobianco & Fernandes, 2004).

2.10 Hypotheses formulation

H1: There is a positive relationship between CVA and leverage

Economically a strong relationship between leverage and CVA is supported by both, the tradeoff theory and agency theory. According to the tradeoff theory, an increase in the CVA decreases the risk associated with default (Drobotz et al., 2013).

H2: There is a positive relationship between size and leverage

According to Mjos (2007), there is a positive correlation between the size and leverage. The relationship between size and leverage is also economically supported with the help of trade off theory. The tradeoff theory suggests that an increasing size of a firm will decrease the risk related to default. This will further induce the firms to increase the debt tax shields because of the low bankruptcy costs.(Drobotz et al., 2013).

H3: There is a positive relationship between profit and leverage

Profitability is recognized as one of the important determinants of the capital structure decisions. According to the tradeoff theory, high profitability reduces the financial distress probability or the bankruptcy costs. This induces the firms to increase the level of debt because of the tax-deductibility of interest payments. Hence, it can be said that there is a positive relationship between profitability and leverage. Agency theory also states that there is a positive relationship between size and profitability. According to the agency theory, high profitability increases the funds for investment (Frank & Goyal, 2007).

H4: There is a negative relationship between financial strength and leverage

A negative relationship has been found between leverage and risk. When a company has lower returns in comparison of the average returns, then the company is classified as riskier than the general company. In the long run, the companies with lower return will face problems in operating in the market.

H5: There is a positive relationship between growth and leverage

A positive relationship is found between growth and leverage, in the study conducted by Bei and Wijewardanab (2012). This indicates that the findings of the study are consistent with the hypothesis.

CHAPTER 3-RESEARCH METHODOLOGY

3.1 Sample Description

Sample can be defined as the subset of population that represents the whole population. There are two types of sampling technique, probability and non-probability sampling. In the probability sampling, everyone in the population has an equal chance of being selected in the population. In the non-probability sampling the population members do not have an equal chance of being selected in the sample. In this research, a purposive sampling is used so that certain criteria of a research can be met. For example, in this research, companies operating in the aviation industry have been selected. The selection of the companies has been done in such a way that capital structure can be understood effectively. The sample of this research includes following airlines - Southwest Airlines, British Airways, Emirates Airlines, Singapore Airlines, South African Airways, Oman airways, Turkish Airlines and Air New Zealand. These airlines have been selected because these are some of the best and leading airlines of the world. For example, Southwest Airline is a low cost carrier airline and Singapore Airline is the best airline known for its customer service. It will be interesting to determine the financial position and capital structure of these companies. The financial position of the airlines selected is also good and this will help in achieving the objectives of the research.

3.2 Data Sources

In order to collect data for this paper, the annual reports of the companies have been used. The financial information such as sales, EBIT etc. was found in the annual reports of the

companies. The annual reports of the company were found online or on the official websites of the company.

Further, data were also collected with the help of the past studies and journal articles. The past studies helped in determining the relationship between the variables that have been selected for this study. The websites listed above are few but there were a number of websites that have been used for collecting the data.

The information about the companies in this research report have been collected from a time period of year 2010-2015 as it was difficult to gather the information about the companies for all the years. This paper is about investigating that which of the chosen variable has a significant impact on the company leverage. A time span of ten years will provide an effective picture of economic fluctuations of the company that has been chosen. In this research, different airline companies have been included that have their annual reports online. The companies were selected such that the financial information of all the airlines was available. There are a number of airlines that were not included in this research such as the Qatar Airways because the information was not available online.

3.3 Descriptive Statistics

Panel data line plots were drawn for all the variables for different time periods & group variables.

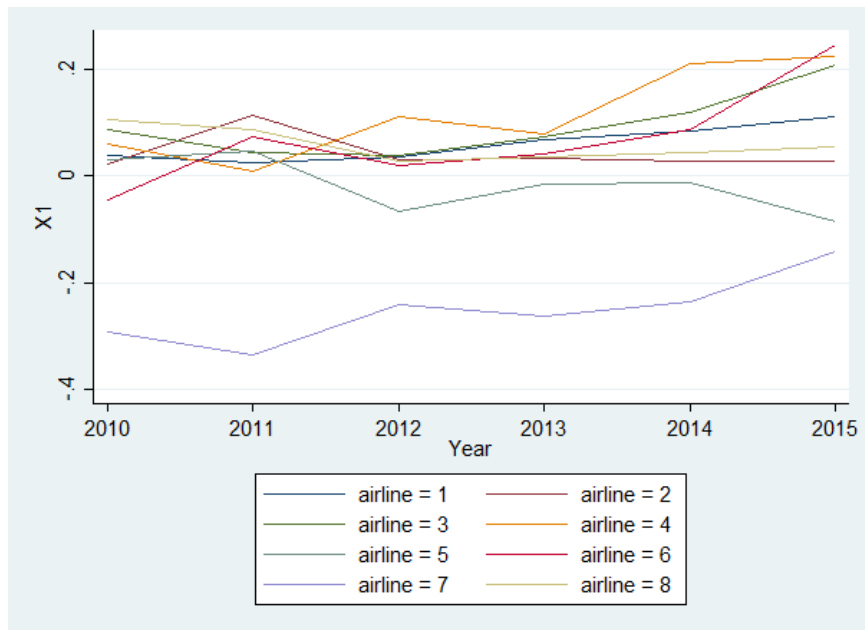


Figure 5: Panel-data Line Plot for Profit

The above Panel-data line plot displays how Profit (EBIT/Total Sales) varied through the various years for all the airlines.

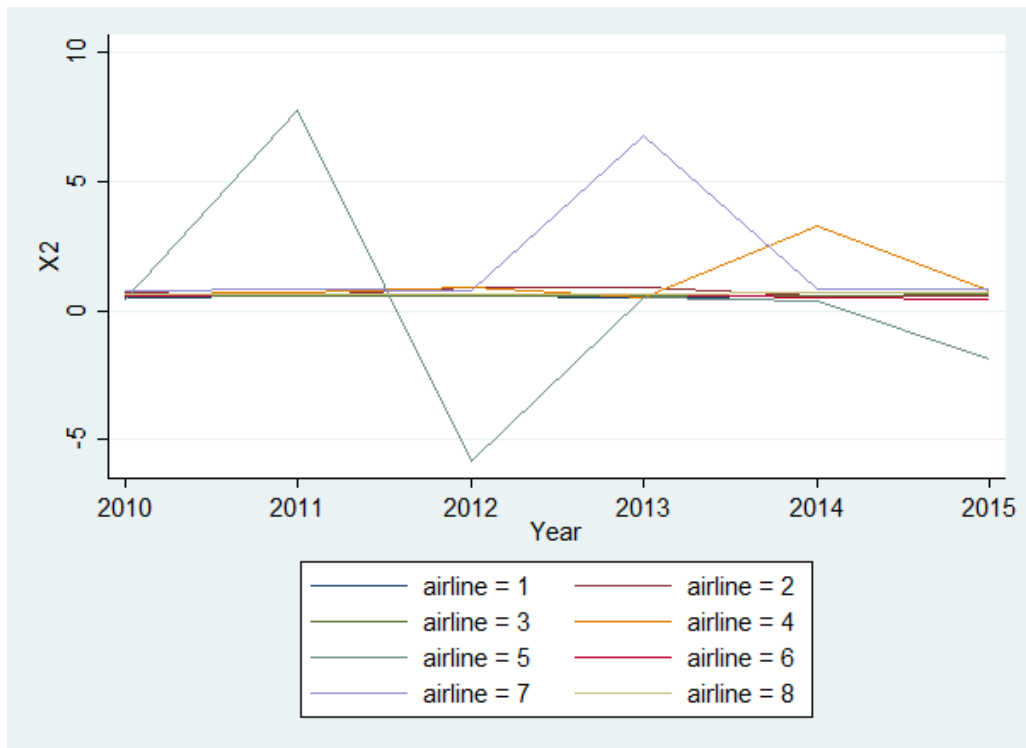


Figure 6: Panel-data Line Plot for Collateralize Value of Assets

The above Panel-data line plot displays how Collateralize Value of Assets (PPE/Total Sales) varied through the various years for all the airlines.

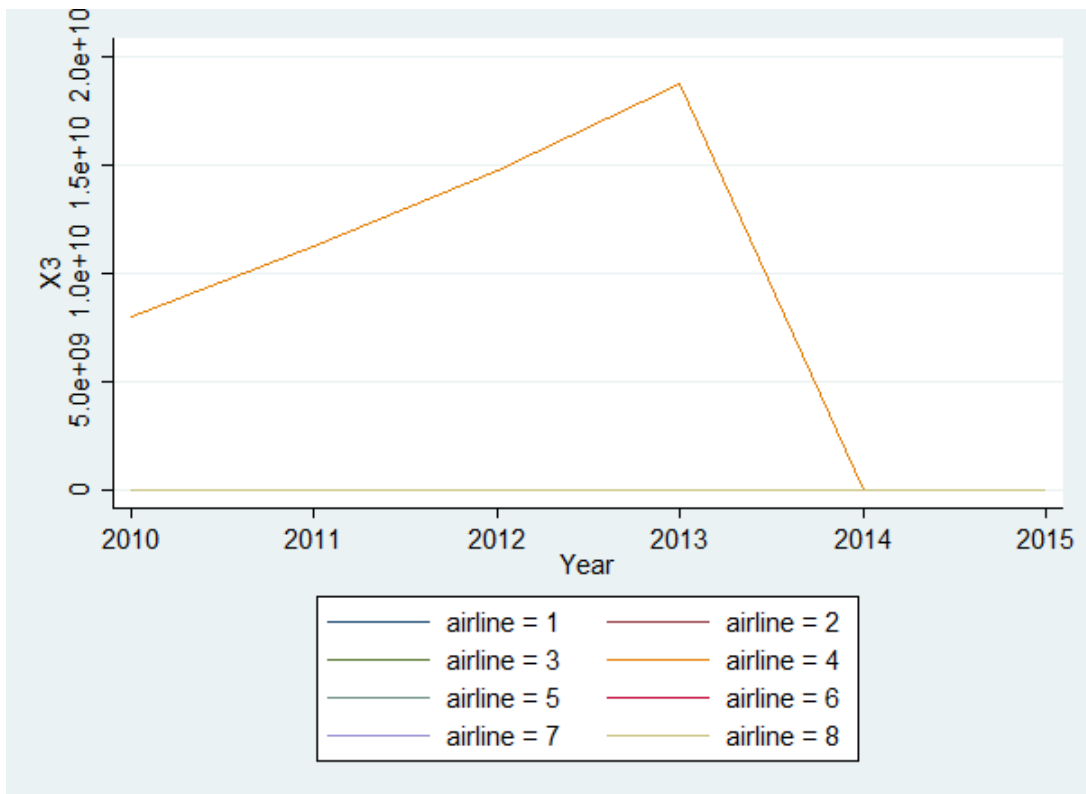


Figure 7: Panel-data Line Plot for Firm's Size

The above Panel-data line plot displays how Size (Total Sales) varied through the various years for all the airlines.

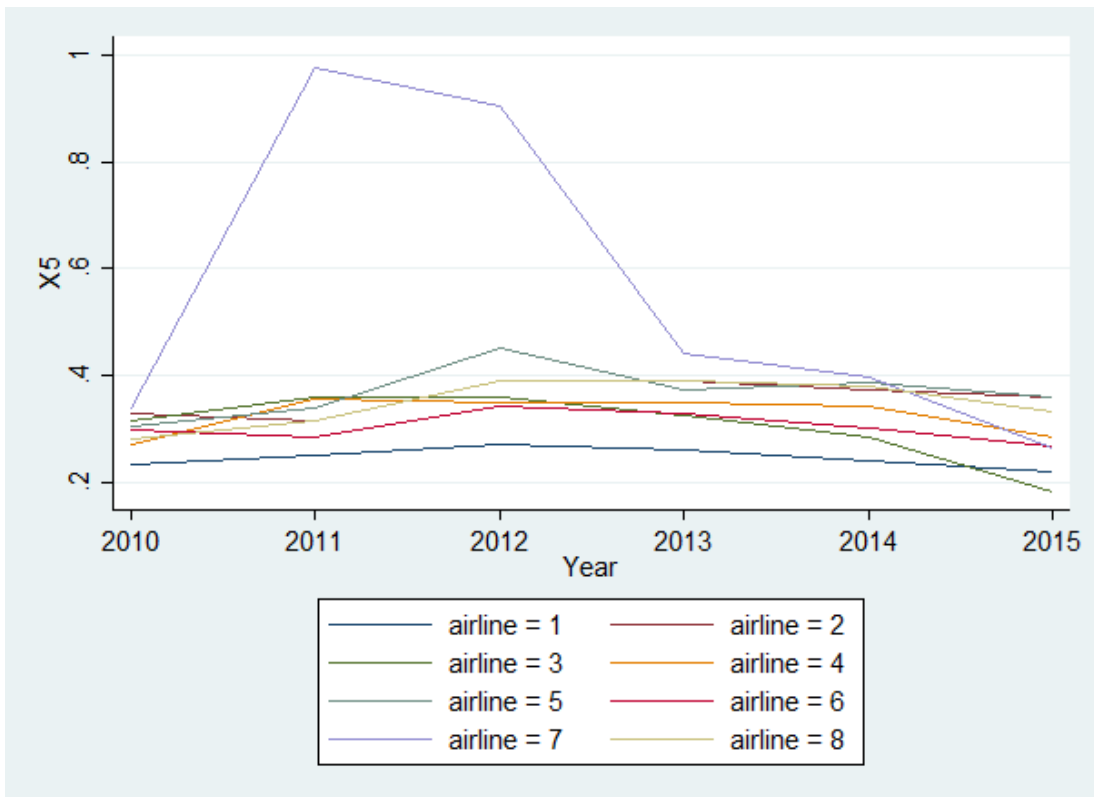


Figure 8: Panel-data Line Plot for Fuel

The above Panel-data line plot displays how Fuel (Jet Fuel/Total Sales) varied through the various years for all the airlines.

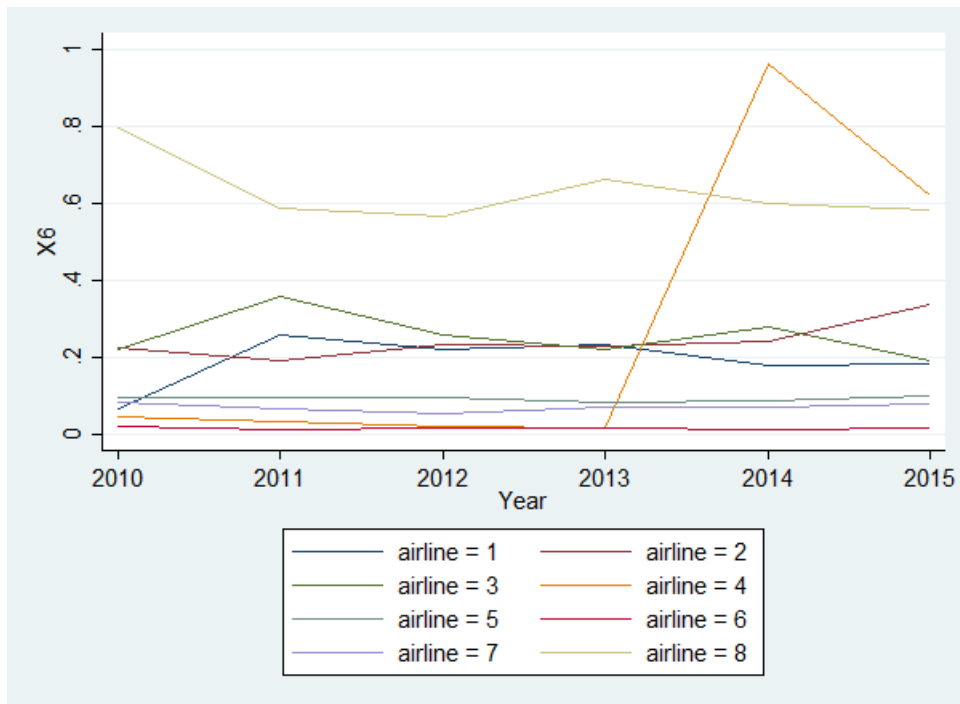


Figure 9: Panel-data Line Plot for Leasing

The above Panel-data line plot displays how Leasing (Operational Leasing Expense/Total Sales) varied through the various years for all the airlines.

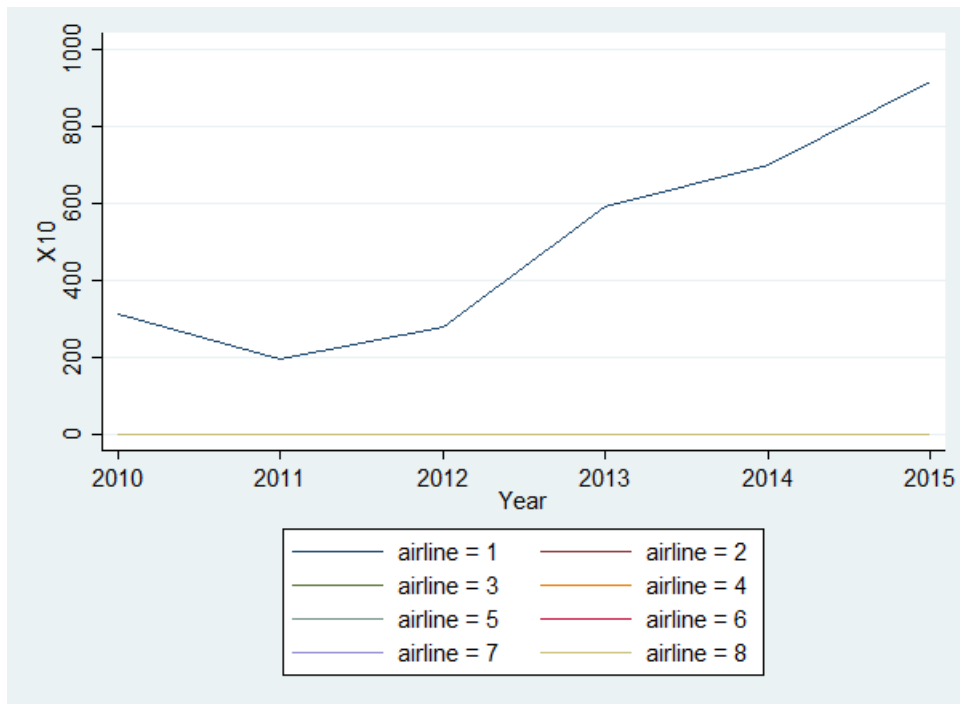


Figure 10: Panel-data Line Plot for Return of the airlines

The above Panel-data line plot displays variation in the return of the airlines varied over the years.

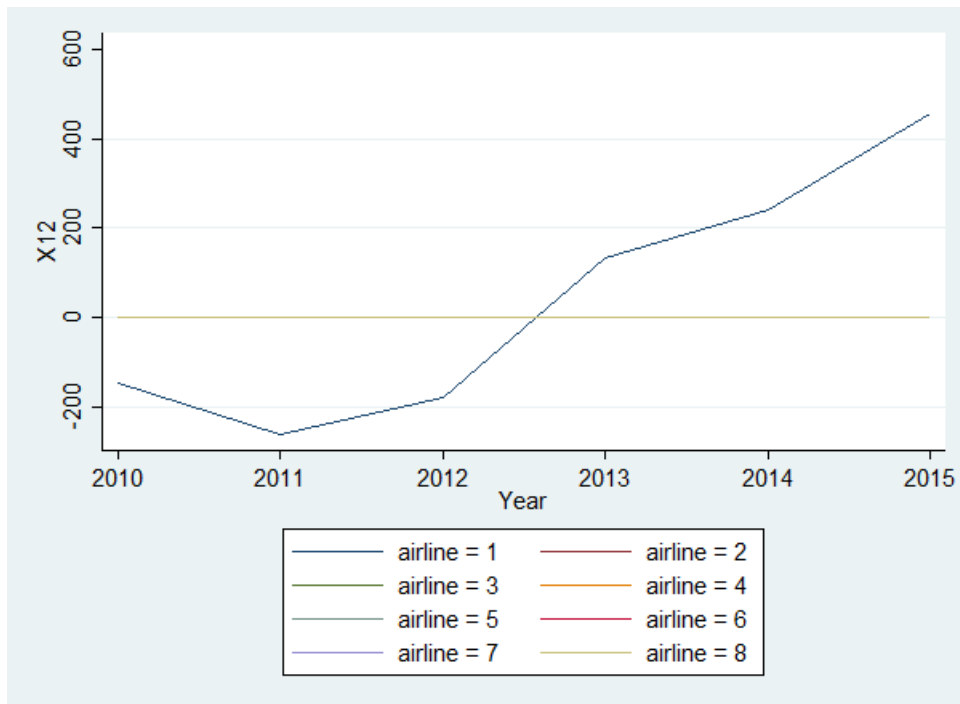


Figure 11: Panel-data Line Plot for difference between Average Return and Return of the airlines

The above Panel-data line plot displays the Difference of Average Return and Return of the airlines varied through the various years for all the airlines.

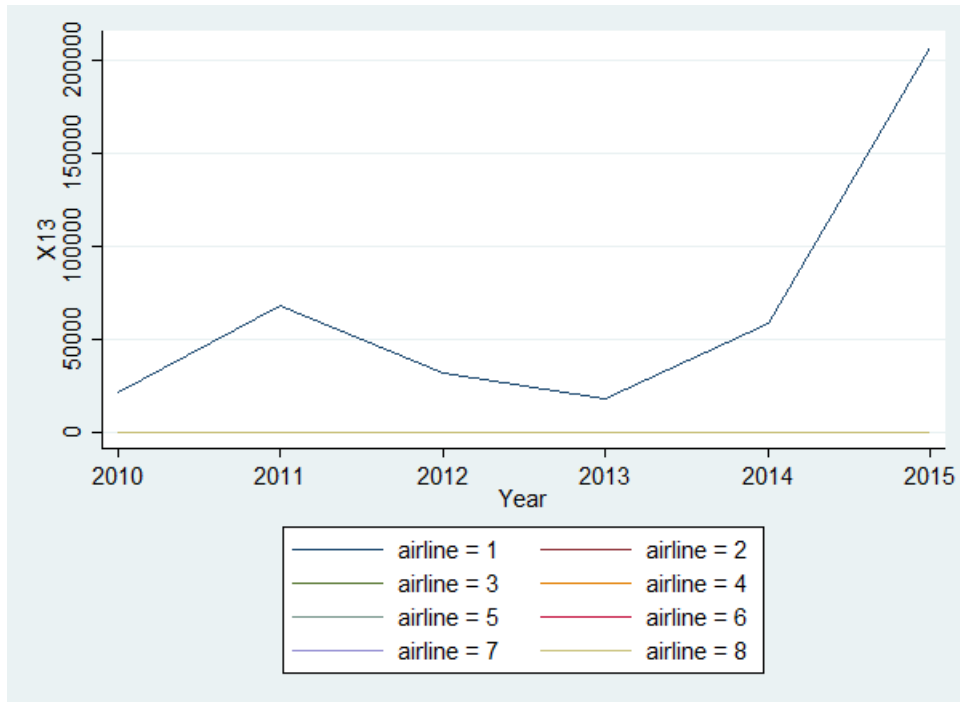


Figure 12: Panel-data Line Plot for Financial strength

The above Panel-data line plot displays the Financial Strength of the airlines varied through the various years for all the airlines.

3.4 Methodology

3.4.1 Panel Regression

In this research, panel regression analysis is used. In this analysis, the same units are measured in different periods. Hence, this helps the researchers to study the samples from two different dimensions - cross sectional dimension and time-series dimension. The major advantages of using panel data are that the sample size can be increased and the potential of the multi-collinearity problems can be reduced. Panel regression uses the panel data. Panel data can also be known as the cross-sectional time series data or the longitudinal data. It is a dataset in which the entities' behavior is observed over a time period. Panel data also

helps in controlling the variables that cannot be observed or monitored. (Torres-Reyna, 2007).

3.4.2 Empirical Model

In this research, a panel regression model is used. Panel data regression model is based on the panel data that are the observations on the same individual, cross sectional units over many time periods. The panel regression model is appropriate for this study as the study consists of cross sections and time series. The panel regression model is presented in the form of mathematical equation presented below:

$$y_{it} = \beta_0 + \beta_{EBIT/Total\ Sales} EBIT/Total\ Sales_{it} + \beta_{PPE/Total\ Assets} PPE/Total\ Assets_{it} + \beta_{Ln\ (Total\ Sales)} Ln\ (Total\ Sales)_{it} + \beta_{fuel} fuel_{it} + \beta_{Lease\ Leasing} Lease\ Leasing_{it} + \beta_{low\ cost} low\ cost_{it} + \beta_{rating} Rating_{it} + \beta_{ownership} Ownership_{it} + \beta_{average\ return} Average\ return_{it} + \beta_{financial\ strength} financial\ strength_{it} + \beta_{growth} Growth_{it}$$

where y_{it} denotes the leverage measure of firm i at time t ; β_0 denotes the intercept; $EBIT/Total\ Sales_{it}$ denotes financial strength of firm i at time t ; $PPE/Total\ Assets_{it}$ denotes collateralize value of assets (CVA) of firm i at time t ; $Ln\ (Total\ Sales)_{it}$ denotes logarithm of total sales of firm i at time t ; $fuel_{it}$ denotes the division of fuel cost by total sales of a firm i at time t ; $Leasing_{it}$ denotes the division of Operational Leasing Expense/Total Sales of a firm i at time t ; $low\ cost_{it}$ denotes whether or not firm i follows low cost strategy at time t ; $Rating_{it}$ denotes whether or not firm i was rated at time t ; $Ownership_{it}$ denotes ownership of firm i at time t ; $Average\ return_{it}$ denotes average return of firm i at time t ; $financial\ strength_{it}$ denotes financial strength of firm i at time t ; $Growth_{it}$ denotes growth of firm i at time t .

strength_{it} denotes financial strength of firm i at time t; β denotes the regression coefficients for each of these independent variables.

3.4.3 Definition of variables

3.4.3.1 Dependent variable

1. Book leverage

Companies depend on the mixture of equity and debt of the owners to finance their operations. A leverage ratio is one of the financial measurements that analyzes how capital comes in the form of debt and loans, this measurement helps in measuring the ability of the organizations to meet the financial obligations. Book leverage has been selected as a dependent variable as it will help in providing a large scope of the organization's financial capabilities.

This variable can be defined as:

$$\text{Interest Bearing Debt} / (\text{Interest bearing Debt} + \text{Book Value of Equity})$$

The long-term financial leases as well as the short-term financial leases are the interest bearings. Therefore they are included in the independent variables.

3.4.3.2 Independent variables

1. Profit

The variable can be defined as:

$$\text{EBIT}_t / \text{Total sales}_t$$

The variable of profit measures the overall profitability of the company. There are a number of methods in which profit can be calculated. In this study, variable has been defined as earnings before interests and taxes. The profit of company has been taken as one of the independent variables as it will help in determining the overall profitability of the organization that is an important part of the organization's capital structure.

Profit is the main outcome for which all businesses are done. Capital structure of the firm directly affects its profit earning capacity. Both of the term has direct relation, if capital structure is not in appropriate form, then it will affect the cost of the firm which in turn will impact the net earning capacity of the business.

2. Collateralize value of assets (CVA)

This variable can be defined as:

$$\text{PPE}_t / \text{Total Assets}_t$$

CVA measures the availability of assets of the company. This particular variable is motivated by the assumption that the composition of company's assets may have impact on the financial leverage (Ani & Amri, 2015). It is also important to highlight that this study uses the net value of property, plant and equipment in which the accumulated depreciation is subtracted from the value of acquisition.

The importance of this independent variable is that it helps in determining how the assets of the organization are being used. This further has an important impact on the overall financial leverage of the organization.

3. Size

This variable can be defined as:

$$\text{Size} = \text{Ln}(\text{Total Sales})$$

Size illustrates the magnitude of the operations of the company. The method of using Ln of sales while calculating size is used in other studies such as Titman & Wessels (1998) and Ranjan et.al (1995). Total sales have an important impact on the overall profitability and financials of the company therefore it is one of the important independent variable of the study. Size is positively related with the book leverage of the company.

Here, size of the firm influences the total sales or revenue of the company, means that it directly impact on the profitability of the business. It has also a direct relation with book leverage because book leverage depicts about the ratio of debt or equity in the capital of the firm while the required capital amount depends on the size of the firm.

Due to the impact of size of the firm on profitability and capital structure of the same firm, size is taken as an independent variable in this study.

In many empirical studies related to capital structure, size of firm is used as a predictor variable. According to Trade-off theory, company's size and leverage are positively related. This is because firm size acts as a proxy for earnings volatility. Large companies are more likely to have diversified earning and hence, show less volatility (Titman and Wessel, 1988). In addition, large companies generally have strong position in market, and so their chances of failure are less.

4. Growth

This variable can be defined as:

$$\text{Growth} = \{\text{Total Sales (t)/ Total Sales (t-1)}\}-1$$

The growth variable is measured by calculating the percentage change in the total sales of the company. Frydenberg (2004) also defined growth in the same way. Total sales have a positive correlation with the book leverage of the company. The changes in the sales of the

company are one of the important variables that shows positive or negative trend in the growth.

Growth represents increase in annual sale of the company. It has a positive impact on the profitability of the firm. Growth depends on various factors like business performance, demand, competency of the business, and so many more, but the appropriate capital structure plays a vital role in the growth of the firm indirectly. Therefore, growth has a relation with book leverage that helps to analyze the business performance and decides whether the capital structure is appropriate or not. Capital structure decides the sources of fund and provide adequate amount of capital to facilitate the production and ultimately, it facilitate sales of firm. Hence, growth is taken as one of the independent variables in this study.

5. Fuel

This variable can be defined as:

$$\text{Fuel}_t = \text{Jet Fuel} / \text{Total Sales}$$

The fuel variable is the proxy of energy intensity. The cost of jet fuel is found in the general income statement of the company or in the operational expenses of the company. One of the major pitfalls in this definition is that speculation might reduce the cost of jet fuel. One of the major costs of the organization includes the cost of fuel, the cost of fuel increases with the increasing sales of the organization. Therefore, this is one of the important variables that can have an impact on the book leverage.

Fuel is the major direct expense in the aviation industry that has an impact on total cost and profitability of the company. Cost, capital and profit, all these terms are correlated that have

impact on each other. In aviation industry, fuel is directly related with the sales of the company and affects the profitability of the company.

Capital is mostly used to cover the expenses of the company. Fuel is one of the main expenses or it can be treated as a raw material to produce the final services. Therefore, fuel is one of the independent variable in this industry.

6. Leasing

This variable can be defined as:

$$\text{Leasing} = \text{Operational Leasing Expense} / \text{Total Sales}$$

Leasing gives a picture of the leasing policies of the company. The focus is on the operational leasing cost because this is one of the ways in which a company can leverage without stating the same in accounted liabilities. This variable is important to be included in model as capital structure of airlines can be impacted by leasing.

Leasing states about the cost and cover major part of the capital expenditure. It affects the total sales and with the increasing expenses, it enhances the profit earning capacity of the business. Book leverage of a firm is depended on its expenditures and hence, it is taken as independent variable in this study.

7. Financial strength

This variable can be defined as:

$$(\text{Return} - \text{AvgReturn})^2 \text{ } (*(-1) \text{ if } (\text{Return} - \text{Avg Return}) < 0)$$

$$\text{Return} = \text{EBIT} / \text{Total Sales}$$

The variable is calculated by squaring the difference between company's return and average return for the studied time period.

Financial strength depicts about the expected business growth rate and profitability of the company. Strong financial strength influences the total sales and profitability of the firm and if it is in a weak form, then it will impact in a negative manner. It has a direct relation with book leverage of the company.

On the basis of the financial strength, capital structure will be decided. In a case of strong financial strength, the company will increase the equity and reduce the debt amount while in a case of weak financial strength the chances of debt oriented source increases. Therefore, financial strength is taken as an independent variable in this study.

8. Low cost

This variable can be defined as:

1 = Low Cost Strategy 0= No low cost strategy

The binary variable is added so as to get the qualitative information on difference in the capital structure of company with a low cost strategy. The information about the low cost strategy can be found in the annual report of the company.

It is important to include this variable as strategy followed by firm can have significant impact on capital structure. This is because low cost airlines are expected to have lower debt in comparison to airlines with full-service business model.

9. Rated

This variable can be defined as:

1= If the company is rated 0= No rating

This is binary variable. This variable is important to be included in model for collecting the qualitative information on the difference in the capital structure of the rated or non-rated companies.

Rating is recognized as firm's reputation in the market. High rating scale increases the chances of high business growth rate. Such qualitative information is always beneficial to generate heavy equity in the market. It also depicts good quality services otherwise rating scale will be low. High rated company is depended on equity rather than debt. It influences the decision -making related to capital structure of the firm. Therefore, it is treated as an independent variable in this study.

10. Private/ public

This variable can be defined as:

1= 50% owned by non-govt. 0= Private

This is a binary variable. This variable has been included to show whether or not there are differences in capital structure of private owned companies and the government owned companies.

Ownership of the company states whether the firm is private or public owned firm. There is direct relation between capital structure and ownership concentration of the firm. Mostly, publicly owned businesses are perceived to be robust, means lower probability of any financial distress and therefore, they get lower premium scale when they borrowed fund. Hence, there is a positive relation between ownership concentration and financial performance. It also states about the book leverage status of the company. As ownership has a direct impact on capital structure of the company, it is treated as an independent variable in this study.

This model is appropriate as it covers all important the determinants of capital structure that has been identified by previous researchers. The model has been formed on the basis of previous research (Bratlie & Jøtne, 2012) conducted on the similar topic.

CHAPTER 4 - Empirical Results

4.1 Introduction

The captured data from the balance sheets of all the 8 airlines was streamlined and processed through statistical analysis to generate the best fit models to determine the Book Leverage Values based on different independent variables.

In the data analysis, it was found that variables Growth, Low cost strategy factor (binary/categorical independent variable), Company rating factor (binary/categorical independent variable), company status (Private or public) (binary/categorical independent variable), Average Return and Difference of Average Return & Return could not be the part of Panel Regression Model or omitted because of collinearity. Some independent variables like: Low cost strategy factor (binary/categorical independent variable), Company rating factor (binary/categorical independent variable) and company status (Private or public) (binary/categorical independent variable) were constant throughout the period of 6 years taken into analysis.

4.2 Results

The data analysis was undertaken with the help of panel linear regression tool. The factors showing collinearity were not eliminated while performing panel linear regression. The book leverage value was considered as the dependent variable while the other variables were considered as independent variable while conducting data analysis. Fixed effect model was also while conducting panel regression.

Table 1: Regression Statistics

<i>Regression Statistics</i>	
R Square	0.4292
Adjusted R Square	0.2749
Standard Error	2.2213
Observations	48

Table 2: Outcome of the linear regression analysis using the dependent variable Interest-bearing Debt

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Model	10	137.279	13.728	2.78	0.0114
Residual	37	182.559	4.934		
Total	47	319.838			

The table above depicts the results obtained using linear regression analysis. The dependent variable of the study is interest bearing debt. The independent variables that were taken for data analysis have been listed below:

X1 (Profit): EBIT/ Total Sales

X2 (Collateralize value of assets): PPE/Total Assets

X3 (Size): Ln (Total Sales)

X4 (Growth): { Total Sales (t)/ Total Sales (t-1)}-1

X5 (Fuel): Jet Fuel/Total Sales

X6 (Leasing): Operational Leasing Expense/Total Sales

X8: Rating of the company

X9: Ownership in the company

X12: Return-Avg Return

X13 (Financial Strength): (Return-AvgReturn) ^2

The value obtained for R^2 was 0.4292 and for adjusted R^2 was 0.2749. These values reveal that independent variables explains 27.49% of the variations in the dependent variable. The analysis also shows that the model framed is significant ($p\text{-value} < 0.05$).

Table 3: Linear regression model to test whether non-linear combinations of the fitted values help explain the response variable

Ramsey RESET test using powers of the fitted values of Y	
Ho: model has no omitted variables	
F (3,4)	4.89
Prob> F	0.0062

The above table analysis shows that the researcher has done analysis keeping in mind the linear model of regression. This has been done for analyzing the non- linear combination of the fitted values which mainly illustrates the responsive variables. The value obtained for the P factor is less than the standard value of 0.05 which means that the hypothesis is rejected. The rejection of hypothesis calls for the conclusion that there is non- linear relationship in between dependent and independent variable.

Table 4: Outcome of the Multicollinearity Test

Variable	VIF	1/VIF
X1	3.75	0.266993
X9	2.45	0.407447
X12	2.43	0.411386
X8	2.07	0.482295
X6	2.07	0.484112
X13	1.91	0.522792
X5	1.88	0.533058
X3	1.78	0.560348

X4	1.25	0.799569
X2	1.18	0.846956
Mean VIF	2.08	

The table above shows the results obtained from the multicollinearity test. The test of multicollinearity is nothing but a phenomena wherein the predictor variables taken in the model of regression seems to be linearly predicted from other type of variables, along with the substantial degrees of accuracy. In such situations, the coefficient of the variables mainly changes drastically, in respect of the small amount of changes in the model or the information collected. The multicollinearity analysis does not affect the predictive powers or the reliability element in a negative way, at least not in the sample set. They only reveal the analysis in respect of individual predictors.

The model of regression with the collinear predictors mainly shows how well the bundle of the predictors reveal the outcome variables, but it does not offer valid results in respect of the individual predictors or also regarding the predictors that are redundant in respect of the few other variable set. The multicollinearity test shows the situation in which the independent variables in the regression models seem to be closely correlated with one another. The Multicollinearity test also leads toward skewed results, in situations when the researcher attempts for knowing how well every number of the individual variable can be used effectively for predicting or understanding the dependent variables in the statistical models. In fact the tests can also lead to the wide intervals of confidence and less reliable values of probability (p – values for the independent variables).

Many of the statistical analyst uses this model of regression for the purpose of predicting the values of the dependent variables based on the values of the two or more independent variables. The dependent variables are sometimes considered as the results and target the criteria variable. The Multicollinearity test in the multiple regression models reveals the collinear independent variables that are related with one another in some type of fashion.

Though the relationship could be or could not be significant in nature

As shown above in the table X1, X2, X3, X4, X5, X6, X8, X9, X12 & X13 have the VIF values which are less than 5. These low values reveal that the variables are not highly linearly related. This indicates that precision of prediction of independent variable's impact on dependent variable while controlling for the others will be high.

Table 5: Hausmann Specification Test

Y	Fixed Effect Model	Random Effect Model
X1	-1.56752	8.038742
X2	0.181829	0.204714
X3	5.25E-11	2.37E-10
X4	0.574657	1.53325
X5	0.063916	3.395369
X6	0.885245	4.735477
X13	48.36489	46.87806
Chi	1.45	
P-value	0.9630	

The above table depicts the result obtained using Hausmann specifications test. This test has been utilized for the purpose of assessing the appropriate model for the given set of data with the result of having null hypothesis of difference in the coefficient values as non-significant

The test of Hausmann specification can also be used for the purpose of analyzing the results of the hypothesis in respect of the biasness or understanding the inconsistency of the estimators. This type of test mainly helps in evaluating the consistency level of the estimator when compared with the other alternatives that are less efficient estimators and are considered as consistent. The process helps in analyzing whether the statistical model corresponds well with the data or not. The P factor value of the test has gained as 0.96 which is more than the standard value of 0.05, which clearly shows that there is no significant difference in the coefficient. For testing the goodness of fit of the model, a Shapiro Wilk test was used on the residuals. The value of the P factor obtained through this analysis was more than 0.05 which led to rejection of null hypothesis.

Table 6: GLS regression method

Y	Coeff.	Std. Err.	P-value
X1	-20.8321	4.137719	0
X2	-0.08824	0.21339	0.679
X3	1.41E-10	7.50E-11	0.06
X4	-0.16257	0.874954	0.853
X5	-1.80925	2.690592	0.501
X6	3.012148	1.673653	0.072
X8	-0.43681	0.951242	0.646
X9	-1.38657	0.735523	0.059
X12	18.82194	8.260913	0.023
X13	-18.85939	99.00192	0.849
Wald chi2 (9)	58.60		
Prob>chi2	0.0000		

In this research process, the GLS regression model has been utilized for determining the fitness. The table above reflects the results obtained from the GLS regression test with the

help of the Homoskedastic panel and every group is assumed to be having some sort of errors that were following the same process of AR. The process determined that the autocorrelation parameter is almost the same for all sorts of group.

The test undertook around 10 coefficients and 48 observations which were related with around 8 different groups i.e. Airlines.

The value of the P factor obtained through analysis was 0.00, which shows that the model is significant. On the 90 percent confidence interval the coefficient for the variables EBIT/ Total Sales (X1), Ln (Total Sales) (X3), Operational Leasing Expense/Total Sales (X6), Ownership in the company (Categorical) (X9), and Return-Avg Return (X12) were found to be significant as their p factor values were found to be less than 0.1.

It can be observed from the table that the interest bearing debt of the airlines could result with the higher factors on the increment towards EBIT/Total Sales ratio of the Airline.

We need to observe that the interest bearing debt factor will enhance with the increment in the Ln (Total Sales), Operational Leasing Expense/Total Sales and (Return-Avg. Return) and will reduce with the increment in the factor of PPE/Total Assets, $\{ \text{Total Sales (t)} / \text{Total Sales (t-1)} \}^{-1}$, Jet Fuel/Total Sales, $(\text{Return-Avg Return})^2$.

The static coefficients of the model are found to be significant in nature. The interest bearing debt factor will have the highest level of increase with each positive change in the predictor variable $(\text{Return-Avg Return})^2$.

4.4 Discussion on Results

On the basis of the data availability, 13 potential determinants of the capital structure were analyzed in the paper –operational leasing expenses per total sales of the airline, fuel per total sales, difference of average return & return of the airline, financial strength of the airline, etc.

Several interesting findings were derived from comparison of the values of the proxy variables for the above-mentioned determinants of the leverage. The Hausmann specification test was used for comparing the 2SLS with the 3SLS. The test evaluated the consistency of the estimator in comparison to the alternative, less efficient estimator that is already known to be consistent. The test helped in evaluating if the statistical model corresponds to the data. The p-value of the test was 0.9630 which was more than 0.1 hence, it was not significant. It revealed that the outcomes of the test do not show significant differences in the coefficients and, Random Effect model should be used for the given data. While conducting the regression analysis, we got adjusted R- squared value book model less than the market model. This reveals that market model has better predictive value. The significant signs of the regression correspond well to the previous studies and we did observe airline industry difference.

We found negative relationship between the fuel variable and the capital structure. This implies that the company with high energy intensive consumption has more operational risk because of the volatile prices of the energy. While testing the collinearity in the explanatory variables, we were able to determine the evidences of the positive serial correlation. As mentioned in the study by Bratlie & Jøtne (2012), there may be issues with the

autocorrelation while conducting such kind of analysis. As a result of the same, regression model was opted for the study. The Multicollinearity test in the multiple regression models revealed that the collinear independent variable is somewhat related in some fashion. The test revealed that for all the variables X1, X2, X3, X4, X5, X6, X8, X9, X12 & X13 the VIF are less than 5. The findings revealed that the explanatory variables are not highly linearly related because the VIF is less than 5. The resultant figures show that the impact will be precise on the dependent variable.

As there was autocorrelation in the panel data, GLS regression method was used to best fit the model. The resultant table shows the outcome of the GLS regression test with the homoskedastic panel. The results of the test show that the p-value of 0.00 makes the model significant. The predictor variables X1, X3, X6, X9, and X12 have a significant influence on dependent variables as the p-value for their coefficients is less than 0.1. According to the empirical analyses, profit of the organization positively impacts the capital structure. The results were supported by the study of Tomoiaga (2014), who identified that the profit impacts the capital structure. The results also facilitate carriers to transfer some risk to the operating lessors.

The outcome of the panel regression performed in the data analysis also reveals that the model is best fit for the organization as profit, Ln (Total Sales), (operational leasing expense /total sales), Ownership in the company (Categorical) and financial strength variable have a positive impact on the capital structure of the organization. The analysis also shows some relationships in between the Collateralize value of the assets and book value of the eight airlines. Significant relationship was identified in between the size of the airline and the Book leverage value of the airlines while these results are supported by the

theories and previous studies. The positive relationship between the profit, Ln (Total Sales), (operational leasing expense /total sales), Ownership in the company (Categorical), financial strength variable and capital structure reveals that the factors are going to enhance the capital structure and market value. The values of the panel regression analysis clearly show that the model used in the study is fit to propose the most influential determinants of the capital structures for the airline companies.

CHAPTER 5 – CONCLUSION AND RECOMMENDATIONS

The study is based on the determinants of capital structure and how they influence the overall performance of the organizations in the aviation sector. The previous chapter was related to data collection and analysis. On the basis of the results of the previous chapter, this chapter is focusing on the conclusion and recommendations. In the conclusion section, the results of the study are compared with the results of the previous studies discussed in the literature review. The strengths and weakness of the study are also discussed in the discussion section. Recommendation section covers the suggestion for Airline industries about which determinant of capital structure is most influential for the good performance of the organizations in long run. Finally, the conclusion section summarized the overall study results and significant of the study. The recommendation section of the study suggested some solutions for the future researchers so that they can avoid the situation of unfitness of the model prepared by them to conduct the study. The recommendation section would also give suggestions to the airline industries about their selection for capital structure determinants.

5.2 Conclusion

The study has tried identifying the determinants of capital structure in the selected eight airline industries with the aim to help the airline industries in selecting the best capital structure and improve the profitability in long run. To conduct the study and collect the data for the stated airlines a total of five-year data is collected for all the variables of the study. Moreover, the performance of eight Airlines companies was compared with each other over the period of 2010 to 2015. The results of the study showed some variables like Profit

(EBIT/Total Sales), Value of Assets (PPE/Total Sales), Fuel (Jet Fuel/Total Sales), Leasing (Operational Leasing Expense/Total Sales), Return of the airlines, Difference of Average Return and Return, Financial Strength of the airlines. All variables showed varied results over the years for all the eight airlines. It means that none of the above factors are either positive or negative for all the airlines. The results for these variables in the analysis are mixed which is why they are not helpful to conclude the results about the factors that can positively influence the profitability of the airline companies.

As per the study conducted by Tomoiaga (2014), it has been found that profit impacts the capital structure. It also facilitates carriers to transfer some risk to the operating lesser. By comparing the results of the previous studies and the results of a current study it can be concluded that the results of the study in terms of profit agree with the previous studies.

As per the results of the panel regression analysis performed in the study of the model used in the study to identify the determinant of capital structure seems fit because it showed a significant impact of the profit and financial strength variable on the dependent variable ρ . However, as per the trade-off theory discussed in the literature review, the business organizations which are more profitable have greater book leverage as they have higher income which is required to shield from taxes. The literature, in the literature review part, reveals varied theories that supported the fact that profit positively impacts the book leverage value while other theories supported the fact that profit negatively impacts the book leverage value so the results of the study were significant and not supported by the previous studies and theories.

The results of the study did not show any relationship between the Collateralize Value of Assets and Book Leverage value of the eight airlines. In the same way on the basis of the

results and analysis, it can be concluded that there is a significant relationship between the size of the airline and the Book leverage value of the airlines while these results are supported by the theories and previous studies. The trade-off theory does not support the negative relationship between the size of the organization and profitability of the company due to diversified approach. However, the positive relationship between leverage and size of the organization is supported by the tradeoff theory. Apart from all these variables, the results of the study were significant for the other variable profit, Ln (Total Sales), (operational leasing expense /total sales), ownership in the company (Categorical) and financial strength variable, whereas it was insignificant for Fuel per Total Sales, Difference of Average Return and Return of the Airline, etc. On the basis of the analysis of the results of the panel regression analysis, it can be finally concluded that the model used for the study was appropriate and did fit to propose the most influential determinants of capital structure for the airline companies.

The panel regression pointed out a positive relationship with the profit, Ln (Total Sales), (operational leasing expense /total sales), Ownership in the company (Categorical) and financial strength variable. It pointed our positive relationship with the company values that are measured by market capitalization. On the basis of the analysis of the sample taken, aviation mainly shows that both the factors, as the company's turnover will enhance it and it will also enhance the capital structure and market value. Similar is the case for other factors. The model also revealed that as the confidence interval was kept at 90 percent it was revealed that only X1, X3, X6, X9, and X12 are significant, rest other variables were insignificant. X1, X3, X6, X9, and X12 were significant because their p- values for them were less than 0.1. It was determined that the Interest-Bearing Debt for the Airlines have

opposite relationship with the EBIT/Total Sales ratio of the Airline. If Interest Bearing Debt will decrease, EBIT/Total Sales ratio of the Airline will increase. It was also observed that the factor was most significant with $(\text{Return}-\text{AvgReturn})^2$ and was least significant with EBIT/Total Sales ratio of the Airline.

The total reliable results of the study pointed out to the phenomena that the design approaches used in the study are effective behind the fitness of the model prepared for the study. On the basis of the above discussion, it can be stated that the project has been able to contribute to the knowledge in the field of highly influential determinants of capital structure. The results and the proposed model successfully achieved the aims and objectives of the study. The most important concluding remarks of the study are as follows:

The signs of significance of the panel regression does corresponds well with the results of the prior studies and there were no specific differences seen in the results of the study undertaken under airline industry in this research. Few of the model used in this research study are able to demonstrate all the results that it fit with the previous studies also. The theory of trade off explained the signs of coefficients while the other theory of pecking order explained five to seven variables, that also in context of the previous studies

Here in this study in terms of limitations and constraints of the study, there are some limitations in the study that limits the results for the airlines. First of all, the data collected for all airlines for all the variables of the defined model of the study was for a small time period which is not much sufficient to predict the significance of the variables of the model for achieving the aims and objectives. Previous studies conducted on the same topic collected 15-20 years' data for all the variables of the model in the study. The longer study time-period would have improved accuracy of results, but enough data was not available

covering a longer period. The results of the previous studies were significant because they have collected minimum 15 years of data for the selected organization. Here the study lacked in collecting of 15 years' data that's why the results of the study might be insignificant.

Any research seems to be incomplete if it has not faced any type of obstacle in its way. Therefore, it can be concluded that each and every research process possesses some sort of limitations and constraints. Some of the limitations of the research process which the researcher faced have been discussed below:

- There is a probability of inaccuracy in result as data related to only 8 airlines were collected. Small data size increases probability of inaccuracy.
- The time period selected for data collection was small. So there are chances that model framed is influenced by some major events that took place during that time period.

Overall, it can be concluded that the research process was able to accomplish the objectives laid down at start of research.

5.3 Recommendation

The study recommended the following suggestions to the study:

- Many of the selected airline companies strongly depend on the retained earnings for financing the needs. It is suggested that, while utilizing the internal funds for the investment due consideration should be offered to tax burdens. Thus, for getting the

benefits of the flexible capital structure, the companies should redesign the proper mix of the profit and financial strength.

- In examining the determinants of the capital structure. The research study determined lack of association in between the leverage and the capitals structure. In other words, this shows that firms are taking decisions without any strategic focus. Hence, it is mainly recommended that the financial managers of eth companies need to focus on the issues like the changes in the tangible assets and tax advantages which taking decisions of financial leverage.
- It is suggested that as profit impacts the capital structure of the company positively, so the profit factor can be improved by improving the operational efficiencies by enhancing the airline services. In the era of tech-savvy and global competition quality products can survive in the market. For offering world-class quality, it is suggested that the existing technology need to be changed for modern technology to meeting the huge demand in the world market.

Some of the further recommendation for the future researchers so that they will not face the same situation which has been faced in this study due to some constraints and limitations:

- The future researchers must design their model by studying the current status of the companies selected for the data collection. The future researcher should consider including more variables or determinants of capital structure. It is recommended to the future researchers that before selecting the determinants of the capital structure, one should first thoroughly review the policies and regulations of the company and its associated subsidiaries.

- The current study lacked in getting the significant results due to data collection for less number of years. It is suggested to the future researchers that if they are analyzing the most effective or influential determinants of the capital structure that affect the Book leverage and profitability of the organizations, they must collect the data for the variables for at least 15 to 20 years. Data collected for more than 15 to 20 years or using the data over a longer time period would have led to more accurate results of the study.

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Appendix

Table 7: Data Collected

Airline	Year	Y	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X12	X13
1	2010	0.40704	0.03732	0.4851	4046	-0.1222	0.23208	0.065	1	1	1	0.03732	-0.0179	0.00032
1	2011	0.09561	0.02511	0.55365	4341	0.07291	0.24971	0.25985	1	1	1	0.02511	-0.0301	0.00091
1	2012	0.09182	0.03524	0.5664	4483	0.03271	0.27192	0.22039	1	1	1	0.03524	-0.02	0.0004
1	2013	0.08756	0.06713	0.52299	4618	0.03011	0.26072	0.23322	1	1	1	0.06713	0.01191	0.00014
1	2014	0.48072	0.08448	0.56051	4652	0.00736	0.24076	0.181	1	1	1	0.08448	0.02927	0.00086
1	2015	0.54164	0.11127	0.59941	4925	0.05868	0.22112	0.18213	1	1	1	0.11127	0.05605	0.00314
2	2010	0.09941	0.02247	0.66997	12707.3	-0.2056	0.33009	0.22362	1	1	1	0.02247	-0.0223	0.0005
2	2011	0.07115	0.11159	0.56541	14524.8	0.14303	0.315	0.19001	1	1	1	0.11159	0.06678	0.00446
2	2012	0.08344	0.03053	0.90189	14857.8	0.02293	0.3906	0.23265	1	1	1	0.03053	-0.0143	0.0002
2	2013	0.07738	0.03324	0.87738	15098.2	0.01618	0.39074	0.22998	1	1	1	0.03324	-0.0116	0.00013
2	2014	0.0729	0.02665	0.57532	15243.9	0.00965	0.37406	0.24207	1	1	1	0.02665	-0.0182	0.00033
2	2015	0.13957	0.02624	0.56532	15565.5	0.0211	0.35847	0.3385	1	1	1	0.02624	-0.0186	0.00035
3	2010	0.54642	0.086	0.53581	11489	0.11005	0.31508	0.22134	1	1	0	0.086	-0.0033	1.1E-05
3	2011	0.54922	0.04426	0.54107	15658	0.36287	0.36045	0.35656	1	1	0	0.04426	-0.0451	0.00203

3	2012	0.45 409	0.03 646	0.55 935	1708 8	0.09 133	0.35 815	0.25 708	1	1	0	0.03 646	- 0.05 29	0.0027 9
3	2013	0.29 866	0.07 221	0.56 254	1769 9	0.03 576	0.32 561	0.21 979	1	1	0	0.07 221	- 0.01 71	0.0002 9
3	2014	0.35 926	0.11 959	0.58 088	1860 5	0.05 119	0.28 449	0.27 708	1	1	0	0.11 959	0.03 027	0.0009 2
3	2015	0.34 534	0.20 767	0.61 576	1982 0	0.06 531	0.18 244	0.19 268	1	1	0	0.20 767	0.11 835	0.0140 1
4	2010	1.11 493	0.06 017	0.60 974	8E+ 09		0.26 974	0.04 585	1	1	0	0.06 017	- 0.03 6	0.0013
4	2011	1.75 884	0.00 901	0.67 951	1.1E +10	0.40 07	0.35 493	0.03 532	1	1	0	0.00 901	- 0.08 72	0.0076
4	2012	1.60 925	0.11 069	0.91 901	1.5E +10	0.31 505	0.34 959	0.02 119	1	1	0	0.11 069	0.01 45	0.0002 1
4	2013	1.66 41	0.07 886	0.50 203	1.9E +10	0.27 196	0.35 012	0.01 508	1	1	0	0.07 886	- 0.01 73	0.0003
4	2014	1.78 506	0.20 835	3.28 83	3.95	-1	0.34 381	0.96 354	1	1	0	0.20 835	0.11 217	0.0125 8
4	2015	1.70 777	0.22 222	0.75 78	4.84 2	0.22 582	0.28 483	0.61 896	1	1	0	0.22 222	0.12 603	0.0158 8
5	2010	- 10.3 86	0.02 875	0.43 997	1694 1		0.30 388	0.09 58	1	1	1	0.02 875	0.04 807	0.0023 1
5	2011	4.37 474	0.04 471	7.77 488	1798 3	0.06 151	0.33 843	0.09 376	1	1	1	0.04 471	0.06 404	0.0041
5	2012	4.00 903	- 0.06 79	- 5.82 43	1845 0	0.02 597	0.44 997	0.09 74	1	1	1	- 0.06 79	- 0.04 85	0.0023 6
5	2013	- 0.40 36	- 0.01 66	0.49 698	2556 6	0.38 569	0.37 468	0.08 202	1	1	1	- 0.01 66	0.00 27	7.3E- 06
5	2014	- 1.23 94	- 0.01 3	0.39 589	2870 2	0.12 266	0.38 701	0.08 877	1	1	1	- 0.01 3	0.00 63	4E-05
5	2015	- 0.90 04	- 0.08 56	- 1.89 39	2851 3	- 0.00 66	0.35 833	0.09 96	1	1	1	- 0.08 56	- 0.06 63	0.0043 9
6	2010	0.61 99	- 0.04	0.53 751	7994	- 0.11	0.29 672	0.02 077	1	0	0	- 0.04	- 0.11	0.0135 8

			68			1						68	65	
6	2011	0.54 691	0.07 355	0.62 896	1142 1	0.42 87	0.28 421	0.01 357	1	0	0	0.07 355	0.00 382	1.5E- 05
6	2012	0.53 91	0.01 977	0.62 338	1082 7	- 0.05 2	0.34 285	0.01 533	1	0	0	0.01 977	- 0.05	0.0025
6	2013	0.58 446	0.04 168	0.62 805	1142 1	0.05 486	0.32 878	0.01 637	1	0	0	0.04 168	- 0.02 81	0.0007 9
6	2014	0.66 243	0.08 533	0.49 501	1171 9	0.02 609	0.29 994	0.01 382	1	0	0	0.08 533	0.01 56	0.0002 4
6	2015	0.45 131	0.24 486	0.44 309	1133 3	- 0.03 29	0.26 745	0.01 668	1	0	0	0.24 486	0.17 513	0.0306 7
7	2010	1.75 928	- 0.29 25	0.75 416	2304 18	0.40 281	0.33 814	0.08 442	0	1	1	- 0.29 25	- 0.03 7	0.0013 7
7	2011	4.18 173	- 0.33 59	0.82 236	2875 41	0.24 791	0.97 535	0.06 761	0	1	1	- 0.33 59	- 0.08 04	0.0064 7
7	2012	4.94 204	- 0.24 28	0.77 38	3470 42	0.20 693	0.90 456	0.05 614	0	1	1	- 0.24 28	0.01 277	0.0001 6
7	2013	7.42 894	- 0.26 39	6.77 316	3817 09	0.09 989	0.44 135	0.07 172	0	1	1	- 0.26 39	- 0.00 83	6.9E- 05
7	2014	5.37 7	- 0.23 6	0.80 594	4084 00	0.06 992	0.39 577	0.07 123	0	1	1	- 0.23 6	0.01 954	0.0003 8
7	2015	8.57 97	- 0.14 26	0.85 94	4659 71	0.14 097	0.26 35	0.07 721	0	1	1	- 0.14 26	0.11 293	0.0127 5
8	2010	0.52 872	0.10 439	0.60 765	4247 7	0.00 042	0.28 034	0.79 502	0	1	1	0.10 439	0.04 597	0.0021 1
8	2011	0.52 638	0.08 628	0.61 22	5309 8	0.25 004	0.31 677	0.58 902	0	1	1	0.08 628	0.02 786	0.0007 8
8	2012	0.58 992	0.02 72	0.63 822	6150 8	1.14 855	0.39	0.56 534	0	1	1	0.02 72	- 0.03 12	0.0009 7
8	2013	0.63 762	0.03 474	0.60 166	7115 9	1.17 381	0.39 145	0.66 101	0	1	1	0.03 474	- 0.02 37	0.0005 6
8	2014	0.62 396	0.04 292	0.71 397	8071 7	1.13 025	0.38 016	0.59 797	0	1	1	0.04 292	- 0.01	0.0002 4

													55	
8	20 15	0.62 925	0.05 501	0.72 326	8672 8	1.07 482	0.33 08	0.58 198	0	1	1	0.05 501	- 0.00 34	1.2E- 05

X1	EBIT/ Total Sales profit
X2	PPE/Total Assets
X3	Ln (Total Sales)
X4	{Total Sales _(t) / Total Sales _{(t-1)}} -1
X5	Jet Fuel/Total Sales
X6	Operational Leasing Expense/Total Sales
X7	Low Cost Strategy (Categorical)
X8	Rating of the company (Categorical)
X9	Ownership in the company (Categorical)
X10	EBIT/Total Sales
X11	Average of Five Years Return
X12	Return-Avg Return
X13	(Return-AvgReturn) ^2